



# New Product Announcement

## PI5USB216Q

# Automotive-Compliant USB 2.0 Signal Conditioner Simplifies System Design

The PI5USB216Q is a USB 2.0 signal conditioner and is compatible with USB 2.0, OTG 2.0, and integrated BC 1.2 charging downstream port (CDP) battery-charging controllers to charge external devices. It is used in automotive USB host applications.

It boosts signals and inserts pre-emphasis, improving the data signal integrity (SI) and enabling it to extend the reach of USB 2.0 cables. The device can be positioned far from the USB PHY or the connector. Its boost/pre-emphasis and receiver sensitivity levels are configured through pin-strapping or I2C mode.

The PI5USB216Q automatically detects when no USB attachment is present and saves energy by reducing its supply current to 0.7mA, and 13µA when disabled via the RSTN disable pin. The product also detects and reports device-attach and high-speed-handshake success.

The PI5USB216Q is available in the X2-QFN1616-12 (XUA12) package, measuring only 1.6mm x 1.6mm.

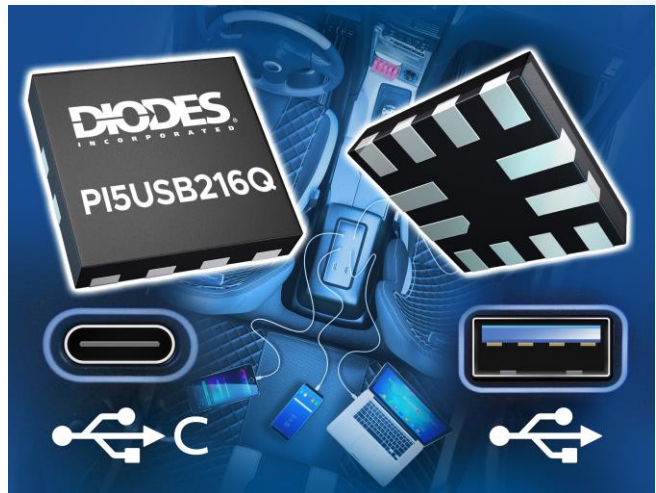
A standard compliance version, PI5USB216, is available and is suitable for industrial and commercial applications.

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

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### The DIODES Advantage

**The PI5USB216Q compensates ISI signal loss, extending cable lengths to 5m in automotive USB 2.0 applications and supporting BC 1.2 CDP.**

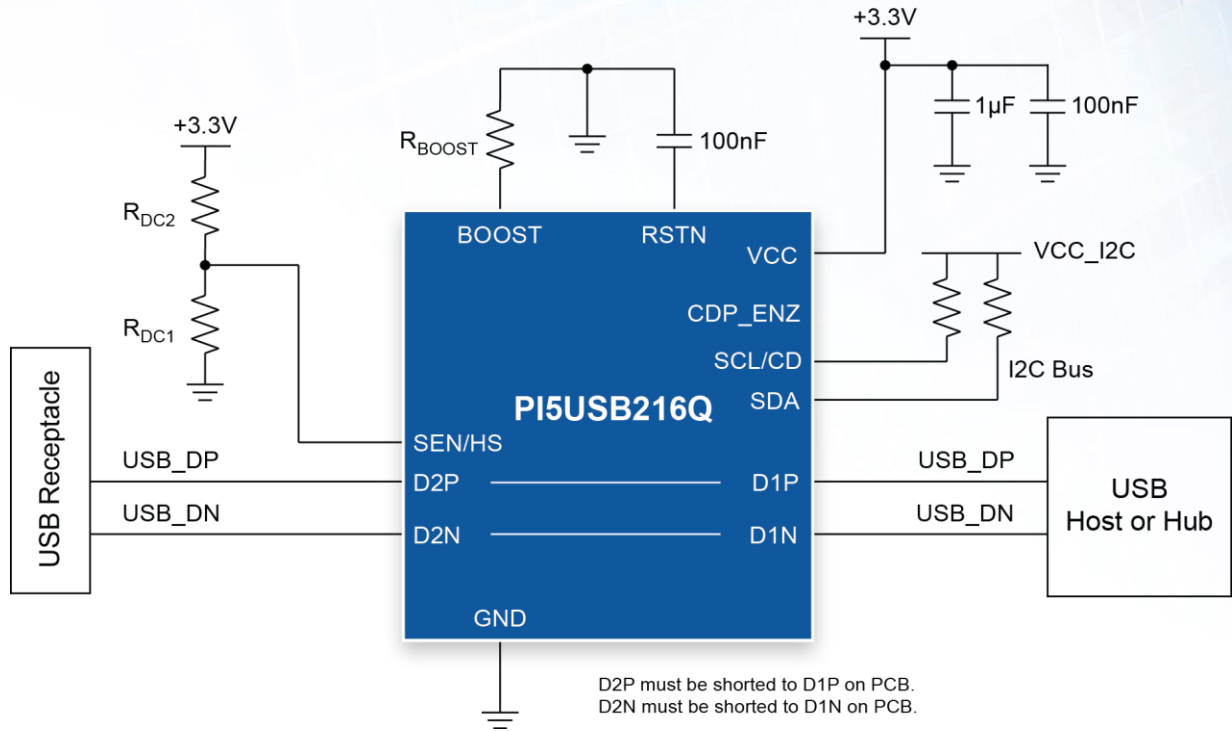
- **Improves Signal Integrity of USB 2.0 Signals**  
 Extends the reach of USB 2.0 cables up to 5m, even at 480Mbps
- **Integrated BC 1.2 CDP Battery-Charging Controller**  
 Supports BC 1.2 CDP battery charging of legacy USB devices
- **Boost/Pre-Emphasis Level and Receiver Sensitivity Programmed through Pin-Strapping or I2C**  
 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

Automotive USB 2.0 (USB Type-A and USB Type-C®) data channel SI improvements in:

- Automotive infotainment and clusters
- Automotive head units
- Active cables and cable extenders

## Typical Application



## Automotive-Compliant USB Signal Conditioners

Part Number	Supply Voltage	Ports	Compatibility	Programming Interface	BC 1.2 CDP	Ambient Temperature Range	Package
	V					°C	
<a href="#">PI5USB216Q</a>	2.3 to 5.5	1	USB 2.0, OTG 2.0, BC 1.2	Pin Strap/I2C	Yes	-40 to +105	X2-QFN1616-12 (XUA12)

## Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
<a href="#">PI5USB216Q2XUAEX</a>	<a href="#">Automotive</a>	X2-QFN1616-12 (XUA12)	MSL-1	3,500	7" Tape & Reel