



New Product Announcement

PI5USB216EQ

Automotive-Compliant USB 2.0 Signal Conditioner Simplifies System Designs

The PI5USB216EQ is a USB 2.0 signal conditioner and is compatible with USB 2.0 and OTG 2.0. It has an integrated BC 1.2 CDP battery charging controller to charge external devices and is used in automotive USB host applications.

The PI5USB216EQ boosts signals and inserts pre-emphasis, enabling it to extend the reach of USB 2.0 cables. The device can also be positioned far from the USB PHY or the connector. It has two control methods:

- I2C: controls boost/pre-emphasis and receiver EQ and sensitivity levels
- Pin-strap: configures boost/pre-emphasis and receiver EQ levels, complementing the PI5USB216Q, which then configures the receiver sensitivity instead of EQ

The PI5USB216EQ saves energy by automatically reducing its supply current to 0.7mA when it detects that no USB attachment is present, and to 13µA when disabled via the RSTN disable pin. Device-attach and high-speed-handshake success are also detected and reported.

The PI5USB216EQ is available in the X2-QFN1616-12 package, occupying only 1.6mm x 1.6mm.

A standard compliance version, PI5USB216E, is available and suitable for industrial and commercial applications.

Automotive-compliant - AEC qualified, manufactured in facilities certified to IATF 16949, supporting PPAP documents.

The Diodes logo is a registered trademark of Diodes Incorporated in the United States and other countries.

All other trademarks are the property of their respective owners.

© 2026 Copyright Diodes Incorporated. All Rights Reserved.



The DIODES Advantage

The PI5USB216EQ compensates ISI signal loss, extending cable lengths to 5m in automotive USB 2.0 applications and supports BC 1.2 CDP.

- **Improves Signal Integrity of USB 2.0 Signals**
Extends the reach of USB 2.0 cables up to 5m, even at 480Mbps
- **Integrated BC 1.2 CDP Battery Charging Controller**
Supports BC 1.2 CDP battery charging for legacy USB devices
- **Supports I2C and Pin-Strap Control of Boost/Receiver Characteristics**
 - I2C Programs: Boost and Receiver EQ/Sensitivity
 - Pin-Strap Controls: Boost and Receiver EQ Levels
Provides easy and flexible signal integrity tuning
- **Qualified to AEC-Q100 Grade 2 with 5.5V Operation**
Operates across all standard USB voltage rails and ambient temperatures up to 105°C
- **Very Small Footprint: X2-QFN1616-12**
Caters to space-constrained portable applications

Applications

Improvements in signal integrity for automotive USB 2.0 data-channels

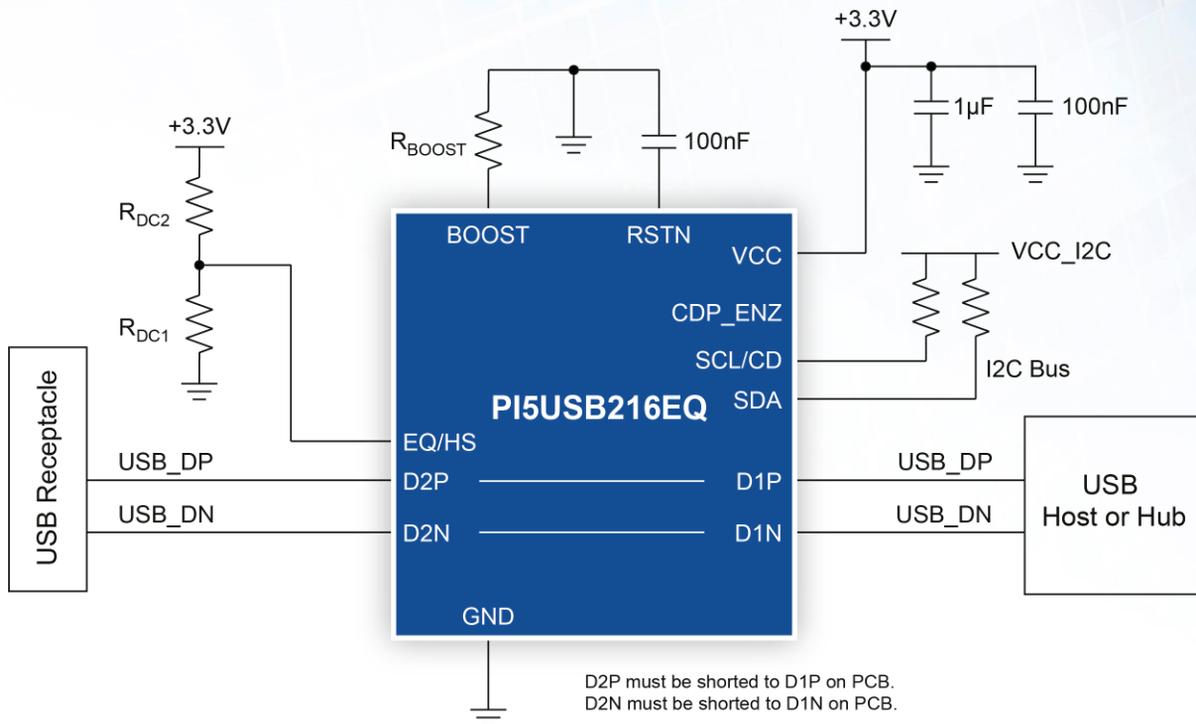
- USB Type-A ports
- USB Type-C® ports
- USB charging applications



New Product Announcement

PI5USB216EQ

Typical Application: USB 2.0 Booster Using Pin-Strap



Automotive-Compliant USB Signal Conditioners

Part Number	Supply Voltage	Differ. Channels	Ports	Compatibility	I2C Configuration	Pin-Strapping	BC 1.2 CDP	Ambient Temperature Range	Package
	V							°C	
PI5USB216EQ	2.3 to 5.5	1	1	USB 2.0, OTG 2.0	Boost/EQ/Sensitivity	Boost/EQ	Yes	-40 to +105	X2-QFN1616-12 (XUA12)
PI5USB216Q	2.3 to 5.5	1	1	USB 2.0, OTG 2.0	Boost/EQ/Sensitivity	Boost/Sensitivity	Yes	-40 to +105	X2-QFN1616-12 (XUA12)

Ordering Information

Order Part Number	Compliance (Only Automotive Supports PPAP)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
PI5USB216EQ2XUAEX	Automotive	X2-QFN1616-12 (XUA12)	MSL-1	3,500	7" Tape & Reel