

## Introduction

After its establishment in 1983 and until the present day, Holtek Semiconductor has released an unceasing stream of competitive semiconductor devices onto the global market. While continuing to concentrate its design efforts in the 8-bit and 32-bit microcontroller development area, the extensive and increasing range of peripheral semiconductor products should also not be ignored. At the foundation of these successful product developments exists many years of semiconductor design experience accumulated by the company's professional engineering design teams. The results of these extensive efforts have led to Holtek customers being provided with a huge range of high quality industrial grade semiconductor devices. Among Holtek's many customers are included a wide array of popular global brand consumer appliances and industrial products, which shows the global confidence in the company's devices. With this background, Holtek remains fully committed to a continuous expansion of its high quality and superior price-performance semiconductor devices well into the future.

## Product Device Range

Holtek's product development focus will remain firmly in the microcontroller area for both 8-bit and Arm® core based 32-bit microcontrollers. These highly functionally integrated microcontrollers includes digital and analog features such as A/D converters, comparators, LCD drivers, PWM generators, high current LED drivers, touch switches, SPI, I<sup>2</sup>C, UART and USB interfaces, voice functions, RF functions etc. All of the company's 32-bit and 8-bit microcontroller devices meet with full industry specifications in having a wide voltage and temperature operating range. In addition to its microcontrollers there exists a wide range of peripheral devices such as stand-alone touch switch ICs, LCD drivers, power management devices, video processors, sensors etc. The company will also be expanding its range of functional modules such as PIR modules, infrared modules, temperature/humidity modules etc, further increasing the Holtek product diversity and opening up applications into a wider market area.

## Product Development Strategy

In following market trends and customer requirements, Holtek's commitment to new product development and innovation can be seen through its continuously expanding device functionality. As the world of IOT continues to extend its reach into demands for an increasingly connected lifestyle, Holtek's multi-function product range stands in a strong position to have a strong presence in this rapidly expanding market area. The integration of features such as RF functions, voice, touch key and power management functions into its microcontroller range demonstrates this commitment to IOT product trends. Holtek's range of standard microcontroller products will continue to expand but alongside it will be the design of application specific products such as those for motor control, personal health care, home appliances and many others. With its long history of working alongside its customers to assist in the design their custom microcontrollers, Holtek welcomes product manufacturers to contact them to discuss new custom microcontroller design possibilities. Additionally, and as no functionally rich microcontroller is useful without an appropriate development platform, all of Holtek's products are fully supported by a comprehensive range of hardware and software development tools to simplify the designer product development process. Holtek's obligation to ISO compliance and its string of innovation awards and intellectual properties provide further evidence of the company's commitment to product development excellence.

## Marketing Service Network

Holtek's range of semiconductor products is fully complemented by its extensive global marketing network with a sales presence in most parts of the world. Having established a large number of worldwide sales offices and agents, Holtek's global marketing structure is well placed to take advantage of any new market opportunities and trends as they arise.

## Selecting Your Holtek Device

As the range of 8-bit and 32-bit microcontroller devices covers such a vast range of types and functions, Holtek recommends that customers consult its on-line "Product Selector" to assist them in their selection of the most suitable microcontroller for their specific application. With Holtek continually releasing new products onto the market, it should be noted that the website version, rather than the printed version of the selection guide, will contain the most up to date product information.

To use our MCU Product Selector, please visit: [www.holtek.com](http://www.holtek.com).

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**32-Bit Flash MCU**
**Cortex-M0+ 32-Bit MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	Interface	Others	I/O	Package
HT32F52220	40MHz	2.0V ~ 3.6V	16KB	4KB	—	1 Msps 12-bit ×8	BFTM×1 SCTM×2 GPTM×1	6	—	—	USART×1 UART×1 SPI×1, I <sup>2</sup> C×1	—	19	24SSOP
HT32F52230			32KB	4KB									23	28SSOP
HT32F52231	40MHz	2.0V ~ 3.6V	32KB	4KB	—	1 Msps 12-bit ×12	BFTM×2 SCTM×4 GPTM×1 MCTM×1	12	3	√	USART×1 UART×2 SPI×2 I <sup>2</sup> C×2	CRC	19	24SSOP
HT32F52241			64KB	8KB									23	28SSOP
HT32F52243	40MHz	2.0V ~ 3.6V	64KB	8KB	6CH	1 Msps 12-bit ×12	BFTM×2 SCTM×4 GPTM×1 MCTM×1	12	3	√	USART×2 UART×4 SPI×2 I <sup>2</sup> C×3	CRC DIV	26	33QFN
HT32F52253			128KB	16KB									38	46QFN

**Cortex-M0+ 32-Bit USB MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	CMP	DAC	Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	SCI <sup>4</sup>	USB <sup>5</sup>	EBI <sup>6</sup>	I <sup>2</sup> S	Interface	Others	I/O	Package
HT32F52331	48MHz	2.0V ~ 3.6V	32KB	4KB	—	1 Msps 12-bit ×12	—	—	BFTM×2 SCTM×4 GPTM×1 MCTM×1	12	3	√	1	√	—	—	USART×1 UART×2 SPI×2 I <sup>2</sup> C×2	CRC	24	33QFN
HT32F52341			64KB	8KB															38	48LQFP
HT32F52342	48MHz	2.0V ~ 3.6V	64KB	8KB	6CH	1 Msps 12-bit ×12	2	—	BFTM×2 SCTM×2 GPTM×2 MCTM×1	14	3	√	2	√	√	√	USART×2 UART×2 SPI×2 I <sup>2</sup> C×2	CRC	26	33QFN
HT32F52352			128KB	16KB															39	48LQFP
HT32F52344	60MHz	1.65V ~ 3.6V	64KB	8KB	6CH	1 Msps 12-bit ×12	2	—	BFTM×2 SCTM×2 GPTM×1 MCTM×1	10	3	√	—	√	√	—	UART×2 SPI×2 I <sup>2</sup> C×1	CRC DIV	26	33QFN
HT32F52354			128KB	8KB															38	46QFN
HT32F52357	60MHz	1.65V ~ 3.6V	128KB	16KB	6CH	1 Msps 12-bit ×12	2	500Ksps 12-bit×2	BFTM×2 SCTM×2 GPTM×1 MCTM×1	18	3	√	2	√	√	√	USART×2 UART×4 SPI×2 QSPI×1 I <sup>2</sup> C×2	AES CRC DIV	37	46QFN
HT32F52367			256KB	32KB															39	48LQFP

**Cortex-M0+ 32-Bit LCD MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	CMP	DAC	Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM	RTC	SCI <sup>4</sup>	USB <sup>5</sup>	I <sup>2</sup> S	LCD	Interface	Others	I/O	Package
HT32F57331	60MHz	1.65V ~ 3.6V	32KB	4KB	—	1 Msps 12-bit ×10	—	—	BFTM×2 PWM×2 GPTM×1	12	√	1	√	—	29x4 ~ 25x8	USART×1 UART×2 SPI×2 I <sup>2</sup> C×2	CRC DIV	37	46QFN
HT32F57341			64KB	8KB														39	48LQFP
HT32F57342	60MHz	1.65V ~ 3.6V	64KB	8KB	6CH	1 Msps 12-bit ×10	2	500Ksps 12-bit×2	BFTM×2 SCTM×2 PWM×2 GPTM×1	14	√	2	√	√	37x4 ~ 33x8	USART×1 UART×2 SPI×2 I <sup>2</sup> C×2	AES CRC DIV	37	46QFN
HT32F57352			128KB	16KB														39	48LQFP

**Cortex-M0+ 32-Bit 5V MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	Interface	Others	I/O	Package
HT32F50020*	16MHz	2.5V ~ 5.5V	16KB	2KB	—	1 Msps 12-bit×12	BFTM×1 SCTM×3	6	—	√	UART×2 SPI×1 I <sup>2</sup> C×1	LEDC	18	24QFN
HT32F50030*			32KB	2KB									19	24SSOP
HT32F50220	20MHz	2.5V ~ 5.5V	16KB	4KB	—	1 Msps 12-bit×12	BFTM×1 PWM×2 GPTM×1	12	—	√	UART×2 SPI×2 I <sup>2</sup> C×1	DIV	18	24QFN
HT32F50230			32KB	4KB									19	24SSOP
HT32F50231			32KB	4KB			22	28SOP	33QFN	44LQFP	46QFN			
HT32F50241			64KB	8KB			36	44LQFP	46QFN	48LQFP				

**Cortex-M0+ 32-Bit 5V USB MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM <sup>3</sup>	RTC	USB <sup>5</sup>	Interface	Others	I/O	Package
HT32F50343	60MHz	2.5V ~ 5.5V	64KB	12KB	6CH	1 Msps 12-bit×12	BFTM×2 SCTM×2 8-PWM×3 GPTM×1	30	√	√	UART×2 SPI×2 I <sup>2</sup> C×2 SLED×8 <sup>7</sup>	CRC DIV	23	32QFN
													35	46QFN
													37	48LQFP
													51	64LQFP

\* Under development, available in 3Q, 2022.

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, 8-PWM: 8 Output channel PWM Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.

2. Cap.: Input Capture.

3. Cpm. PWM: Complementary PWM for 3-phase motor control or inverter application.

4. SCI: ISO7816-3 Smart Card Interface.

5. USB 2.0 Full Speed device.

6. EBI: External Bus Interface for NOR Flash / SRAM / LCD.

7. SLED: Strip LED Controller.

**32-Bit Flash MCU**
**Cortex-M0+ 32-Bit 5V USB Smart Card Reader MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	Timers <sup>1</sup>	RTC	SCI <sup>4</sup>	Card LDO	USB <sup>5</sup>	Interface	Others	I/O	Package
HT32F61141*	48MHz	2.5V~5.5V	64KB	16KB	BFTM×2 SCTM×2 GPTM×1	√	2	1.8V 3.0V 5.0V	√	UART×2 SPI×1 I <sup>2</sup> C×1	CRC	21 34 36	32QFN 46QFN 48LQFP

**Cortex-M0+ 32-Bit Data Bridge MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM	RTC	USB <sup>5</sup>	Interface	Others	I/O	Package
HT32F0008	60MHz	1.65V~3.6V	64KB	16KB	6CH	BFTM×2 PWM×2 GPTM×1	12	√	√	USART×1 UART×1 SPI×1 I <sup>2</sup> C×1	AES CRC DIV	19 28 40 42	24QFN 33QFN 46QFN 48LQFP

**Cortex-M0+ 32-Bit BLDC MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	CMP	OPA	Timer <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	Interface	Others	I/O	Package
HT32F65232	60MHz	2.5V~5.5V	32KB	4KB	6CH	2 Msps×1 12-bit×12	2	1	BFTM×2 SCTM×4 GPTM×1 MCTM×1	12	3	√	USART×1 UART×1 SPI×1 I <sup>2</sup> C×1	CRC DIV	28	32QFN
44															48LQFP	
40															48LQFP	
HT32F65230						1 Msps×2 12-bit×8	3	2								
HT32F65240			64KB	8KB												

**Cortex-M0+ 32-Bit BLDC MCU with Gate-Driver**

Part No.	Max. Freq.	VCC (HV)	LDO	Gate-Driver	Flash	SRAM	PDMA	ADC	CMP	OPA	Timer <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	Interface	Others	I/O	Package	
HT32F65432**	60MHz	6V~38V	5V	3P3N	32KB	4KB	6CH	2 Msps×1 12-bit×12	2	1	BFTM×2 SCTM×4 GPTM×1 MCTM×1	8	3	√	USART×1 UART×1 SPI×1 I <sup>2</sup> C×1	CRC DIV	17	32QFN 48LQFP-EP	
HT32F65532		6V~48V		6N													28		
HT32F65732**		6V~120V		6N													22		
HT32F65440**		6V~38V		3P3N													24		
HT32F65540		6V~48V		6N													29		
HT32F65740**		6V~120V		6N													26		
																		25	

**Cortex-M0+ 32-Bit BLDC MCU with Driver**

Part No.	Max. Freq.	VCC (HV)	LDO	Peak Current	Flash	SRAM	PDMA	ADC	CMP	OPA	Timer <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	Interface	Others	I/O	Package
HT32F65C32	60MHz	6V~32V	5V	3.5A	32KB	4KB	6CH	2 Msps×1 12-bit×12	2	1	BFTM×2 SCTM×4 GPTM×1 MCTM×1	8	3	√	USART×1 UART×1 SPI×1 I <sup>2</sup> C×1	CRC DIV	16	32QFN 48LQFP-EP
HT32F65C40					64KB	8KB		1 Msps×2 12-bit×8									3	

**Cortex-M0+ 32-Bit USB Data Logger LCD MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDF Create LIB	PDMA	ADC	CMP	DAC	Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM	RTC	SCI <sup>4</sup>	USB <sup>5</sup>	I <sup>2</sup> S	LCD	Inter- face	Others	I/O	Package
HT32F5828	60MHz	1.65V~3.60V	128KB	16KB	√	6CH	1 Msps 12-bit×10	2	500Ksps 12-bit×2	BFTM×2 SCTM×2 PWM×2 GPTM×1	14	√	2	√	√	37×4 ~ 33×8	USART×1 UART×2 SPI×2 I <sup>2</sup> C×2	AES CRC DIV	39 67	48LQFP 64LQFP 80LQFP

**Cortex-M0+ 32-Bit 5V Touch MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	CMP	Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM <sup>3</sup>	Cpm. PWM <sup>3</sup>	RTC	Touch Key	LED Controller	Interface	Others	I/O	Package
HT32F54231	60 MHz	2.5V~5.5 V	32 KB	4KB	—	1 Msps 12-bit ×10	—	BFTM×2 SCTM×2 GPTM×1 MCTM×1	10	3	√	24	8×8	USART×1 UART×2 SPI×2 I <sup>2</sup> C×2	CRC DIV	23	28SSOP 32QFN 46QFN 48LQFP
HT32F54241			64KB	8KB												40	
HT32F54243	60 MHz	2.5V~5.5 V	64KB	8KB	6 CH	1 Msps 12-bit ×10	2	BFTM×2 SCTM×4 GPTM×1 MCTM×1	12	3	√	28	12×8	USART×2 UART×4 SPI×2 I <sup>2</sup> C×3	CRC DIV	26	32QFN 46QFN 48LQFP 64LQFP
HT32F54253			128KB	16KB												38	

\* Under development, available in 1Q, 2022.

\*\* Under development, available in 2Q, 2022.

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.

2. Cap.: Input Capture.

3. Cpm. PWM: Complementary PWM for 3-phase motor control or inverter application.

4. SCI: ISO7816-3 Smart Card Interface.

5. USB 2.0 Full Speed device.

6. EBI: External Bus Interface for NOR Flash / SRAM / LCD.

7. CSIF: CMOS Sensor Interface.

8. ULP: Ultra Low Power, TRNG: Software based True Random Number Generator, QDEC: Quadrature Decoder, KBCTL: Keyboard Controller, TMPSEN: Temperature Sensor.

**32-Bit Flash MCU**
**Cortex-M0+ 32-Bit BLE MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	ADC	Timers <sup>1</sup>	Ver.	Data Rate	Output Power	Sensitivity	Interface	Others	I/O	Package/ Stamp Holes
HT32F67741*	40MHz	2.0V~3.6V	64KB	8KB	1Msps 12-bit ×6	RTC×1, WDT×1, BFTM×2, SCTM×4, GPTM×1, MCTM×1	5.2	1/2Mbps	+3.5dBm	-94/-91dBm	USART×1, UART×2, SPI×2, I <sup>2</sup> C×2	CRC×1 TRNG×1	25	46QFN

**Cortex-M0+ 32-Bit Music Synthesizer MCU with Data Flash ROM**

Part No.	Max. Freq.	VDD	Flash	Data Flash <sup>8</sup>	SRAM	PDMA	Audio DAC	ADC	Timers <sup>1</sup>	I <sup>2</sup> S	RTC	USB <sup>5</sup>	MIDI Engine	SB Coding	Echo	Interface	I/O	Package
HT32F61244**	48MHz	2.3V~3.6V	64KB	16Mbit	8KB	6CH	16-bit ×2	1Msps 12-bit×16	BFTM×2 SCTM×2 GPTM×1	—	—	—	16CH	√	√	UART×1 SPI×1 QSPI×1 I <sup>2</sup> C×1	49	48LQFP 64LQFP
HT32F61245**				32Mbit														
HT32F61355	48MHz	2.3V~3.6V	128KB	32Mbit	16KB	6CH	16-bit ×2	1Msps 12-bit×16	BFTM×2 SCTM×4 GPTM×1	√	√	√	32CH	√	√	USART×1 UART×1 SPI×1 QSPI×1 I <sup>2</sup> C×1	43	48LQFP 64LQFP
HT32F61356				64Mbit														
HT32F61357				128Mbit														

**Enhanced 24-Bit A/D Cortex-M0+ 32-Bit MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	ADC		Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	Interface	Others	I/O	Package
HT32F59041	20MHz	2.5V~5.5V	64KB	8KB	SAR ADC 1Msps 12-bit×12	Delta Sigma ADC 24-bit×4	BFTM×2 PWM×2 GPTM×1 MCTM×1	16	3	√	USART×1 UART×2 SPI×1 I <sup>2</sup> C×1	CRC DIV	30	48LQFP

**Enhanced 24-Bit A/D Cortex-M0+ 32-Bit LCD MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	ADC		Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM	RTC	SCI <sup>4</sup>	USB <sup>5</sup>	LCD	Inter- face	Others	I/O	Package
HT32F59741	60MHz	1.65V~3.6V	64KB	8KB	SAR ADC 1Msps 12-bit×10	Delta Sigma ADC 24-bit×4	BFTM×2 PWM×2 GPTM×1	12	√	1	√	19×4 ~ 15×8	USART×1 UART×2 SPI×1, I <sup>2</sup> C×1	CRC DIV	43	64LQFP

**2.4GHz RF Transceiver Cortex-M0+ 32-Bit MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	Timers <sup>1</sup>	RTC	Frequency	Data Rate	Output Power	Sensitivity	Interface	Others	I/O	Package		
HT32F67041**	60MHz	2.2V~3.6V	64KB	8KB	6CH	1Msps 12-bit×16	BFTM×4 SCTM×4 GPTM×1	√	2402~2480 MHz	125/250/ 500Kbps	-10~+6 dBm	-97dBm @ 250Kbps	UART×2 SPI×2 I <sup>2</sup> C×2	AES CRC	16	32QFN		
HT32F67051**			128KB												29	46QFN		
																	31	48LQFP-EP

**Cortex-M3 32-Bit MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	CMP	Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	SCI <sup>4</sup>	USB <sup>5</sup>	EBI <sup>6</sup>	I <sup>2</sup> S	Inter- face	Others	I/O	Package
HT32F12345	96MHz	2.0V ~ 3.6V	64KB	16KB	12CH	1 Msps 12-bit ×12	2	BFTM×2 GPTM×2 MCTM×2	16	6	√	—	√	√	√	SDIO×1 USART×2 UART×2 SPI×2, I <sup>2</sup> C×2	CRC	37 37 51	46QFN 48LQFP 64LQFP
HT32F12365	96MHz	2.0V ~ 3.6V	256KB	64KB	12CH	1 Msps 12-bit ×16	2	BFTM×2 GPTM×2 MCTM×2	16	6	√	2	√	√	√	SDIO×1 USART×2 UART×2 SPI×2, I <sup>2</sup> C×2	AES CRC	37	46QFN
HT32F12366			256KB	128KB														51	64LQFP
HT32F12364	72MHz	1.65V ~ 3.6V	256KB	128KB	6CH	1 Msps 12-bit ×8	—	BFTM×2 SCTM×2 PWM×1 GPTM×1	10	—	√	1	√	√	—	USART×1 UART×2 SPI×2, I <sup>2</sup> C×2	AES CRC	32 38 52	40QFN 48LQFP 64LQFP

**Cortex-M3 32-Bit Fingerprint MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	CMP	Timers <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	SCI <sup>4</sup>	USB <sup>5</sup>	EBI <sup>6</sup>	CSIF <sup>7</sup>	Inter- face	Others	I/O	Package
HT32F22366	96MHz	2.0V ~ 3.6V	256KB	128KB	12CH	1 Msps 12-bit ×16	2	BFTM×2 GPTM×2 MCTM×2	16	6	√	2	√	√	√	SDIO×1 USART×2 UART×2 SPI×2 I <sup>2</sup> C×2 I <sup>2</sup> S×1	AES CRC	37 37 80	46QFN 48LQFP 64LQFP 100LQFP

\* Under development, available in 3Q, 2021.

\*\* Under development, available in 1Q, 2022.

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.

2. Cap.: Input Capture.

3. Cpm. PWM: Complementary PWM for 3-phase motor control or inverter application.

4. SCI: ISO7816-3 Smart Card Interface.

5. USB 2.0 Full Speed device.

6. EBI: External Bus Interface for NOR Flash / SRAM / LCD.

7. CSIF: CMOS Sensor Interface.

8. QSPI Flash ROM.

**8-Bit Flash MCU**

**Low Pin Count Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	PWM	Comparator	Package				
HT66F0017	8MHz	1.8V~5.5V	8MHz or 32kHz	0.5K×12	16×8	—	2	8	8-bit×1	—	—	—	8/10SOP				
HT66F302	4/8MHz	1.8V~5.5V	4MHz, 8MHz or 32kHz	1K×14	64×8	32×8	2	8	10-bit STM×1 10-bit PTM×1	12-bit×4	—	—	8/10SOP				
HT66F303								14					16NSOP				
HT66F0021	8MHz	1.8V~5.5V	8MHz or 32kHz	1K×14	64×8	32×8	2	8	10-bit STM×1	—	—	—	8SOP				
HT66F0021		1.8V~5.5V						32×14#					6	8-bit×1	10-bit×4	8-bit×1	8SOP
HT66F002		2.2V~5.5V						32×8					8	10-bit STM×1	12-bit×4	—	8SOP, 10MSOP
HT66F0025		2.2V~5.5V						32×8					4	10-bit STM×1	12-bit×4	—	8/10SOP
HT66F007	4/8/12MHz	2.2V~5.5V	400kHz~20MHz or 32kHz	2K×16	160×8	512×8	8	8	10-bit CTM×2 16-bit STM×1	12-bit×5	—	1	8DIP/SOP 10MSOP				
HT66F008	4/8/12MHz	2.2V~5.5V	400kHz~20MHz or 32kHz	4K×16	256×8	1024×8	8	8	10-bit CTM×2 16-bit STM×1	12-bit×5	—	1	8DIP/SOP 10MSOP				

Note: # Emulated EEPROM.

**Low Pin Count Flash MCU with Multi-interface**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Comparator	Interface	Package
HT66F2030	8MHz	1.8V~5.5V	8MHz or 32kHz	2K×15	128×8	32×8	4	—	14	10-bit CTM×1 10-bit PTM×1	12-bit×4	—	SPI/I <sup>2</sup> C×1 UART×1	8SOP, 10MSOP 16NSOP/QFN
HT66F2040	8MHz	1.8V~5.5V	8MHz or 32kHz	4K×16	512×8	512×8	8	√	18	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit×8	2	SPI/I <sup>2</sup> C/UART×1 UART×1	8SOP, 10MSOP 16NSOP/QFN 20SSOP
HT66F2050				8K×16										

**Flash MCU with EEPROM**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	PWM	SCOM	Package				
HT66F003	8MHz	2.2V~5.5V	8MHz or 32kHz	1K×14	64×8	32×8	2	14	10-bit STM×1 10-bit PTM×1	—	—	—	16NSOP				
HT66F0031		1.8V~5.5V				32×14#								14	8-bit×1	10-bit×4	8-bit×1
HT66F003		2.2V~5.5V				32×8								14	10-bit STM×1 10-bit PTM×1	12-bit×4	—
HT66F004	8MHz	2.2V~5.5V	8MHz or 32kHz	2K×15	96×8	32×8	4	18	10-bit PTM×2	12-bit×8	—	4	16NSOP, 24SSOP 20SOP/SSOP/NSOP				
HT66F0041		1.8V~5.5V		2K×14	64×8	32×14#							8-bit×1	10-bit×4	8-bit×1	—	16/20NSOP, 20SSOP

Note: # Emulated EEPROM.

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	SCOM/SSEG	CMP	RTC	High Current LED Driver	Interface	Package
HT66F017	8MHz	2.2V~5.5V	400kHz~20MHz or 32kHz	2K×16	128×8	64×8	8	—	14	16-bit CTM×1 16-bit STM×1	12-bit×4	—	1	—	—	—	16NSOP
HT66F0172	8MHz	2.2V~5.5V	400kHz~20MHz or 32kHz	2K×16	128×8	64×8	8	—	18	10-bit PTM×2	12-bit×8	—	—	—	—	—	20SOP/SSOP
HT66F0174																	—
HT66F0175	8/12/16 MHz	2.2V~5.5V	400kHz~20MHz or 32kHz	2K×16	128×8	64×8	8	—	22	10-bit PTM×2	12-bit×8	SCOM×6 SSEG×14	—	√	22	SPI/I <sup>2</sup> C×1 UART×1	20/24SOP/SSOP
HT66F0176																	—
HT66F0181	8MHz	1.8V~5.5V	8MHz or 32kHz	4K×15	128×8	32×15#	6	—	18	10-bit PTM×1 10-bit STM×1	10-bit×8	—	—	—	18	—	16/20NSOP 20SOP/SSOP
HT66F0185	8/12/16 MHz	2.2V~5.5V	400kHz~20MHz or 32kHz	4K×16	256×8	128×8	8	—	26	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit×8	SCOM×6 SSEG×18	1	√	26	SPI/I <sup>2</sup> C×1 UART×1	24/28SOP/SSOP
HT66F0186					1024×8	4096×8											—
HT66F019	8/12/16 MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	8K×16	256×8	64×8	8	—	18	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit×8	—	1	√	18	SPI/I <sup>2</sup> C×1 UART×1	20NSOP
HT66F0195					512×8	128×8											—
HT66F3185	8/12/16 MHz	1.8V~5.5V	400kHz~16MHz or 32kHz	4K×16	256×8	128×8	8	√	26	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit×12	(SCOM/SSEG)×22 SSEG×4	1	√	26	SPI/I <sup>2</sup> C×1 UART×1	16/20NSOP 20/24/28SOP 20/24/28SSOP 24/28QFN
HT66F3195				8K×16	512×8												—
HT66F31A5	8/12/16 MHz	1.8V~5.5V	400kHz~16MHz or 32kHz	16K×16	1024×8	1024×8	12	√	30	10-bit PTM×2 16-bit CTM×1 16-bit STM×1	12-bit×12	(SCOM/SSEG)×30	1	√	30	SPI/I <sup>2</sup> C×1 UART×2	24/28SSOP/QFN 32QFN/LQFP

Note: # Emulated EEPROM.

SCOM/SSEG: Software Control LCD Common/Segment.



**8-Bit Flash MCU**

**Flash MCU with LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	LCD	RTC	Power Switch	Interface	Package
HT69F340	4/8/12MHz	1.8V~5.5V	400kHz~16MHz or 32kHz	4K×16	256×8	64×8	8	√	39	10-bit PTM×1 10-bit CTM×1	24×4 25×3	√	—	SPI/I <sup>2</sup> C×1	48LQFP
HT69F3742	2/4/8MHz	1.8V~5.5V	400kHz~8MHz or 32kHz	4K×16	128×8	128×8	4	—	9	10-bit STM×1	23×4 24×3	—	√	—	Dice 46QFN
HT69F350	4/8/12MHz	1.8V~5.5V	400kHz~16MHz or 32kHz	8K×16	512×8	64×8	8	√	55	10-bit PTM×1 10-bit CTM×1 16-bit STM×1	36×4 37×3	√	—	SPI/I <sup>2</sup> C×1	48/64LQFP
HT69F360	4/8/12MHz	1.8V~5.5V	400kHz~16MHz or 32kHz	16K×16	1024×8	128×8	8	√	63	10-bit PTM×2 10-bit CTM×1 16-bit STM×1	48×4 49×3	√	—	SPI/I <sup>2</sup> C×1 UART×1	64/80LQFP
HT67F370	4/8/12MHz	1.8V~5.5V	400kHz~20MHz or 32kHz	32K×16	2048×8	256×8	8	√	63	10-bit PTM×2 10-bit CTM×1 16-bit STM×1	48×4 49×3	√	—	SPI/I <sup>2</sup> C×1 UART×1	64/80LQFP

**I/O Flash MCU with High Current Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	High Current I/O	PWM	Package
HT68F0036	8MHz	1.8V~5.5V	8MHz or 32kHz	1K×14	64×8	32×14 <sup>#</sup>	2	13	8-bit×1	7	8-bit×1	16NSOP

Note: # Emulated EEPROM.

**A/D Flash MCU with High Accuracy / Low Current LIRC**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Package
HT66F2630	2/4/8MHz	1.8V~5.5V	400kHz~8MHz or 32kHz	2K×16	128×8	64×8	8	18	16-bit PTM×1	12-bit×4	8SOP, 10MSOP 16SSOP, 16/20NSOP

**Advanced A/D Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	SCOM/SSEG	CMP	RTC	High Current LED Driver	Interface	Package
HT66F317	4MHz 8MHz 12MHz	1.8V~5.5V	400kHz~16MHz or 32kHz	2K×16	128×8	64×8	8	22	10-bit PTM×2	12-bit×8	SCOM×4	—	√	22	—	16NSOP 20/24SOP 20/24SSOP
HT66F318	4MHz 8MHz 12MHz	1.8V~5.5V	400kHz~16MHz or 32kHz	4K×16	192×8	64×8	8	26	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit×8	SCOM×4	1	√	26	I <sup>2</sup> C×1 UART×1	20/24/28SOP 20/24/28SSOP
HT66F319	4MHz 8MHz 12MHz	1.8V~5.5V	400kHz~16MHz or 32kHz	8K×16	256×8	64×8	8	26	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit×8	SCOM×4	1	√	26	I <sup>2</sup> C×1 UART×1	16NSOP 20/24/28SOP 20/24/28SSOP

Note: SCOM/SSEG: Software Control LCD Common/Segment.

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	SCOM	RTC	Comparator	CRC	Interface	Package
HT66F2350	8MHz 12MHz 16MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	8K×16	768×8	256×8	16	√	44	10-bit PTM×2 16-bit PTM×2 16-bit STM×3	12-bit×12	4	√	2	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×2	48LQFP
HT66F2360	8MHz 12MHz 16MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	1536×8	256×8	16	√	58	10-bit PTM×2 16-bit PTM×2 16-bit STM×3	12-bit×16	4	√	2	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×2	48/64LQFP
HT66F2362		2048×8			1024×8	44											
HT66F2370	8MHz 12MHz 16MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	32K×16	3072×8	512×8	16	√	58	10-bit PTM×2 16-bit PTM×2 16-bit STM×3	12-bit×16	4	√	2	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×3	48/64LQFP
HT66F2372		2048×8				44											
HT66F2390	8MHz 12MHz 16MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	64K×16	4096×8	1024×8	16	√	58	10-bit PTM×2 16-bit PTM×2 16-bit STM×3	12-bit×16	4	√	2	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×3	48/64LQFP

Note: These devices conform to the European standard IEC 60730 and the U.S. standard UL 60730 certified.

**8-Bit Flash MCU**
**Low Power A/D Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Temp. Sensor	SOCM	RTC	Interface	Package
HT66L2540*	64/128/256/512kHz 2/4/8MHz	1.8V~ 5.5V	32kHz~ 8MHz	4K×16	256×8	256×8	8	√	26	16-bit PTM×1 16-bit STM×1	12-bit ×8	√	4	√	SPI/I <sup>2</sup> C/UART×1	16NSOP 24/28SSOP 28QFN
HT66L2550*	64/128/256/512kHz 2/4/8MHz	1.8V~ 5.5V	32kHz~ 8MHz	8K×16	512×8	256×8	8	√	30	16-bit PTM×2 16-bit STM×1	12-bit ×8	√	4	√	SPI/I <sup>2</sup> C/UART×1	24/28SSOP 32QFN

\* Under development, available in 2Q, 2022.

**Low Power A/D Flash MCU with LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Temp. Sensor	LCD	RTC	Interface	Package
HT67L2540*	64/128/256/512kHz 2/4/8MHz	1.8V~ 5.5V	32kHz~ 8MHz	4K×16	256×8	256×8	8	√	22	16-bit PTM×1 16-bit STM×1	12-bit ×8	√	24×4	√	SPI/I <sup>2</sup> C/UART×1	48LQFP
HT67L2550*	64/128/256/512kHz 2/4/8MHz	1.8V~ 5.5V	32kHz~ 8MHz	8K×16	512×8	512×8	8	√	30	16-bit PTM×2 16-bit STM×1	12-bit ×8	√	32×4	√	SPI/I <sup>2</sup> C/UART×1	48/64LQFP

\* Under development, available in 2Q, 2022.

**8-Bit High Supply Voltage Flash MCU**
**12V High Current Driver A/D Flash MCU**

Part No.	Internal Clock	VCC (HV)	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	HVIO	Timer	ADC	LDO Output Voltage	OVP	Interface	Package
HT66F2730	8/12/16MHz	7.5V~ 12V	4.5V~ 5.5V	32kHz~ 16MHz	2K×16	128×8	64×8	4	10	10	10-bit STM×1 10-bit PTM×1	12-bit ×4	5.0V	—	SPI/I <sup>2</sup> C/ UART×1	16NSOP-EP 20NSOP 24SOP/SSOP-EP
HT66F2740					4K×16	256×8	128×8	8	14		10-bit STM×1 10-bit PTM×1 10-bit CTM×1	12-bit ×8		1		16NSOP-EP 24/28SOP 24SSOP-EP



**8-Bit LCD Display Flash MCU**
**A/D Flash MCU with LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	LCD	RTC	Comparator	Interface	Package
HT67F40	4MHz 8MHz 12MHz	2.2V~ 5.5V	400kHz~ 16MHz or 32kHz	4K×15	256×8	128×8	8	—	44	10-bit CTM×1 10-bit ETM×1 16-bit STM×1	12-bit ×8	32×4 33×3	√	2	SPI/I <sup>2</sup> C×1 SPIA×1	48/64LQFP
HT67F50	4MHz 8MHz 12MHz	2.2V~ 5.5V	400kHz~ 16MHz or 32kHz	8K×16	384×8	256×8	8	—	52	10-bit CTM×2 10-bit ETM×1 16-bit STM×1	12-bit ×8	40×4 41×3	√	2	SPI/I <sup>2</sup> C×1 SPIA×1	48/64/80 LQFP
HT67F60A	4MHz 8MHz 12MHz	2.2V~ 5.5V	400kHz~ 16MHz or 32kHz	16K×16	1024×8	128×8	16	√	47	10-bit CTM×2 10-bit ETM×1 16-bit STM×3	12-bit ×12	56×4	√	2	SPI/I <sup>2</sup> C×1 SPIA×1	48/64/80 LQFP

**A/D Flash MCU with LCD Driver & High Accuracy HIRC**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	LCD	RTC	IR LED Driver	Interface	Package
HT67F2432	4MHz	1.8V~ 5.5V	4MHz or 32kHz	2K×16	128×8	32×16#	6	—	26	9-bit Timer×1 10-bit CTM×1	10-bit ×5	20×4	√	—	UART×1	24/28 SOP/SSOP
HT67F2352*	4MHz	1.8V~ 5.5V	4MHz or 32kHz	8K×16	512×8	128×8	8	√	44	10-bit CTM×1 10-bit PTM×1 16-bit STM×1	12-bit ×8	30×4 29×5 28×6	√	√	UART×1	32/44/48 LQFP

\* Under development, available in 1Q, 2022.  
Note: # Emulated EEPROM.

**Advanced A/D Flash MCU with LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	LCD	RTC	Comparator	CRC	Interface	Package
HT67F2350	8MHz 12MHz 16MHz	2.2V~ 5.5V	400kHz~ 16MHz or 32kHz	8K×16	768×8	256×8	16	√	57	10-bit PTM×6 16-bit PTM×2 16-bit STM×3	12-bit ×12	46×4 44×6 42×8	√	2	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×2	48/64LQFP
HT67F2360	8MHz 12MHz 16MHz	2.2V~ 5.5V	400kHz~ 16MHz or 32kHz	16K×16	1536×8	256×8	16	√	71	10-bit PTM×6 16-bit PTM×2 16-bit STM×3	12-bit ×16	56×4 54×6 52×8	√	2	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×2	64/80LQFP
HT67F2362	1.8V~ 5.5V	2048×8			1024×8	57			48/64LQFP								
HT67F2370	8MHz 12MHz 16MHz	2.2V~ 5.5V	400kHz~ 16MHz or 32kHz	32K×16	512×8	2048×8	16	√	71	10-bit PTM×6 16-bit PTM×2 16-bit STM×3	12-bit ×16	56×4 54×6 52×8	√	2	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×3	64/80LQFP
HT67F2372	1.8V~ 5.5V	57			48/64LQFP												
HT67F2390	8MHz 12MHz 16MHz	2.2V~ 5.5V	400kHz~ 16MHz or 32kHz	64K×16	4096×8	1024×8	16	√	71	10-bit PTM×6 16-bit PTM×2 16-bit STM×3	12-bit ×16	56×4 54×6 52×8	√	2	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×3	64/80LQFP

Note: These devices conform to the European standard IEC 60730 and the U.S. standard UL 60730 certified.

**8-Bit LCD / LED Flash MCU**
**A/D Flash MCU with six Timer & High Current LED Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	SCOM	High Current LED Driver	RTC	Interface	Package
HT66F0042	8MHz 12MHz 16MHz	2.2V~ 5.5V	32kHz~ 16MHz	2K×15	96×8	32×8	6	22	10-bit PTM×4 10-bit CTM×2	12-bit ×8	4	22	√	SPI/I <sup>2</sup> C×1	20/24SOP/SSOP
HT66F0082				4K×16	128×8	64×8		26				26			24/28SOP/SSOP

Note: The HT66F0042/0082 devices include 6 Timer Modules and are suitable for use in products requiring multiple PWM functions such as RGB lighting.

**RGB LED Controller Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Stack	I/O	Timer	Multiple RGB LED	Constant Current	Interface	Package
HT45F0060	8MHz	2.2V~5.5V	8MHz	1K×14	64×8	2	8	10-bit CTM×3	—	3	Cascading Transceiver	8SOP/DFN 10SOP
HT45F0062	8MHz	2.2V~5.5V	8MHz	2K×16	128×8	4	14	10-bit CTM×1	√	12	I <sup>2</sup> C×1, Cascading Transceiver	16NSOP-EP 16QFN
HT45F0063	8MHz	2.2V~5.5V	8MHz	4K×16	256×8	4	20	10-bit CTM×1	√	15	I <sup>2</sup> C×1, Cascading Transceiver	24SSOP-EP 24QFN

**A/D Flash MCU with LCD & High Current LED Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	LCD	High Current LED Driver	RTC	Interface	Package
HT67F489	8MHz	2.2V~ 5.5V	400kHz~ 16MHz or 32kHz	8K×16	256×8	64×8	8	—	42	10-bit CTM×3 10-bit PTM×1	12-bit ×10	20×8 20×4	8	√	UART×1	44LQFP
HT67F4892					384×8				50						32×4/32×8 28×4/28×8	SPI/I <sup>2</sup> C×1 UART×1
HT67F2355	4MHz 8MHz 12MHz	1.8V~ 5.5V	400kHz~ 12MHz or 32kHz	8K×16	512×8	512×8	8	√	46	10-bit CTM×3 10-bit PTM×1	12-bit ×10	32×4/31×5 30×6/28×8	46	√	SPI/I <sup>2</sup> C×1 UART×1	44/48LQFP

**USB Interface Flash MCU**
**I/O Flash USB MCU (USB 2.0 Low Speed)**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Stack	IAP/ISP	I/O	Timer	End-points	LDO Driving Current	PWM	Interface	Package
HT68FB240	12MHz	2.2V~5.5V	32kHz~16MHz	4K×16	160×8	8	√	34	10-bit CTM×2	3	20mA	3	SPI/I <sup>2</sup> C×1	48LQFP

**I/O Flash USB MCU (USB 2.0 Full Speed)**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Stack	IAP/ISP	I/O	Timer	End-points	LDO Driving Current	VDDIO	Interface	Package
HT68FB550	12MHz	2.2V~5.5V	32kHz~16MHz	8K×16	512×8	8	√	25	10-bit CTM×2 10-bit STM×1 16-bit STM×1	6	70mA	√	SPI/I <sup>2</sup> C×1 SPIA×1	24/28SSOP 48LQFP
HT68FB560	12MHz	2.2V~5.5V	32kHz~16MHz	16K×16	768×8	12	√	37	10-bit CTM×2 10-bit STM×1 16-bit STM×1	8	70mA	√	SPI/I <sup>2</sup> C×1 SPIA×1	24/28SSOP 48LQFP

**A/D Flash USB MCU (USB 2.0 Full Speed)**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP/ISP	I/O	Timer	ADC	RTC	MDU <sup>#</sup>	End-points	LDO Driving Current	VDDIO	Comparator	Interface	Package
HT66FB540	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	4K×16	512×8	—	8	√	25	10-bit CTM×2 10-bit STM×1 16-bit STM×1	12-bit ×8	√	—	4	70mA	√	2	SPI/I <sup>2</sup> C×1 SPIA×1	28SSOP 48LQFP
HT66FB542	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	4K×16	256×8	—	8	√	17	10-bit CTM×2 10-bit STM×1 16-bit STM×1	12-bit ×4	—	—	4	70mA	√	1	SPI/I <sup>2</sup> C×1 SPIA×1	24SSOP
HT66FB550	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	8K×16	768×8	—	8	√	37	10-bit CTM×2 10-bit STM×1 16-bit STM×1	12-bit ×16	√	—	6	70mA	√	2	SPI/I <sup>2</sup> C×1 SPIA×1	28SSOP 48LQFP
HT66FB560	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	1024×8	—	12	√	45	10-bit CTM×2 10-bit STM×1 16-bit STM×1	12-bit ×16	√	—	8	70mA	√	2	SPI/I <sup>2</sup> C×1 SPIA×1	48/64 LQFP
HT66FB570	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	32K×16	1024×8	256×8	12	√	55	10-bit PTM×5 16-bit STM×1	12-bit ×24	√	—	8	70mA	√	2	SPI/I <sup>2</sup> C×1 SPIA×1 UART×1	48/64 LQFP
HT66FB582	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	48K×16	1024×8	16K×8	12	√	41	10-bit PTM×5 16-bit STM×1	12-bit ×16	√	16-bit	8	70mA	√	2	SPI/I <sup>2</sup> C×1 SPIA×1 UART×1	46QFN 48LQFP

Note: # MDU: Multiplier Divider Unit.

**USB Flash RGB LED MCU (USB 2.0 Full Speed)**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP/ISP	I/O	Timer	ADC	End-points	LDO Driving Current	VDDIO	Interface	RGB LED Driver	LED PWM	Const. Current	Package
HT68FB541	12MHz	3.0V~5.5V	400kHz~16MHz or 32kHz	4K×16	256×8	64×8	8	√	18	16-bit×2	—	4	70mA	√	SPI×1	8	3×8	—	24SSOP
HT68FB571	12MHz	3.0V~5.5V	400kHz~16MHz or 32kHz	8K×16	512×8	64×8	8	√	41	16-bit×2	—	4	70mA	√	SPI×1	42	16×8	—	28SSOP 48LQFP
HT66FB572	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	8K×16	1024×8	256×8	12	√	34	10-bit PTM×3 16-bit STM×1	12-bit ×8	8	70mA	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×1	40	15×8	15	48/64 LQFP
HT66FB574	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	1024×8	256×8	12	√	38	10-bit PTM×3 16-bit STM×1	12-bit ×12	8	70mA	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×1	64	24×8	24	48/80LQFP
HT66FB576	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	32K×16	1024×8	256×8	12	√	52	10-bit PTM×3 16-bit STM×1	12-bit ×16	8	70mA	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×1	128	48×8	48	128LQFP-EP

**Motor Controller & Driver Flash MCU**
**Cortex-M0+ 32-Bit BLDC Flash MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	CMP	OPA	Timer <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	Interface	Others	I/O	Package
HT32F65232	60MHz	2.5V~5.5V	32KB	4KB	6CH	2 Msps×1 12-bit×12	2	1	BFTM×2 SCTM×4 GPTM×1 MCTM×1	12	3	√	USART×1 UART×1 SPI×1 I <sup>2</sup> C×1	CRC DIV	28	32QFN
HT32F65230			64KB	8KB		1 Msps×2 12-bit×8	3	2							44	48LQFP
HT32F65240			40	48LQFP												

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.  
 2. Cap.: Input Capture.  
 3. Cpm. PWM: Complementary PWM for 3-phase motor control or inverter application.

**Cortex-M0+ 32-Bit BLDC Flash MCU with Gate-Driver**

Part No.	Max. Freq.	VCC (HV)	LDO	Gate-Driver	Flash	SRAM	PDMA	ADC	CMP	OPA	Timer <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	Interface	Others	I/O	Package
HT32F65432*	60MHz	6V~38V	5V	3P3N	32KB	4KB	6CH	2 Msps×1 12-bit×12	2	1	BFTM×2 SCTM×4 GPTM×1 MCTM×1	8	3	√	USART×1 UART×1 SPI×1 I <sup>2</sup> C×1	CRC DIV	17	32QFN 48LQFP-EP
HT32F65532		6V~48V		6N													28	
HT32F65732*		6V~120V		6N													22	
HT32F65440*		6V~38V		3P3N	29	48LQFP-EP												
HT32F65540		6V~48V		6N	26													
HT32F65740*		6V~120V		6N	25													

\* Under development, available in 2Q, 2022.  
 Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.  
 2. Cap.: Input Capture.  
 3. Cpm. PWM: Complementary PWM for 3-phase motor control or inverter application.

**Cortex-M0+ 32-Bit BLDC Flash MCU with Driver**

Part No.	Max. Freq.	VCC (HV)	LDO	Peak Current	Flash	SRAM	PDMA	ADC	CMP	OPA	Timer <sup>1</sup>	Cap. <sup>2</sup> or PWM	Cpm. PWM <sup>3</sup>	RTC	Interface	Others	I/O	Package
HT32F65C32	60MHz	6V~32V	5V	3.5A	32KB	4KB	6CH	2 Msps×1 12-bit×12	2	1	BFTM×2 SCTM×4 GPTM×1 MCTM×1	8	3	√	USART×1 UART×1 SPI×1 I <sup>2</sup> C×1	CRC DIV	16	32QFN 48LQFP-EP
HT32F65C40					64KB	8KB		1 Msps×2 12-bit×8	3	2							29	

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.  
 2. Cap.: Input Capture.  
 3. Cpm. PWM: Complementary PWM for 3-phase motor control or inverter application.

**Tool Power Controller Flash MCU**

Part No.	Internal Clock	VCC (HV)	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	VREF	OCF	HVO	HVIO	CRC	IAP	Interface	Package
HT45F3630	8MHz 32kHz	12V	2.2V~5.5V	400kHz~8MHz or 32kHz	2K×16	64×8	32×8	6	12	10-bit PTM×2	12-bit ×8	—	1	1	0	0	0	I <sup>2</sup> C×1	16SSOP
BP45F3640	8MHz 32kHz	12V	2.2V~5.5V	8MHz or 32kHz	4K×16	256×8	32×8	8	15	10-bit PTM×2	12-bit ×8	2.4V	1	0	2	1	1	I <sup>2</sup> C×1	16SSOP 20SSOP

Note: The BP45F3640 device conforms to the European standard IEC 60730 and the U.S. standard UL 60730 certified.

**Servo Motor Flash MCU with H-Bridge Driver**

Part No.	Internal Clock	VCC (HV)	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	H-Bridge Driver	LDO	Interface	Package
HT45F4830	8MHz	3.5V~10V	3.0V	32kHz~8MHz	2K×16	128×8	32×8	4	—	4	10-bit PTM×1 16-bit PTM×1	12-bit ×4	600mA Min.	3.0V	—	8SOP-EP
HT45F4840	16MHz	6.0V~12V	3.3V or 5.0V	32kHz~16MHz	4K×16	256×8	—	6	√	8	10-bit PTM×1 16-bit STM×1	12-bit ×4	—	3.3V or 5.0V	UART×1	10SOP 16NSOP/QFN
HT45F4842										6	16-bit CTM×1					√

**Motor Controller & Driver Flash MCU**
**BLDC Motor Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	MDU	OCP	PWM	Comparator	OPA	Interface	Package
HT66FM5230	20MHz	4.5V~5.5V	32kHz~20MHz	2K×16	256×8	32×8	6	—	18	10-bit CTM×1 10-bit STM×1 16-bit CAPTM×1 16-bit CTM×1	10-bit ×6	—	1	10-bit ×3	3	—	I <sup>2</sup> C×1	16NSOP 20SSOP
HT66FM5240	20MHz	4.5V~5.5V	32kHz~20MHz	4K×16	256×8	64×8	8	—	26	10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1	12-bit ×8	—	1	10-bit ×3	3	—	I <sup>2</sup> C×1 UART×1	20/28SSOP 24QFN
HT66FM5242	20MHz	4.5V~5.5V	32kHz~20MHz	4K×16	256×8	—	8	—	18	10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1	12-bit ×7	—	1	10-bit ×3	—	—	—	16NSOP 20SSOP
HT66FM5440	16MHz	4.5V~5.5V	32kHz~16MHz	4K×16	384×8	—	8	—	26	10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1	12-bit ×9	—	1	10-bit ×3	3	2	I <sup>2</sup> C×1 UART×1	28SSOP
BD66FM5245*	20MHz	4.5V~5.5V	32kHz~20MHz	4K×16	512×8	—	8	√	24	10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1	12-bit ×14	√	1	10-bit ×3	3	—	UART×1	16NSOP 24SSOP
BD66FM5250	20MHz	4.5V~5.5V	32kHz~20MHz	8K×16	2048×8	512×8	8	√	30	10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1	12-bit ×10	√	1	10-bit ×3	3	—	UART×1	24/28SSOP 32QFN

\* Under development, available in 4Q, 2021.

Note: HT66FM5440 is a new HT8-1T architecture MCU which takes one clock cycle to execute one instruction. It improves 4 times the CPU performance of the original HT8-4T architecture MCU which takes four clock cycles to execute one instruction.

**BLDC Motor Flash MCU with Gate-Driver**

Part No.	Internal Clock	VCC (HV)	LDO	Gate-Driver	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	MDU	OCP	PWM	Comparator	Package
HT66FM5340	20MHz	6V~15V	5V	3P3N	4.5V~5.5V	32kHz~20MHz	4K×16	256×8	—	8	—	19	10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1	12-bit ×8	—	1	10-bit ×3	3	24SSOP
BD66FM6445**	20MHz	6V~38V	5V	3P3N	4.5V~5.5V	32kHz~20MHz	4K×16	512×8	—	8	√	19	10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1	12-bit ×12	√	1	10-bit ×3	3	32QFN
BD66FM6454*		6N		15															
BD66FM6450**	20MHz	6V~38V	5V	3P3N	4.5V~5.5V	32kHz~20MHz	8K×16	2048×8	512×8	8	√	21	10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1	12-bit ×10	√	1	10-bit ×3	3	32QFN
BD66FM6550		6N		21															48LQFP-EP
BD66FM6745**		6V~120V		22															46QFN 48LQFP-EP

\* Under development, available in 4Q, 2021.

\*\* Under development, available in 2Q, 2022.

**BLDC Motor Flash MCU with Driver**

Part No.	Internal Clock	VCC (HV)	LDO	Peak Current	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	MDU	OCP	PWM	CMP	Package	
BD66FM8345*	20MHz	6V~15V	5V	1.5A	4.5V~5.5V	32kHz~20MHz	4K×16	512×8	—	8	√	13	10-bit PTM×2 16-bit PTM×2 16-bit CAPTM×1	12-bit ×11	√	1	10-bit ×3	3	24SSOP-EP 32QFN	
BD66FM8445**		3.5A		8K×16			2048×8	512×8	15										12-bit ×10	32QFN
BD66FM8450**		3.5A		8K×16			2048×8	512×8	15										12-bit ×10	32QFN

\* Under development, available in 4Q, 2021.

\*\* Under development, available in 1Q, 2022.

**Motor Controller & Driver Peripheral**
**H-Bridge Driver**

Part No.	Supply Voltage	Max. Motor Voltage	Typ. Motor Peak Current (A)	Typ. Motor RMS Current (A)	Max. Sleep Current (μA)	Max. PWM Frequency (Hz)	# of H-Bridge	Protections	Package
HT7K1201	1.8V~6.0V	6V	1.3	0.8	0.1	200K	1	UVLO, OCP OTP, OSP	SOT23-6
HT7K1211		7.5V	2.1	1.5					8SOP-EP
HT7K1311	2.5V~5.5V	15V	3.0	2.4	1.0	200K	1	UVLO, OCP OTP, OSP	8SOP-EP
HT7K1312									8DFN
HT7K1401	2.5V~5.5V	24V	2.0	1.8	1.0	200K	1	UVLO, OCP OTP, OSP	8SOP-EP
HT7K1411			3.2	2.5					

**OPA Flash MCU**
**Advanced Flash MCU with OPA**

Part No.	Internal Clock	Input Voltage	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	DAC	RTC	Voice DAC	Comparator	OPA	Interface	Package
HT66F4530	2MHz 4MHz 8MHz	2.2V~ 5.5V	32kHz~ 12MHz	2K×16	128×8	32×8	6	18	10-bit STM×1 10-bit PTM×1	12-bit ×5	8-bit ×3	√	—	2	2	SPI/I <sup>2</sup> C×1	16NSOP 20SSOP
HT66F4540	2MHz 4MHz 8MHz	2.2V~ 5.5V	32kHz~ 12MHz	4K×16	256×8	64×8	8	26	10-bit STM×1 10-bit PTM×2	12-bit ×8	8-bit ×3	√	—	2	2	SPI/I <sup>2</sup> C×1 UART×1	24/28SSOP
HT66F4550	2MHz 4MHz 8MHz	2.2V~ 5.5V	32kHz~ 12MHz	8K×16	384×8	64×8	8	26	10-bit STM×2 10-bit PTM×2	12-bit ×8	8-bit ×3	√	16-bit ×1	2	2	SPI/I <sup>2</sup> C×1 UART×1	24/28SSOP
HT66F4560	2MHz 4MHz 8MHz	2.2V~ 5.5V	32kHz~ 12MHz	16K×16	512×8	128×8	16	46	10-bit STM×2 10-bit PTM×2	12-bit ×8	8-bit ×3	√	16-bit ×1	2	2	SPI/I <sup>2</sup> C×1 UART×1	28SSOP 48LQFP

Note: The MCUs internal OPA gain bandwidth are software programmable.



**24-Bit A/D Flash MCU**
**24-Bit A/D Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	MDU#	Stack	IAP	I/O	Timer	ADC	RTC	OPA	Interface	Package
BH66F5232	4MHz 8MHz 12MHz	2.2V~5.5V	4/8/12MHz or 32kHz	2K×16	128×8	32×8	—	4	—	4	10-bit CTM×1	24-bit ×2	—	—	SPI/I <sup>2</sup> C×1 UART×1	10SOP
BH66F5233	4MHz 8MHz 12MHz	2.2V~5.5V	4/8/12MHz or 32kHz	2K×16	96×8	32×8	—	4	—	14	10-bit CTM×1	24-bit ×2	—	—	SPI/I <sup>2</sup> C×1	10SOP 16/20NSOP
BH66F5242	4MHz 8MHz 12MHz	2.2V~5.5V	4/8/12MHz or 32kHz	4K×16	256×8	64×8	—	6	—	14	10-bit CTM×1 16-bit PTM×1	24-bit ×12	—	1	SPI/I <sup>2</sup> C/UART×1	16NSOP/SSOP 20NSOP/QFN
BH66F5250	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~ 16MHz or 32kHz	8K×16	512×8	128×8	16-bit	8	√	37	16-bit STM×1 10-bit PTM×3	24-bit ×16	√	1	SPI/I <sup>2</sup> C/UART×1 SPI×1	48LQFP
BH66F5252	8MHz	2.2V~5.5V	8MHz or 32kHz	8K×16	256×8	32×8	—	8	—	23	10-bit CTM×1 16-bit PTM×1	24-bit ×4	—	—	SPI/I <sup>2</sup> C/UART×1	24/28SSOP

Note: # MDU: Multiplier Divider Unit.

**Enhanced 24-Bit A/D Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	ENOB	SCOM	Comparators	CRC	Interface	Package
BH66F5362	8MHz 12MHz 16MHz	1.8V~5.5V	400kHz~ 12MHz or 32kHz	16K×16	2048×8	1024×8	16	√	32	10-bit PTM×2 16-bit PTM×2 16-bit STM×1	12-bit×9 24-bit×4	19.4 @5V	4	2	√	SPI/I <sup>2</sup> C×1 SPI×1 UART×2	48LQFP

**BLE Beacon 24-Bit A/D Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Frequency	Data Rate	Output Power	Package
BH66F71252	8MHz	2.2V~3.6V	8MHz or 32kHz	8K×16	256×8	32×8	8	25	10-bit CTM×1 16-bit PTM×1	24-bit ×4	2402/2426/2480 MHz	1Mbps	-10~+8 dBm	46QFN

**24-Bit A/D Flash MCU with LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	MDU#	Stack	IAP	I/O	Timer	ADC	LCD	OPA	RTC	Touch Key	Interface	Package
BH67F5235	8MHz	2.2V~5.5V	8MHz or 32kHz	3K×16	192×8	32×16*	—	4	—	5	10-bit CTM×1	24-bit ×2	16×4	—	—	2	—	24/28SSOP 32QFN
BH67F5245	4MHz 8MHz 12MHz	2.2V~5.5V	4/8/12MHz or 32kHz	4K×16	256×8	32×8	—	6	—	21	10-bit CTM×1	24-bit ×4	17×4	—	—	4	UART×1	24/28SSOP
BH67F5250	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~ 16MHz or 32kHz	8K×16	512×8	128×8	16-bit	8	√	46	10-bit PTM×3 16-bit STM×1	24-bit ×16	28×4 26×6 24×8	—	√	—	SPI/I <sup>2</sup> C/UART×1 SPI×1	64LQFP
BH67F5255*	8MHz	2.2V~5.5V	8MHz or 32kHz	8K×16	512×8	512×8	—	16	√	30	10-bit PTM×2 16-bit STM×1	24-bit ×4	24×4 22×6	2	—	—	SPI/I <sup>2</sup> C/UART×1	48LQFP
BH67F5260	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~ 16MHz or 32kHz	16K×16	1024×8	256×8	16-bit	8	√	46	10-bit PTM×3 16-bit STM×1	24-bit ×16	42×4 40×6 38×8	—	√	—	SPI/I <sup>2</sup> C/UART×1 SPI×1	64/80LQFP
BH67F5265*	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~ 16MHz or 32kHz	16K×16	1024×8	1024×8	16-bit	16	√	43	10-bit PTM×3 16-bit STM×1	24-bit ×6	30×4 28×6 26×8	2	√	—	SPI/I <sup>2</sup> C/UART×1 SPI×1	64LQFP
BH67F5270	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~ 16MHz or 32kHz	32K×16	2048×8	512×8	16-bit	16	√	46	10-bit PTM×3 16-bit STM×1	24-bit ×16	42×4 40×6 38×8	—	√	—	SPI/I <sup>2</sup> C/UART×1 SPI×1	64/80LQFP
BH67F5275*	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~ 16MHz or 32kHz	32K×16	2048×8	2048×8	16-bit	16	√	57	10-bit ATM×1 10-bit PTM×3 16-bit STM×1	24-bit ×6	44×4 42×6 40×8	2	√	—	SPI/I <sup>2</sup> C/UART×1 SPI×1	64/80LQFP

\* Under development, available in 2Q, 2022.

Note: # Emulated EEPROM.

## MDU: Multiplier Divider Unit.

**Enhanced 24-Bit A/D Flash MCU with LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	LCD	ENOB	RTC	CRC	Comparators	Interface	Package
BH67F5362	8MHz 12MHz 16MHz	1.8V~5.5V	400kHz~ 16MHz or 32kHz	16K×16	2048×8	1024×8	16	√	45	10-bit PTM×5 16-bit PTM×2 16-bit STM×3	12-bit×14 24-bit×4	36×4 34×6 32×8	19.4 @5V	√	√	2	SPI/I <sup>2</sup> C×1 SPI×1 UART×2	64LQFP

**ATS 24-Bit A/D Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Temperature Sensor	OPA	Interface	Package
BH66F2742	8MHz	2.2V~5.5V	8MHz or 32kHz	4K×16	256×8	32×8	6	4	10-bit CTM×1	24-bit ×2	±0.2°C	1	SPI/I <sup>2</sup> C/UART×1	16SSOP 24QFN
BH66F5255*	8MHz	2.2V~5.5V	4/8/12MHz or 32kHz	8K×16	512×8	512×8	8	9	10-bit CTM×1 16-bit PTM×1	24-bit ×4	±0.2°C	2	SPI/I <sup>2</sup> C×1 UART×1	24QFN 24SSOP

\* Under development, available in 2Q, 2022.

**24-Bit A/D Peripheral**
**Enhanced 24-Bit A/D Peripheral**

Part No.	Internal Clock	VDD	ADC	ENOB	Data Rate	PGA	Interface	Package
BH45B1225	4.91MHz	2.4V~5.5V	24-bit×4	19.4@5V	5Hz~1.6kHz	1~128	I <sup>2</sup> C×1	8SOP, 16NSOP

**Advanced 24-Bit A/D Peripheral**

Part No.	Internal Clock	VDD	ADC	ENOB	Data Rate	PGA	Interface	Package
BH45B1525	4.91MHz	2.7V~5.5V	24-bit×4	20.9@5V	10Hz~1.28kHz	1~128	I <sup>2</sup> C×1, SPI×1	20SSOP

**Health Care Flash MCU**
**Ear Thermometer Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	LCD	OPA	Interface	Package
BH67F2742	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	4K×16	256×8	32×8	6	—	21	10-bit CTM×1	24-bit ×8	17×4 15×6	1	SPI/I <sup>2</sup> C/UART×1	28SSOP 32QFN
BH67F2752	8MHz	2.2V~5.5V	8MHz or 32kHz	8K×16	384×8	128×8	6	—	17	10-bit CTM×2	24-bit ×8	32×4 30×6	2	SPI×1 UART×1	48/64LQFP
BH67F2762	4MHz 8MHz 12MHz	2.2V~5.5V	4/8/12MHz or 32kHz	16K×16	1024×8	256×8	8	√	38	10-bit CTM×2 16-bit PTM×1	24-bit ×8	39×4 37×6	2	SPI/I <sup>2</sup> C/UART×1	48/64LQFP

**Glucose Meter Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	MDU <sup>#</sup>	Stack	IAP	I/O	Timer	ADC	LCD	RTC	OPA	DAC	Audio DAC	Interface	Package
HT45F67	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	32K×16	512×8	—	—	12	√	59	10-bit CTM×2 16-bit STM×1 10-bit ETM×1	12-bit ×8	32×4 30×6	√	2	10-bit ×1	16-bit ×1	SPI/I <sup>2</sup> C×1 SPIA×1 UART×1	64/80 LQFP
BH67F2470	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	32K×16	768×8	64×8	16-bit	8	√	34	10-bit PTM×3 16-bit STM×1	12-bit ×4	48×4 46×6 44×8	√	1	10-bit ×1	—	SPI/I <sup>2</sup> C×1 SPIA×1 UART×2	64/80 LQFP
BH67F2472	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	32K×16	2048×8	2048×8	—	16	√	58	10-bit PTM×2 16-bit STM×1 10-bit ATM×1	12-bit ×6	36×4 34×6 32×8	√	2	12-bit ×1	—	SPI/I <sup>2</sup> C/ UART×2 SPI×1	64/80 LQFP
BH67F2480	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	48K×16	1024×8	64×8	16-bit	12	√	46	10-bit PTM×3 16-bit STM×1	12-bit ×6	48×4 46×6 44×8	√	2	12-bit ×1	—	SPI/I <sup>2</sup> C×1 SPIA×1 UART×2	80LQFP

Note: # MDU: Multiplier Divider Unit.

**Impedance & Electrochemical Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	MDU <sup>#</sup>	Stack	IAP	I/O	Timer	ADC	LCD	RTC	OPA	DAC	Phase Detect	Interface	Package
BH67F2485	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	48K×16	4096×8	128×8	16-bit	12	√	44	10-bit PTM×3 16-bit STM×1	24-bit ×6	36×4 34×6 32×8	√	4	12-bit ×2	√	SPI/I <sup>2</sup> C×1 SPIA×1 UART×2	64/80LQFP

Note: # MDU: Multiplier Divider Unit.

**Health Care Flash MCU**
**Body Fat Measurement Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	MDU#	Stack	IAP	I/O	Timer	ADC	LCD	RTC	Electrode	Interface	Package
BH66F2632	8MHz	2.2V~5.5V	8MHz or 32kHz	3K×16	256×8	32×8	—	6	—	9	10-bit CTM×1	24-bit ×2	—	—	4	SPI/I <sup>2</sup> C/UART×1	24QFN
BH66F2650	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	8K×16	256×8	64×8	16-bit	8	√	28	10-bit PTM×3 16-bit STM×1	24-bit ×4	—	√	8	SPI/I <sup>2</sup> C×1 UART×1	48LQFP
BH66F2652	8MHz	2.2V~5.5V	8MHz or 32kHz	8K×16	384×8	32×8	—	8	—	17	10-bit CTM×1	24-bit ×4	—	—	4	SPI×1 UART×1	32QFN
BH66F2652-2										14							28SSOP
BH66F2660	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	1024×8	256×8	16-bit	8	√	28	10-bit PTM×3 16-bit STM×1	24-bit ×4	—	√	8	SPI/I <sup>2</sup> C×1 UART×1	48LQFP
BH66F2662	8MHz	2.2V~5.5V	8MHz or 32kHz	16K×16	512×8	64×8	—	8	—	17	10-bit CTM×1 10-bit STM×1	24-bit ×4	—	—	4	SPI×1 UART×1	32QFN
BH66F2662-2										14							28SSOP
BH67F2662	8MHz	2.2V~5.5V	8MHz or 32kHz	16K×16	512×8	64×8	—	8	—	12	10-bit CTM×1 10-bit STM×1	24-bit ×4	16×4 14×6	—	4	SPI×1 UART×1	48LQFP
BH66F2663	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	1024×8	256×8	16-bit	8	√	35	10-bit PTM×3 16-bit STM×1	24-bit ×6	—	√	8	SPI/I <sup>2</sup> C×1 SPIA×1 UART×1	48/64LQFP
BH66F2665*	8MHz	2.2V~5.5V	8MHz or 32kHz	16K×16	1024×8	1024×8	—	16	√	15	10-bit CTM×1 10-bit STM×1	24-bit ×4	—	√	4	SPI/I <sup>2</sup> C×1 UART×1	28SSOP 32QFN

\* Under development, available in 2Q, 2022.

Note: # MDU: Multiplier Divider Unit.

The BH66F2663 device includes Impedance Phase Measurement function.

**BLE Beacon Body Fat Measurement Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Frequency	Data Rate	Output Power	Package
BH66F71652	8MHz	2.2V~3.6V	8MHz or 32kHz	8K×16	384×8	32×8	8	17	10-bit CTM×1	24-bit ×4	2402/2426/2480 MHz	1Mbps	-10~+8 dBm	46QFN
BH66F71662				16K×16	512×8	64×8			10-bit CTM×1 10-bit STM×1					

**R-Type Blood Pressure Meter Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	MDU#	Stack	IAP	I/O	Timer	ADC	LCD	RTC	PGA	Const. Current	Audio PWM	Interface	Package
BH66F2232	4MHz 8MHz 12MHz	2.2V~5.5V	4MHz 8MHz 12MHz or 32kHz	2K×16	128×8	32×8	—	4	√	4	10-bit PTM×1	12-bit ×6	—	—	3	1	—	SPI/I <sup>2</sup> C×1 UART×1	16NSOP 16QFN
BH67F2262	8MHz 12MHz 16MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	512×8	64×8	16-bit	8	√	52	10-bit PTM×3 16-bit STM×1	12-bit ×4	45×4 43×6 41×8	√	3	1	√	SPI/I <sup>2</sup> C/ UART×1, SPIA×1	64/80LQFP
BH67F2265	8MHz	2.2V~5.5V	8MHz or 32kHz	16K×16	512×8	1024×8	—	12	√	30	10-bit CTM×2 16-bit STM×1	12-bit ×4	32×4 30×6	√	3	1	—	SPI/I <sup>2</sup> C×1 UART×1	64LQFP
BH67F2270	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	32K×16	1024×8	64×8	16-bit	8	√	43	10-bit PTM×3 16-bit STM×1	12-bit ×4	46×4 44×6 42×8	√	3	1	—	SPI/I <sup>2</sup> C×1 SPIA×1 UART×2	64/80LQFP

Note: # MDU: Multiplier Divider Unit.

The BH67F2262 device uses the PWM function together with the external SPI flash to implement the voice playing function.

**Measurement Flash MCU**
**Proximity Sensing Flash MCU**

Part No.	Internal Clock	VCC (HV)	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Touch Key	IR Driver & Receiver	Battery Voltage Detector	DC Motor Driver	Interface	Package
BS45F3232	8MHz	—	2.2V~5.5V	8MHz or 32kHz	2K×14	64×8	32×8	4	11	10-bit STM×1	12-bit ×8	—	IR×1 OPA×2	—	—	SPI/I <sup>2</sup> C/ UART×1	8SOP 16NSOP 16QFN
BS45F3235																	V <sub>M</sub> =7.5V
HT45F3230	8MHz	3V~12V	2.2V~5.5V	8MHz	2K×16	128×8	64×8	8	16	10-bit PTM×1 10-bit CTM×1	12-bit ×8	—	IR×1 OPA×2	√	√	—	16NSOP 24SSOP
BS45F3332	8MHz	—	1.8V~5.5V	8MHz or 32kHz	2K×15	128×8	32×8	4	13	10-bit CTM×1	10-bit ×4	2	IR×2 OPA×1	—	—	—	8SOP 16NSOP
BS45F3335			11						V <sub>M</sub> =7.5V						24SSOP		
BS45F3336			11						V <sub>M</sub> =15V						24SSOP		
BS45F3337			9						NMOS RDS(on)= 120mΩ						16NSOP		
BS45F3340	8MHz	—	1.8V~5.5V	8MHz or 32kHz	4K×16	192×8	32×8	6	20	10-bit CTM×1 10-bit STM×1	12-bit ×8	4	IR×2 OPA×2	—	—	UART×1	16NSOP 16QFN 24SSOP
BS45F3345			17						V <sub>M</sub> =7.5V						16NSOP 24SSOP		
BS45F3346			17						V <sub>M</sub> =15V						28SSOP		

**R to F MCU**
**Ultra-Low Voltage R to F Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	LCD	R to F	LVD	Package
BH67F2132	1.1V~2.2V	32/64/128kHz	2K×16	128×8	128×8	4	24	10-bit CTM×1	21×3 22×2	2CH	1.15V	48LQFP
BH67F2142*			4K×16	256×8								

\* Under development, available in 1Q, 2022.

**Security & Safety Flash MCU**
**PIR & Microwave Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	OPA	Interface	Package
BA45F6622	2.2V~5.5V	8MHz or 32kHz	1K×14	64×8	32×14 <sup>#</sup>	4	6	10-bit STM×1	10-bit×2	2	—	16NSOP/QFN
BA45F6630	2.2V~5.5V	2/4/8MHz or 32kHz	2K×16	256×8	32×8	6	15	10-bit STM×2	12-bit×4	2	SPI/I <sup>2</sup> C/UART×1	24SSOP/QFN
BA45F6640*	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	384×8	64×8	8	18	10-bit STM×2 10-bit CTM×1	12-bit×8	2	SPI/I <sup>2</sup> C/UART×1	24/28SSOP 28QFN

\* Under development, available in 4Q, 2021.  
Note: # Emulated EEPROM.

**Smoke Detector Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Audio DAC	AFE	IR Driver	Temp. Sensor	Interface	Package
BA45F5220	2.2V~5.5V	8MHz or 32kHz	1K×14	64×8	32×14 <sup>#</sup>	4	—	4	10-bit PTM×1	10-bit×3	—	√	2	—	—	8/10SOP
BA45F5240	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	64×8	8	—	13	10-bit PTM×1 10-bit STM×1	12-bit×4	—	√	2	—	SPI/I <sup>2</sup> C/ UART×1	16NSOP, 20SSOP
BA45F5240-2								11								16NSOP
BA45F5250	2.2V~5.5V	2/4/8MHz or 32kHz	8K×16	1024×8	128×8	8	√	22	10-bit PTM×1 10-bit STM×2	12-bit×8	16-bit×1	√	2	—	SPI/I <sup>2</sup> C×1 UART×1	16NSOP 20/24/28SSOP
BA45F5260	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	2048×8	256×8	8	√	26	10-bit PTM×3 10-bit STM×2	12-bit×12	16-bit×1	√	2	√	SPI/I <sup>2</sup> C×1 UART×2	24/28SSOP 48LQFP

Note: # Emulated EEPROM.

**Smoke Detector Flash MCU with 12V Piezoelectric Horn Driver**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Audio DAC	AFE	IR Driver	Temp. Sensor	Buzzer Driver & Boost	Interface	Package
BA45F5320	2.2V~5.5V	8MHz or 32kHz	1K×14	64×8	32×14 <sup>#</sup>	4	—	4	10-bit PTM×1	10-bit×3	—	√	2	—	√	—	20SSOP
BA45F5340	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	64×8	8	—	13	10-bit PTM×1 10-bit STM×1	12-bit×4	—	√	2	—	√	SPI/I <sup>2</sup> C/ UART×1	24/28SSOP
BA45F5350	2.2V~5.5V	2/4/8MHz or 32kHz	8K×16	1024×8	128×8	8	√	22	10-bit PTM×1 10-bit STM×2	12-bit×8	16-bit×1	√	2	—	√	SPI/I <sup>2</sup> C×1 UART×1	28SSOP 48LQFP
BA45F5360	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	2048×8	256×8	8	√	26	10-bit PTM×3 10-bit STM×2	12-bit×12	16-bit×1	√	2	√	√	SPI/I <sup>2</sup> C×1 UART×2	28SOP 48LQFP

Note: # Emulated EEPROM.

**9V Battery Smoke Detector Flash MCU**

Part No.	VCC (HV)	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Audio DAC	AFE	IR Driver	Temp. Sensor	LDO	Buzzer Driver	Interface	Package
BA45F5420	4.3V~12V	8MHz or 32kHz	1K×14	64×8	32×14 <sup>#</sup>	4	—	4	10-bit PTM×1	10-bit×3	—	√	2	—	√	√	—	16NSOP
BA45F5440	4.3V~12V	2/4/8MHz or 32kHz	4K×16	256×8	64×8	8	—	9	10-bit PTM×1 10-bit STM×1	12-bit×4	—	√	2	—	√	√	SPI/I <sup>2</sup> C/ UART×1	20SOP 20SSOP
BA45F5450	4.3V~12V	2/4/8MHz or 32kHz	8K×16	1024×8	128×8	8	√	17	10-bit PTM×1 10-bit STM×2	12-bit×8	16-bit×1	√	2	—	√	√	SPI/I <sup>2</sup> C×1 UART×1	20/24/28 SOP
BA45F5460	4.3V~12V	400kHz~16MHz or 32kHz	16K×16	2048×8	256×8	8	√	24	10-bit PTM×3 10-bit STM×2	12-bit×12	16-bit×1	√	2	√	√	√	SPI/I <sup>2</sup> C×1 UART×1	48LQFP

Note: # Emulated EEPROM.

**Smoke Detector Flash MCU with Power Line Transceiver**

Part No.	Internal Clock	VCC (HV)	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	AFE	IR Driver	Power Line Transceiver	Temp. Sensor	Interface	Package
BA45F5542	2/4/8MHz	5.3V~42V	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	64×8	8	—	9	10-bit PTM×1 10-bit STM×1	12-bit×4	√	2	√	—	SPI/I <sup>2</sup> C/ UART×1	16NSOP 20SSOP
BA45F5542-2										7		12-bit×3						16NSOP
BA45F5552	2/4/8MHz	5.3V~42V	2.2V~5.5V	2/4/8MHz or 32kHz	8K×16	1024×8	128×8	8	√	13	10-bit PTM×1 10-bit STM×2	12-bit×8	√	2	√	—	SPI/I <sup>2</sup> C×1 UART×1	16NSOP 20/24SOP
BA45F5562	2/4/8MHz	5.3V~42V	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	2048×8	256×8	8	√	23	10-bit PTM×3 10-bit STM×2	12-bit×12	√	2	√	√	SPI/I <sup>2</sup> C×1 UART×2	24/28SOP 28SSOP 48LQFP

**Security & Safety Flash MCU**
**Sub-1GHz RF Transceiver Smoke Detector Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	AFE	IR Driver	Band	Data Rate	Max. Output Power	Rx Current Consumption	Temp. Sensor	Package
BA45F5640	2.2V~3.6V	2/4/8MHz or 32kHz	4K×16	256×8	64×8	8	—	13	10-bit PTM×1 10-bit STM×1	12-bit ×4	√	2	315/433/470/868/915MHz	2~250 Kbps	13dBm	4.2mA@433MHz 5.5mA@868MHz	—	46QFN
BA45F5650			8K×16	1024×8	128×8		√	17	10-bit PTM×1 10-bit STM×2	12-bit ×5							—	46QFN
BA45F5660			16K×16	2048×8	256×8		√	22	10-bit PTM×3 10-bit STM×2	12-bit ×8							√	48LQFP-EP

**Smoke Detector Flash MCU with Calendar**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Audio DAC	AFE	IR Driver	Temp. Sensor	Interface	Package
BA45F5740	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	64×8	8	—	13	10-bit PTM×1 10-bit STM×1	12-bit ×4	—	√	2	—	SPI/I <sup>2</sup> C/ UART×1	16NSOP 20/24SOP
BA45F5740-2								6		12-bit ×2						16NSOP
BA45F5750	2.2V~5.5V	2/4/8MHz or 32kHz	8K×16	1024×8	128×8	8	√	22	10-bit PTM×1 10-bit STM×2	12-bit ×8	16-bit ×1	√	2	—	SPI/I <sup>2</sup> C×1 UART×1	16NSOP 20/24SOP 48LQFP
BA45F5760	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	2048×8	256×8	8	√	26	10-bit PTM×3 10-bit STM×2	12-bit ×12	16-bit ×1	√	2	√	SPI/I <sup>2</sup> C×1 UART×2	24/28SOP 48LQFP

**Fire Protection Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	LVR/LVD	Interface	Package
BA45F5241	2/4/8MHz	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	64×8	8	18	10-bit PTM×2 10-bit CTM×2	10-bit×4	√	UART×1	16NSOP 20SSOP

**Fire Protection Flash MCU with Power Line Transceiver**

Part No.	Internal Clock	VCC (HV)	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Power Line Transceiver	LDO	Interface	Package
BA45F5541	2/4/8MHz	5.3V~42V	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	64×8	8	13	10-bit PTM×2 10-bit CTM×2	10-bit ×4	√	√	UART×1	16NSOP 20SSOP

**CO/GAS Detector Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	AFE	LCD Driver	Temp. Sensor	LVD	16-bit Voice DAC	Interface	Package
BA45F0096	2.2V~5.5V	8MHz or 32kHz	1K×14	64×8	32×8	2	—	14	10-bit PTM×1 10-bit STM×1	12-bit ×4	—	—	—	—	—	—	16NSOP
BA45F6720	2.2V~5.5V	8MHz or 32kHz	1K×14	64×8	32×8	4	—	4	10-bit PTM×1	12-bit ×4	√	—	√	—	—	—	8/10SOP
BA45F6730	2.2V~5.5V	2/4/8MHz or 32kHz	2K×16	128×8	32×8	6	—	14	10-bit PTM×1	12-bit ×5	√	—	—	√	—	SPI/I <sup>2</sup> C/UART×1	10SOP, 16NSOP 20SSOP
BA45F6740	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	128×8	8	√	22	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	—	√	√	—	SPI/I <sup>2</sup> C/UART×1	16NSOP 20/24/28SSOP
BA45F6746	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	128×8	8	√	31	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	12SEG ×4COM	√	√	—	SPI/I <sup>2</sup> C/UART×1	28SSOP 32QFN, 48LQFP
BA45F6756	2.2V~5.5V	2/4/8MHz or 32kHz	8K×16	1024×8	256×8	8	√	36	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	16SEG ×4COM	√	√	√	SPI/I <sup>2</sup> C/UART×1 UART×1	28SSOP 48LQFP
BA45F6750	2.2V~5.5V	2/4/8MHz or 32kHz	8K×16	1024×8	256×8	8	√	36	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	—	√	√	√	SPI/I <sup>2</sup> C/UART×1 UART×1	28SSOP 32QFN, 48LQFP

**CO/GAS Detector Flash MCU with Calendar**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	AFE	LCD Driver	Temp. Sensor	LVD	Interface	Package
BA45F6742	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	128×8	8	√	22	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	—	√	√	SPI/I <sup>2</sup> C/UART×1	28SSOP 48LQFP
BA45F6748	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	128×8	8	√	31	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	12SEG ×4COM	√	√	SPI/I <sup>2</sup> C/UART×1	48LQFP
BA45F6752	2.2V~5.5V	2/4/8MHz or 32kHz	8K×16	1024×8	256×8	8	√	31	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	—	√	√	SPI/I <sup>2</sup> C/UART×1 UART×1	48LQFP
BA45F6753	2.2V~5.5V	8/12/16MHz or 32kHz	8K×16	512×8	128×8	8	√	26	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit ×8	—	—	—	√	SPI/I <sup>2</sup> C×1 UART×1	28SSOP 48LQFP
BA45F6758	2.2V~5.5V	2/4/8MHz or 32kHz	8K×16	1024×8	256×8	8	√	32	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	13SEG ×4COM	√	√	SPI/I <sup>2</sup> C/UART×1 UART×1	48LQFP



**Security & Safety Flash MCU**
**CO/GAS Detector Flash MCU with 12V Piezoelectric Horn Driver**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	AFE	LCD Driver	Temp. Sensor	LVD	16-bit Voice DAC	Buzzer Driver & Boost	Interface	Package
BA45F6830	2.2V~5.5V	2/4/8MHz or 32kHz	2K×16	128×8	32×8	6	—	14	10-bit PTM×1	12-bit ×5	√	—	—	√	—	√	SPI/I <sup>2</sup> C/UART×1	24/28SSOP
BA45F6840	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	128×8	8	√	22	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	—	√	√	—	√	SPI/I <sup>2</sup> C/UART×1	24/28SSOP 48LQFP
BA45F6846	2.2V~5.5V	2/4/8MHz or 32kHz	4K×16	256×8	128×8	8	√	31	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	12SEG ×4COM	√	√	—	√	SPI/I <sup>2</sup> C/UART×1	48LQFP
BA45F6850	2.2V~5.5V	2/4/8MHz or 32kHz	8K×16	1024×8	256×8	8	√	34	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	—	√	√	√	√	SPI/I <sup>2</sup> C/UART×1 UART×1	28SOP 48LQFP
BA45F6856	2.2V~5.5V	2/4/8MHz or 32kHz	8K×16	1024×8	256×8	8	√	31	10-bit PTM×1 10-bit STM×1	12-bit ×8	√	12SEG ×4COM	√	√	√	√	SPI/I <sup>2</sup> C/UART×1 UART×1	48LQFP

**IR Dust Detector Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	MDU <sup>#</sup>	Stack	IAP	I/O	High Current Driver	Timer	ADC	AFE	IR Driver	OVP	Temp. Sensor	Interface	Package
BA45F4140*	2.2V~5.5V	4/8/12MHz or 32kHz	4K×16	512×8	512×8	16-bit	8	√	15	1	10-bit PTM×4 10-bit CTM×2	12-bit ×4	√	1	×3	√	SPI/I <sup>2</sup> C/UART×1	16NSOP 24SSOP

\* Under development, available in 2Q, 2022.  
Note: # MDU: Multiplier Divider Unit.

**Sound Effect Flash MCU**
**Alarm Tone Flash MCU**

Part No.	VCC (HV)	VDD	Internal Clock	System Clock	Program Memory	Data Memory	Stack	I/O	Timer	Waveform Output	Package
HT45F2020	8V~16V	5.0V	8MHz	8MHz or 32kHz	1K×14	32×8	2	4	10-bit PTM×1	2	SOT23-6 8SOP
HT45F2022	—	2.2V~5.5V									

**Security & Safety IC**
**PIR Controller**

Part No.	VDD	Standby Current	ZC Off/On for Override	Flash on Mode Auto-change	Comparator Window	Effective Trigger Width	CDS Debounce Time	Triac Drive	Relay Drive	LED	Buzzer	LVD	Package
HT7610A	5V~12V	100μA	2 Times	Flash	1/16 (V <sub>DD</sub> -V <sub>EE</sub> )	>24ms	5s	—	√	—	—	—	16DIP
HT7612B	2.7V~5.5V	19μA	2 Times	Flash	V <sub>ref</sub> ×(1/2±1/6)	>24ms	<3s	√	√	√	√	√	16NSOP

Note: Operating and standby current values are typical values.

**Touch Flash MCU**
**Cortex-M0+ 32-Bit 5V Touch MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDMA	ADC	CMP	Timers <sup>*1</sup>	Cap. <sup>*2</sup> or PWM <sup>*3</sup>	Cpm. PWM <sup>*3</sup>	RTC	Touch Key	LED Controller	Interface	Others	I/O	Package
HT32F54231	60 MHz	2.5V~5.5V	32 KB	4KB	—	1 Msps 12-bit ×10	—	BFTM×2 SCTM×2 GPTM×1 MCTM×1	10	3	√	24	8×8	USART×1 UART×2 SPI×2 I <sup>2</sup> C×2	CRC DIV	23	28SSOP
HT32F54241			64KB	8KB												26	32QFN
HT32F54243	60 MHz	2.5V~5.5V	64KB	8KB	6 CH	1 Msps 12-bit ×10	2	BFTM×2 SCTM×4 GPTM×1 MCTM×1	12	3	√	28	12×8	USART×2 UART×4 SPI×2 I <sup>2</sup> C×3	CRC DIV	26	32QFN
HT32F54253			128KB	16KB												38	46QFN
																40	48LQFP
																54	64LQFP

\* Under development, available in 1Q, 2022.

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.

2. Cap.: Input Capture.

3. Cpm. PWM: Complementary PWM for 3-phase motor control or inverter application.

**Enhanced Touch I/O Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	Touch Key	High Current LED Driver	RTC	LVR	Interface	Package
BS83A01C	8MHz	1.8V~5.5V	8MHz	512×14	32×8	—	2	4	—	1	—	—	1.7V	—	6DFN, 8SOP SOT23-6
BS83A02C	8MHz	2.2V~5.5V	8MHz	1K×16	96×8	—	4	4	8-bit×1	2	4	—	2.10V 1.9V 2.55V 3.15V 3.80V	—	6DFN, 8SOP SOT23-6
BS83A04C	8MHz	1.8V~5.5V	8MHz	1K×16	128×8	32×16 <sup>#</sup>	4	8	10-bit CTM×1	4	8	—	1.7V	I <sup>2</sup> C×1	8SOP, 10DFN 10MSOP
BS83B04C	2MHz 4MHz 8MHz	1.8V~5.5V	2MHz~ 8MHz	2K×16	128×8	32×8	4	8	10-bit CTM×1	4	8	—	1.7V 1.9V 2.55V 3.15V 3.80V	I <sup>2</sup> C×1	8SOP 10MSOP/DFN
BS83B08C	8MHz 12MHz 16MHz	2.2V~5.5V	8MHz~ 16MHz	2K×16	288×8	64×8	6	14	10-bit PTM×1	8	14	—	2.10V 2.55V 3.15V 3.80V	SPI/I <sup>2</sup> C×1	16NSOP/SSOP 16QFN
BS83B12C	8MHz 12MHz 16MHz	2.2V~5.5V	8MHz~ 16MHz	2K×16	512×8	64×8	6	18	10-bit PTM×1	12	18	—	2.10V 2.55V 3.15V 3.80V	SPI/I <sup>2</sup> C×1	20SOP/SSOP 20QFN
BS83B16C	8MHz 12MHz 16MHz	2.2V~5.5V	8MHz~ 16MHz	2K×16	512×8	64×8	6	22	10-bit PTM×1	16	22	—	2.10V 2.55V 3.15V 3.80V	SPI/I <sup>2</sup> C×1	24SOP/SSOP 24QFN
BS83B24C	8MHz 12MHz 16MHz	2.2V~5.5V	8MHz~ 16MHz	3K×16	512×8	128×8	6	26	10-bit PTM×1	24	26	√	2.10V 2.55V 3.15V 3.80V	SPI/I <sup>2</sup> C×1 UARTx1	28SSOP
BS83C40C	8MHz 12MHz 16MHz	2.2V~5.5V	8MHz~ 16MHz	4K×16	768×8	128×8	6	42	10-bit CTM×1 10-bit PTM×1	40	42	√	2.10V 2.55V 3.15V 3.80V	SPI/I <sup>2</sup> C×1 UARTx1	44LQFP

Note: # Emulated EEPROM.

V<sub>DD</sub>: 2.2V~5.5V. Internal clock is 8/12/16MHz. For V<sub>DD</sub> < 3V internal clock is 8/12MHz.

**Touch Flash MCU**
**Enhanced Touch A/D Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Touch Key	High Current LED Driver	LVR	Interface	Package
BS84B04C	8MHz 12MHz 16MHz	1.8V~ 5.5V	8MHz~ 16MHz	2K×16	256×8	32×8	4	14	10-bit CTM×4	12-bit ×8	4	14	1.70V 1.90V 2.55V 3.15V 3.80V	I <sup>2</sup> C×1	8SOP 10MSOP/DFN 16NSOP/WLCSP
BS84B08C	8MHz 12MHz 16MHz	2.2V~ 5.5V	8MHz~ 16MHz	3K×16	288×8	64×8	6	22	10-bit PTM×1	12-bit ×8	8	22	2.10V 2.55V 3.15V 3.80V	SPI/I <sup>2</sup> C×1	16NSOP/SSOP 20/24SOP/SSOP
BS84C12C	8MHz 12MHz 16MHz	2.2V~ 5.5V	8MHz~ 16MHz	4K×16	512×8	128×8	6	26	10-bit CTM×1 10-bit PTM×1	12-bit ×8	12	26	2.10V 2.55V 3.15V 3.80V	SPI/I <sup>2</sup> C×1	20/24/28 SOP/SSOP
BS84C12CA*	8MHz 12MHz 16MHz	1.8V~ 5.5V	8MHz~ 16MHz	4K×16	512×8	512×8	6	26	10-bit CTM×1 10-bit PTM×1	12-bit ×8	12	26	1.70V 1.90V 2.55V 3.15V 3.80V	I <sup>2</sup> C×1 UART×1 <sup>#</sup>	16NSOP 20/24/28SSOP

\* Under development, available in 4Q, 2021.  
Note: # High speed UART interface.

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Touch Key	RTC	High Current LED Driver	LVR/ LVD	Interface	Package
BS86F340C	8MHz 12MHz 16MHz	2.2V~ 5.5V	8MHz~ 16MHz	4K×16	512×8	128×8	8	√	26	10-bit CTM×2 16-bit STM×1 10-bit PTM×1	12-bit ×8	12	√	26	√	SPI/I <sup>2</sup> C×1 UART×1	28SSOP
BS86F350C	8MHz 12MHz 16MHz	2.2V~ 5.5V	8MHz~ 16MHz	8K×16	768×8	128×8	8	√	40	10-bit CTM×2 16-bit STM×1 10-bit PTM×1	12-bit ×8	20	√	40	√	SPI/I <sup>2</sup> C×1 UART×1	44/48LQFP
BS86F360C	8MHz 12MHz 16MHz	2.2V~ 5.5V	8MHz~ 16MHz	16K×16	1024×8	128×8	12	√	46	10-bit CTM×2 16-bit STM×1 10-bit PTM×1	12-bit ×8	28	√	46	√	SPI/I <sup>2</sup> C×1 UART×1	44/48LQFP

**Touch I/O Flash MCU with LED / LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	LCD	Touch Key	RTC	High Current LED Driver	LVR	Interface	Package
BS82B12A-3	8MHz 12MHz 16MHz	2.7V~ 5.5V	8MHz~ 16MHz	2K×16	384×8	64×8	6	22	10-bit CTM×1 10-bit PTM×1	16×4	12	—	22	2.55V	I <sup>2</sup> C×1 UART×1	20SOP 24QFN
BS82C16A-3	8MHz 12MHz 16MHz	2.7V~ 5.5V	8MHz~ 16MHz	4K×16	512×8	64×8	6	26	10-bit CTM×1 10-bit PTM×1	20×4	16	√	26	2.55V	I <sup>2</sup> C×1 UART×1	24/28SOP 32QFN
BS82D20A-3	8MHz 12MHz 16MHz	2.7V~ 5.5V	8MHz~ 16MHz	8K×16	768×8	64×8	8	26	10-bit CTM×1 10-bit PTM×1	20×4	20	√	26	2.55V	I <sup>2</sup> C×1 UART×1	28SOP 28SSOP

**Enhanced Touch I/O Flash MCU with LED / LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	LCD	Touch Key	RTC	High Current LED Driver	LVR/ LVD	Interface	Package
BS82C16CA*	8MHz 12MHz 16MHz	1.8V~ 5.5V	8MHz~ 16MHz	4K×16	512×8	512×8	6	26	10-bit CTM×2 10-bit PTM×1	26×26	16	√	26	√	I <sup>2</sup> C×1 UART×1 <sup>#</sup>	24SOP/SSOP 28SOP/SSOP
BS82D20CA*	8MHz 12MHz 16MHz	1.8V~ 5.5V	8MHz~ 16MHz	8K×16	768×8	512×8	8	42	10-bit CTM×2 10-bit PTM×2	34×34	20	√	42	√	I <sup>2</sup> C×1 UART×1 <sup>#</sup>	28SOP/SSOP 48LQFP

\* Under development, available in 4Q, 2021.  
Note: # High speed UART interface.

**Enhanced Touch A/D Flash MCU with LED Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Touch Key	High Current LED Driver	RTC	LVR/ LVD	Interface	Package
BS86C08C	8MHz 12MHz 16MHz	2.2V~ 5.5V	8MHz~ 16MHz	4K×16	384×8	32×8	8	26	10-bit CTM×1 10-bit PTM×1	12-bit ×8	8	26	—	√	I <sup>2</sup> C×1 UART×1	24/28SOP 24/28SSOP
BS86D12C	8MHz 12MHz 16MHz	2.2V~ 5.5V	8MHz~ 16MHz	8K×16	512×8	64×8	8	26	10-bit CTM×1 10-bit PTM×1	12-bit ×8	12	26	—	√	I <sup>2</sup> C×1 UART×1	24/28SOP 24/28SSOP
BS86D20C	8MHz 12MHz 16MHz	2.2V~ 5.5V	8MHz~ 16MHz	8K×16	768×8	64×8	8	26	10-bit CTM×1 10-bit PTM×2	12-bit ×8	20	26	√	√	I <sup>2</sup> C×1, SPI×1 UART×1	24/28SOP
BS86D20CA	8MHz 12MHz 16MHz	1.8V~ 5.5V	8MHz~ 16MHz	8K×16	768×8	512×8	8	26	10-bit CTM×1 10-bit PTM×2	12-bit ×8	20	26	√	√	I <sup>2</sup> C×1, SPI×1 UART×1 <sup>#</sup>	28SOP 24/28SSOP
BS86E16C	8MHz 12MHz 16MHz	2.2V~ 5.5V	8MHz~ 16MHz	16K×16	768×8	64×8	8	42	10-bit CTM×1 10-bit PTM×2	12-bit ×8	16	42	√	√	I <sup>2</sup> C×1 UART×2	28SOP/SSOP 44LQFP

Note: # High speed UART interface.

**Touch Flash MCU**
**Touch A/D Flash MCU with OPA / Comparator**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Touch Key	LCD	High Current LED Driver	OPA/Comp.	RTC	LVR	Interface	Package
BS87B12A-3	8MHz 12MHz 16MHz	2.7V~5.5V	8MHz~16MHz	3K×16	384×8	64×8	6	22	10-bit CTM×1 10-bit PTM×1	12-bit ×8	12	16×4	22	√	—	2.55V	SPI/I <sup>2</sup> C×1 UART×1	20NSOP 24SOP
BS87C16A-3	8MHz 12MHz 16MHz	2.7V~5.5V	8MHz~16MHz	4K×16	512×8	64×8	6	30	10-bit CTM×1 10-bit PTM×2	12-bit ×8	16	20×4	30	√	√	2.55V	SPI/I <sup>2</sup> C×1 UART×1	24/28SOP
BS87D20A-3	8MHz 12MHz 16MHz	2.7V~5.5V	8MHz~16MHz	8K×16	768×8	64×8	8	42	10-bit CTM×2 10-bit PTM×2	12-bit ×8	20	36×4	42	√	√	2.55V	SPI/I <sup>2</sup> C×1 UART×1	28SOP 44LQFP

**Touch A/D Flash MCU with LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Touch Key	LCD	RTC	LVR/LVD	Interface	Package
BS67F340	8MHz 12MHz 16MHz	2.2V~5.5V	8MHz~16MHz	4K×16	512×8	128×8	8	√	31	10-bit CTM×2 16-bit STM×1 10-bit PTM×1	12-bit ×8	16	24×4	√	√	SPI/I <sup>2</sup> C×1 UART×1	48LQFP
BS67F350 BS67F350C	8MHz 12MHz 16MHz	2.2V~5.5V	8MHz~16MHz	8K×16	768×8	128×8	8	√	39 43	10-bit CTM×2 16-bit STM×1 10-bit PTM×1	12-bit ×8	20 24	32×4	√	√	SPI/I <sup>2</sup> C×1 UART×1	48/64LQFP
BS67F360	8MHz 12MHz 16MHz	2.2V~5.5V	8MHz~16MHz	16K×16	1024×8	128×8	12	√	43	10-bit CTM×2 16-bit STM×1 10-bit PTM×1	12-bit ×8	28	40×4	√	√	SPI/I <sup>2</sup> C×1 UART×1	48/64LQFP
BS67F370	8MHz 12MHz 16MHz	2.2V~5.5V	8MHz~16MHz	32K×16	1536×8	128×8	16	√	59	10-bit CTM×2 16-bit STM×1 10-bit PTM×1	12-bit ×8	36	48×4	√	√	SPI/I <sup>2</sup> C×1 UART×1	48/64/80 LQFP

**Ultrasonic Atomiser Flash MCU with Touch**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Touch Key	Atomiser Processor	Interface	Package
BS45F3832	12MHz	2.7V~5.5V	12MHz or 32kHz	2K×16	64×8	32×8	4	8	10-bit CTM×1 10-bit PTM×1	12-bit ×2	2	√	—	8/10SOP
BS45F3833	4MHz 8MHz 12MHz	2.2V~5.5V	4/8/12MHz or 32kHz	2Ke×16	128×8	32×8	4	18	10-bit CTM×3 10-bit STM×1 10-bit PTM×1	12-bit ×4	4	√	—	16/20NSOP
BS45F3843	8MHz 12MHz 14MHz	2.2V~5.5V	8MHz or 32kHz	4K×16	256×8	32×8	8	26	10-bit CTM×3 10-bit STM×1 10-bit PTM×1	12-bit ×8	8	√	UART×1	16NSOP 24/28SSOP

**Ultra-Low Power Touch Flash MCU**
**Ultra-Low Power Touch I/O Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	Touch Key	Interface	Package
BS83A02L	8MHz	1.8V~5.5V	8MHz	1K×14	64×8	—	2	4	8-bit×1	2	—	6DFN, 8SOP SOT23-6
BS83B04L	2/4/8MHz	1.8V~5.5V	8MHz	2K×16	128×8	32×8	4	8	10-bit CTM×1	4	I <sup>2</sup> C×1	8SOP 10DFN/MSOP

Note: The standby current is less than 150nA at 3.0V (1 Key).

**Ultra-Low Power Flash MCU with LCD Driver & Touch Key**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Touch Key	LCD	RTC	Interface	Package
BS67F2563	4/8/12MHz	1.8V~5.5V	400kHz~12MHz or 32kHz	16K×16	2304×8	128×8	16	√	31	10-bit CTM×2 16-bit STM×1	12-bit ×7	20	32×4	√	SPI×1 SPI/I <sup>2</sup> C/UART×1	64LQFP

Note: The power consumption of the RTC on standby current is less than 200nA at 3V.

**Touch Key IC**
**Enhanced Touch Key**

Part No.	Touch Key	VDD	Standby Current at 3V		Key Output Type	Package	Serial Interface
			One-key Wake-up	Any-key Wake-up			
BS811C-1	1-Key	2.2V~5.5V	—	2.5μA	Active Low	SOT23-6	—
BS812C-1	2-Key	2.2V~5.5V	—	3.5μA	Active Low	SOT23-6	—
BS813C-1	3-Key	2.2V~5.5V	—	4.0μA	Active Low	8SOP	—
BS814C-1	4-Key	2.2V~5.5V	—	5.0μA	Active Low	10MSOP	—
BS814C-2	4-Key	2.2V~5.5V	—	5.0μA	—	8SOP	√
BS816C-1	6-Key	2.2V~5.5V	—	7.5μA/3.5μA*	Active Low/Active High*	16NSOP	—
BS818C-2	8-Key	2.2V~5.5V	—	8.5μA/3.5μA*	Binary*	16NSOP	√
BS818C-3	8-Key	2.2V~5.5V	3.5μA/2.5μA**	8.0μA/3.5μA**	I <sup>2</sup> C	16NSOP	√
BS8112C-3	12-Key	2.2V~5.5V	4.0μA/2.5μA**	12.0μA/4.5μA**	I <sup>2</sup> C	16NSOP, 20SSOP	√
BS8116C-3	16-Key	2.2V~5.5V	4.0μA/2.5μA**	16.0μA/5.5μA**	I <sup>2</sup> C	20/24SSOP	√

Note: 1. The BS81x series devices have enhanced noise rejection performance.  
 2. \* pin selected option.  
 3. \*\* option by I<sup>2</sup>C communication.

**Cortex-M0+ 32-Bit Voice / Music Flash MCU**
**Cortex-M0+ 32-Bit Music Synthesizer MCU with Data Flash ROM**

Part No.	Max. Freq.	VDD	Flash	Data Flash <sup>3</sup>	SRAM	PDMA	Audio DAC	ADC	Timers <sup>1</sup>	I <sup>2</sup> S	RTC	USB <sup>2</sup>	MIDI Engine	SB Coding	Echo	Interface	I/O	Package
HT32F61244*	48MHz	2.3V~3.6V	64KB	16Mbit	8KB	6CH	16-bit x2	1Msps 12-bit x16	BFTM x2 SCTM x2 GPTM x1	—	—	—	16CH	√	√	UART x1 SPI x1 QSPI x1 I <sup>2</sup> C x1	49	48LQFP 64LQFP
HT32F61245*				32Mbit														
HT32F61355	48MHz	2.3V~3.6V	128KB	32Mbit	16KB	6CH	16-bit x2	1Msps 12-bit x16	BFTM x2 SCTM x4 GPTM x1	√	√	√	32CH	√	√	USART x1 UART x1 SPI x1 QSPI x1 I <sup>2</sup> C x1	43	48LQFP 64LQFP
HT32F61356				64Mbit														
HT32F61357				128Mbit														

\* Under development, available in 1Q, 2022.

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.

2. USB 2.0 Full Speed device.

3. QSPI Flash ROM.

**Voice & Music MCU**
**Voice Flash MCU with Power Amplifier**

Part No.	Internal Clock	VDD	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	RTC	LVR/LVD	Audio DAC	Power Amp.	Interface	Package
HT66FV130	8MHz 12MHz 16MHz	2.2V~5.5V	2K x16	128 x8	32 x8	4	√	15	10-bit CTM x1 10-bit PTM x1	12-bit x4	—	√	16-bit x1	1.5W	SPIA x1	20/24SOP
HT66FV140	8MHz 12MHz 16MHz	2.2V~5.5V	4K x16	256 x8	64 x8	8	√	19	10-bit CTM x1 10-bit PTM x2	12-bit x8	√	√	16-bit x1	1.5W	SPI/I <sup>2</sup> C x1 SPIA x1	24SOP/SSOP 28SOP
HT66FV150	8MHz 12MHz 16MHz	2.2V~5.5V	8K x16	512 x8	128 x8	8	√	27	10-bit CTM x2 10-bit PTM x2	12-bit x8	√	√	16-bit x1	1.5W	SPI/I <sup>2</sup> C x1 SPIA x1 UART x1	28SOP 44LQFP
HT66FV160	8MHz 12MHz 16MHz	2.2V~5.5V	16K x16	1024 x8	256 x8	8	√	35	10-bit CTM x2 10-bit PTM x2 16-bit STM x1	12-bit x8	√	√	16-bit x1	1.5W	SPI/I <sup>2</sup> C x1 SPIA x1 UART x1	44LQFP

**Voice Peripheral MCU**

Part No.	VDD	Voice Flash Memory	Control Mode	PWM Mode	Speech	LVR	Voice Output	PWM Output Power	Support Sentence	Max Voice Capacity	Package
HT68FV022	2.3V~5.5V	16Mbit	One Wire Two Wire Direct	Normal Green	ADPCM u-Law PCM	√	PWM	0.5W into 5V, 8Ω	√	400 sec	8SOP

**Voice Record / Playback Flash MCU**
**Voice Record / Playback Flash MCU with Power Amplifier**

Part No.	Internal Clock	VDD	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	RTC	LVR/LVD	G.711 Voice Codec	16-bit PCM ADC	Audio DAC	Power Amp.	Interface	Package
HT66FV240	16MHz	2.2V~5.5V	4K x16	384 x8	128 x8	8	√	28	16-bit CTM x1 16-bit STM x1 16-bit PTM x1	12-bit x8	√	√	√	√	16-bit x1	1.5W	SPI/I <sup>2</sup> C x1	48LQFP



BLE														
Cortex-M0+ 32-Bit BLE MCU														
Part No.	Max. Freq.	VDD	Flash	SRAM	ADC	Timers #	Ver.	Data Rate	Output Power	Sensitivity	Interface	Others	I/O	Package
HT32F67741*	40MHz	2.0V~3.6V	64KB	8KB	1MSPS 12-bit x6	RTC×1, WDT×1, BFTM×2, SCTM×4, GPTM×1, MCTM×1	5.2	1/2Mbps	+3.5dBm	-94/-91 dBm	USART×1, UART×2, SPI×1, I <sup>2</sup> C×2	CRC×1 TRNG×1	25	46QFN
* Under development, available in 3Q, 2021. Note: # BFTM: Basic Function Timer, SCTM: Single-Channel Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.														
BLE Controller														
Part No.	VDD	Ver.	Data Rate	Output Power	Sensitivity	Interface	Package							
BC7701*	2.0V~3.6V	5.2	1/2 Mbps	+3.5dBm	-94/-91dBm	UART	32QFN							
* Under development, available in 3Q, 2021.														
BLE Beacon Transmitter														
Part No.	VDD	Frequency	Beacon Packet Handler	Output Power	Oscillator	BQB 5.0	Interface	Package						
BC7161	2.0V~3.6V	2402/2426/2480MHz	√	-10~+8dBm	32MHz	√	I <sup>2</sup> C×1	8SOP-EP 10MSOP-EP						
BLE Beacon Transceiver														
Part No.	VDD	Frequency	Beacon Packet Handler	Output Power	Sensitivity	Oscillator	BQB 5.2	Interface	Package					
BC7262*	1.9V~3.6V	2402/2426/2480MHz	√	-10~+8dBm	-93dBm	32MHz	√	I <sup>2</sup> C×1	10SOP-EP					
* Under development, available in 1Q, 2022.														
BLE Beacon 24-Bit A/D Flash MCU														
Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Frequency	Beacon Packet Handler	Output Power	Oscillator	Package
BH66F71252	2.2V~3.6V	8MHz or 32kHz	8K×16	256×8	32×8	8	23	10-bit CTM×1 16-bit PTM×1	24-bit x4	2402/2426/2480 MHz	√	-10~+8 dBm	32MHz	46QFN
BLE Beacon Body Fat Measurement A/D Flash MCU														
Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Frequency	Beacon Packet Handler	Output Power	Oscillator	Package
BH66F71652	2.2V~3.6V	8MHz or 32kHz	8K×16	384×8	32×8	8	17	10-bit CTM×1	24-bit x4	2402/2426/2480MHz	√	-10~+8 dBm	32MHz	46QFN
BH66F71662			16K×16	512×8	64×8			10-bit CTM×1 10-bit STM×1						

**2.4GHz RF**
**2.4GHz RF Transceiver A/D Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Frequency	Data Rate	Output Power	Sensitivity	Interface	Package
BC66F5652	1.9V~3.6V	400kHz~16MHz or 32kHz	8K×16	512×8	128×8	8	22	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit ×12	2402~2480 MHz	125/250/500Kbps	-10~+6 dBm	-97dBm @ 250Kbps	SPI/I <sup>2</sup> C×1 UART×1	28SSOP 46QFN
BC66F5662			16K×16	2048×8	1024×8	16	24	10-bit PTM×2 16-bit STM×3	12-bit ×4						46QFN

**2.4GHz RF Transceiver**

Part No.	VDD	Frequency	Modulation	Data Rate	Output Power	Sensitivity	Oscillator	Interface	Package
BC5602	1.9V~3.6V	2402~2480MHz	GFSK	125/250/500Kbps	-10~+6dBm	-97dBm@250Kbps	16MHz	SPI	16QFN

**2.4GHz RF Transmitter with Encoder A/D Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Frequency	Modulation	Data Rate	Output Power	Package
BC66F5132	2.0V~3.6V	8MHz or 32kHz	2K×14	64×8	32×14 <sup>#</sup>	4	12	8-bit×1	10-bit×4	2402~2480MHz	GFSK	125/250/500 Kbps	-10~+8dBm	24SSOP-EP

Note: # Emulated EEPROM.

**2.4GHz RF Transmitter with Encoder**

Part No.	VDD	Frequency	Modulation	Data Rate	Output Power	Oscillator	Key Mode	Interface	Package
BC5161	2.0V~3.6V	2402~2480MHz	GFSK	125/250/500Kbps	-10~+8dBm	32MHz	√	—	8SOP-EP, 16QFN
BC5162							—	I <sup>2</sup> C	8SOP-EP

**Sub-1GHz RF**
**Sub-1GHz RF Transceiver A/D Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Band	Data Rate	Max. Output Power	Rx Current Consumption	Package
BC66F3652	1.9V~3.6V	400kHz~16MHz or 32kHz	8K×16	512×8	128×8	8	22	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit ×12	315/433/470/868/915MHz	2~250 Kbps	13dBm	4.2mA@433MHz 5.5mA@868MHz	46QFN
BC66F3662	1.9V~3.6V	400kHz~16MHz or 32kHz	16K×16	2048×8	1024×8	16	22	10-bit PTM×2 16-bit STM×2	12-bit ×4	315/433/470/868/915MHz	2~250 Kbps	13dBm	4.2mA@433MHz 5.5mA@868MHz	46QFN

**Sub-1GHz RF Transceiver**

Part No.	VDD	Band	OOK/GFSK	Low Current	External Inductor	Data Rate	Max. Output Power	Sensitivity	Package
BC3601	2.0V~3.6V	315/433/470/868/915MHz	GFSK	—	—	2~250Kbps	17dBm	-121dBm@2kbps	24QFN
BC3602	1.9V~3.6V	315/433/470/868/915MHz	GFSK	√	√	2~250Kbps	13dBm	-120dBm@2kbps	24QFN
BC3603*	1.8V~3.6V	315/433/470/868/915MHz	√	√	—	OOK: 0.5~20Kbps GFSK: 2~250Kbps	20dBm	-121dBm@2kbps	16QFN

\* Under development, available in 2Q, 2022.

**Sub-1GHz RF Transmitter Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	LVR/LVD	Band	OOK/FSK	OOK Symbol Rate	Output Power	Package
BC66F2123*	2.2V~3.6V	8MHz or 32kHz	1K×14	64×8	32×8	2	—	9	10-bit STM×1 10-bit PTM×1	10-bit ×3	LVR	315/433/868/915MHz	√	0.5~25Ksps	0/5/10/13 dBm	16NSOP-EP
BC68F2123										—	√		OOK			
BC66F2133	2.2V~3.6V	8MHz or 32kHz	2K×14	64×8	32×14 <sup>#</sup>	4	—	9	8-bit×1	10-bit ×4	LVR	315/433/868/915MHz	√	0.5~25Ksps	0/5/10/13 dBm	16NSOP-EP
BC68F2130	2.0V~3.6V	16MHz or 32kHz	2K×16	256×8	—	8	√	8	10-bit CTM×1 10-bit PTM×1	—	√	315/433/868/915MHz	√	0.5~25Ksps	0/10/13 dBm	16NSOP-EP 16QFN
BC68F2140	2.0V~3.6V	16MHz or 32kHz	4K×16	256×8	—	8	√	14	10-bit CTM×1 10-bit PTM×1	—	√	315/433/868/915MHz	√	0.5~25Ksps	0/10/13 dBm	24SSOP-EP 24QFN
BC68F2150	2.0V~3.6V	16MHz or 32kHz	8K×16	256×8	—	8	√	14	10-bit CTM×1 10-bit PTM×1	—	√	315/433/868/915MHz	√	0.5~25Ksps	0/10/13 dBm	24SSOP-EP 24QFN

\* Under development, available in 4Q, 2021.

Note: # Emulated EEPROM.

**Sub-1GHz RF Transmitter Hopping Code Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Hopping Code	Stack	I/O	Timer	LVR/LVD	Band	OOK/FSK	OOK Symbol Rate	Output Power	Package
BC68F3132*	2.2V~3.6V	4/8/12MHz or 32kHz	2K×15	128×8	64×8	√	6	9	10-bit CTM×2	√	315/433/868/915MHz	√	0.5~25Ksps	0/5/10/13 dBm	16NSOP-EP

\* Under development, available in 4Q, 2021.

**Sub-1GHz RF**
**Sub-1GHz RF Transmitter Touch Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Stack	IAP	I/O	Timer	ADC	LVR/LVD	Band	OOK/FSK	Touch key	Output Power	Package
BC66F2235	2.0V~3.6V	8MHz or 32kHz	2K×16	352×8	8	√	8	10-bit CTM×2 10-bit PTM×1	12-bit×1	√	315/433/ 868/915MHz	√	8	0/10/13dBm	16NSOP-EP
BC66F2245	2.0V~3.6V	8MHz or 32kHz	4K×16	352×8	8	√	15	10-bit CTM×2 10-bit PTM×1	12-bit×4	√	315/433/ 868/915MHz	√	14	0/10/13dBm	24SSOP-EP
BC66F2255	2.0V~3.6V	8MHz or 32kHz	8K×16	352×8	8	√	23	10-bit CTM×2 10-bit PTM×1	12-bit×4	√	315/433/ 868/915MHz	√	16	0/10/13dBm	32QFN

**Sub-1GHz RF Transmitter**

Part No.	VDD	Band	OOK/FSK	OOK Symbol Rate	FSK Data Rate	Output Power	Oscillator	Package
BC2102	2.2V~3.6V	315/433/868/915MHz	√	0.5~25Ksps	0.5~50Kbps	0/5/10/13dBm	16MHz	8SOP-EP

**Sub-1GHz RF Transmitter with Encoder**

Part No.	VDD	Band	OOK	OOK Symbol Rate	Output Power	Oscillator	Encoding Format	Package
BC2161	2.2V~3.6V	315/433/868/915MHz	√	1.5~24Ksps	0/5/10/13dBm	16MHz	1527, 2262 and HT compatible	8SOP-EP 16NSOP-EP/QFN

**Sub-1GHz OOK Rx Flash MCU**

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Band	Demod.	Symbol Rate	Current Consumption	Sensitivity	Package
BC66F2332	2.5V~5.5V	8MHz or 32kHz	2K×14	64×8	32×8	4	8	10-bit STM×1	12-bit×4	315/433/ 868/915MHz	OOK	20Ksps (Max.)	3.2mA@433MHz 4.0mA@868MHz	-112dBm @10Ksps	16NSOP-EP
BC66F2342	2.5V~5.5V	8MHz or 32kHz	4K×15	128×8	32×15 <sup>#</sup>	6	13	10-bit STM×1 10-bit PTM×1	10-bit×6	315/433/ 868/915MHz	OOK	20Ksps (Max.)	3.2mA@433MHz 4.0mA@868MHz	-112dBm @10Ksps	24SSOP-EP

Note: # Emulated EEPROM.

**Sub-1GHz OOK Rx HVIO A/D Flash MCU**

Part No.	VCC (HV)	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	HVIO	ADC	LDO Output Voltage	Band	Symbol Rate	Current Consumption	Sensitivity	Package
BC45F7930	7.5V~12V	4.5V~5.5V	32kHz~16MHz	2K×16	128×8	64×8	4	9	10	12-bit x4	5.0V	315/433/ 868/915MHz	20Ksps (Max.)	3.2mA@433MHz 4.0mA@868MHz	-112dBm @10kps	46QFN 48LQFP-EP
BC45F7940				4K×16	256×8	128×8	8	13		12-bit x7						

**Sub-1GHz OOK/FSK Rx**

Part No.	VDD	Band	OOK/FSK	OOK Symbol Rate	FSK Data Rate	Current Consumption	Sensitivity	Package
BC2302A	2.5V~5.5V	315/433MHz	OOK	0.5~20Ksps	—	3.2mA@433MHz	-112dBm@10Ksps	8SOP-EP
BC2302B		315/433/868/915MHz				4.0mA@868MHz		
BC2502A*	2.4V~5.5V	315/433MHz	√	0.5~25Ksps	1~50Kbps	4.5mA@433MHz	OOK: -110dBm@10Ksps FSK: -110dBm@10Kbps	10SOP-EP
BC2502B*		315/433/868/915MHz				6.0mA@868MHz		

\* Under development, available in 4Q, 2021.

**NFC**
**NFC Reader**

Part No.	VDD	System Clock	RF Frequency	NFC Standards	RF Data Rate	RF Output Current	NFC FIFO-buffer	CRC	Receiver AGC	VDDIO	Interface	Package
BC45B4523	2.7V~5.5V	27.12MHz	13.56MHz	ISO14443A/B ISO15693	106/212/424/848Kbps @ ISO14443A/B	250mA	64×8	√	√	√	SPI×1	24QFN

**Infrared / Encoder / Decoder**
**IR Remote Flash MCU with High Precision HIRC**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Stack	I/O	IR Carrier	Package
HT68F2420	4MHz±0.4%	1.8V~5.5V	4MHz or 32kHz	1K×13	32×8	2	16	√	8SOP, 16/20NSOP 20SSOP

**A/D Flash MCU with LCD Driver & High Accuracy HIRC**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	LCD	RTC	ADC	Interface	Package
HT67F2432	4MHz	1.8V~5.5V	4MHz or 32kHz	2K×16	128×8	32×16 <sup>#</sup>	6	26	9-bit Timer×1 10-bit CTM×1	20×4	√	10-bit×5	UART×1	24/28 SOP/SSOP

Note: # Emulated EEPROM.

**RF Module**
**Cortex-M0+ 32-Bit BLE MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	ADC	Timers <sup>1</sup>	Ver.	Data Rate	Output Power	Sensitivity	Interface	Others <sup>2</sup>	I/O	Stamp Holes
BM67C741-1*	40MHz	2.0V~3.6V	64KB	8KB	1Msps 12-bit×6	RTC×1, WDT×1, BFTM×2, SCTM×4, GPTM×1, MCTM×1	5.2	1/2Mbps	+3.5dBm	-94/-91dBm	USART×1, UART×2, SPI×1, I <sup>2</sup> C×2	CRC×1 TRNG×1	25	20×24 (P=1.27mm)

\* Under development, available in 3Q, 2021.

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.

2. ULP: Ultra Low Power, TRNG: Software based True Random Number Generator, QDEC: Quadrature Decoder, KBCTL: Keyboard Controller, TMPSEN: Temperature Sensor.

3. 32KB OTP (One Time Programmable memory).

**BLE Controller**

Part No.	VDD	Ver.	Data Rate	Output Power	Sensitivity	Interface	Stamp Holes
BM7701-00-1*	2.0V~3.6V	5.2	1/2 Mbps	+3.5dBm	-94/-91dBm	UART	17.8×18 (P=1.27mm)

\* Under development, available in 3Q, 2021.

**BLE Transparent Transmission**

Part No.	VDD	Data EEPROM	Data Rate	Output Power	Sensitivity	Interface	Stamp Holes
BCM-7602-G01	2.2V~3.6V	8K×8	1Mbps	+3dBm	-90dBm	UART/SPI	8×2 (P=1.27mm)

**Sub-1GHz Receiver**

Part No.	VDD	Band	Demod.	Symbol Rate	Current Consumption	Sensitivity	Interface	Dimension
BM2302-33-1	3.0V~5.5V	315MHz	OOK	20Ksps (Max.)	3.2mA@315MHz	-112dBm@10ksps	I <sup>2</sup> C	43×10.5×5.2 (mm)
BM2302-34-1		433MHz			3.2mA@433MHz	-112dBm@10ksps		
BM2302-38-1		868MHz			4.0mA@868MHz	-111dBm@10ksps		
BM2302-39-1		915MHz			4.0mA@915MHz	-110dBm@10ksps		
BM2302-63-1	3.0V~5.5V	315MHz	OOK	20Ksps (Max.)	3.2mA@315MHz	-112dBm@10ksps	I <sup>2</sup> C	16×15×2.6 (mm)
BM2302-64-1		433MHz			3.2mA@433MHz	-112dBm@10ksps		
BM2302-68-1		868MHz			4.0mA@868MHz	-111dBm@10ksps		
BM2302-69-1		915MHz			4.0mA@915MHz	-110dBm@10ksps		
BM2502-63-1	2.5V~5.5V	315MHz	OOK/FSK	25Ksps (OOK Max.)  50Ksps (FSK Max.)	4.4mA@315MHz	-110dBm@10ksps (OOK) -110dBm@10ksps (FSK)	I <sup>2</sup> C	16×15×2.6 (mm)
BM2502-64-1		433MHz			4.5mA@433MHz	-110dBm@10ksps (OOK) -110dBm@10ksps (FSK)		
BM2502-68-1		868MHz			6.0mA@868MHz	-109dBm@10ksps (OOK) -107dBm@10ksps (FSK)		
BM2502-69-1		915MHz			6.2mA@915MHz	-109dBm@10ksps (OOK) -107dBm@10ksps (FSK)		

**RF Module**
**Sub-1GHz Transceiver**

Part No.	VDD	Band	Data Rate	Output Power	Rx Current Consumption	Sensitivity	Interface	Dimension
BM3601-03-1	2.0V~3.6V	315MHz	10~250Kbps	17dBm (Max.)	13.5mA@315MHz	-113dBm@10Kbps	SPI	15×18.5×2.5 (mm)
BM3601-04-1		433MHz			13.0mA@433MHz			
BM3601-08-1		868MHz			13.5mA@868MHz	-113dBm@10Kbps		
BM3601-09-1		915MHz			13.5mA@915MHz			
BM3602-03-1	2.0V~3.6V	315MHz	10~250Kbps	13dBm (Max.)	4.1mA@315MHz	-113dBm@10Kbps	SPI	15×18.5×2.5 (mm)
BM3602-04-1		433MHz			4.2mA@433MHz			
BM3602-08-1		868MHz			5.5mA@868MHz	-113dBm@10Kbps		
BM3602-09-1		915MHz			6.0mA@915MHz			

**2.4GHz Transceiver**

Part No.	VDD	Band	Data Rate	Output Power	Sensitivity	Interface	Dimension
BM5602-60-1	1.9V~3.6V	2402~2480MHz	125/250/500Kbps	7dBm (Max.)	-98dBm@125Kbps	SPI	17×16×2 (mm)

**Interface Bridge**
**USB Bridge**

Part No.	Description	VDD	Internal Clock	Interface	USB	Virtual COM	HID	FIFO/Buffer	Interface Data Rate	VDDIO	Package
HT42B532-1	USB to I <sup>2</sup> C Bridge	3.3V~5.5V	12MHz	USB×1 I <sup>2</sup> C×1	Full Speed	√	—	TX: 62 bytes RX: 62 bytes	Up to 400kHz	√	8SOP 10MSOP
HT42B533-1	USB to SPI Bridge	3.3V~5.5V	12MHz	USB×1 SPI×1	Full Speed	√	—	TX: 128 bytes RX: 128 bytes	Up to 8MHz	√	10MSOP 16NSOP
HT42B534-2	USB to UART Bridge	3.3V~5.5V	12MHz	USB×1 UART×1	Full Speed	√	—	TX: 128 bytes RX: 128 bytes	Up to 3Mbps Baud	√	8/10SOP 10MSOP 16NSOP
HT42B564-1	USB to UART Bridge	3.3V~5.5V	12MHz	USB×1 UART×1	Full Speed	—	√	TX: 32 bytes RX: 32 bytes	Up to 115.2kbps Baud	√	10SOP

**CAN Bus Controller**

Part No.	Description	VDD	System Clock	Protocol	Message Objects	Message Memory	Interface	Package
HT45B3305H	CAN Controller	3.0V~5.5V	8MHz~ 24MHz	CAN 2.0A/B ISO11898-1	32	32×139-bit	CAN×1 SPI×1, I <sup>2</sup> C×1	16NSOP/QFN

Note: Operating temperature range -40°C~+125°C.  
Based on BOSCH CAN IP module C\_CAN.

**Telecom IC**
**Telecom Peripheral**

Part No.	Description	VDD	OSC Frequency	Package
HT9200A	DTMF generator	2.5V~5.5V	3.58MHz	8SOP
HT9200B				14SOP
HT9170D	DTMF receiver	2.5V~5.5V	3.58MHz	18SOP



**Battery Management**
**Power Bank Flash MCU**

Part No.	Internal Clock	VCC (HV)	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Protections	LDO	HVO	VREF	Q.C 2.0	Package
HT45F4MA	30MHz	—	2.55V~5.5V	470kHz~15MHz or 32kHz	2K×16	128×8	64×8	4	16	10-bit PTM×1 16-bit STM×1	12-bit ×8	OVP×1 OCP×1	—	—	—	—	16NSOP 20SSOP
HT45FH4MA-1		3V~28V							5V				2	20SSOP			
BP45F4MB	30MHz	—	2.5V~5.5V	470kHz~15MHz or 32kHz	2K×16	128×8	—	4	18	10-bit PTM×1 16-bit STM×1	12-bit ×7	OVP×1 OCP×1	—	—	2.4V ±1%	—	16NSOP 20SSOP
HT45F4N	30MHz	—	2.55V~5.5V	470kHz~15MHz or 32kHz	4K×16	192×8	64×8	8	26	10-bit PTM×3 16-bit STM×1	12-bit ×14	OCP×2 OUVP×1	—	—	—	—	28SSOP
HT45FH4N		3V~28V							5V		2		—	√			
BP45F4NB	30MHz	—	2.6V~5.5V	470kHz~15MHz or 32kHz	4K×16	256×8	—	8	26	10-bit CTM×2 16-bit PTM×1	12-bit ×11	OCP×2 OUVP×1	—	—	2.4V ±1%	—	24/28SSOP 28QFN
BP45FH4NB		3V~28V							5V				2	—			√

**Advanced Power Bank Flash MCU**

Part No.	Internal Clock	VCC (HV)	VDD	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	Auto-adjust H.R. PWM	Protections	LDO	HVO	VREF	Q.C 2.0	Package
HT45F5N	8MHz	—	2.55V~5.5V	4K×16	256×8	64×8	8	30	10-bit PTM×1 16-bit STM×1	12-bit ×14	2	OCP×2 OUVP×2	—	—	2.4V ±1%	—	28SSOP 32QFN
HT45FH5N		3V~28V						5V					2	√			28SSOP 46QFN
BP45FH6N	8MHz 12MHz 16MHz	3V~15V	2.55V~5.5V	6K×16	256×8	64×8	8	28	10-bit PTM×1 16-bit STM×1	12-bit ×14	2	OCP×2 OUVP×2	5V	8	2V/3V/4V ±1%	√	46QFN

Note: 1. H.R. PWM: High Resolution and Complementary PWM Outputs with dead-time control, the duty cycle resolution is 7.8ns when the HIRC is 8MHz.  
2. BP45FH6N has 4 pin high voltage output with 12V/90mA and 4 pin High Voltage MOS Gate Driver with 12V/450mA.

**Battery Charger Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	DAC	OPA	CRC	LVR	Interface	Package
HT45F5Q-1	8MHz	2.2V~5.5V	8MHz	1K×14	32×8	32×14#	4	9	—	10-bit ×5	8-bit×1 12-bit×1	2	—	2.1V	—	16NSOP
HT45F5Q-2	8MHz 32kHz	2.2V~5.5V	125kHz~8MHz or 32kHz	2K×16	128×8	32×8	6	15	10-bit CTM×1	12-bit ×7	8-bit×1 12-bit×1	3	—	2.1V	UART×1	20NSOP
HT45F5Q-2A	8MHz 32kHz	2.2V~5.5V	125kHz~8MHz or 32kHz	2K×15	128×8	32×15#	6	15	10-bit CTM×1	12-bit ×7	14-bit×1 12-bit×1	3	—	2.1V	UART×1	16/20NSOP
HT45F5Q-3	8MHz 32kHz	2.2V~5.5V	125kHz~8MHz or 32kHz	4K×15	256×8	32×15#	6	23	10-bit CTM×1 10-bit STM×1	12-bit ×11	14-bit×1 12-bit×1	3	√	2.1V	SPI/I <sup>2</sup> C/ UART×1	24/28SSOP

Note: # Emulated EEPROM.

**Wireless Charger Tx Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	OCP	De-Modulation	PLL	Clock Gen.	Modulation	Interface	Package
HT66FW2230	20MHz	4.0V~5.5V	312kHz~20MHz or 32kHz	4K×16	128×8	64×8	8	21	10-bit CTM×1 10-bit STM×1	12-bit ×8	1	1	0	1	—	I <sup>2</sup> C×1	24/28SSOP 28QFN
HT66FW2350	8MHz	4.0V~5.5V	125kHz~16MHz or 32kHz	8K×16	256×8	64×8	8	27	10-bit CTM×1 10-bit STM×1 16-bit PTM×1	12-bit ×7	1	2	32 MHz	1	FSK	I <sup>2</sup> C×1	32QFN

**Wireless Charger Rx Flash MCU**

Part No.	Internal Clock	VIN	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	IAP	I/O	Timer	ADC	Sync. Rectifier	LDO	Linear Charge	Modulation	Receive Power	Package
BP66FW1240	8MHz 12MHz 16MHz	7V~7V	1.8V~5.5V	400kHz~16MHz or 32kHz	4K×16	256×8	128×8	√	20	16-bit CTM×1 16-bit STM×1 10-bit PTM×1	12-bit ×8	√	30mA @5V	40~600 mA	R type	5W	46QFN
BP66FW1242									18		12-bit ×6			100~1000 mA	R/C type		32QFN

**Battery Management**
**Handheld Product Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	PWM	High Current LED Driver	Linear Charger	N-MOS	H-Bridge Driver	Package
BP45F1120	8MHz	1.8V~5.5V	128kHz~8MHz or 32kHz	1K×14	64×8	32×14#	4	11	8-bit×1	10-bit×4	8-bit×1	11	40~800mA	—	—	16NSOP 16QFN
9												√		16NSOP		
9												—		2.1A	24SSOP-EP	
BP45F1130	8MHz	1.8V~5.5V	128kHz~8MHz or 32kHz	2K×14	64×8	32×14#	4	19	8-bit×1	10-bit×4	8-bit×1	19	40~400mA	—	—	16/20NSOP 24SSOP
BP45F0102	8MHz	1.8V~5.5V	128kHz~8MHz or 32kHz	2K×14	64×8	32×14#	4	13	8-bit×1	10-bit×4	8-bit×1	13	—	—	2.1A	20SSOP
14								14				40~400mA	—	24SSOP		
BP45F1132	8MHz	2.2V~5.5V	128kHz~8MHz or 32kHz	2K×15	128×8	32×8	4	18	8-bit×1	12-bit×4	8-bit×2	17	200~1000mA	—	—	16NSOP-EP 24SSOP-EP 24QFN
BP45F1332												14			2.1A	24SSOP-EP

Note: # Emulated EEPROM.

Part No.	Internal Clock	VIN	VDD	System Clock	Program Memory	Data Memory	Stack	I/O	Timer	ADC	VREF	High Current LED Driver	LDO	HVO	Protections	H-Bridge Driver	Package
BP45F1430	30MHz	6V~12V	2.6V~5.5V	468kHz~15MHz or 32kHz	2K×16	128×8	4	12	10-bit PTM×1 10-bit STM×1	12-bit×7 12-bit×5	2.4V±1%	12	70mA@5V	4	OCP×1 OVP×1	—	24SSOP 24QFN
8								8				8				3.0A	24SSOP-EP

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Stack	I/O	Timer	PWM	High Current LED Driver	De-modulation	HV-MOSFET	Package
BP45F0044	16MHz	3.3V~5.5V	250kHz~16MHz or 32kHz	512×13	32×8	2	4	8-bit×1	8-bit×1	4	1	1	8SOP

**Li Battery & Power Management Flash MCU**
**Li Battery Protection Flash MCU**

Part No.	Internal Clock	VIN	LDO	System Clock	Program Memory	Data Memory	Data EEPROM	IAP	I/O	Timer	ADC	HV MOSFET Gate Driver	Cell Charging Balance	HV Wake Up	V <sub>MON</sub> Accuracy	Interface	Package
HT45F8550	8MHz 12MHz 16MHz	7.5V~36V	5V±1% 30mA	400kHz~16MHz or 32kHz	8K×16	512×8	128×8	√	22	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit×9	—	—	—	1/n±0.5% (Ratio)	UART×1 SPI/I <sup>2</sup> C×1	28SSOP 48LQFP-EP
HT45F8560					16K×16	2048×8	1024×8		33	10-bit PTM×2 16-bit PTM×2 16-bit STM×3	12-bit×8					UART×2 SPI/I <sup>2</sup> C×1 SPIA×1	48LQFP-EP
HT45F8640*	8MHz 12MHz 16MHz	7.5V~36V	5V±1% 50mA	400kHz~16MHz or 32kHz	4K×16	256×8	128×8	√	11	10-bit PTM×1 16-bit CTM×1 16-bit STM×1	12-bit×5	Low-side×1 High-side×1	√	√	1/n±0.5% (Ratio)	I <sup>2</sup> C×1	28SSOP
HT45F8650*					8K×16	512×8	128×8		22	12-bit×9	UART×1 SPI/I <sup>2</sup> C×1	28SSOP 48LQFP-EP					
HT45F8660*					16K×16	2048×8	1024×8		26	10-bit PTM×2 16-bit PTM×2 16-bit STM×3	12-bit×7	Low-side×2 High-side×1				UART×2 SPI/I <sup>2</sup> C×1 SPIA×1	48LQFP-EP

\* Under development, available in 1Q, 2022.

Note: The operating voltage range of this series of devices is 1.8V~5.5V.

**Power Delivery Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	VREF	CRC	PD 3.0	OPA	Interface	Package
BP45F7850	12MHz 16MHz 20MHz	2.6V~5.5V	187kHz~20MHz or 32kHz	8K×16	2K×8	1K×8	16	19	10-bit PTM×2 16-bit PTM×2 16-bit STM×3	12-bit×11	2/3/4V±1%	√	√ (DRP*)	1	SPI/I <sup>2</sup> C×1 I <sup>2</sup> C Master×1 UART×1	32QFN
BP45F7860				16K×16												

Note: \* In the PD protocol, DRP can be used as a DFP (Host) or a UFP (Device) and can be dynamically switched between DFP and UFP.

**Inverter Flash MCU**
**Inverter Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	SPWM	OCP	OVP	AC Detector	LVD/LVR	Interface	Package
HT45F5V	16MHz	4.0V~5.5V	312kHz~20MHz or 32kHz	4K×16	256×8	64×8	6	24	10-bit CTM×2 16-bit STM×1	12-bit×10	12-bit×1	2	1	√	√	UART×1	24/28SSOP

**LDO & Detector**

**TinyPower™ LDO**

Part No.	Maximum Input Voltage	Output Voltage, V <sub>OUT</sub>	Max. Output Current	Typical Current Consumption	Chip Enable Function	Tolerance	Protections	Package
HT1015-1	12V	1.5V	18mA	2.2μA	—	±3%	—	SOT23-5, SOT89
HT71xx-1	30V	2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.4V/5.0V	30mA	2.5μA	—	±3%	Soft-Start	SOT23-5, SOT89
HT71xx-2	30V	2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.4V/5.0V	30mA	2.5μA	—	±1%	Soft-Start	SOT23-5, SOT89
HT71xx-3	30V	2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.4V/5.0V	30mA	1.0μA	—	±2%	Soft-Start	SOT23-5, SOT89
HT75xx-1	30V	2.1V/2.3V/2.5V/2.7V/3.0V/3.3V/3.6V/4.0V/4.4V	100mA	2.5μA	—	±3%	Soft-Start	SOT23-5, SOT89
		5.0V/6.0V/7.0V/8.0V/9.0V/10.0V/12.0V	150mA					
HT75xx-2	30V	2.1V/2.3V/2.5V/2.7V/3.0V/3.3V/3.6V/4.0V/4.4V	100mA	2.5μA	—	±1%	Soft-Start	SOT23-5, SOT89
		5.0V/6.0V/7.0V/8.0V/9.0V/10.0V/12.0V	150mA					
HT75xx-3	30V	2.1V/2.3V/2.5V/2.7V/3.0V/3.3V/3.6V/4.0V/4.4V	100mA	1.0μA	—	±2%	Soft-Start	SOT23-5, SOT89
		5.0V/6.0V/7.0V/8.0V/9.0V/10.0V/12.0V	150mA					
HT75xx-7	30V	2.1V/2.3V/2.5V/2.7V/3.0V/3.3V/3.6V/4.0V/4.4V	100mA	2.5μA	√	±2%	Soft-Start, OCP, OTP	SOT23-5, SOT89
		5.0V/6.0V/7.0V/8.0V/9.0V/10.0V/12.0V	150mA					
HT73xx	12V	1.8V	150mA	3.5μA	—	±3%	—	SOT89
		2.5V	180mA					
		2.7V	200mA					
		3.0V/3.3V/3.5V/4.15V/5.0V	250mA					
HT73xx-1	30V	2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V	250mA	2.5μA	—	±3%	Soft-Start	SOT89, 8SOP-EP
HT73xx-2	30V	2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V	250mA	2.5μA	—	±1%	Soft-Start	SOT89, 8SOP-EP
HT73xx-3	30V	2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V	250mA	1.0μA	—	±2%	Soft-Start	SOT89, 8SOP-EP
HT73xx-7	30V	2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V	250mA	2.5μA	√	±2%	Soft-Start, OCP, OTP	SOT89, 8SOP-EP
HT72xx	8V	1.8V/2.5V/2.7V/3.0V/3.3V/4.5V/5.0V	300mA	4.0μA	√	±2%	OCP, OTP	SOT23, SOT23-5, SOT89
HT78xx	8V	1.8V/2.5V/2.7V/3.0V/3.3V/5.0V	500mA	4.0μA	√	±2%	OCP, OTP	SOT23-5, SOT89
HT73Lxx	6.6V	0.9V/1.05V/1.2V/1.5V/1.8V/ 2.5V/2.7V/3.0V/3.3V/3.6V	250mA	1.0μA	√	±2%	Soft-Start, OCP, OTP	4DFN, SOT89, SOT23-5
HT75Hxx	40V	2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V	150mA	2.5μA	√	±1.5%	Soft-Start, OCP, OTP	SOT89, SOT23-5, 8SOP-EP
HT73Hxx	40V	2.1V/2.3V/2.5V/2.7V/3.0V/ 3.3V/3.6V/4.0V/4.4V/5.0V	250mA	2.5μA	√	±1.5%	Soft-Start, OCP, OTP	SOT89, SOT23-5, 8SOP-EP

Note: The xx in the part number is the LDO output voltage.

**TinyPower™ Voltage Detector**

Part No.	Maximum Input Voltage	Detector Voltage, V <sub>DET</sub>	Hysteresis Width	Typical Current Consumption	Tolerance	Package
HT70xxA-1	30V	2.2V/2.4V/2.7V/3.3V/3.9V/4.4V/5.0V/8.2V	0.05V × V <sub>DET</sub>	3.0μA	±3%	SOT23, SOT23-5, SOT89
HT70xxA-2	30V	2.2V/2.4V/2.7V/3.3V/3.9V/4.4V/5.0V/8.2V	0.05V × V <sub>DET</sub>	3.0μA	±1%	SOT23-5, SOT89
HT70xxA-3	30V	2.2V/2.4V/2.7V/3.3V/3.9V/4.4V/5.0V/8.2V	0.05V × V <sub>DET</sub>	1.0μA	±2%	SOT23-5, SOT89

Note: The xx in the part number is the detect voltage.

**DC to DC Converter**
**Asynchronous Step-Down DC to DC Converter**

Part No.	Max. Input Voltage	Output Voltage	Output Current	Switching Frequency	Current Limit	Accuracy	Shutdown Current, I <sub>OFF</sub>	Operation Current, I <sub>Q</sub>	Efficiency	Mode	Package
HT7463A	52V	1.0V~36V	0.6A	1250kHz	1.0A	0.794V±2.0%	1.0μA	0.7mA	95%	PWM/PSM	SOT23-6
HT7463B				550kHz							
HT74T35A*	60V	0.8V~36V	0.6A	1250kHz	1.2A	0.794V±2.0%	1.0μA	0.2mA	95%	PWM/PSM	SOT23-6
HT74T35B*				550kHz							

\* Under development, available in 1Q, 2022.

**Synchronous Step-Down DC to DC Converter**

Part No.	Max. Input Voltage	Output Voltage, V <sub>OUT</sub>	Output Current	Switching Frequency	Current Limit	Accuracy	Shutdown Current, I <sub>OFF</sub>	Operation Current, I <sub>Q</sub>	Efficiency	Mode	Package
HT74153*	6V	0.6V~5V	1.8A	1200kHz	3.2A	0.6V±1.5%	0.5μA	0.05mA	95%	PWM/PFM	8SOP-EP SOT23-5
HT74U26L**	60V	0.8V~36V	0.6A	400kHz	1.5A	0.8V±1.5%	1.0μA	0.005mA	95%	PWM/PFM	8SOP-EP SOT23-6

\* Under development, available in 1Q, 2022.

\*\* Under development, available in 2Q, 2022.

**Asynchronous Step-Up DC to DC Converter**

Part No.	Input Voltage	Output Voltage, V <sub>OUT</sub>	Output Current	Switching Frequency	Current Limit	Accuracy	Shutdown Current, I <sub>OFF</sub>	Operation Current, I <sub>Q</sub>	Efficiency	Mode	Package
HT77xxB	0.7V~6.0V	1.8V/2.2V	0.1A	115kHz	—	V <sub>OUT</sub> ±2.5%	1.0μA	4μA	80%	PFM	SOT23, SOT23-5 SOT89
		2.7V/3.0V/3.3V/3.7V/5.0V							85%		
HT77xxBA	0.7V~6.0V	2.7V/3.0V/3.3V/3.7V/5.0V	0.2A	200kHz	0.8A	V <sub>OUT</sub> ±2.5%	1.0μA	5μA	85%	PFM	SOT23, SOT23-5 SOT89
HT77xxC	0.7V~6.0V	1.8V/2.2V	— (External)	115kHz	—	V <sub>OUT</sub> ±2.5%	1.0μA	4μA	80%	PFM	SOT23-5, SOT89
		2.7V/3.0V/3.3V/3.7V/5.0V							85%		
HT7991	2.6V~5.5V	3.0V~12.0V	1.0A	1000kHz	2.5A	0.6V±2.0%	1.0μA	210μA	85%	PWM	SOT23-6

Note: The xx in the part number is the output voltage.

**Synchronous Step-Up DC to DC Converter**

Part No.	Input Voltage	Output Voltage, V <sub>OUT</sub>	Output Current	Switching Frequency	Current Limit	Accuracy	Shutdown Current, I <sub>OFF</sub>	Operation Current, I <sub>Q</sub>	Efficiency	Mode	Package
HT77xxFA	0.7V~6.0V	2.7V/3.0V/3.3V/3.7V/5.0V	0.2A	—	—	V <sub>OUT</sub> ±2%	1.0μA	4μA	90%	PFM	SOT23, SOT23-5, SOT89
HT79171	2.2V~5.0V	2.6V~5.2V	2.0A	500kHz	5.0A	0.6V±1.5%	1.0μA	65μA	95%	PWM/PSM	8SOP-EP, 10QFN
HT79181	2.2V~5.0V	2.6V~5.2V	3.0A	500kHz	6.0A	0.6V±1.5%	1.0μA	65μA	95%	PWM/PSM	10QFN

Note: The xx in the part number is the output voltage.

**Charge Pump DC to DC Converter**

Part No.	Input Voltage	Output Voltage, V <sub>OUT</sub>	Output Current	Switching Frequency	Current Limit	Accuracy	Shutdown Current, I <sub>OFF</sub>	Operation Current, I <sub>Q</sub>	Efficiency	Package
HT7660	3V~12V	-V <sub>DD</sub> ~V <sub>DD</sub>	20mA	10kHz	—	V <sub>OUT</sub> ±4.0%	—	0.08mA	98%	8DIP/SOP

**AC to DC Converter**
**AC to DC Converter**

Part No.	Topology	PF	Power MOS (BV)	Input Voltage	R <sub>DS(ON)</sub>	Operation Current	Typical Power Capability	Frequency	Protections	Package
HT7A6312	Flyback (SSR), Buck, Buck-Boost	—	730V	9V~38V	19Ω	0.7mA	8W/13W <sup>#</sup>	60kHz	UVLO, OTP, OVP, OCP	8DIP/SOP
HT7A6322					12Ω		12W/20W <sup>#</sup>			
HT7L5820	Flyback (PFC+QR PWM)	> 0.97	Ext.	9V~28V	—	3mA	200W	—	Brown In/Out, UVLO, OCP, open/short, OVP (Auto Recovery), OTP (Auto Recovery)	16NSOP
HT7L5821									Brown In/Out, UVLO, OCP, open/short, OVP (Latched), OTP (Latched)	

Note: All of ICs operate from 85V<sub>AC</sub> to 265V<sub>AC</sub>.

<sup>#</sup> Max. output power from 85V<sub>AC</sub> to 265V<sub>AC</sub>/176V<sub>AC</sub> to 265V<sub>AC</sub>.

LCD Controller & Driver										
RAM Mapping LCD Controller & Driver										
Part No.	VDD	Max. Resolution Segment × Common	LCD Voltage	Bias	Gray Scale	Serial Data	Built-in OSC.	Ext. Crystal	Package	
HT1620	2.4V~3.3V	32×4, 32×3, 32×2	3/2V <sub>DD</sub>	1/2, 1/3	—	1	—	√	64LQFP	
HT1621	2.4V~5.2V	32×4, 32×3, 32×2	≤ V <sub>DD</sub>	1/2, 1/3	—	1	√	√	44LQFP, 48SSOP/LQFP	
HT1621S	2.4V~5.5V								Gold Bump	
HT1621G	2.4V~5.2V								Gold Bump	
HT1621SG	2.4V~5.5V								Gold Bump	
HT1622	2.7V~5.2V	32×8	≤ V <sub>DD</sub>	1/4	—	1	√	—	44/52/64LQFP	
HT1622G									Gold Bump	
HT16220	2.7V~5.2V	32×8	≤ V <sub>DD</sub>	1/4	—	1	—	√	64LQFP	
HT1623	2.7V~5.2V	48×8	≤ V <sub>DD</sub>	1/4	—	1	√	√	100LQFP	
HT1625	2.7V~5.2V	64×8	≤ V <sub>DD</sub>	1/4	—	1	√	√	100LQFP	
HT1626	2.7V~5.2V	48×16	≤ V <sub>DD</sub>	1/5	—	1	√	√	100LQFP	
HT1629G	2.4V~5.5V	240×2, 240×1	2.4V~5.5V	1/1, 1/2	—	1	√	√	Gold Bump	
HT1647	2.7V~5.2V	64×16	≤ V <sub>DD</sub>	1/4, 1/5	4	4	√	√	100LQFP	
High Noise Immunity LCD Controller & Driver										
Part No.	VDD	Max. Resolution Segment × Common	LCD Voltage	Bias	Power Saving Mode	Keyscan	Interface	Package		
HT16C21A*	2.4V~5.5V	20×4, 16×8	≤ V <sub>DD</sub>	1/3, 1/4	—	—	I <sup>2</sup> C	16NSOP 20/24/28SSOP		
HT16C22A	2.4V~5.5V	44×4	≤ V <sub>DD</sub>	1/2, 1/3	—	—	I <sup>2</sup> C	48/52LQFP		
HT16C22AG								Gold Bump		
HT16C23A	2.4V~5.5V	56×4, 52×8	2.4V~5.5V	1/3, 1/4	—	—	I <sup>2</sup> C	48/64LQFP		
HT16C23AG								Gold Bump		
HT16C24A**	2.4V~5.5V	72×4, 68×8, 60×16	2.4V~5.5V	1/3, 1/4, 1/5	—	—	I <sup>2</sup> C	64/80LQFP		
HT16C24AG*								Gold Bump		
HT16K23A*	2.4V~5.5V	20×4	= V <sub>DD</sub>	1/3	—	—	I <sup>2</sup> C	20×1		
		16×8		1/4				16×1		
HT16K24*	2.4V~5.5V	24×4	= V <sub>DD</sub>	1/3	—	—	I <sup>2</sup> C	24×1		
		22×6		1/4				22×1		
		20×8		1/4				20×1		
HT9B92	2.4V~5.5V	36×4	≤ V <sub>DD</sub>	1/2, 1/3	√	—	I <sup>2</sup> C	48LQFP/TSSOP		
* Under development, available in 4Q, 2021. ** Under development, available in 1Q, 2022.										
Low Voltage LCD Controller & Driver										
Part No.	VDD	Max. Resolution Segment × Common	LCD Voltage	Bias	LED	Interface	Package			
HT16L21	1.8V~5.5V	32×4	2.4V~6.0V	1/2, 1/3	8	I <sup>2</sup> C, SPI 3-Wire	44LQFP			
High Operating Voltage LCD Controller & Driver										
Part No.	VDD	Max. Resolution Segment × Common	LCD Voltage	Bias	Duty	Charge Pump	Contrast Adjustment	GPO	Interface	Package
HT16H25	2.4V~5.5V	60×16	2.5~12V	1/1~1/5	Static, 1/2~1/16	×2, ×3, ×4, ×5	4-bit	4CH	I <sup>2</sup> C, SPI 3-Wire	80/100LQFP

**LED Controller & Driver**
**RAM Mapping LED Controller & Driver**

Part No.	VDD	Max. Resolution Row×Common	Row Source Current (Min.)	Row Sink Current (Min.)	Com Source Current (Min.)	Com Sink Current (Min.)	PWM Gray Scale	Key-scan	Interface	Package
HT1632D	4.5V~5.5V	32×8, 24×16	50mA	12mA	45mA	250mA	16Level for Global	—	4-Wire	52LQFP
HT1632D-2		24×8								48LQFP
HT1635C	4.5V~5.5V	44×8	50mA	10mA	45mA	250mA	16Level for Global	—	4-Wire	64LQFP
HT1635D									I <sup>2</sup> C	
HT16K33	4.5V~5.5V	16×8	20mA±5%	6mA	20mA	160mA	16Level for Global	13×3	I <sup>2</sup> C	28SOP
		12×8								24SOP
		8×8								20SOP

**Advanced LED Controller & Driver**

Part No.	VDD	LED_VDD	Max. Resolution Row×Common	Com Source Current (Min.)	Com Sink Current (Min.)	PWM Gray Scale	Constant Current	Fade	Auto Scrolling	Over Temp. Detection	Open/Short Detection	Interface	Package
HT16D31A	2.7V~5.5V	4.5V~5.5V	8×9	270mA	—	256Level for each dot	33mA±3% Max. 48mA	√	√	√	√	3-Wire SPI	16NSOP-EP 16QFN
HT16D31B												I <sup>2</sup> C	
HT16D33A	2.7V~5.5V	4.5V~5.5V	9×10 + 9×10 12×12 16×16	315mA	—	256Level for each dot	33mA±3% Max. 48mA	√	√	√	√	3-Wire SPI	24SSOP-EP 28SSOP 32QFN
HT16D33B												I <sup>2</sup> C	
HT16D35A	2.7V~5.5V	4.5V~5.5V	28×8	250mA	45mA	64Level for each dot	30mA±3% Max. 45mA	√	√	√	—	3-Wire SPI	48LQFP-EP
HT16D35B												I <sup>2</sup> C	

**White LED Backlight Driver**
**White LED Backlight Driver**

Part No.	Input Voltage	Output Current	Switching Frequency	Efficiency	Typical OVP	Accuracy	Max. LED#	PWM Dimming Frequency	Power Element	Backlight Type	Protections	Package
HT7938A-3	2.6V~5.5V	200mA	1200kHz	90%	39V	300mV±5%	39	100Hz~200kHz	Internal	Parallel/Series	UVLO, OVP, OCP, OTP	SOT23-6
HT7939A	2.6V~5.5V	260mA	1200kHz	90%	17.6/32.0V	200mV±5%	39	100Hz~200kHz	Internal	Parallel/Series	UVLO, OVP, OCP, OTP	SOT23-6
HT7963	9.0V~30V	1200mA	200kHz	90%	Adjustable	300mV±3%	—	100Hz~1kHz	External	Parallel/Series	UVLO, OVP, OCP, OTP, Soft-Start, LED open, LED short, OSP	8SOP

**AC / DC LED Lighting Driver**
**AC / DC LED Lighting**

Part No.	Topology	PF	Power MOS	HV Start-up	Maximum Output Power	Current Accuracy	Protections	Package
HT7L5600	Flyback (PSR)	>0.9	Ext.	—	60W	±3%	UVLO, OVP, OTP, OCP, LED open/short	SOT23-6
HT7L5820	Flyback (PFC+QR PWM)	>0.97	Ext.	650V	200W	±2%	Brown In/Out, UVLO, OCP, open/short, OVP (Auto Recovery), OTP (Auto Recovery)	16NSOP
HT7L5821							Brown In/Out, UVLO, OCP, open/short, OVP (Latched), OTP (Latched)	

Note: 1. All of LED Lighting Drivers operate from 85V<sub>AC</sub> to 265V<sub>AC</sub>.  
2. Max. output power from 85V<sub>AC</sub> to 265V<sub>AC</sub>/176V<sub>AC</sub> to 265V<sub>AC</sub>.

**Bank & Commercial Flash MCU**
**Cortex-M0+ 32-Bit 5V USB Smart Card Reader MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	Timers*1	RTC	SCI*2	Card LDO	USB*3	Interface	Others	I/O	Package
HT32F61141*	48MHz	2.5V~5.5V	64KB	16KB	BFTM×2 SCTM×2 GPTM×1	√	2	1.8V 3.0V 5.0V	√	UART×2 SPI×1 I <sup>2</sup> C×1	CRC	21 34 36	32QFN 46QFN 48LQFP

\* Under development, available in 1Q, 2022.

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, GPTM: General-Purpose Timer.

2. SCI: ISO7816-3 Smart Card Interface.

3. USB 2.0 Full Speed device.

**Smart Card Reader Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP/ISP	I/O	Timer	ADC	RTC	Comparator	USB	LDO	EMVCo	Interface	Package
HT66F4360	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	16K×16	3072×8	—	12	√	36	10-bit CTM×2 10-bit PTM×1 16-bit STM×1	12-bit ×8	√	2	√	1.8V 3.0V 5.0V	ISO7816-3 Class A/B/C	UART×2 SPI×2 I <sup>2</sup> C×1	48/64LQFP
HT66F4370	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	32K×16	3072×8	—	12	√	36	10-bit CTM×2 10-bit PTM×1 16-bit STM×1	12-bit ×8	√	2	√	1.8V 3.0V 5.0V	ISO7816-3 Class A/B/C	UART×2 SPI×2 I <sup>2</sup> C×1	48/64LQFP
HT66F4390	12MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	64K×16	3072×8	256×8	16	√	36	10-bit CTM×2 10-bit PTM×1 16-bit STM×1	12-bit ×8	√	2	√	1.8V 3.0V 5.0V	ISO7816-3 Class A/B/C	UART×2 SPI×2 I <sup>2</sup> C×1	48/64LQFP

**Ultra-Low Power Flash MCU with LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	MDU#	Stack	IAP	I/O	Timer	ADC	LCD	RTC	Interface	Package
HT66F2560	1/2/4/8/12MHz	1.8V~5.5V	400kHz~16MHz or 32kHz	16K×16	2048×8	256×8	16-bit	16	√	42	16-bit PTM×2 16-bit STM×3	12-bit ×8	SCOM ×4	√	SPI/I <sup>2</sup> C×1 SPIA×1, UART×2	48LQFP
HT69F2562	4/8/12MHz	1.8V~5.5V	400kHz~12MHz or 32kHz	16K×16	2304×8	128×8	—	16	√	19	10-bit CTM×2 16-bit STM×1	—	32×4	√	SPI×1 SPI/I <sup>2</sup> C/UART×1	64LQFP

Note: # MDU: Multiplier Divider Unit.

The power consumption of the RTC on standby current is less than 200nA at 3V.

**Ultra-Low Power Flash MCU with LCD Driver & Touch Key**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Touch Key	LCD	RTC	Interface	Package
BS67F2563	4/8/12MHz	1.8V~5.5V	400kHz~12MHz or 32kHz	16K×16	2304×8	128×8	16	√	31	10-bit CTM×2 16-bit STM×1	12-bit ×7	20	32×4	√	SPI×1 SPI/I <sup>2</sup> C/UART×1	64LQFP

Note: The power consumption of the RTC on standby current is less than 200nA at 3V.

**Ultra-Low Power Flash MCU with EPD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	EPD#	RTC	Interface	Package
HT67F2567	4/8/12MHz	1.8V~5.5V	400kHz~12MHz or 32kHz	16K×16	2304×8	128×8	16	√	19	10-bit CTM×2 16-bit STM×1	12-bit ×7	SEG×64 COM×1 BG×1	√	SPI×1 SPI/I <sup>2</sup> C/UART×1	100LQFP
HT67F2567G															Gold Bump

Note: # EPD: Electronic Paper Displays.

The power consumption of the RTC on standby current is less than 200nA at 3V.

**Special Purpose Flash MCU**
**Induction Cooker Flash MCU**

Part No.	Internal Clock	VCC (HV)	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	ADC	PPG	Comparator	OVP	OPA	LDO	HVO	Interface	Package
HT45F0004	8MHz	—	2.2V~5.5V	400kHz~8MHz	4K×16	208×8	32×8	8	17	8-bit ×3	12-bit ×12	9-bit ×1	4	—	1	—	—	I <sup>2</sup> C×1	16DIP/NSOP 20DIP/SOP
HT45F0057	8MHz	—	2.2V~5.5V	8MHz	4K×16	208×8	—	6	13	8-bit ×3	12-bit ×9	9-bit ×1	4	—	1	—	—	—	16DIP/NSOP
HT45F0058	16MHz	—	3.3V~5.5V	32kHz~16MHz	4K×16	256×8	32×8	8	13	8-bit ×3	12-bit ×10	9-bit ×1	4	1	1	—	—	—	16NSOP
HT45F0059	16MHz	16V~20V	3.3V~5.5V	32kHz~16MHz	4K×16	256×8	32×8	8	12	8-bit ×3	12-bit ×9	9-bit ×1	4	1	1	5V	1	I <sup>2</sup> C×1	16NSOP

Note: The HT45F0059 device has low power continuous heating function.



**Special Purpose Flash MCU**
**Half-bridge Induction Cooker Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	MDU#	Stack	I/O	Timer	ADC	PWM	OPA	OVP	CRC	Interface	Package
HT45F0074	16MHz	4.5V~5.5V	32kHz~16MHz	8K×16	512×8	128×8	16-bit	8	20	10-bit CTM×3 10-bit PTM×1	12-bit ×8	12-bit ×1	1	7	√	SPI/I <sup>2</sup> C/ UART×1	20NSOP 24SOP

Note: # MDU: Multiplier Divider Unit.

**Low Power Flash MCU**
**Ultra-Low Voltage & Low Current Flash MCU with LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	I/O	Timer	LCD	Power Switch	Package
HT69F3742L	2/4/8MHz	1.2V~5.5V	400kHz~8MHz or 32kHz	4K×16	128×8	128×8	4	9	10-bit STM×1	23×4 24×3	√	Dice 46QFN

**Low Power A/D Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Temp. Sensor	SOCM	RTC	Interface	Package
HT66L2540*	64/128/256/512kHz 2/4/8MHz	1.8V~5.5V	32kHz~8MHz	4K×16	256×8	256×8	8	√	26	16-bit PTM×1 16-bit STM×1	12-bit ×8	√	4	√	SPI/I <sup>2</sup> C/UART×1	16NSOP 24/28SSOP 28QFN
HT66L2550*	64/128/256/512kHz 2/4/8MHz	1.8V~5.5V	32kHz~8MHz	8K×16	512×8	256×8	8	√	30	16-bit PTM×2 16-bit STM×1	12-bit ×8	√	4	√	SPI/I <sup>2</sup> C/UART×1	24/28SSOP 32QFN

\* Under development, available in 2Q, 2022.

**Low Power A/D Flash MCU with LCD Driver**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	Temp. Sensor	LCD	RTC	Interface	Package
HT67L2540*	64/128/256/512kHz 2/4/8MHz	1.8V~5.5V	32kHz~8MHz	4K×16	256×8	256×8	8	√	22	16-bit PTM×1 16-bit STM×1	12-bit ×8	√	24×4	√	SPI/I <sup>2</sup> C/UART×1	48LQFP
HT67L2550*	64/128/256/512kHz 2/4/8MHz	1.8V~5.5V	32kHz~8MHz	8K×16	512×8	512×8	8	√	30	16-bit PTM×2 16-bit STM×1	12-bit ×8	√	32×4	√	SPI/I <sup>2</sup> C/UART×1	48/64LQFP

\* Under development, available in 2Q, 2022.

**CAN Bus Flash MCU**
**CAN Bus A/D Flash MCU**

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	Stack	IAP	I/O	Timer	ADC	SCOM	CAN Protocol	Message Objects	Message Memory	Interface	Package
HT66F3370H	8MHz 12MHz 16MHz	2.2V~5.5V	400kHz~16MHz or 32kHz	32K×16	3K×8	1K×8	16	√	58	10-bit PTM×2 16-bit PTM×2 16-bit STM×3	12-bit ×16	4	CAN 2.0A/B ISO11898-1	32	32×139-bit	CAN×1 SPI/I <sup>2</sup> C×1 SPIA×1 UART×3	48/64 LQFP

Note: Operating temperature range -40°C~+125°C.  
Based on BOSCH CAN IP module C\_CAN.

**USB Data Logger Flash MCU**
**Cortex-M0+ 32-Bit LCD MCU**

Part No.	Max. Freq.	VDD	Flash	SRAM	PDF Create LIB	PDMA	ADC	CMP	DAC	Timers <sup>*1</sup>	Cap. <sup>*2</sup> or PWM	RTC	SCI <sup>*3</sup>	USB <sup>*4</sup>	I <sup>2</sup> S	LCD	Interface	Others	I/O	Package
HT32F5828	60MHz	1.65V~3.60V	128KB	16KB	√	6CH	1 Msps 12-bit×10	2	500Ksps 12-bit×2	BFTM×2 SCTM×2 PWM×2 GPTM×1	14	√	2	√	√	37×4 ~ 33×8	USART×1 UART×2 SPI×2 I <sup>2</sup> C×2	AES CRC DIV	39 67	48LQFP 64LQFP 80LQFP

Note: 1. BFTM: Basic Function Timer, SCTM: Single-Channel Timer, 8-PWM: 8 Output channel PWM Timer, GPTM: General-Purpose Timer, MCTM: Motor Control Timer.  
2. Cap.: Input Capture.  
3. SCI: ISO7816-3 Smart Card Interface.  
4. USB 2.0 Full Speed device.

**RF Module**
**BLE Transparent Transmission**

Part No.	VDD	Data EEPROM	Data Rate	Output Power	Sensitivity	Interface	Stamp Holes
BCM-7602-G01	2.2V~3.6V	8K×8	1Mbps	+3dBm	-90dBm	UART/SPI	8×2 (P=1.27mm)

**Sub-1GHz Receiver**

Part No.	VDD	Band	Demod.	Symbol Rate	Current Consumption	Sensitivity	Interface	Dimension
BM2302-33-1	3.0V~5.5V	315MHz	OOK	20Ksps (Max.)	3.2mA@315MHz	-112dBm@10ksps	I <sup>2</sup> C	43×10.5×5.2 (mm)
BM2302-34-1		433MHz			3.2mA@433MHz	-112dBm@10ksps		
BM2302-38-1		868MHz			4.0mA@868MHz	-111dBm@10ksps		
BM2302-39-1		915MHz			4.0mA@915MHz	-110dBm@10ksps		
BM2302-63-1	3.0V~5.5V	315MHz	OOK	20Ksps (Max.)	3.2mA@315MHz	-112dBm@10ksps	I <sup>2</sup> C	16×15×2.6 (mm)
BM2302-64-1		433MHz			3.2mA@433MHz	-112dBm@10ksps		
BM2302-68-1		868MHz			4.0mA@868MHz	-111dBm@10ksps		
BM2302-69-1		915MHz			4.0mA@915MHz	-110dBm@10ksps		
BM2502-63-1	2.5V~5.5V	315MHz	OOK/FSK	25Ksps (OOK Max.) 50Ksps (FSK Max.)	4.1mA@315MHz	-112dBm@10ksps (OOK) -110dBm@10ksps (FSK)	I <sup>2</sup> C	16×15×2.6 (mm)
BM2502-64-1		433MHz			4.1mA@433MHz	-112dBm@10ksps (OOK) -110dBm@10ksps (FSK)		
BM2502-68-1		868MHz			5.5mA@868MHz	-109dBm@10ksps (OOK) -107dBm@10ksps (FSK)		
BM2502-69-1		915MHz			5.5mA@915MHz	-109dBm@10ksps (OOK) -107dBm@10ksps (FSK)		

**Sub-1GHz Transceiver**

Part No.	VDD	Band	Data Rate	Output Power	Rx Current Consumption	Sensitivity	Interface	Dimension
BM3601-03-1	2.0V~3.6V	315MHz	10~250Kbps	17dBm (Max.)	13.5mA@315MHz	-113dBm@10Kbps	SPI	15×18.5×2.5 (mm)
BM3601-04-1		433MHz			13.0mA@433MHz			
BM3601-08-1		868MHz			13.5mA@868MHz			
BM3601-09-1		915MHz			13.5mA@915MHz			
BM3602-03-1	2.0V~3.6V	315MHz	10~250Kbps	13dBm (Max.)	4.1mA@315MHz	-113dBm@10Kbps	SPI	15×18.5×2.5 (mm)
BM3602-04-1		433MHz			4.2mA@433MHz			
BM3602-08-1		868MHz			5.5mA@868MHz			
BM3602-09-1		915MHz			6.0mA@915MHz			

**2.4GHz Transceiver**

Part No.	VDD	Band	Data Rate	Output Power	Sensitivity	Interface	Dimension
BM5602-60-1	1.9V~3.6V	2402~2480MHz	125/250/500Kbps	7dBm (Max.)	-98dBm@125Kbps	SPI	17×16×2 (mm)

**Digital Sensor & Module**
**PIR Module**

Part No.	Supply Voltage	Current Consumption	Detection Range (Typ.)	FOV H, V	Lens Color	Interface	Dimension
HT7M2126	2.7V~5.5V	50μA	3.5~6 Meter	121°, 77°	Nature	I <sup>2</sup> C or I/O	12.8×12.9×13.3(mm)
HT7M2127			2.8~5 Meter	121°, 77°	Black		
HT7M2136			5.5~8 Meter	91°, 10°	Nature		12.8×12.9×14.4(mm)
HT7M2156			8~12 Meter	20°, 10°	Nature		
HT7M2176			5~7.5 Meter	86°, 75°	Nature		

**PIR Sensor**

Part No.	Supply Voltage	Current Consumption	Responsivity	Noise	Optical Window	Viewing Angle H/V	Interface	Package
BM22S4021-1*	2.7V~5.5V	2.53mA @5V	4.3kV/W (To=100°C, 1Hz @25°C)	33μVp-p (0.3~3Hz @25°C)	5×4mm	127° / 127°	UART or I/O	TO-5
BM22S4022-1*						120° / 65°		
BM22S4023-1*						110° / 55°		
BM22S4024-1*						85° / 45°		

\* Under development, available in 4Q, 2021.

**Digital Sensor & Module**
**Infrared Temperature Sensor**

Part No.	Supply Voltage	Current Consumption	Accuracy	Measurement Temperature	Temperature Resolution	Operating Temperature	Interface	Package
BM42S2021-1*	2.7V~3.3V	0.6mA @3.3V	±2% (@0~100°C) ±3% (@100~300°C)	-70~380°C	0.01°C	-40~+85°C	UART or I <sup>2</sup> C	TO-5

\* Under development, available in 4Q, 2021.

**Air Pressure Sensor**

Part No.	Supply Voltage	Current Consumption	Accuracy	Pressure Range	Linearity	Operating Temperature	Interface	Pressure Type	Dimension
BM62S2201-1	2.7V~5.5V	0.8mA @5V	0.5%FS @25°C	0~1psi	0.3%FS	-20~+85°C	UART or I <sup>2</sup> C	Gauge	18×11×13(mm)

**Temperature and Humidity Sensor**

Part No.	Supply Voltage	Current Consumption	Relative Humidity Resolution	Relative Humidity Rang	Relative Humidity Precision	Temperature Resolution	Temperature Range	Temperature Precision	Interface	Dimension
BM25S2021-1	2.7V~5.5V	0.2mA	0.1%RH	10~95%RH	±3%RH @25°C	0.1°C	-40~+80°C	±0.5°C	I <sup>2</sup> C or One-Wire	22×12×5.8(mm)

**Smoke Detector Sensor**

Part No.	Supply Voltage	Current Consumption	Detection Sensitivity	Interface	Dimension
BM22S2021-1*	3V~5V	10µA	0.1~0.8dB/m	UART or I/O	37×37×28.5(mm)

\* Under development, available in 3Q, 2021.

**GAS Detector Sensor**

Part No.	Supply Voltage	Current Consumption	Gas Type	Detection Range	Interface	Dimension
BM22S3021-1	5V	250mA	CH <sub>4</sub>	300~10000ppm	UART or I/O	24×20×22(mm)
BM22S3031-1*	2.5V	160mA	CH <sub>4</sub>	500~10000ppm	UART or I/O	25×17×21(mm)
BM22S3221-1**	2.5V~5V	15µA	CO	3~1000ppm	UART or I/O	24×20×20(mm)

\* Under development, available in 3Q, 2021.

\*\* Under development, available in 4Q, 2021.

**Proximity Sensing Module**

Part No.	Supply Voltage	Current Consumption	Detection Range	Interface	LED Indicator	Dimension
BM32S2021-1	3.3V~5V	<15µA @3.3V	1~100cm	UART or I/O	√	17×10×7(mm)
BM32S2031-1*	3.3V~5V	<15µA @3.3V	1~100cm	UART or I/O	—	12.7×10×6.3(mm)
BM32S3021-1*	3.3V~5V	<3mA @3.3V	5~30cm (Z Axis) ±7.5cm (X Axis) @Z=15cm	UART or I/O	—	40×20×6.7(mm)

\* Under development, available in 4Q, 2021.

**Water Level Sensor**

Part No.	Supply Voltage	Current Consumption	Accuracy	Resolution	Output Frequency Range	Sensing Range	Operating Temperature	Interface	Dimension
BM62S3201-1	2.7V~5.5V	0.88mA @5V	±0.5%FS @25°C	1mmH <sub>2</sub> O	—	0~1500mmH <sub>2</sub> O	-40~+85°C	UART	∅ 28×14.6(mm)
BM62S3201-5		3.75mA @5V			20~40kHz			Frequency Output	

**Ultrasonic Atomization Generator**

Part No.	Supply Voltage	Operating Current (Typ.)	Atomization Frequency	Atomization Ability (Typ.)	Water Detection Function	Interface	Dimension
BM52O5221-1*	24V	670mA	1.7MHz	220ml/h (A Level)	√	6-wire	55×55×37(mm)

\* Under development, available in 4Q, 2021.

I <sup>2</sup> C EEPROM							
I <sup>2</sup> C EEPROM							
Part No.	Capacity	VDD	Clock Rate	Write Speed @2.4V	Operating Current @5V	Standby Current @5V	Package
HT24LC02	256×8	1.8V~5.5V	400kHz	5ms	5mA	3μA	8SOP
HT24LC02A	256×8	1.8V~5.5V	400kHz	5ms	5mA	2μA	8SOP, SOT23-5
HT24LC04	512×8	1.8V~5.5V	400kHz	5ms	5mA	3μA	8SOP
HT24LC08	1024×8	1.8V~5.5V	400kHz	5ms	5mA	3μA	8SOP
HT24LC16	2048×8	1.8V~5.5V	400kHz	5ms	5mA	3μA	8SOP
HT24LC32	4096×8	1.8V~5.5V	400kHz	5ms	5mA	3μA	8SOP
HT24LC64	8192×8	1.8V~5.5V	400kHz	5ms	5mA	3μA	8SOP

Note: Operating temperature range -40°C ~ +85°C.



**General OP Amplifier**
**General Purpose OP Amplifier**

Part No.	Description	OP No.	VDD	BW	Current/OP	Package
HT9231	220μA, 2.3MHz Single OP amplifier	1	2.0V~5.5V	2.3MHz	220μA	SOT23-5
HT9232	220μA, 2.3MHz Dual OP amplifier	2	2.0V~5.5V	2.3MHz	220μA	8SOP
HT9234	220μA, 2.3MHz Quad OP amplifier	4	2.0V~5.5V	2.3MHz	220μA	14SOP
HT9274	Quad micropower OP amplifier	4	1.6V~5.5V	100KHz	3.0μA	14SOP
HT9291	TinyPower™ Single OP amplifier	1	1.4V~5.5V	11KHz	0.6μA	SOT23-5
HT9292	TinyPower™ Dual OP amplifier	2	1.4V~5.5V	11KHz	0.6μA	8SOP
HT9294	TinyPower™ Quad OP amplifier	4	1.4V~5.5V	11KHz	0.6μA	14SOP
HT92232	16μA, 300kHz, Rail to Rail, Dual OP amplifier	2	2.1V~5.5V	300KHz	16μA	8SOP/MSOP
HT92252	40μA, 1MHz, Rail to Rail, Dual OP amplifier	2	2.1V~5.5V	1MHz	40μA	8SOP/MSOP

**Precision OP Amplifier**

Part No.	Description	OP No.	VDD	BW	Current/OP	Package
HT92632	30μA, 300kHz, Rail to Rail, Dual OP amplifier	2	2.0V~5.5V	300KHz	30μA	8SOP/MSOP
HT92652	500μA, 1.5MHz, Rail to Rail, Dual OP amplifier	2	2.0V~5.5V	1.5MHz	500μA	8SOP/MSOP

**Low Power OP Amplifier**

Part No.	Description	OP No.	VDD	BW	Current/OP	Package
HT92112	0.6μA, 14kHz, Rail to Rail, Dual OP amplifier	2	1.4V~5.5V	14KHz	0.6μA	8SOP/MSOP
HT92122	0.6μA, 100kHz, Rail to Rail, Dual OP amplifier	2	1.4V~5.5V	100KHz	0.6μA	8SOP/MSOP

**Audio Amplifier**
**Class AB Audio Amplifier**

Part No.	Description	VDD	Output Power	Mute/Shutdown Function	Package
HT82V735	Stereo audio power amplifier with shutdown	2.4V~6.0V	330mW into 32Ω	√	8SOP
HT82V73A	1500mW mono audio power amplifier with shutdown	2.2V~5.5V	1500mW into 8Ω	√	8SOP-EP

**Audio PWM Driver**

Part No.	Description	VDD	Output Power	Mute/Shutdown Function	Package
HT82V742	Audio PWM driver	2.0V~5.5V	1.5W into 5V, 8Ω	—	8SOP

**24-Bit A/D Peripheral**
**Enhanced 24-Bit A/D Peripheral**

Part No.	Internal Clock	VDD	ADC	ENOB	Data Rate	PGA	Interface	Package
BH45B1225	4.91MHz	2.4V~5.5V	24-bit×4	19.4@5V	5Hz~1.6kHz	1~128	I <sup>2</sup> C×1	8SOP/16NSOP

**Advanced 24-Bit A/D Peripheral**

Part No.	Internal Clock	VDD	ADC	ENOB	Data Rate	PGA	Interface	Package
BH45B1525	4.91MHz	2.7V~5.5V	24-bit×4	20.9@5V	10Hz~1.28kHz	1~128	I <sup>2</sup> C×1, SPI×1	20SSOP

**CCD / CIS Analog Signal Processor**
**CCD / CIS Analog Signal Processor**

Part No.	AVDD/VDD	ADC (Bit)	Input CH.	MSPS	Clamp Bias	PGA	Prog. Offset	Full Scale	Power Consumption	Package
HT82V36	3.0V~3.6V	16	1	10 (CCD:6)	2.5V/2.0V	1~5.85V/V (6-bit)	±100mV (9-bit)	1.4V	56mW/1µA	28SSOP
HT82V38	3.15V~3.45V	16	3/2/1	30/30/20	0.45V~2.7V (4-bit)	1~6.25V/V (6-bit)	±250mV (9-bit)	1.6V/2V	300mW/10µA	28SSOP 32QFN
HT82V42	3.0V~3.6V	16	1	15	0.4V~3.0V (4-bit)	0.7~7.84V/V (8-bit)	±315mV (8-bit)	2V	188mW/300µA	20SSOP
HT82V47*	3.0V~3.6V	16	1~4	60	0.4V~2.05V (6-bit)	0.67~6.02V/V (9-bit)	±350mV (8-bit)	1.2V/2V	600mW/100µA	32QFN
HT82V48	3.0V~3.6V	16×2	3×2	60×2	0.4V~3.0V (4-bit)	0.65~6.0V/V (9-bit)	±290mV (8-bit)	1.2V/2V	925mW/400µA	48LQFP-EP

\* Under development, available in 2Q, 2022.

**Currency Recognition Processor**
**CIS Analog Front End Processor**

Part No.	AVDD/VDD	ADC (Bit)	Input Channel	MSPS	Clamp Bias	PGA	Prog. Offset	Full Scale	Power Consumption	Package
HT82V48	3.0V~3.6V	16×2	3×2	60×2	0.4~3.0V (4-bit)	0.65~6.0V/V (9-bit)	±290mV (8-bit)	1.2V/2V	925mW/400µA	48LQFP-EP

**Miscellaneous**
**Timepiece**

Part No.	VDD	V <sub>BAT</sub>	I <sub>DD</sub> (μA)	I <sub>BAT</sub> (μA)	I <sub>STB</sub> (μA)	External X'tal Osc.	Build in Memory (Bytes)	Oscillator Compensation	Package
HT1380A	2.0V~5.5V	—	1.0 at 5V	—	0.1	32.768kHz	—	—	8DIP
HT1381A									8SOP
HT1382	2.7V~5.5V	2.0V~5.5V	15 at 3V	1.2 at 3V	0.1	32.768kHz	4	√	8SOP, 10MSOP

**Infrared / Encoder / Decoder**
**2<sup>12</sup> Encoder / Decoder**

Part No.	Encoder/Decoder	VDD	Addr. No.	Addr./Data No.	Data No.	Data Type	Trig.	Check Times	Package	Pair
HT12E	Encoder	2.4V~12V	8	4	0	—	$\overline{TE}$	—	18DIP, 20SOP	HT12D
HT12D	Decoder	2.4V~12V	8	0	4	Latch	—	3	18DIP, 20SOP	HT12E

**3<sup>9</sup> Encoder**

Part No.	Encoder/Decoder	VDD	Addr. No.	Addr./Data No.	Trig.	Package
HT6026	Encoder	4V~18V	0	9	$\overline{TE}$	16DIP/NSOP

**Learning Encoder**

Part No.	VDD	Addr. No.	Data No.	Trig.	Package
HT6P20B	2V~12V	22	2	Data Low	8SOP
HT6P20D		20	4		16NSOP

**IR Remote Controller**

Part No.	VDD	Addr. No.	Data No.	Key No.	Signal Gap Time	38kHz Carrier	Package
HT62104	2.0V~5.0V	2	7	8	4T	√	16DIP/NSOP
HT6220A	2.0V~3.6V	16	8	6	—	√	8SOP
				30			16NSOP
HT6221A	2.0V~3.6V	16	8	32	—	√	20SOP
HT6221B				48			
HT6222A	2.0V~3.6V	16	8	64	—	√	24SOP, Chip, Wafer



### 32-Bit MCU Programming Tools

Holtek is fully aware that the success of their microcontroller device range also depends upon the availability of high quality development tools. As a result, Holtek has developed a full suite of professional hardware and software tools to provide designers with an excellent set of development resources to ensure their application are designed and debugged as efficiently as possible.

In this section can be found details regarding which set of tools should be used for the HT32 series microcontrollers.

HT32 Series MCU				
Device Part No.	Debug Adapter	Development Kit	Writer	e-Socket32
HT32F0008	e-Link32 Pro	ESK32-30508, ESK32-20001, ESK32-21001	e-Writer32	ESKT3224QFN3B, ESKT3233QFN4B, ESKT3246QFN3B, ESKT3248LQFPB, ESKT321CPB
HT32F12345	e-Link32 Pro	ESK32-30106, ESK32-20001, ESK32-21001	e-Writer32	ESKT3246QFN3B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT321CPB
HT32F12364	e-Link32 Pro	ESK32-30107, ESK32-20001, ESK32-21001	e-Writer32	ESKT3240QFN3B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT321CPB
HT32F12365, HT32F12366	e-Link32 Pro	ESK32-30105, ESK32-20001, ESK32-21001	e-Writer32	ESKT3246QFN3B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32100LQFPB, ESKT321CPB
HT32F22366	e-Link32 Pro	N/A	e-Writer32	ESKT3246QFN3B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT32100LQFPB, ESKT321CPB
HT32F50220, HT32F50230	e-Link32 Pro	ESK32-30506, ESK32-20001, ESK32-21001	e-Writer32	ESKT3228SSOPB, ESKT3228SOPC, ESKT3224QFN3B, ESKT3233QFN4B, ESKT3244LQFPB, ESKT3248LQFPB, ESKT321CPB
HT32F50231, HT32F50241	e-Link32 Pro	ESK32-30507, ESK32-20001, ESK32-21001	e-Writer32	ESKT3228SSOPB, ESKT3228SOPC, ESKT3224QFN3B, ESKT3233QFN4B, ESKT3244LQFPB, ESKT3248LQFPB, ESKT321CPB
HT32F50343	e-Link32 Pro	ESK32-30515, ESK32-20001, ESK32-21001	e-Writer32	ESKT3233QFN4B, ESKT3246QFN3B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT321CPB
HT32F52220, HT32F52230	e-Link32 Pro	ESK32-30504, ESK32-20001, ESK32-21001	e-Writer32	ESKT3228SSOPB, ESKT3233QFN4B, ESKT321CPB
HT32F52231, HT32F52241	e-Link32 Pro	ESK32-30503, ESK32-20001, ESK32-21001	e-Writer32	ESKT3228SSOPB, ESKT3233QFN4B, ESKT3248LQFPB, ESKT321CPB
HT32F52243, HT32F52253	e-Link32 Pro	ESK32-30505, ESK32-20001, ESK32-21001	e-Writer32	ESKT3233QFN4B, ESKT3246QFN3B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT321CPB
HT32F52331, HT32F52341	e-Link32 Pro	ESK32-30502, ESK32-20001, ESK32-21001	e-Writer32	ESKT3233QFN4B, ESKT3248LQFPB, ESKT321CPB
HT32F52342, HT32F52352	e-Link32 Pro	ESK32-30501, ESK32-20001, ESK32-21001	e-Writer32	ESKT3233QFN4B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT321CPB
HT32F52344, HT32F52354	e-Link32 Pro	ESK32-30509, ESK32-20001, ESK32-21001	e-Writer32	ESKT3233QFN4B, ESKT3246QFN3B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT321CPB
HT32F52357, HT32F52367	e-Link32 Pro	ESK32-30510, ESK32-20001, ESK32-21001	e-Writer32	ESKT3246QFN3B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT3280LQFPB, ESKT321CPB
HT32F57331, HT32F57341	e-Link32 Pro	ESK32-30512, ESK32-20001, ESK32-21001	e-Writer32	ESKT3246QFN3B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT321CPB
HT32F57342, HT32F57352	e-Link32 Pro	ESK32-30511, ESK32-20001, ESK32-21001	e-Writer32	ESKT3246QFN3B, ESKT3248LQFPB, ESKT3264LQFP7B, ESKT3280LQFPB, ESKT321CPB
HT32F59041	e-Link32 Pro	N/A	e-Writer32	ESKT3248LQFPB, ESKT321CPB
HT32F59741	e-Link32 Pro	N/A	e-Writer32	ESKT3264LQFPB, ESKT321CPB
HT32F61355, HT32F61356, HT32F61357	e-Link32 Pro	ESK32-30615, ESK32-30616, ESK32-30617	e-Writer32	ESKT3248LQFP, ESKT3264LQFP
HT32F65230, HT32F65240	e-Link32 Pro	N/A	e-Writer32	ESKT3248LQFPB, ESKT321CPB

Hardware		
<b>ICE</b>		
Model	Function	Support Software
e-Link32 Pro	On Chip Debug Support (OCDS) new debug adapter for HT32 series	Keil µVision, IAR EWARM
<b>Programmer</b>		
Model	Function	Support Software
e-Writer32	HT32 series MCU Dedicated Writer	HOPE3000 For HT32 series MCU
e-Socket32	Adaptors used together with e-Writer32	HOPE3000 For HT32 series MCU
<b>Development Kit</b>		
Model	Function	Note
ESK32-20001	HT32 Series Expansion Board Basic	Expansion Board for ESK32-30xxx
ESK32-21001	HT32 Series Expansion Board Plus	Expansion Board for ESK32-30xxx
ESK32-300SK	32-bit Arm® Cortex®-M3 HT32F1656 Starter Kit	This board has a built-in e-Link32 USB debug adapter
ESK32-30105	32-bit Arm® Cortex®-M3 HT32F12366 Starter Kit	This board has a built-in e-Link32 Pro USB debug adapter
ESK32-30106	32-bit Arm® Cortex®-M3 HT32F12345 Starter Kit	This board has a built-in e-Link32 Pro USB debug adapter
ESK32-30107	32-bit Arm® Cortex®-M3 HT32F12364 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30501	32-bit Arm® Cortex®-M0+ HT32F52352 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30502	32-bit Arm® Cortex®-M0+ HT32F52341 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30503	32-bit Arm® Cortex®-M0+ HT32F52241 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30504	32-bit Arm® Cortex®-M0+ HT32F52230 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30505	32-bit Arm® Cortex®-M0+ HT32F52253 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter

Hardware		
Development Kit		
ESK32-30506	32-bit Arm® Cortex®-M0+ HT32F50230 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30507	32-bit Arm® Cortex®-M0+ HT32F50241 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30508	32-bit Arm® Cortex®-M0+ HT32F0008 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30509	32-bit Arm® Cortex®-M0+ HT32F52354 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30510	32-bit Arm® Cortex®-M0+ HT32F52367 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30511	32-bit Arm® Cortex®-M0+ HT32F57352 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30512	32-bit Arm® Cortex®-M0+ HT32F57341 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30515	32-bit Arm® Cortex®-M0+ HT32F50343 Starter Kit	This board has a built-in e-Link32Pro USB debug adapter
ESK32-30615	32-bit Arm® Cortex®-M0+ HT32F61355 Starter Kit	This board has a built-in e-Link32Pro USB debug adaptor
ESK32-30616	32-bit Arm® Cortex®-M0+ HT32F61356 Starter Kit	This board has a built-in e-Link32Pro USB debug adaptor
ESK32-30617	32-bit Arm® Cortex®-M0+ HT32F61357 Starter Kit	This board has a built-in e-Link32Pro USB debug adaptor
ESK32-A2A31	2.8 inches TFT-LCD Module	2.8 inches SPI / EBI LCD Module * This module can be used with the ESK32-20001 / ESK32-21001 providing a complete development kit.

Software		
Software		
Model	Function	Support Hardware
HOPE3000 or 32Bits	e-Writer32 programmer software for HT32 series MCUs	e-Writer32
HT32 Flash Programmer	In-System / In-Application programmer software for HT32 series MCUs	All series of HT32 Development Board or Starter Kit. ESK32-xxx, ESK32-xxxSK, ESK32-30xxx
HT32 Keil Support Package	Integrated Keil development environment software for HT32 series MCUs	
HT32 IAR Support Package	Integrated IAR development environment software for HT32 series MCUs	
HT32 Virtual COM Driver	HT32 USB Virtual COM Driver setup program	e-Link32 Pro. All series of HT32 Development Board or Starter Kit with USB Virtual COM example.

### e-Link32 Pro Debug Adapter

The e-Link32 Pro is a new generation debug adapter for Holtek's 32-bit microcontrollers allowing users to program and debug their programs on their target boards. By using the e-Link32 Pro together with the Keil µVision IDE or IAR EWARM IDE, users are provided with a suite of development tools for rapid MCU product development.

The e-Link32 Pro package includes the e-Link32 Pro debug adapter, flat cable and USB cable.

## 8-Bit MCU Programming Tools

Holtek is fully aware that success of their microcontroller device range also depends upon the availability of high quality development tools. As a result Holtek has developed a full suite of professional hardware and software tools to provide designers with an excellent set of development resources to ensure their applications are designed and debugged as efficiently as possible. In this section can be found details regarding which set of tools should be used for each microcontroller device.

Hardware		
ICE		
Model	Function	Support Software
HT-ICE	LPT Type in-circuit emulator	HT-IDE3000
e-ICE	USB Type in-circuit emulator	HT-IDE3000
e-Link	On Chip Debug Support(OCDS) Type MCU debug adapter	HT-IDE3000
	On Chip Debug Support (OCDS) debug adapter for HT85 series	Keil C51 Development Tools
e-FPCB (e-Link selected item)	OCDS EV Flex Cable Converter	—
Programmer		
Model	Function	Support Software
e-WriterPro	Universal Writer for OTP/Flash MCU	HOPE3000
e-Socket	Adaptors used together with e-WriterPro	HOPE3000
EIC-300	Slimmed-down ICP programmer for Flash MCU	HOPE3000
Development Kit		
Model	Function	Note
ESK-66F-A01	HT66F50 Development Board (Starter Kit for HT66F50)	( ESK-200 + ESK-201 + e-Link + M1001D + D1003C + mini USB cable + e-cable1225A )
Development Platform		
Model	Function	Note
Holtek USB Workshop	Development Platform for USB MCU	This board can be used with the ESK66FB-200 + e-Link.

Software		
Software		
Model	Function	Support Hardware
HT-IDE3000	Integrated development Environment software for all series of Holtek MCU	HT-ICE, e-ICE, e-Link
HOPE3000	Integrated software for Holtek e-Writer series Programmers.	e-WriterPro, e-Writer plus
HOPE3000 for e-Link	Engineering programmer for HT8 Flash MCU	e-Link
Holtek USB Workshop	Holtek USB MCU Library Generator	ESK66FB-200 + e-Link
Holtek Touch Key Workshop	Touch Key development platform	e-Link, e-Isolator
I3000	HT8 Flash MCU with Bootloader ISP Programming Tool (Program MCU by Bootloader)	

Note: It is strongly recommended to download the latest version.

### HT-IDE3000 Development Environment

The HT-IDE3000 is a fully integrated development system for the Holtek range of microcontrollers. Working in conjunction with the Holtek ICE hardware emulator, the HT-IDE3000 system provides a user friendly workbench to ensure the process of application program development and debug is as efficient and trouble free as possible. By combining all software tools, such as editor, cross assembler, linker, library manager, symbolic debuggers as well as hardware tools, application designers have all the tools required at their disposal to ensure rapid development and debug of their new designs. An HT-IDE3000 User's Guide is available for download from the Holtek website, which provides much more detailed information on the HT-IDE3000 development system.

The HT-IDE3000 development system software is available for free download from the Holtek website. To ensure that users are provided with the latest modifications and enhancements to the system and to support new device releases, Service Packs are regularly provided.

### HT-ICE – Holtek In-Circuit Emulator

The HT-ICEs are multi-featured hardware emulators to assist designers with the rapid development of their Holtek MCU applications. Their expansive integrated hardware and software features, provide designers with a full suite of tools for rapid and easy product development. At the heart of the system is the hardware emulator, which can fully emulate Holtek 8-bit MCU devices in real time as well as providing full debug and trace integrated functions. The HT-ICE package includes the hardware mainboard platform, CD, flat cables, power adapter, power cord and printer cable.

HT-ICE USB cable allowing customers to connect the HT-ICE LPT connector to the computer USB port. The part number of this USB cable is CUSBICECABLE4A. Please contact us for purchasing details.

### e-ICE

The e-ICE is Holtek's new generation of MCU in-circuit emulators that uses a real chip EV for device emulation. In this way a more accurate emulation of device function and characteristics can be implemented. Together with the HT-IDE3000 software development system the user is provided with a suite of development tools for rapid MCU product development.

### Holtek New Universal Writer – e-WriterPro

The e-WriterPro can be used not only as a programming tool for all of Holtek's OTP and Flash devices during the development stage but can also be used for small to medium volume production purposes.

The e-WriterPro must be used together with a corresponding e-Socket according to the package type of the MCU that is to be programmed. Devices with the same package type require only a single e-Socket, thus reducing the problem of changing different adaptors for different IC part numbers.

For all available Holtek devices, the following e-Socket table shows which one should be used with which device package type.

e-Socket			
No.	Product Name	Supported Package	Suggested Programming Times
1	ESKT6SOTC	SOT23-6	10,000
2	ESKT6DFNC	6DFN(2mm×2mm×0.75mm)	10,000
3	ESKT6DFNC-35	6DFN(2mm×2mm×0.35mm)	10,000
4	ESKT8SOP-RF	8SOP-EP(for BC2102, BC2161 only)	10,000
5	ESKT8SOP-RF2.4G	8SOP-EP(Dedicated for 2.4G RF IC)	10,000
6	ESKT8ICPL	ICP Adapter board	N/A
7	ESKT10SOPC	10SOP	10,000
8	ESKT10MSOPC	8MSOP, 10MSOP	10,000
9	ESKT10DFNC	10DFN(3mm×3mm×0.75mm)	10,000
10	ESKT16NSOP-RF	16NSOP-EP(for BC2161 only)	10,000
11	ESKT16NSOPC	8SOP, 8SOP-EP, 14SOP, 16NSOP(Applicable beside the HT48RA0-6 series MCU)	10,000
12	ESKT16NSOPHIRCA	16NSOP(for HT48RA0-6 only)	10,000
13	ESKT16QFN-RF2.4G	16QFN(Dedicated for 2.4G RF IC)	5,000
14	ESKT16QFN4C	16QFN(4mm×4mm×0.75mm)	5,000
15	ESKT16QFN3C	16QFN(3mm×3mm×0.75mm)	5,000
16	ESKT20NSOPC	20NSOP	10,000
17	ESKT20QFN3C	20QFN(3mm×3mm×0.75mm)	5,000
18	ESKT20QFN4A	20QFN(4mm×4mm×0.75mm)	5,000
19	ESKT20QFN5A	20QFN(5mm×5mm×0.75mm)	5,000
20	ESKT20TSSOPA	16TSSOP, 20TSSOP	10,000
21	ESKT24QFN3C	24QFN(3mm×3mm×0.55mm)	5,000
22	ESKT24QFN4C	24QFN(4mm×4mm×0.75mm)	5,000
23	ESKT28QFN4C	28QFN (4mm×4mm×0.75mm)	5,000
24	ESKT28SSOPC	16SSOP(150mil), 20SSOP(150mil), 24SSOP(150mil), 28SSOP(150mil) (Applicable beside the HT48RA0-6 series MCU)	10,000
25	ESKT28SSOPHIRCA	20SSOP(for HT48RA0-6 only)	10,000
26	ESKT28SOPD	16SOP, 18SOP, 20SOP, 24SOP, 28SOP	10,000
27	ESKT30SSOPA	20SSOP(209mil), 24SSOP(209mil), 28SSOP(209mil)	10,000
28	ESKT32QFNA	32QFN(5mm×5mm×0.75mm)	5,000
29	ESKT32QFN4C	32QFN(4mm×4mm×0.75mm)(4mm×4mm×0.55mm)	5,000
30	ESKT40DIPC	8DIP, 16DIP, 18DIP, 20DIP, 22SKDIP, 24SKDIP, 28SKDIP, 40DIP	25,000
31	ESKT40QFN6A	40QFN(6mm×6mm×0.75mm)	5,000
32	ESKT44QFPA	44LQFP(FP3.2mm), 44QFP(10mm×10mm)	10,000
33	ESKT44LQFPC	44LQFP(FP2.0mm)	10,000

e-Socket			
No.	Product Name	Supported Package	Suggested Programming Times
34	ESKT46QFNC	46QFN(6.5mm×4.5mm×0.75mm)	5,000
35	ESKT48LQFPC	48LQFP(7mm×7mm)(Applicable beside the HT48RA0-6 series MCU)	10,000
36	ESKT48LQFPHIRCA	48LQFP(7mm×7mm)(for HT49RA0-6 only)	10,000
37	ESKT48LQFPC_67F2132	48LQFP(7mm×7mm)(for BH67F2132 only)	10,000
38	ESKT52QFPA	52QFP(14mm×14mm)	10,000
39	ESKT52LQFPA	52LQFP(14mm×14mm)	10,000
40	ESKT56SSOPC	48SSOP, 56SSOP	10,000
41	ESKT64LQFP7C	64LQFP(7mm×7mm)	5,000
42	ESKT64LQFP10A	64LQFP(10mm×10mm)	10,000
43	ESKT80LQFPC	80LQFP(10mm×10mm)	10,000
44	ESKT100QFPC	100QFP(14mm×20mm)	5,000
45	ESKT100LQFPA	100LQFP(14mm×14mm)	5,000
46	ESKT128QFPC	128QFP(14mm×20mm)	10,000
47	ESKT128LQFPC	128LQFP(14mm×14mm)	10,000
48	ESKT144LQFPA	144LQFP(20mm×20mm)	5,000

Note: 1. Data in parentheses next to each package type shows the actual width of the IC package.

2. ESKxxxxxC is completely compatible with ESKxxxxxA.

## 8-Bit MCU Tools Indexing Table

The following table allows the correct tools to be quickly located against a device part number. In instances where tools are not listed for specific devices, this may infer that such tools are not required. Note that the "HT-ICE(S)" ICE type stands for the HT-ICE set and the corresponding I/O card.

8-Bit MCU Tools					
Device Part No.	ICE Type	Tool Part No.	Programming Timing	ICP Type / ICPDA / ICPCK	OCSDSA / OCDSCK
BA45F5241	e-Link	e-Link + BA45V5241	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F0096	Demo Board	e-Link + DM20180501-BA45F0096	Flash Type-9	ICP-2C / PA0 / PA2	—
BA45F5220	e-Link	e-Link + BA45V5220 + (e-FADP08N3 or e-FADP10N3)	Flash Type-23	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK
BA45F5240		e-Link + BA45V5240	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5240-2		e-Link + BA45V5240-2	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5250		e-Link + BA45V5250	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5260	e-Link	e-Link + BA45V5260	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5320		BA45V5320	Flash Type-23	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK
BA45F5340		BA45V5340	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5350		BA45V5350	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5360	e-Link	BA45V5360	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5420		e-Link + BA45V5420	Flash Type-23	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK
BA45F5440		e-Link + BA45V5440	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5450		e-Link + BA45V5450	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5460	e-Link	e-Link + BA45V5460	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5541		e-Link + BA45V5541	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5542		e-Link + BA45V5542	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5542-2		e-Link + BA45V5542-2	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5552	e-Link	e-Link + BA45V5552	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5562		e-Link + BA45V5562	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5640		e-Link + BA45V5640	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5650		e-Link + BA45V5650	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5660	e-Link	e-Link + BA45V5660	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5740		e-Link + BA45V5740	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5750		e-Link + BA45V5750	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F5760		e-Link + BA45V5760	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F6630	e-Link	e-Link + BA45V6630	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F6622		e-Link + BA45V6622	Flash Type-23	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F6720		e-Link + BA45V6720 + (e-FADP08N3 or e-FADP10N3)	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK
BA45F6730		e-Link + BA45V6730	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F6740	e-Link	e-Link + BA45V6740	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BA45F6746		e-Link + BA45V6746	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2

8-Bit MCU Tools						
Device Part No.	ICE Type	Tool Part No.	Programming Timing	ICP Type / ICPDA / ICPCK	OCSDSA / OCDSCK	
BA45F6742	e-Link	e-Link + BA45V6742	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BA45F6748		e-Link + BA45V6748	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BA45F6752		e-Link + BA45V6752	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BA45F6753		e-Link + BA45V6753	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2	
BA45F6758		e-Link + BA45V6758	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BA45F6830	e-Link	e-Link + BA45V6830	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BA45F6840		e-Link + BA45V6840	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BA45F6846		e-Link + BA45V6846	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BA45F6850		e-Link + BA45V6850	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BA45F6856		e-Link + BA45V6856	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BC45F7930	e-Link	e-Link + BC45V7930	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BC45F7940		e-Link + BC45V7940	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BC66F2332	e-Link	e-Link + DEV-BC66F2332	Flash Type-9	ICP-2C / PA0 / PA7	OCSDSA / OCDSCK	
BC66F2342	e-Link	e-Link + BC66V2342	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2	
BC66F3652	e-Link	e-Link + BC66V3652	Flash Type-31	ICP-2C / PA0 / PA2	PA0/PA2	
BC66F3662		e-Link + BC66F3662	Flash Type-31	ICP-2C / PA0 / PA2	PA0/PA2	
BC66F5132	e-Link	e-Link + BC66V5132	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2	
BC66F5652	e-Link	e-Link + BC66V5652	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2	
BC66F5662		e-Link + BC66F5662	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2	
BC66F2123	e-Link	e-Link + BC66V2123	Flash Type-9	ICP-2C / PA0 / PA2	PA0/PA2	
BC66F2133		e-Link + BC66V2133	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2	
BC68F2123		e-Link + BC68V2123	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BC68F2130		e-Link + BC68F2130	Flash Type-16	ICP-2C / PA0 / PA2	PA0 / PA2	
BC68F2140		e-Link + BC68F2140	Flash Type-16	ICP-2C / PA0 / PA2	PA0 / PA2	
BC68F2150		e-Link + BC68F2150	Flash Type-16	ICP-2C / PA0 / PA2	PA0 / PA2	
BC68F3132		e-Link	e-Link + BC68V3132	Flash Type-9	ICP-2C / PA0 / PA2	PA0/PA2
BH45F68	e-Link	e-Link + BH45V68	Flash Type-9C	ICP-2C / PA0 / RESB	PA0 / RESB	
BH66F2232	e-Link	e-Link + BH66V2232	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2260		e-Link + BH67V2260	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2261		e-Link + BH67V2261	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2262		e-Link + BH67V2262	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2265		e-Link + BH67V2265	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2270		e-Link + BH67V2270	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F2470		e-Link	e-Link + BH66V2470	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2
BH67F2470	e-Link + BH67V2470		Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2472	e-Link + BH67F2472		Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2480	e-Link + BH67V2480		Flash Type-9D	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F2632	e-Link + BH66V2632		Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F2650	e-Link	e-Link + BH66V2650	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F2652, BH66F2652-2		e-Link + BH66V2652	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F2662, BH66F2662-2		e-Link + BH66V2662	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F2660		e-Link + BH66V2660	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2662		e-Link + BH67V2662	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F2742		e-Link	e-Link + BH66V2742	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK
BH66F5232	e-Link	e-Link + BH66V5232-10 + e-FADP10N3	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK	
BH66F5233		e-Link + BH66V5233	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
		e-Link + BH66V5233-10 + e-FADP10N3	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK	
BH66F5242		e-Link + BH66V5242	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F5235		e-Link + BH67V5235	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F5245		e-Link + BH67V5245	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F5252		e-Link + BH66V5252	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F5250		e-Link + BH66V5250	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F5250		e-Link + BH67V5250	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F5260		e-Link + BH67V5260	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F5270		e-Link + BH67V5270	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F5362		e-Link	e-Link + BH66V5362	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
BH66F71252		e-Link	e-Link + BH66V71252	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
BH66F71652	e-Link	e-Link + BH66V71652	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F71662		e-Link + BH66V71662	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	



8-Bit MCU Tools						
Device Part No.	ICE Type	Tool Part No.	Programming Timing	ICP Type / ICPDA / ICPCK	OCSDA / OCDSCK	
BH67F2132	e-Link	e-Link + BH67V2132	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2485	e-Link	e-Link + BH67V2485	Flash Type-9D	ICP-2C / PA0 / PA2	PA0 / PA2	
BH66F2663		e-Link + BH66V2663	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2742	e-Link	e-Link + BH67V2742	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2752		e-Link + BH67V2752	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F2762		e-Link + BH67V2762	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BH67F5362	e-Link	e-Link + BH67F5362	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F0044	e-Link	e-Link + BP45V0044	Flash Type-21	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F0102	e-Link	e-Link + BP45V0102	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F1120		e-Link + BP45V1120	Flash Type-23	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F1130		e-Link + BP45V1130	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F1132		e-Link + BP45V1132	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F1320		e-Link + BP45V1320	Flash Type-23	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F1322		e-Link + BP45V1322	Flash Type-23	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F1330		e-Link + BP45V1330	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F1332		e-Link + BP45V1332	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F1430		e-Link + BP45V1430	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F1632		e-Link + BP45V1632	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BP45F4MB		e-Link	e-Link + BP45V4MB	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
BP45F4NB			e-Link + BP45V4NB	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
BP45FH4NB			e-Link + BP45VH4NB	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
BP45FH6N		e-Link	e-Link + BP45VH6N	Flash Type-9B	ICP-2C / PA0 / PA7	PA0 / PA7
BP66FW1240		e-Link	e-Link + BP66VW1240	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
BS45F3232	e-Link	e-Link + BS45V3232	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS45F3235		e-Link + BS45V3235	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS45F3332		e-Link + BS45V3332	Flash Type-9	ICP-2C / PA0 / PA2	OCSDA / OCDSCK	
BS45F3335		e-Link + BS45V3335	Flash Type-9	ICP-2C / PA0 / PA2	OCSDA / OCDSCK	
BS45F3336		e-Link + BS45V3336	Flash Type-9	ICP-2C / PA0 / PA2	OCSDA / OCDSCK	
BS45F3337		e-Link + BS45V3337	Flash Type-9	ICP-2C / PA0 / PA2	OCSDA / OCDSCK	
BS45F3340		e-Link + BS45V3340	Flash Type-9	ICP-2C / PA0 / PA2	OCSDA / OCDSCK	
BS45F3345		e-Link + BS45V3345	Flash Type-9	ICP-2C / PA0 / PA2	OCSDA / OCDSCK	
BS45F3346		e-Link + BS45V3346	Flash Type-9	ICP-2C / PA0 / PA2	OCSDA / OCDSCK	
BS45F3832		e-Link	e-Link + BS45V3832-10 + (e-FADP08N3 or e-FADP10N3)	Flash Type-9	ICP-2C / PA0 / PA2	OCSDA / OCDSCK
BS45F3833	e-Link + BS45V3833		Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS45F3843	e-Link + BS45V3843		Flash Type-9	ICP-2C / PA0 / PA2	OCSDA / OCDSCK	
BS45F5830	e-Link	e-Link + BS45V5830	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS45F5831		e-Link + BS45V5831	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS45F5832		e-Link + BS45V5832	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS45F5833		e-Link + BS45V5833	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS66F340	e-Link	e-Link + BS66V340	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS66F350		e-Link + BS66V350	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BS66F360		e-Link + BS66V360	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BS66F370		e-Link + BS66V370	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BS66F340C	e-Link	e-Link + BS66V340C	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS66F350C		e-Link + BS66V350C	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BS66F360C		e-Link + BS66V360C	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BS67F2563	e-Link	e-Link + BS67V2563	Flash Type-10C	ICP-2C / PA0 / PA2	PA0 / PA2	
BS67F340	e-Link	e-Link + BS67V340	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS67F350		e-Link + BS67V350	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BS67F360		e-Link + BS67V360	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BS67F370		e-Link + BS67V370	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BS67F350C	e-Link	e-Link + BS67V350C	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BS82B12A-3	e-Link	e-Link + BS82BV12A-3	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS82C16A-3		e-Link + BS82CV16A-3	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS82D20A-3		e-Link + BS82DV20A-3	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	



8-Bit MCU Tools						
Device Part No.	ICE Type	Tool Part No.	Programming Timing	ICP Type / ICPDA / ICPCCK	OCSDSA / OCDSCCK	
BS83A02A-4	e-Link	e-Link + BS83AV02A + (Optional e-FADP06T)	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCCK	
BS83A04A-3, BS83A04A-4		e-Link + BS83V04A + (Optional e-FADP08N-BS or e-FADP10M-BS)	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCCK	
BS83B04A-4		e-Link + BS83BV04A + (Optional e-FADP08N-BS or e-FADP10M-BS)	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCCK	
BS83B08A-3, BS83B08A-4		e-Link + 83V08AV15	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS83B12A-3, BS83B12A-4		e-Link + BS83V12A	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS83B16A-3, BS83B16A-4		e-Link + BS83V16A	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS83A01C	e-Link	e-Link + BS83AV01C	Flash Type-23	ICP-2C / PA0 / PA2	OCSDSA / OCDSCCK	
BS83A02C		e-Link + BS83AV02C	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCCK	
BS83A04C		e-Link + BS83AV04C	Flash Type-24	ICP-2C / PA0 / PA2	OCSDSA / OCDSCCK	
BS83B04C		e-Link + BS83BV04C + (Optional e-FADP08N-BS or e-FADP10M-BS)	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCCK	
BS83B08C		e-Link + BS83BV08C	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS83B12C		e-Link + BS83BV12C	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS83B16C		e-Link + BS83BV16C	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS83B24C		e-Link + BS83BV24C	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS83C40C		e-Link + BS83CV40C	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS83A02L		e-Link	e-Link + BS83AV02L	Flash Type-23	ICP-2C / PA0 / PA2	OCSDSA / OCDSCCK
BS83B04L	e-Link + BS83BV04L + (Optional e-FADP08N-BS or e-FADP10M-BS)		Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCCK	
BS84B06A-3	e-Link	e-Link + BS84BV06A-3	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS84B08A-3		e-Link + BS84V08A	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS84C12A-3		e-Link + BS84V12A	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS84B08C	e-Link	e-Link + BS84BV08C	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS84C12C		e-Link + BS84CV12C	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS86C16A-3	e-Link	e-Link + BS86CV16A-3	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS86D20A-3		e-Link + BS86DV20A-3	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BS86C08C		e-Link + BS86CV08C	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS86D12C		e-Link + BS86DV12C	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BS86D20C		e-Link + BS86DV20C	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
BS86D20CA		e-Link + BS86DV20CA	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2	
BS86E16C	e-Link	e-Link + BS86EV16C	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
BS87B12A-3		e-Link + BS87BV12A	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS87C16A-3		e-Link + BS87CV16A	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
BS87D20A-3		e-Link + BS87DV20A	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F0004		e-Link	e-Link + HT45V0004	Flash Type-9B	ICP-2C / PB0 / PB3	PB0 / PB3
HT45F0057	e-Link + HT45V0057		Flash Type-9	ICP-2C / PB0 / PB3	PB0 / PB3	
HT45F0058	e-Link + HT45V0058		Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F0059	e-Link + HT45V0059		Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F0060	e-Link		e-Link + HT45V0060 + (optional e-FADP08N3 or e-FADP10N3)	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT45F0062		e-Link + HT45V0062	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F0063		e-Link + HT45V0063	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F0074	e-Link	e-Link + HT45V0074	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F3230	e-Link	e-Link + HT45V3230	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F3630	e-Link	e-Link + HT45V3630	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F4630	e-Link	e-Link + HT45V4630	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F4830	e-Link	e-Link + HT45V4830	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCCK	
HT45F4840		e-Link + HT45V4840	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F4842		e-Link + HT45V4842	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
HT45F4MA		e-Link	e-Link + HT45V4MA	Flash Type-9	ICP-2C / PA6 / PA7	PA6 / PA7
HT45FH4MA	e-Link + HT45VH4MA		Flash Type-9	ICP-2C / PA6 / PA7	PA6 / PA7	
HT45FH4MA-1	e-Link + HT45VH4MA-1		Flash Type-9	ICP-2C / PA6 / PA7	PA6 / PA7	
HT45F4N	e-Link + HT45V4N		Flash Type-9	ICP-2C / PA6 / PA7	PA6 / PA7	
HT45FH4N	e-Link + HT45VH4N		Flash Type-9	ICP-2C / PA6 / PA7	PA6 / PA7	
HT45F5N	e-Link + HT45V5N		Flash Type-9	ICP-2C / PA6 / PA7	PA6 / PA7	
HT45FH5N	e-Link + HT45VH5N		Flash Type-9	ICP-2C / PA6 / PA7	PA6 / PA7	
HT45F56	e-Link		e-Link+HT45V56 + (Optional FPCB)	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2

8-Bit MCU Tools					
Device Part No.	ICE Type	Tool Part No.	Programming Timing	ICP Type / ICPDA / ICPCK	OCSDSA / OCDSCK
HT45F5Q-1	e-Link	e-Link + HT45V5Q-1	Flash Type-23	ICP-2C / PA0 / PA2	PA0 / PA2
HT45F5Q-2		e-Link + HT45V5Q-2	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT45F5Q-3		e-Link + HT45V5Q-3	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2
HT45F5V	e-Link	e-Link + HT45V5V	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT45F67	e-Link	e-Link + HT45V67	Flash Type-9C	ICP-2C / PA0 / RES	PA0 / RES
HT45F8550	e-Link	e-Link + HT45V8550	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
HT45F8560		e-Link + HT45F8560	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F002	e-Link	e-Link + HT66V002 + (Optional e-FADP08N or e-FADP10M2)	Flash Type-9	ICP-2C / PA0 / PA7	OCSDSA / OCDSCK
HT66F0021		e-Link + HT66V0021 + e-FADP08N	Flash Type-23	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK
HT66F0025		e-Link + HT66V0025 + (Optional e-FADP08N or e-FADP10N2)	Flash Type-9	ICP-2C / PA0 / PA7	OCSDSA / OCDSCK
HT66F007		e-Link + HT66V007 + (Optional e-FADP08D or e-FADP08N or e-FADP10M)	Flash Type-9	ICP-2C / PA0 / PA1	OCSDSA / OCDSCK
HT66F008		e-Link + HT66V008 + (Optional e-FADP08D or e-FADP08N or e-FADP10M)	Flash Type-9	ICP-2C / PA0 / PA1	OCSDSA / OCDSCK
HT66F003	e-Link	e-Link + HT66V003	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F0031		e-Link + HT66V0031	Flash Type-23	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F004		e-Link + HT66V004	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F0041		e-Link + HT66V0041	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2030		e-Link + HT66V2030, e-Link + HT66V2030-10	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2040		e-Link + HT66V2040, e-Link + HT66V2040-10	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2050		e-Link + HT66V2050, e-Link + HT66V2050-10	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F0042	e-Link	e-Link + HT66V0042	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F0082		e-Link + HT66V0082		ICP-2C / PA0 / PA2	PA0 / PA2
HT66F017	e-ICE	M1001D + D1070A	Flash Type-6A	ICP-2B	
HT66F0172, HT66F0174	e-Link	e-Link + HT66V0174	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F0175		e-Link + HT66V0175	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F0176		e-Link + HT66V0176	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F0181		e-Link + HT66V0181	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F0186		e-Link + HT66V0186	Flash Type-14	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F019		e-Link + HT66V019	Flash Type-9B	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK
HT66F3185		e-Link + HT66V3185	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F3195		e-Link + HT66V3195	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2350	e-Link	e-Link + HT66V2350	Flash Type-10B	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2360		e-Link + HT66V2360	Flash Type-10C	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2362		e-Link + HT66V2362	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2370		e-Link + HT66V2370	Flash Type-10C	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2372		e-Link + HT66V2372	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2390		e-Link + HT66V2390	Flash Type-10D	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2630	e-Link	e-Link + HT66V2630	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2730	e-Link	e-Link + HT66V2730	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2740		e-Link + HT66V2740	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F302	e-Link	e-Link + HT66V302 + (Optional e-FADP08N or e-FADP10N2)	Flash Type-9	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK
HT66F303		e-Link + HT66V303	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F317	e-Link	e-Link + HT66V317	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F318		e-Link + HT66V318	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F319		e-Link + HT66V319	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F3370H	e-Link	e-Link + HT66V3370H	Flash Type-10C	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F4360	e-Link	e-Link + HT66V4360	Flash Type-7C	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F4370		e-Link + HT66V4370	Flash Type-7C	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F4390		e-Link + HT66V4390	Flash Type-15J	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F4530	e-Link	e-Link + HT66V4530	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F4540		e-Link + HT66V4540	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F4550		e-Link + HT66V4550	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F4560		e-Link + HT66V4560	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2

8-Bit MCU Tools					
Device Part No.	ICE Type	Tool Part No.	Programming Timing	ICP Type / ICPDA / ICPCK	OCSDSA / OCDSCK
HT66FB540	e-Link	e-Link + HT66VB540	Flash Type-7A	ICP-2C / UDN / RES	PA0 / RES
HT66FB542		e-Link + HT66VB542	Flash Type-7A	ICP-2C / UDN / RES	PA0 / RES
HT66FB550		e-Link + HT66VB550	Flash Type-7A	ICP-2C / UDN / RES	PA0 / RES
HT66FB560		e-Link + HT66VB560	Flash Type-7B	ICP-2C / UDN / RES	PA0 / RES
HT66FB570		e-Link + HT66VB570	Flash Type-7E	ICP-2C / UDN / RES	PA0 / RES
HT66FB582		e-Link + HT66VB582	Flash Type-15N	ICP-2C / UDN / RES	PA0 / RES
HT66FB572	e-Link	e-Link + HT66VB572	Flash Type-15A	ICP-2C / UDN / RES	PA0 / RES
HT66FB574		e-Link + HT66VB574	Flash Type-15E	ICP-2C / UDN / RES	PA0 / RES
HT66FB576		e-Link + HT66VB576	Flash Type-15E	ICP-2C / UDN / RES	PA0 / RES
HT68FB541		e-Link + HT68VB541	Flash Type-22A	ICP-2C / PA0 / PA2	PA0 / PA2
HT68FB571	e-Link + HT68VB571	Flash Type-22A	ICP-2C / PA0 / PA2	PA0 / PA2	
HT66FM5230	e-Link	e-Link + HT66VM5230	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66FM5240		e-Link + HT66VM5240	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66FM5440		e-Link + HT66VM5440	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66FM5340		e-Link + HT66VM5340	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66FV130	e-Link	e-Link + HT66VV130	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66FV140		e-Link + HT66VV140	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66FV150		e-Link + HT66VV150	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
HT66FV160		e-Link + HT66VV160	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2
HT66FV240	e-Link + HT66VV240	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2	
HT66FW2230	e-Link	e-Link + HT66VW2230	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT66FW2350		e-Link + HT66VW2350	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
HT67F2350	e-Link	e-Link + HT67V2350	Flash Type-10B	ICP-2C / PA0 / PA2	PA0 / PA2
HT67F2360		e-Link + HT67V2360	Flash Type-10C	ICP-2C / PA0 / PA2	PA0 / PA2
HT67F2362		e-Link + HT67V2362	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2
HT67F2370		e-Link + HT67V2370	Flash Type-10C	ICP-2C / PA0 / PA2	PA0 / PA2
HT67F2390	e-Link + HT67V2390	Flash Type-10D	ICP-2C / PA0 / PA2	PA0 / PA2	
HT67F2355	e-Link + HT67V2355	Flash Type-31	ICP-2C / PA0 / PA2	PA0 / PA2	
HT67F2432	e-Link + HT67V2432	Flash Type-24	ICP-2C / PA0 / PA2	PA0 / PA2	
HT67F2567	e-Link + HT67V2567	Flash Type-10C	ICP-2C / PA0 / PA2	PA0 / PA2	
HT67F40	e-ICE	M1001D + D2004C	Flash Type-6	ICP-2B	
HT67F50		M1001D + D2004D	Flash Type-6	ICP-2B	
HT67F60A	e-Link + HT67V60A	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2	
HT67F489	e-Link	e-Link + HT67V489	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
HT67F4892		e-Link + HT67V4892	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
HT68F0017	e-Link	e-Link + HT68V0017 (Optional e-FADP08N3 or e-FADP10N3)	Flash Type-20	ICP-2C / PA0 / PA2	OCSDSA / OCDSCK
HT68F002		e-Link + HT68V002 + (Optional e-FADP08N or e-FADP10M2)	Flash Type-9	ICP-2C / PA0 / PA7	OCSDSA / OCDSCK
HT68F003		e-Link + HT68V003	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT68F0036		e-Link + HT68V0036	Flash Type-23	ICP-2C / PA0 / PA2	PA0 / PA2
HT68F2420	e-Link + HT68V2420	Flash Type-21	ICP-2C / PA0 / PA2	PA0 / PA2	
HT68FB240	e-Link + HT68VB240	Flash Type-7A	ICP-2C / UDN / RES	PA0 / RES	
HT68FB550	e-Link	e-Link + HT68VB550	Flash Type-7A	ICP-2C / UDN / RES	PA0 / RES
HT68FB560		e-Link + HT68VB560	Flash Type-7B	ICP-2C / UDN / RES	PA0 / RES
HT67F370	e-Link	e-Link + HT67V370	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2
HT69F340		e-Link + HT69V340	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2
HT69F350		e-Link + HT69V350	Flash Type-9B	ICP-2C / PA0 / PA2	PA0 / PA2
HT69F360		e-Link + HT69V360	Flash Type-9C	ICP-2C / PA0 / PA2	PA0 / PA2
HT66F2560	e-Link	e-Link + HT66V2560	Flash Type-10C	ICP-2C / PA0 / PA2	PA0 / PA2
HT69F2562		e-Link + HT69V2562	Flash Type-10C	ICP-2C / PA0 / PA2	PA0 / PA2
HT69F3742	e-Link				
HT69F3742L		e-Link + HT69V3742	Flash Type-9	ICP-2C / PA0 / PA2	PA0 / PA2

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