A Product Line of
Diodes Incorporated

PRODUCT BRIEF

PI3EQX2034

USB 3.2 Gen 2x2 ReDriver with Integrated USB-C Detector

Description

The DIODES PI3EQX2034 is a low power, high performance USB 3.2 Gen 2x2 ReDriver™ with Plug-in Detector for Type-C® connector.

The Device includes two main function blocks:

1) The USB3.2 Gen2x2 ReDriver

2) The Plug-in Detector for USB-C connector

The USB3.2 Gen2x2 ReDriver

The ReDriver provides programmable equalization, swing and flat gain to optimize performance over a variety of physical mediums by reducing Inter-Symbol Interference. The ReDriver supports four 100Ω Differential CML data I/O's between the Protocol ASIC to a switch fabric, over cable, or to extend the signals across other distant data pathways on the user's platform.

The integrated equalization circuitry provides flexibility with signal integrity of the signal before the ReDriver. A low-level input signal detection and output squelch function is provided for each channel. Each channel operates fully independently. The channels' input signal level determines whether the output is active.

The ReDriver also includes an adaptive power management feature to maximize battery life for power sensitive consumer devices.

The Plug-in Detector for USB-C Connector

The plug-in detector detects the plug-in orientation of the cable at a USB-C connector. It supports the port to configure as SOURCE (DFP) mode and DRP modes and automatically connects based on the voltage levels detected on CC pin. It is a fully-integrated solution with ultra-low power dissipation.

The plug-in detector supports both pin and I2C interfaces.

The PORT input pins determine the port setting in which the SOURCE or DRP port can be selected. In SOURCE and DRP modes, the SRC_CUR input pin selects USB Type-C current advertisement at default USB, 1.5A, and 3A level. The system running in source mode can monitor ID pin to know the connector attached or not. Systems running in sink mode can monitor system's VBUS for connector status. DEBUG pin also indicate if a debug accessory is attached.

The plug-in detector provides VCONN function to power active cables and other accessories through VCONN pin. Low-resistance power switches are integrated in the chip-to-connect CC1/CC2 pins to VCONN pin.

I2C interface informs the processor the information of connection and plug orientation. An interrupt signal for indicating changes.

Features

ReDriver

- 10Gbps Serial Link with Linear Equalizer
- USB3.2 Gen 2x2
- Four 10Gbps Differential Signal Pairs
- Pin Mode Control for EQ/Flat Gain/Swing
- 100Ω Differential CML I/O's
- Automatic Receiver Detect
- Single Supply Voltage: 3.3V

Plug-In Detector

- USB Type-C Specification 2.0
- Supports SOURCE (DFP)/DRP Modes
- Auto-Configure Ports Orientation through CC Detection
- Supports VCONN to Power Active Cables and Other Accessories
- Supports Detecting Debug Accessory Mode (DAM) as Source (Rd /Rd Detection) if Configuring the Port as DFP
- Supports Detecting DAM as both Source & Sink (Rp/Rp detection) if Configuring the Port as DRP
- DEBUG Pin to Enable SBU Isolation for Compliance Requirement
- Supports Over-Current Protection and Over-Voltage Protection for VCONN
- Allow Both Pin Control and I2C Interface
- Integrated Power Switches, High-Precision Resistors and Current Sources for CC Pins
- Provides Support for Default USB Power, 1.5A and 3A SOURCE Modes with Pin Control
- Output Indicator for Plug-In Detection
- Power Saving Mode
- 24V Tolerance on CC1, CC2 and VBUSDET
- Power Supply Range : 3.0V to 5.0V
- Temperature Range: 0°C to 70°C
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/
- Packaging (Pb-free & Green):
  - 52-pin, 3.5mm x 9mm (ZL)

Ordering Information

Part Number	Package	Description
PI3EQX2034ZLEX	ZL	52-Pin, 3.5mm x 9.0mm (TQFN)

Notes:
- E = Pb-free and Green
- X suffix = Tape/Reel

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

DIODES:

74AHC1G02W5-7 B190-13-F BAS40-06-7-F SMAJ22CAQ-13-F ZVN4424GTA DDTD142JC-7-F DMTH41M8SPS-13 MMBTA13-7-F AP7343D-18W5-7 APX809S-46SA-7 BZT52C3V3LP-7 S1G-13-F SDT3A45SA-13 PDS540-13 SDT10A45P5-13 ZHCS500TA AL5822W6-7 BZT52C5V1T-7 DZ9F3V6S92-7 SBR20A300CTB-13 ZXMP6A13FQTA ZXTP718MATA 74AHCT1G02QSE-7 SMBJ30A-13-F BC857BT-7-F FZT605TA SMCJ24A-13-F DF04M DMG1013UWQ-13 TLV272IM8-13