

About Us

Bridgetek is a leading global semiconductor company providing high performance microcontroller units (MCUs), display IC products and developing innovative silicon solutions that enhance seamless interaction with latest connectivity technologies.

The key objective from the company is to provide core bridging technology in order to support engineers with highly sophisticated, feature-rich, robust and simple-to-use product platforms. These platforms enable creation of electronic designs with high performance, low peripheral component requirements, low power budgets and minimal board real estate.

Bridgetek resources will be devoted to two particular product areas; the multi-award winning Embedded Video Engine (EVE) graphic controller ICs which enable engineers to implement more sophisticated human machine interface (HMI) systems, plus the unique and equally innovative performance-optimised microcontroller units (MCUs) with their expansive array of different connectivity options and high processing speeds.

Singapore (HQ)



1 Tai Seng Avenue, Tower A, #03-05,
Singapore 536464

Enquiry: sales.apac@brtchip.com
Support: support.apac@brtchip.com

China

Room 1103,
No. 666 West Huaihai Road
200052 Shanghai P.R.
China
Tel: +86(21) 6235 1596
Fax: +86 (21) 6235 1595

Taiwan

2F No. 516 Sec 1,
Neihu Road Taipei 114,
Taiwan
Tel: +886 (2) 8797
1330
Fax: +886 (2) 8751 9737

Vietnam

5F Lutaco Tower Building, 173A
Nguyen Van Troi, Ward 11,
Phu Nhuan District, Ho Chi Minh City
Tel: +84 (08) 3845 3222
Fax: +84 (08) 3845 5222

USA

7130 SW Fir Loop Tigard,
OR, 97223-8160 USA
Tel: +1 (503) 547 0988
Fax: +1 (503) 547 0987

UK

Unit 1, 2 Seaward Place
Centurion Business Park
Glasgow, G41 1HH, UK
Tel: +44 (0) 141 429 2777
Fax: +44 (0) 141 429 2758

www.brtchip.com

EVE Family Comparison Table

FEATURES	EVE 1 FT800/FT801	EVE 2 BT880/BT881	EVE 2 BT882/BT883	EVE 2 FT810/FT811	EVE 2 FT812/FT813	EVE 3 BT815/BT816	EVE 4 BT817A*/ BT817/BT818
Target Display Resolution	QVGA (320*240) WQVGA (480*272)	QVGA (320*240) WQVGA (480*272) Bar-Type display e.g. 800*160, 1024*120	QVGA (320*240) WQVGA (480*272) Bar-Type display e.g. 800*160, 1024*120	HVGA (480*320) VGA (640*480) WVGA (800*480) SVGA (800*600)	HVGA (480*320) VGA (640*480) WVGA (800*480) SVGA (800*600)	HVGA (480*320) VGA (640*480) WVGA (800*480) SVGA (800*600)	WVGA (800*480) WSVGA (1024*600) WXGA (1280*800)
Max Pixels Per Line	512	2048	2048	2048	2048	2048	2048
Display Interface	RGB666	RGB666	RGB888	RGB666	RGB888	RGB888	RGB888
Touch Function	800 – Resistive 801 – Capacitive	880 – Resistive 881 – Capacitive	882 – Resistive 883 – Capacitive	810 – Resistive 811 – Capacitive	812 – Resistive 813 – Capacitive	816 – Resistive 815 – Capacitive	818 – Resistive 817 – Capacitive
Custom Touch ¹	No	Yes	Yes	Yes	Yes	Yes	Yes
Audio Output	PWM	PWM	PWM	PWM	PWM	Sigma-Delta	Sigma-Delta
Host Interface	SPI/I ² C	SPI/QSPI	SPI/QSPI	SPI/QSPI	SPI/QSPI	SPI/QSPI	SPI/QSPI
90 Degrees Screen Rotation ²	No	Yes	Yes	Yes	Yes	Yes	Yes
Object Memory Size ³	256 kB	256 kB	256 kB	1 MB	1 MB	1 MB	1 MB
External Memory Support ⁴	No	No	No	No	No	256 MB	256 MB
Adaptive Frame rate ⁵	No	No	No	No	No	Yes	Yes
Adaptive HSYNC ⁶	No	No	No	No	No	No	Yes
Dedicated PCLK PLL ⁷	No	No	No	No	No	No	Yes
2X Pixel Mode ⁸	No	No	No	No	No	No	Yes
Non Square Pixel ⁹	No	No	No	No	No	No	Yes
Co-Processor	32-bit RISC 48MHz	32-bit RISC 60MHz	32-bit RISC 60MHz	32-bit RISC 60MHz	32-bit RISC 60MHz	32-bit RISC 72MHz	32-bit RISC 72MHz
Image Decoder ¹⁰	DXT1, JPEG	DXT1, JPEG, PNG	DXT1, JPEG, PNG	DXT1, JPEG, PNG	DXT1, JPEG, PNG	DXT1, JPEG, PNG, ASTC	DXT1, JPEG, PNG, ASTC
Hardware Acceleration	No	JPEG	JPEG	JPEG	JPEG	JPEG, ASTC	JPEG, ASTC
Video Playback	No	Motion JPEG	Motion JPEG	Motion JPEG	Motion JPEG	Motion JPEG	Motion JPEG
Animation Playback	No	No	No	No	No	Yes	Yes
GPIOs	3	3	4	3	4	4	4
Package	QFN48	QFN48	QFN56	QFN48	QFN56	QFN64	QFN64

Footnotes:

- For capacitive touch versions only – custom touch code can be loaded into EVE to use I²C touch screen controllers which are not directly supported. Ideal for applications requiring toughened and splash-proof touch displays etc. [BRT_AN_090](#) for more details.
- Use a single command to rotate the screen image and touch to one of 8 orientations. Use a landscape screen in portrait orientation easily to suit your product's form-factor.
- This is RAM_G, used for storing images and fonts so that EVE can display them. For example, a 480x272 image may take 130,560 bytes in RGB332 format or 261,120 bytes in RGB565 format.
- Directly attach a NOR Flash chip to EVE, and store large images, fonts, videos and animations there instead of on MCU's flash. EVE has commands to program, update and read the flash.
- Allows EVE to work with larger screens and in applications with more on-screen content. It pauses PCLK if required to give more time to render graphics. Some displays do not work well with varying PCLK and so this feature can be disabled.
- Enhanced version of Adaptive Frame Rate added to BT817/8. It allows EVE to work with larger screens and in applications with more on-screen content. Extending the scan-out of pixels into the non-visible area of the display allowing EVE more time to render graphics.
- This feature allows a greater range of PCLK rates to be generated and so allows support of a wider range of displays.
- This feature works internally to EVE, to provide a higher transfer of pixel data. This in-turn enables the use of larger displays.
- Some displays do not have square pixels. Without correction, the image would appear stretched. The Horizontal Scan-out Filter (HSF) feature allows EVE to compensate for this so that display content looks correct and in proportion on these displays.
- EVE supports compressed image formats in addition to raw images. ASTC is available on the BT81x series which offers better image quality with smaller memory usage and can be displayed from RAM_G or flash.

*Automotive Grade. AEC-Q100. Temperature :-40 °C to +105 °C

www.brtchip.com



Professional HMI Graphics Made Easy with EVE



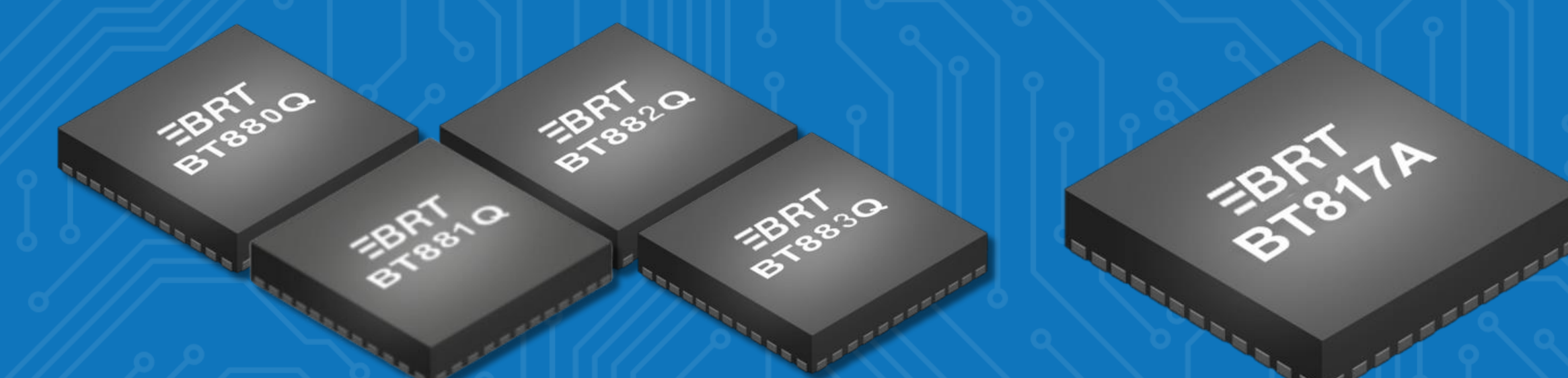
*Image from ETNA Coffee Technologies



Evaluation Kit



Development Module



2nd EVE Gen
BT880 / 1 / 2 / 3

4th EVE Gen
BT817A
Automotive

What is EVE?

Bridgetek's Embedded Video Engine (EVE) is a cutting-edge graphics controller that integrates full-color graphics, touch & audio in one IC. Easily connect EVE to your MCU via SPI (or Quad SPI) to add a vibrant touch screen to your design. This is perfect for modernising older interfaces or creating new, user-friendly designs.

GRAPHICS



Vibrant image with High-End Graphics, Icons and Widgets for an Improved Look for User Interfaces

TOUCH



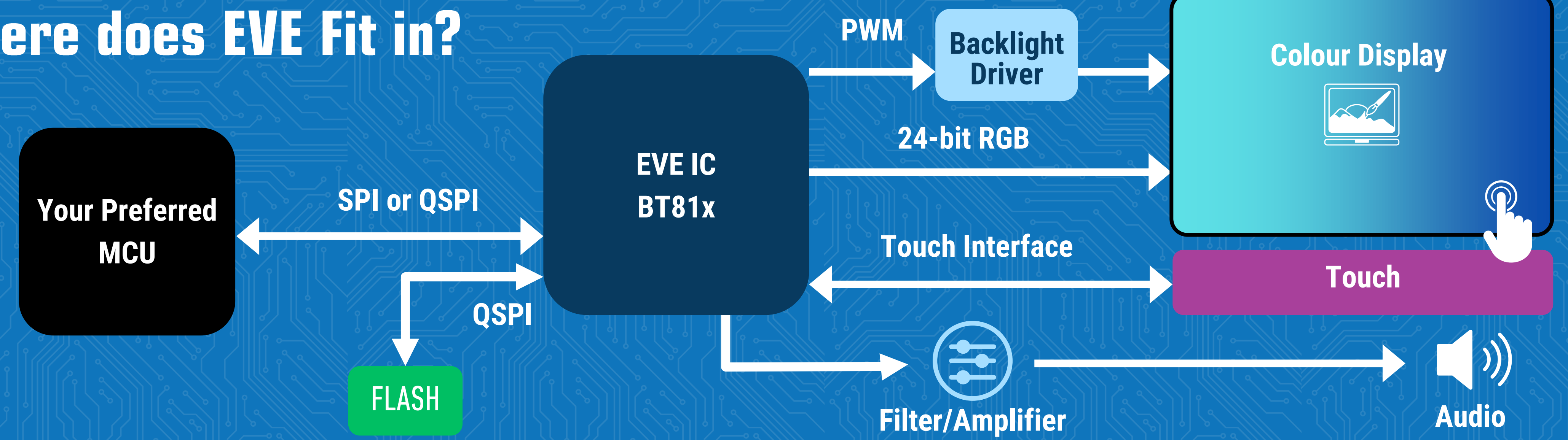
Innovative Touch Engine for Enhanced Touch Screen Experience

AUDIO

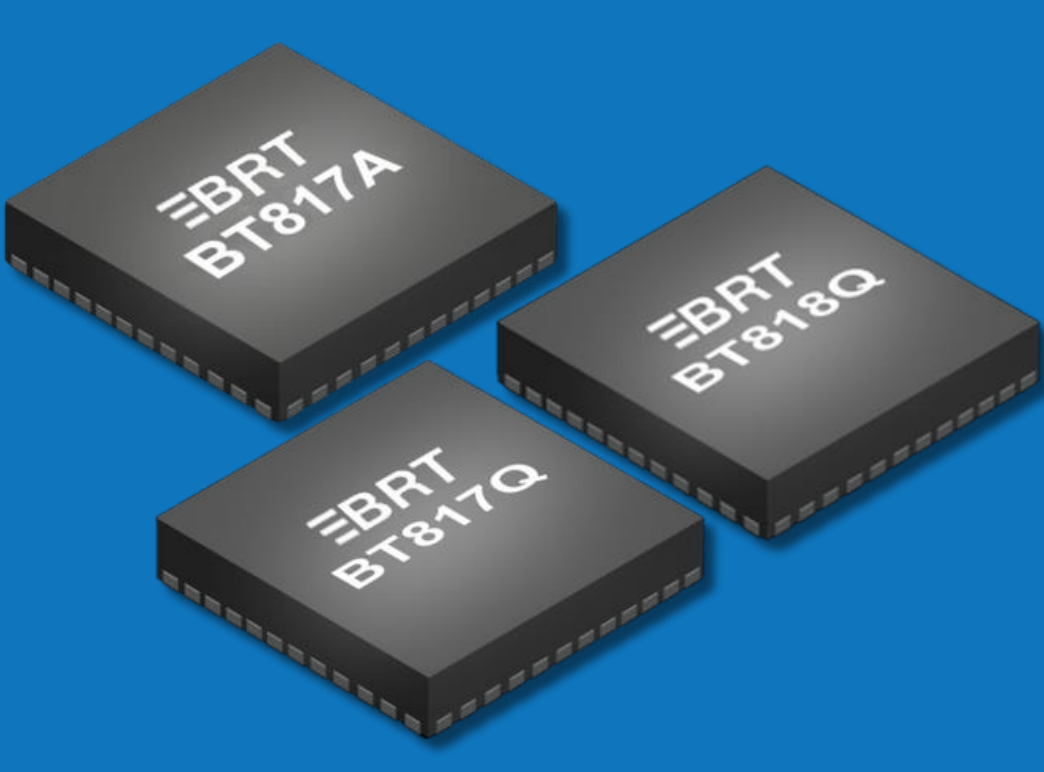


Play a Wide Range of Audio Tones with Almost No Extra Work for the MCU

Where does EVE Fit in?

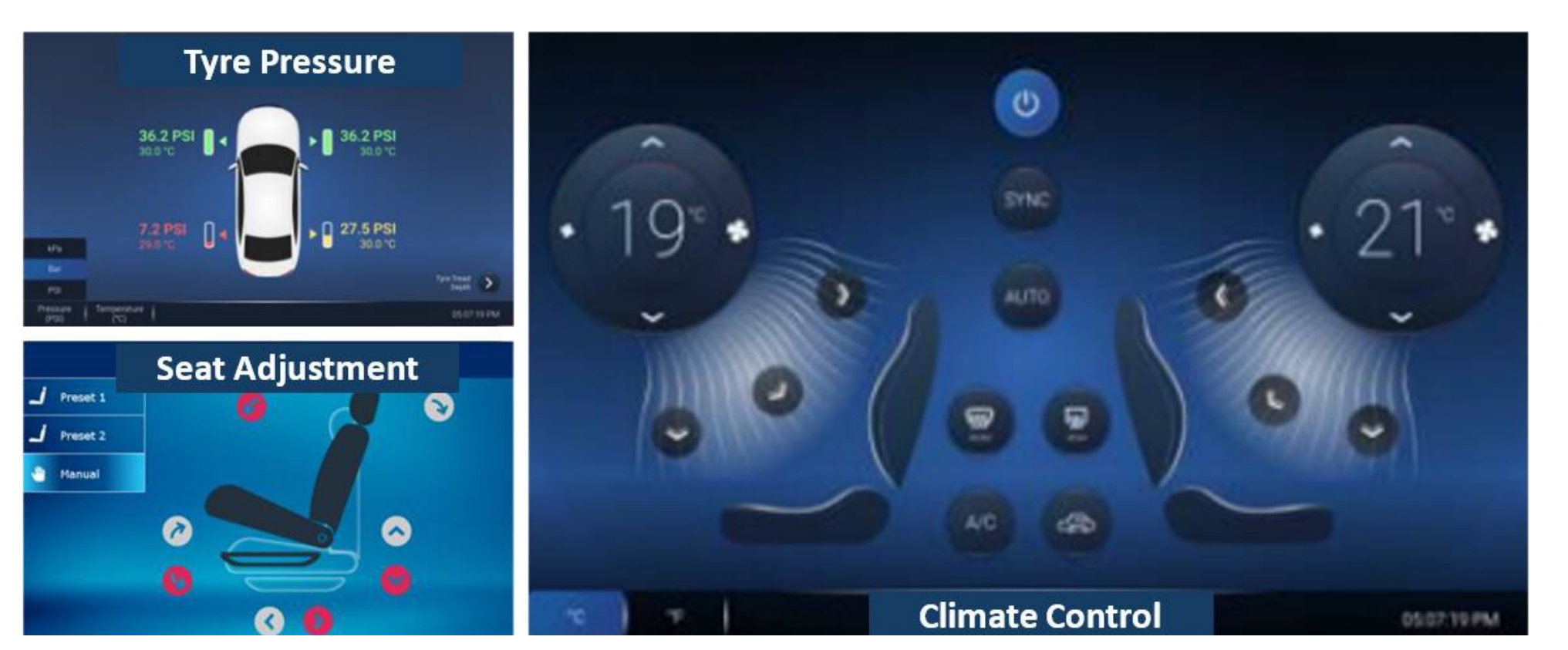


BT817A / 817 / 818 4th Generation EVE IC



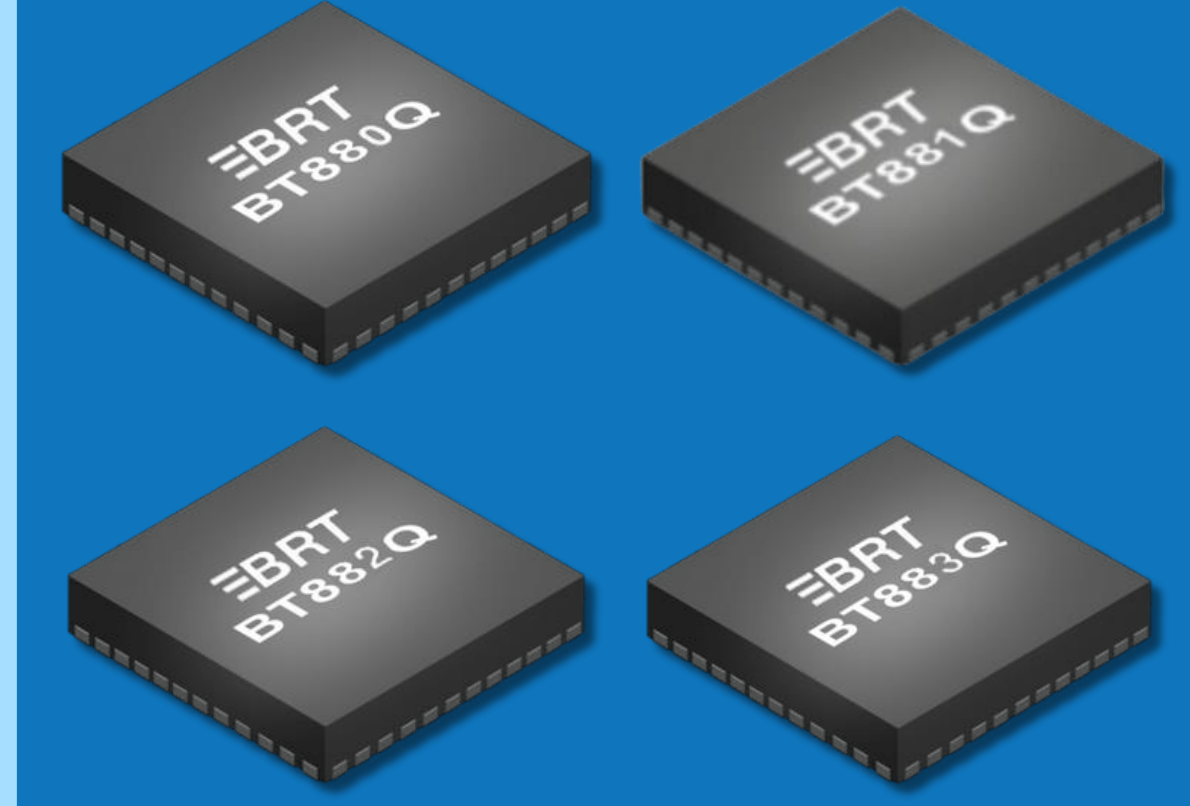
- BT817A is AEC-Q100 Automotive Qualified (-40°C to 105°C)
- Supports 24-bit Interface and Up to 1280 x 800 (10.1") Displays
- 50% Performance Enhancement over BT815 / 816
- Support for Non-Square Pixel TFT Panels
- Support Colour Palettes, Object Creation, Anti-Aliasing, Bitmap Transformation, Alpha Masking, and Widgets Drawing

Enhance HMI Experience up to 10.1" Display



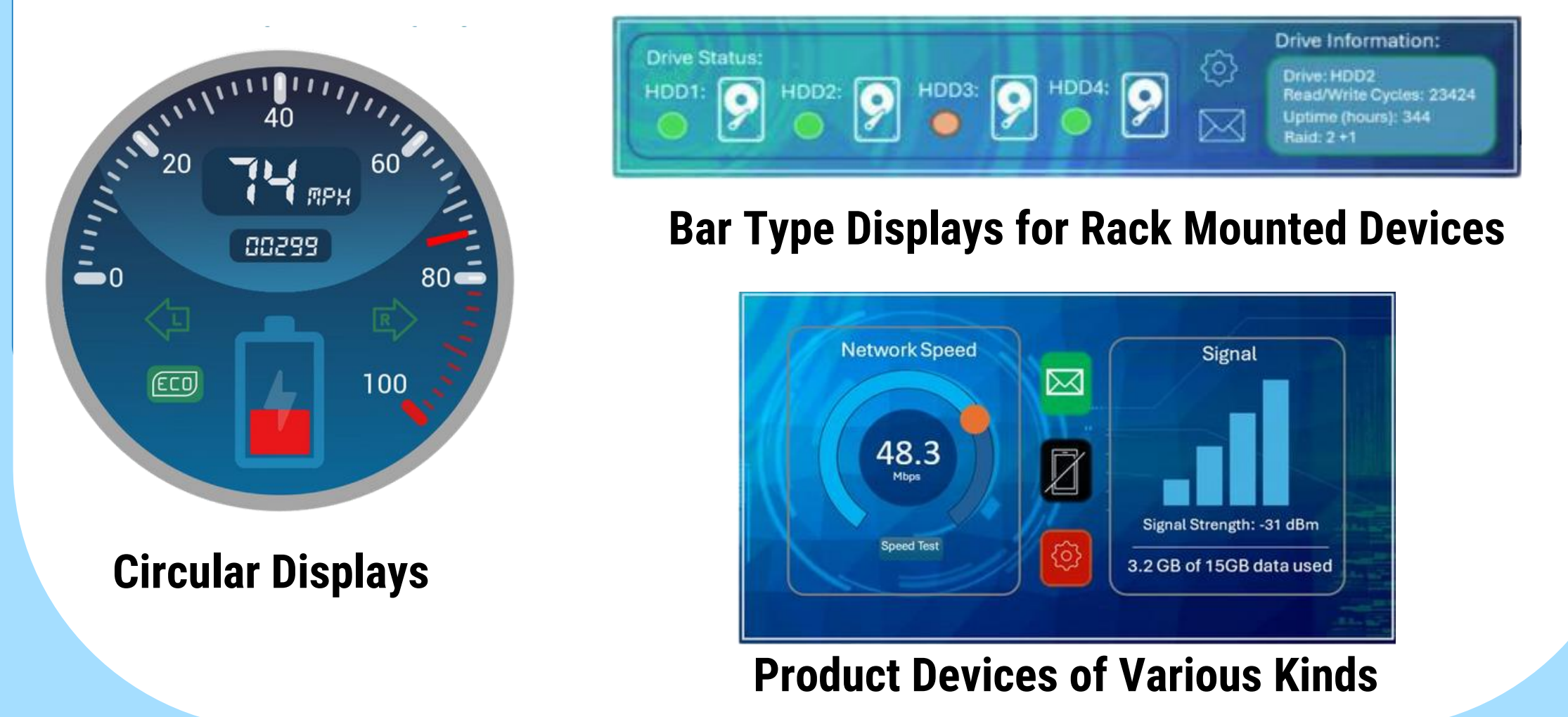
Various Screen Types for Automotive Use

BT88X 2nd Generation EVE IC



- Dynamic Human Machine Interface (HMI)
- Compatible with FT810/FT811/FT812/FT813
- Support Displays up to 128K Pixels, and up to 2048 pixels Per Line
- Typical applications: POS machines, Multi-function Printers, Home Security Systems, Bar Type Display & More

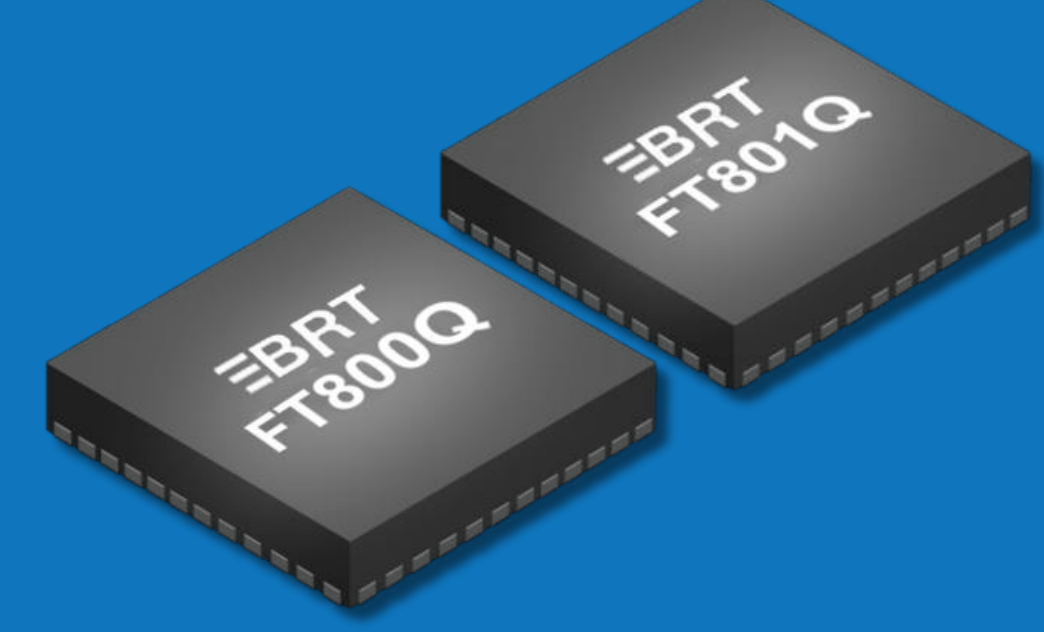
Enhance HMI Experience for:



Circular Displays

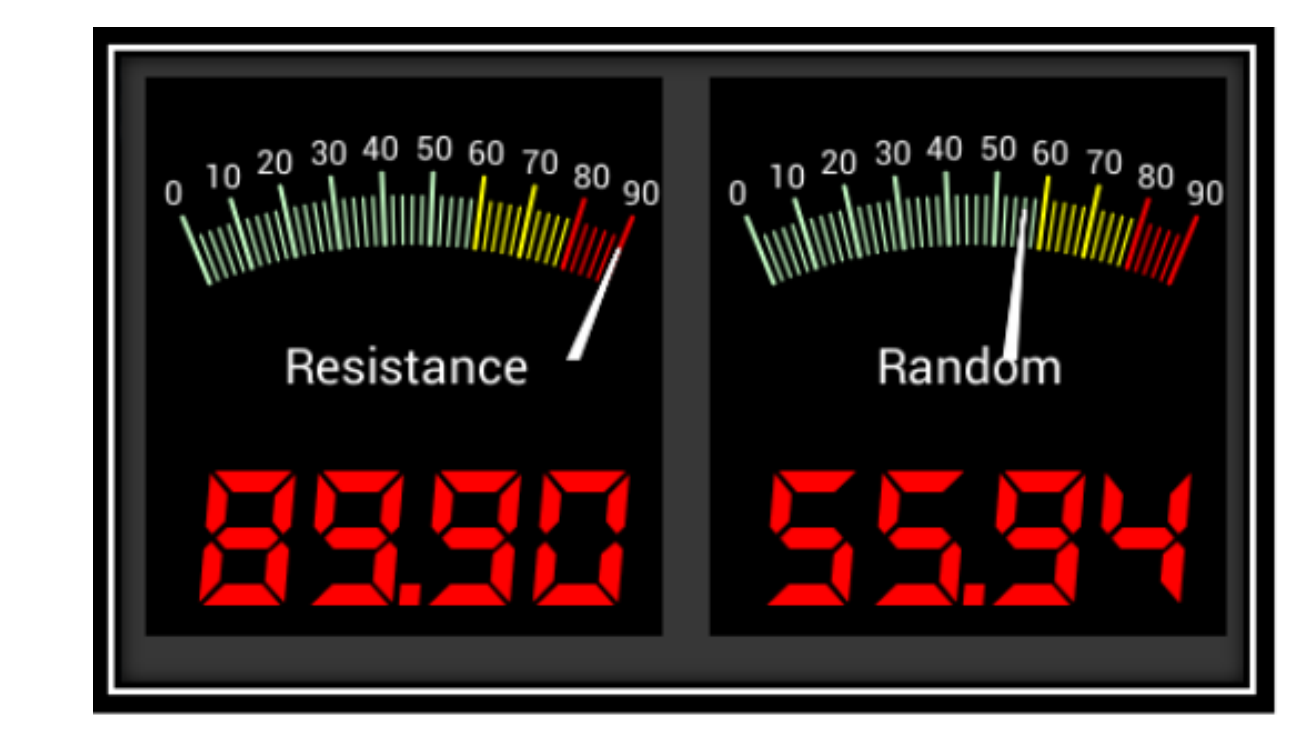
Product Devices of Various Kinds

FT80X 1st Generation EVE IC



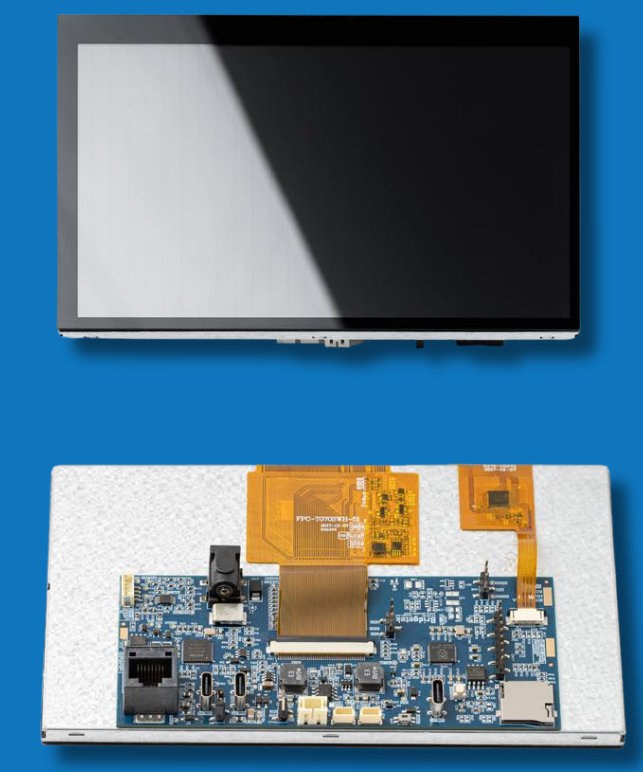
- Supports 512 x 512 Resolution, 262K colours
- FT800: Resistive Touch; FT801: Capacitive Touch
- Integrated Sound Synthesizer, PWM Audio Playback
- SPI and I²C connectivity

Enhance HMI Experience for:

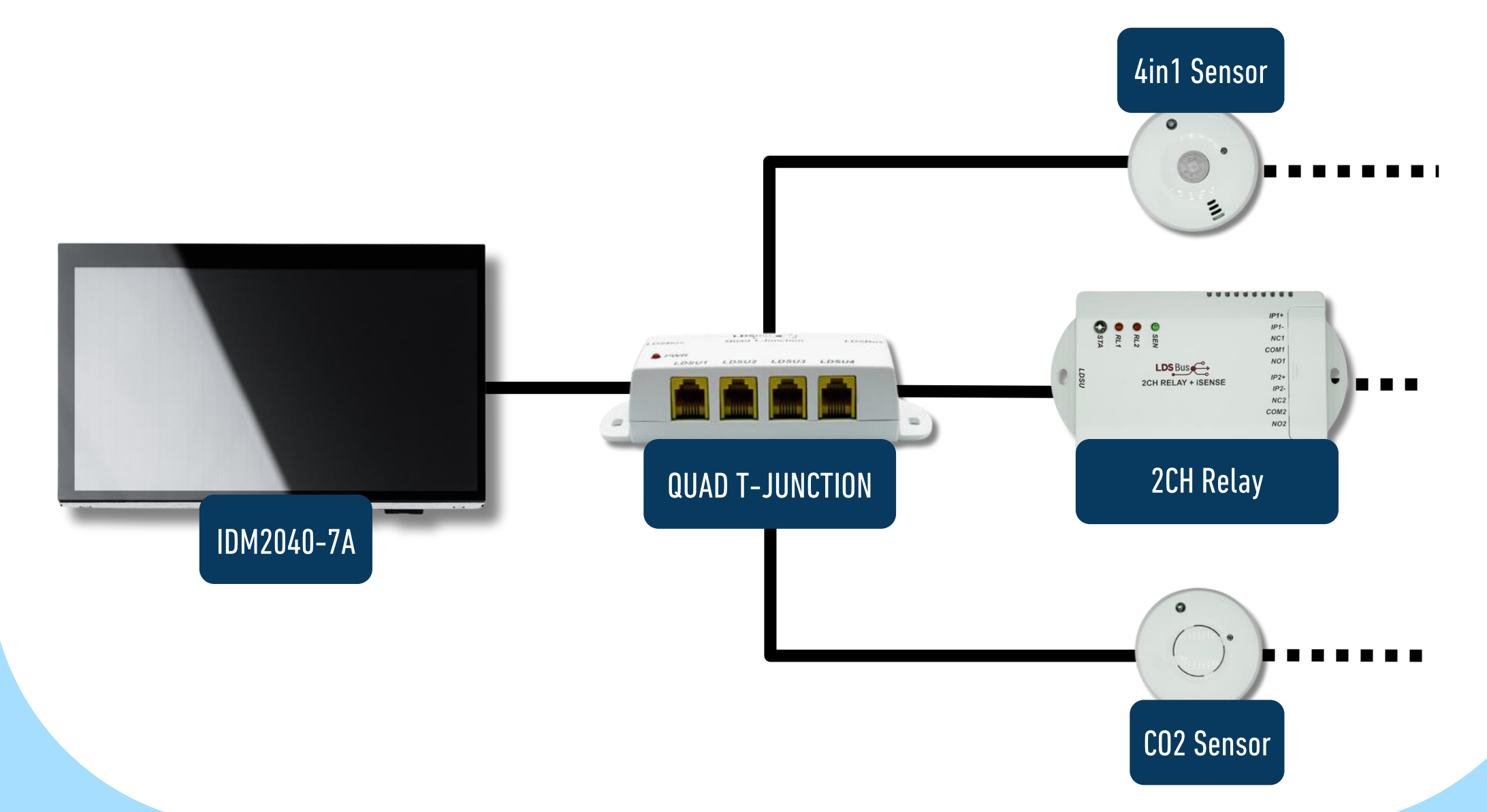


Test Instruments

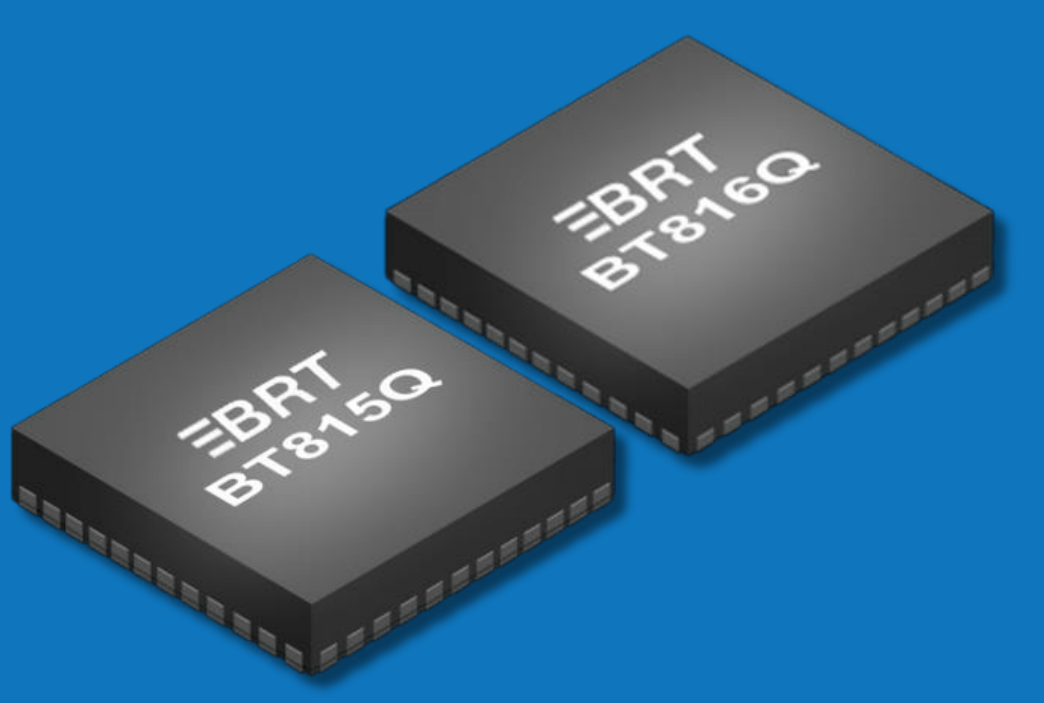
IDM2040-7A EVE Modules



- 7" 800 x 480 Capacitive Touch Panel using BT817 EVE Controller
- RP2040 MCU with 8MB On-Board Flash Memory Programmable with CircuitPython (Libraries Provided)
- USB, SPI, I²C, LDSBus / DMX512 interfaces

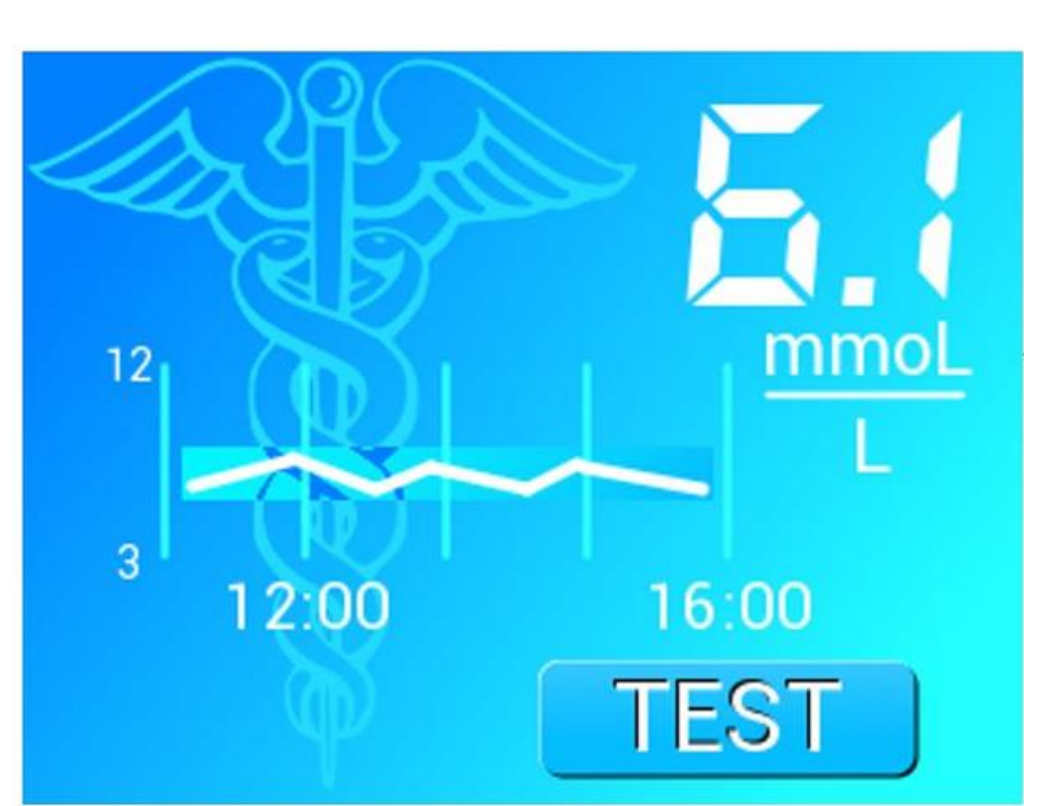


BT815 / 816 3rd Generation EVE IC



- Supports Crisp 800 x 600 pixel Resolution for Clear Visuals
- Capacitive (BT815) or Resistive (BT816) Touch Control Options
- Easy SPI / QSPI Interfaces for Efficient Integration
- On-Chip Sigma-Delta Audio Output for Quality Sound
- Dedicated Port for Off-Chip Flash Storage

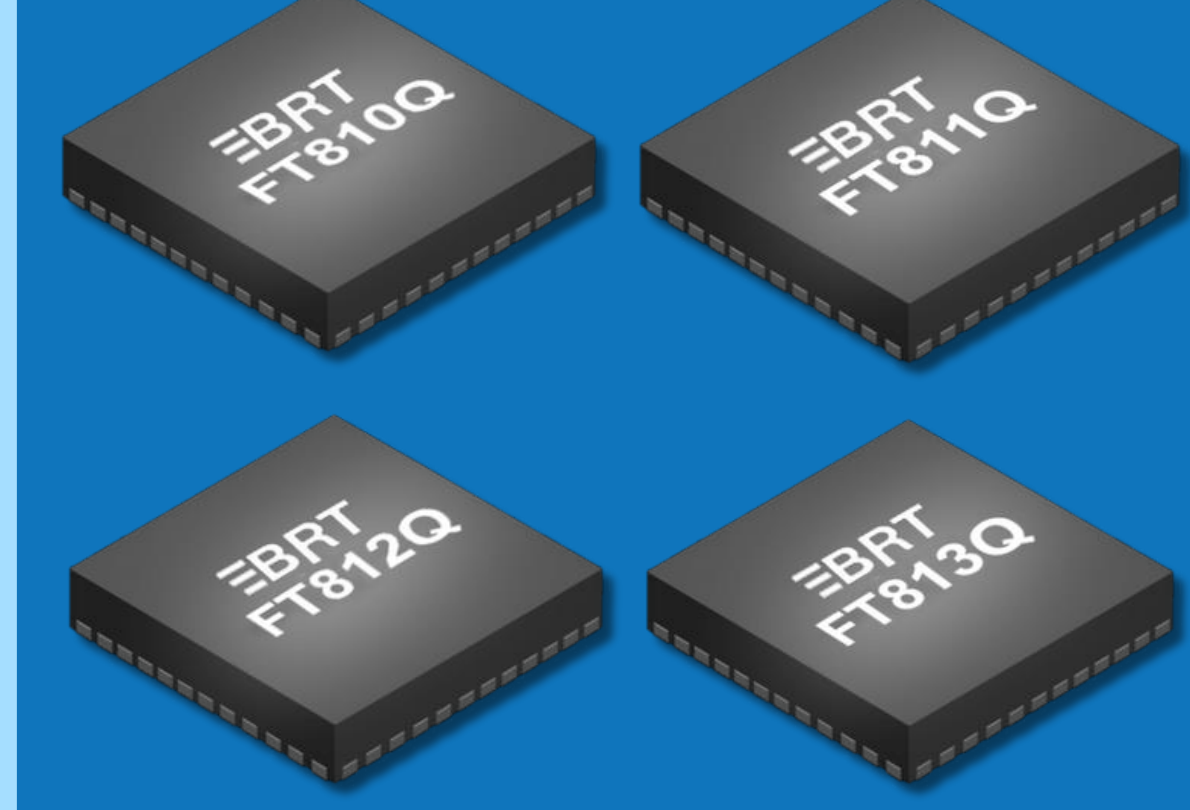
Enhance HMI Experience



Medical Devices Graphics

www.brtchip.com

FT81X 2nd Generation EVE IC



- Supports 800 x 600 Pixel Resolution
- Capacitive (FT811, FT813) & Resistive (FT810, FT812) Touch
- SPI/QSPI Interfaces for Integration
- On-Chip PWM Audio Output.
- 24-bit RGB Interface (FT812, FT813) for Richer Colors

Enhance HMI Experience



White Goods (Washing Machine)

www.brtchip.com

COMING SOON

BT822 5th Generation EVE IC



- Graphics, Touch & Audio functions in one IC
- Advanced Embedded Video Engine for High Resolution HMIs
- Dual Channel LVDS Output support Resolutions up to 1920 x 1200 Pixels
- Video Input support Resolutions up to 1920 x 1200 Pixels
- Frame Buffer for Enhanced Graphics Capabilities
- Built-In 1Gb DDR3 SDRAM

Enhance HMI Experience



Door Viewer

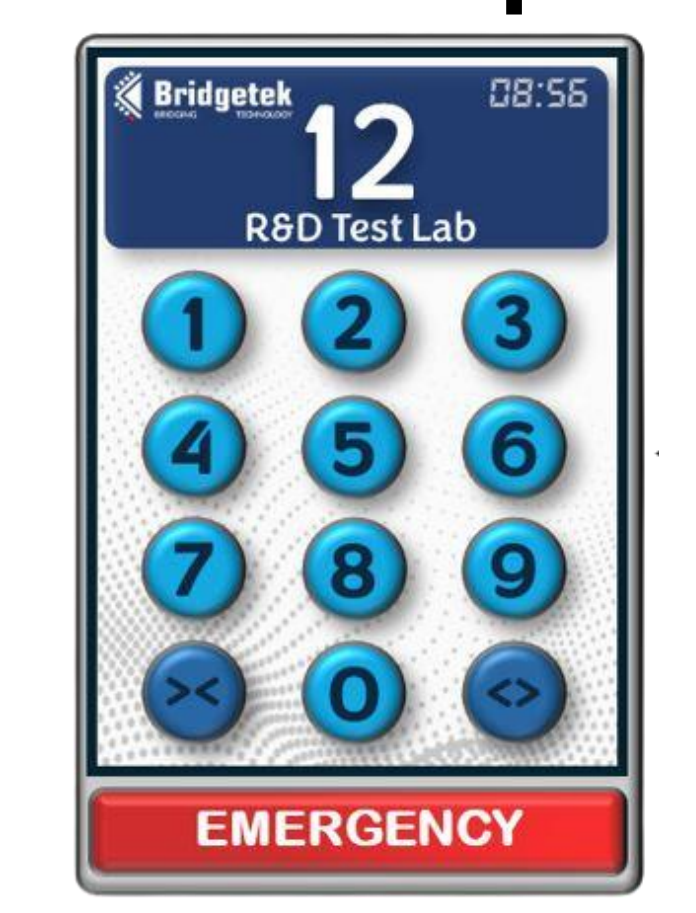
www.brtchip.com

VM800B Series EVE Modules



- Resistive Touch Display
- Utilises FT800 for Graphics, Audio & Touch Features
- Ready to Use LCD module
- On-Board LCD Backlight LED Driver
- On-Board Audio Power Amplifier and Micro Speaker
- Power using SPI Host Connector, or via USB Micro-B port, or via a 2.00mm JST Connector

Enhance HMI Experience



Elevator Capsule Controls

www.brtchip.com