

Description

The CY83771 is an Electronic-Marker (e-Marker) IC for applications of USB Type-C active and passive cables. It is compliant with USB Type-C Cable and Connector Specification Release 2.2, and Power Delivery PD3.1 Version 1.8. It supports temperature report and thermal shut down, and embeds VBUS-short protection on CC/VCONN1/VCONN2 pins up to 36V.

The CY83771 can be powered from VCONN1, VCONN2, or VCONN0, and operating voltage is from 2.75V to 5.75V. With the supports of structured VDM (Vendor Defined Message) commands, the CY83771-embedded cable delivers cable parameters to the PD source for decision making. It automatically supports SOP' (cable near end - close to VCONN source), SOP'' (cable far end) operations, and monitors the SOP communications between source and sink so as to enable the active cable applications through the I2C interface control.

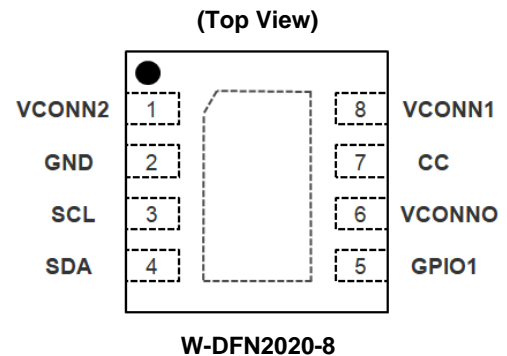
The internal Ra resistor is turned off to save power upon completion of discovery procedure. In addition, to minimize power consumption in active cable application, the CY83771 can set the connected repeater to standby power mode.

The built-in MTP in the CY83771 can be programmed through Configuration Channel (CC) line to store cable parameters up to 4 times. To minimize total BOM cost and PCB area, the CY83771 has integrated LDOs, isolators (diodes) and Ra resistors. It is available in W-DFN2020-8 package.

Features

- Compliant to USB Type-C Cable and Connector Release 2.2
- Compliant to USB Power Delivery Rev.3.1 Ver.1.8
- Support structured VDM commands including Discover Identity/SVIDs/Modes, and Enter/Exit Mode
- Support DisplayPort Alternate (Alt) mode
- Support USB4™ and TBT3™ communications
- Support Get Manufacturer Info command
- Support SOP' and SOP'' communications
- Support single and dual e-Marker cable applications
- Support active and passive cables through built-in MCU
- Support temperature report and thermal shut down
- Support 2.75V – 5.75V operation on VCONN1/VCONN2
- Support VBUS short protection on CC/VCONN1/VCONN2 up to 36V
- Support I2C master/slave and GPIO pin
- Built-in LDOs, isolators (diodes) and Ra resistors
- In-system MTP programming through CC line up to 4 times
- Current as low as 2mA and 400uA in operation and standby
- ±8 kV HBM ESD on CC, VCONN1 and VCONN2 pins
- Package: W-DFN2020-8

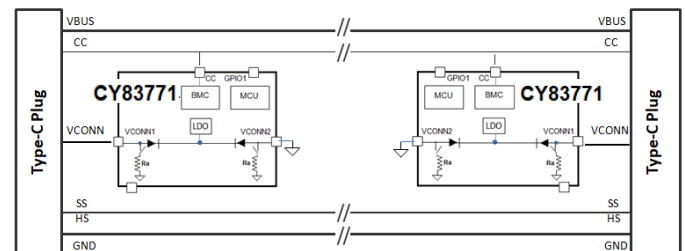
Pin Assignments



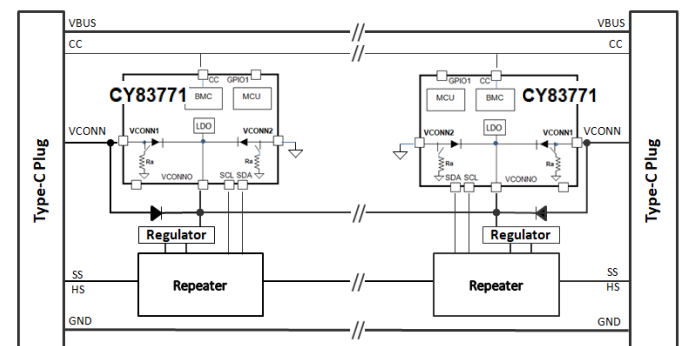
Applications

- USB Type-C Passive Cables
- USB Type-C Active Cables

Typical Application Circuit



Passive Cable



Active Cable