



## MPF52000-AEC2

### Dual USB PD Controller for Source Ports, Supporting for Firmware Updates and Advanced PDP Management, AEC-Q100 Qualified

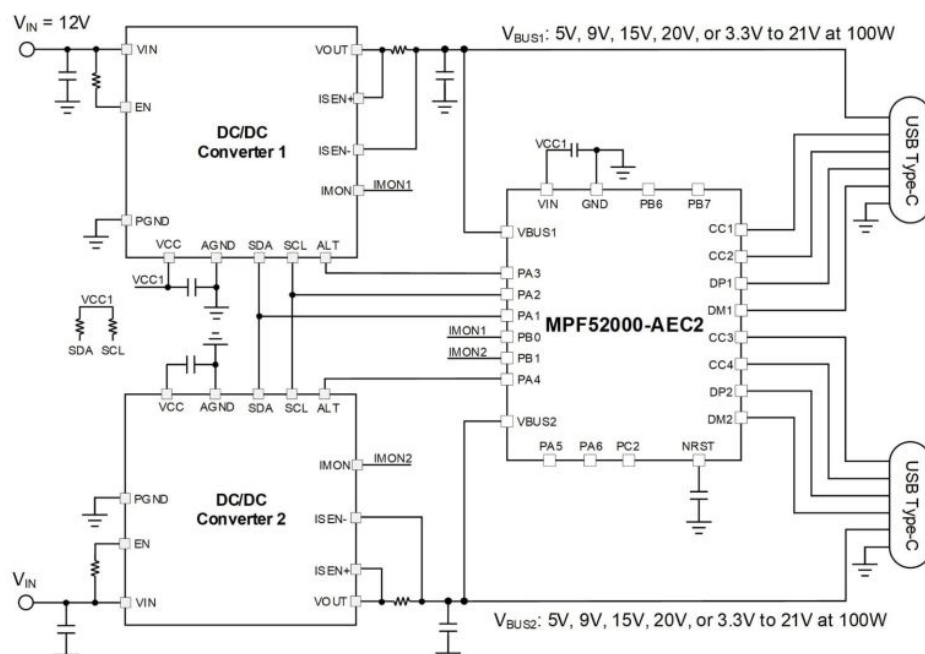
The MPF52000-AEC2 is a highly integrated, dual-channel USB power delivery (PD) controller for source ports. The device integrates a 32-bit ARM Cortex-M0 microcontroller, up to 36MHz operating frequency, USB Type-C port controller, and legacy charging protocol management. In addition, the CC lines support a firmware update feature.

The dual USB Type-C ports support USB PD revision 3.1 with programmable power supply (PPS) and Qualcomm Quick Charge 3/4/4+ technology. These ports are also backwards-compatible with dedicated charging port (DCP) schemes for Battery Charging Specification (BC1.2), Apple Divider 3 Mode, and Huawei fast charge protocol (FCP) and super charge protocol (SCP), without the need for outside user interaction.

Power-sharing functionality supports dynamic power budget management between the two USB PD ports. Power data object (PDO) capabilities are reduced when the car battery voltage is low, or when an over-temperature (OT) warning is triggered.

Fault condition protections includes bus voltage ( $V_{BUS}$ ) over-voltage protection (OVP) and under-voltage protection (UVP), and thermal shutdown. The high-voltage input/output (I/O) pins support short-to-battery and short-to-VBUS protection.

The MPF52000-AEC2 requires a minimal number of readily available, standard external components, and is available in a QFN-24 (4mmx4mm) package. It is AEC-Q100 Grade 2 qualified.



## Features & Benefits

- 3.3V to 21V Bus Voltage ( $V_{BUS}$ ) Range in Standard Power Range (SPR) Mode with Discharge Function
- Supports Up to 48V  $V_{BUS}$  in Extended Power Range (EPR) Mode with External  $V_{BUS}$  Resistor Divider
- 4.6V to 5.5V Input Supply Voltage ( $V_{IN}$ ) Range
- 150 $\mu$ A Low Deep Sleep Supply Current ( $I_{DSSL}$ ) Mode in Detached State
- Dual USB PD Controller for Source Ports:
  - Compliant with USB PD3.1 with Programmable Power Supply (PPS), USB Type-C 2.1