



MAX20463A

Automotive USB Type-A to Type-C Port Converter with Protection

Convert Your Type-A USB Port to a USB Type-C Port with This Tiny Solution



NDA Required. [Request Full Data Sheet](#)

Description

The MAX20463 is a small, integrated USB Type-C™ Downstream-Facing Port (DFP) solution used to convert an existing USB-A head-unit captive-cable port to a head-unit USB Type-C captive-cable port. When the MAX20463 is designed into an automotive module at the end of the cable, then the existing upstream head-unit USB-A solution and the existing USB-A captive-cable housing can be reused.

The device protection features include $\pm 15\text{kV}/\pm 8\text{kV}$ IEC 61000-4-2 ESD on CC1/CC2, and IEC ESD with short-to-battery (18V) on SENSE/HVBUS. The MAX20463A senses a short of the passenger cable shield to car battery, preventing damage to the port. Short-to-ground and short-to-battery survival are also provided on the HVBUS signal and defined to operate in concert with the existing head-unit USB-A charger/protector, allowing coordinated fault detection and reporting to the head-unit USB host. The device is compliant with the USB Type-C specification.

The MAX20463 is available in a small, 3mm x 3mm, 12-pin TDFN package, using very few external components.

Key Features

- USB Type-C R1.3 compliance with integrated V_{BUS} Discharge
 - USB Type-C 1.5A and 3.0A DFP Controller
 - Type-C Current Limit Reduction with V_{BUS} Dropout
- Designed for Cooperative Protection with Head-Unit Protector

- o Short-to-Battery and Short-to-Ground Survival on HVBUS for Upstream Protector to Handle
 - o Accurate USB Bus Forward Current Threshold
 - o Low R_{ON} 28m Ω (Typ) USB Power Switch
- Robust Design Keeps Vehicle System and Portable Devices Safe in Automotive Environment
 - o Optional Shield Short-to-Battery Detection and External FET Control
 - o Short-to-BUS Protection on Protected CC1 and CC2 Outputs
 - o IEC 61000-4-2 Level-4 ESD Protection (HVBUS, CC1, CC2, SENSE)
- 3mm x 3mm 12-Pin TDFN Package
- -40°C to +105°C Operating Temperature Range
- AEC-Q100 Qualified

Applications/Uses

- Automotive Downstream USB Modules
- Automotive USB Captive-Cable Housing

Part Number	Supported Charging Configurations	Supported USB Battery Charging Specification	Charging Modes	Current Limit Switch Control	CDP Emulation	Remote Wake-Up Support	V_{BUS} Reset Time (sec) typ	Package/Pins	Oper. Temp. (°C)
MAX20463	USB Type-C 0.5A	n/a	USB Type-C Downstream Facing Port (DFP)	Configuration Resistor or GPIO	No	No	0.001	TDFN-CU/12	-40°C to +105°C
	USB Type-C 1.5A								
	USB Type-C 3.0A								