



Features

- Trouble-free installation and network bring-up
- Compliant to industry standards:
QSFP+ MSA SFF-8436 / SFP+ MSA SFF-8431
- Precision process control for minimization of pair-to-pair skew
- 1 independent duplex channels operating at 25Gbps, 10Gbps, also support for 2.5Gbps, 5Gbps data rates
- All-metal housing for superior EMI performance
- 100 ohm differential impedance system
- Operating case temperature: -20°C to 85°C
- Low insertion loss
- Low crosstalk
- Secure latching mechanism
- RoHS compliant

Applications

- Data Servers 、 Routers 、 Switches
- Networked storage systems
- Data Center networking
- InfiniBand Trade Association (IBTA)
- IEEE-802.3ba
- MSA SFF-8431

Product Description

The QSFP28 to SFP28 Adapter (QSA) Module offers 25 (10) Gigabit Ethernet connectivity for Quad Small Form-Factor Pluggable QSFP28 (QSFP+) -only platforms. It allows smooth and cost- effective migration to 100 (40) Gigabit Ethernet by providing an option to use lower-speed Enhanced Small Form-Factor Pluggable SFP28 (SFP+) modules in empty QSFP28 (QSFP+) ports or when the other end of the network is running at lower speeds.

The QSA Module converts a QSFP28 (QSFP+) port into an SFP28 (SFP+) port. With this adapter, customers have the flexibility to use any SFP28 (SFP+) module or cable to connect to a lower-speed port on the other end of the network. This flexibility allows a cost-effective transition to 100 (40) Gigabit Ethernet by maximizing the use of high-density 100 (40) Gigabit Ethernet QSFP28 (QSFP+) platforms. This adapter supports all SFP28 (SFP+) optics and cable reaches. Compatible Switch Models and SFP28 Modules. A list of SFP28 transceiver modules that can be plugged into the QSA module is provided in Table 1.

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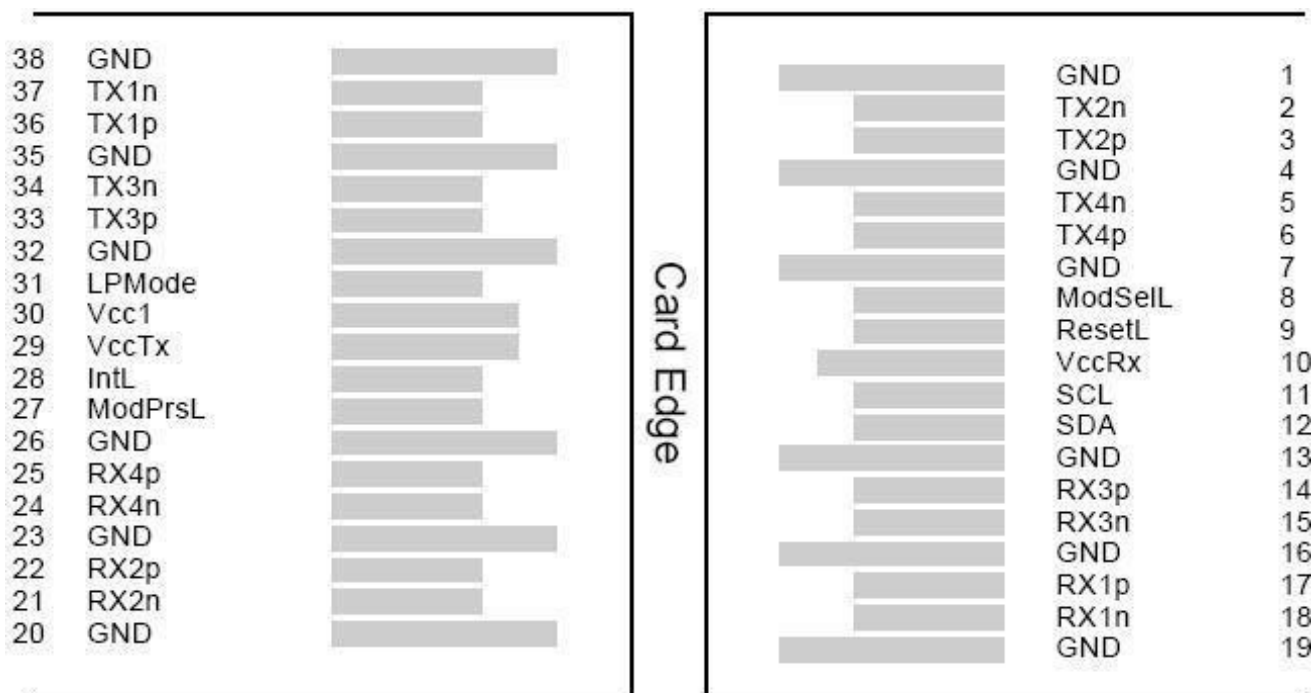
Table 1. Supporting Modules

<i>Item</i>	<i>Product Name</i>	<i>Product Description</i>
1	OPAX-MX1-85-Cx	25GBASE-SR SFP28 Module for Multimode Fiber
2	OPAX-S10-13-Cx	25GBASE-LR SFP28 Module for Single-Mode Fiber
3	OPAK-TX1-00-Cx	10GBASE-TX SFP+ Module for Cat.6a RJ45 Cables
4	OPAK-MX3-85-Cx	10GBASE-SR SFP+ Module for Multimode Fiber
5	OPAK-S10-13-Cx	10GBASE-LR SFP+ Module for Single-Mode Fiber
6	OPAK-S40-15-Cx	10GBASE-ER SFP+ Module for Single-Mode Fiber
7	OPAK-S80-15-Cx	10GBASE-ZR SFP+ Modules for Single-Mode Fiber
8	OPSFPP-T-xx-Pxx	SFP+ Copper Cables (1-m to 10-m lengths)
9	OPSFPP-F-xx-AKx	SFP+ Active Optical Cables (1-m to 10-m lengths)

Operating Conditions

<i>Parameter</i>	<i>Symbol</i>	<i>Min.</i>	<i>Max.</i>	<i>Units</i>
Operating Case Temperature	<i>Topc</i>	-20	85	°C
Storage Temperature	<i>Tst</i>	-40	125	°C
Relative Humidity (non- condensation)	<i>RS</i>		85	%
Supply Voltage	<i>VCC3</i>	3.15	3.45	V

Pin Assignment (QSFP28)



Top Side
Viewed from Top

Bottom Side
Viewed from Bottom

Pin Descriptions

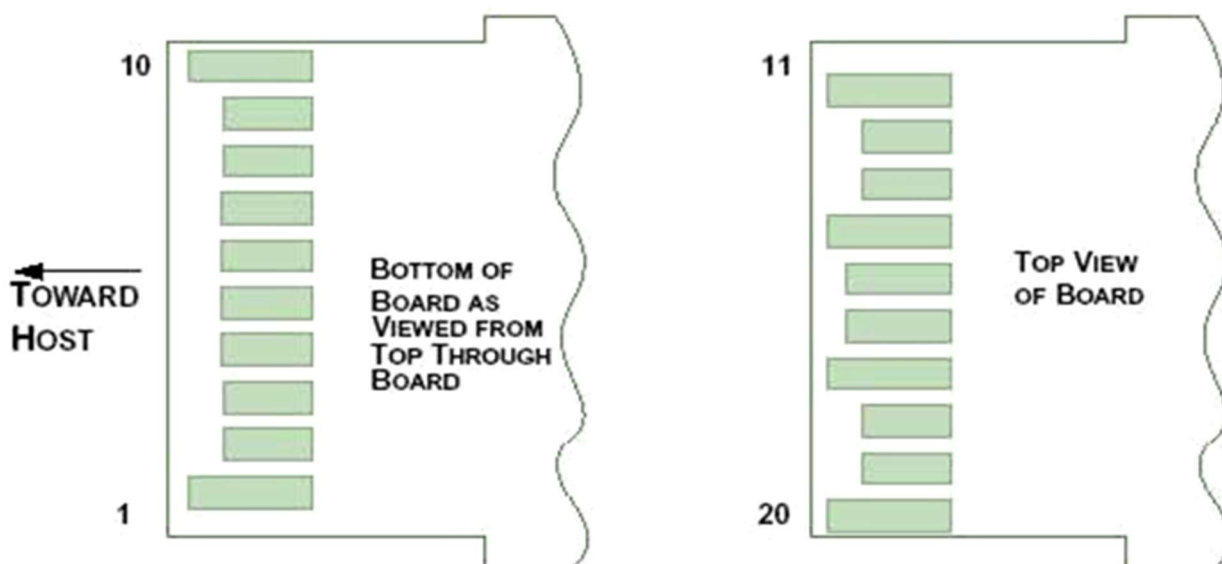
<i>Pin</i>	<i>Logic</i>	<i>Symbol</i>	<i>Description</i>	<i>Note</i>
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	1
8	LVTLL-I	ModSelL	Module Select	
9	LVTLL-I	ResetL	Module Reset	
10		VccRx	+ 3.3V Power Supply Receiver	2
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	1
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	

28	LVTTTL-O	IntL	Interrupt	
29		VccTx	+3.3 V Power Supply transmitter	2
30		Vcc1	+3.3 V Power Supply	2
31	LVTTTL-I	LPMODE	Low Power Mode	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	1

Note:

1. GND is the symbol for signal and supply (power) common for QSFP modules. All are common within the QSFP module and all module voltages are referenced to this potential otherwise noted. Connect these directly to the host board signal common ground plane
2. cc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.

Pin Assignment (SFP28)



Pin Descriptions

PIN	Logic	Symbol	Description	Note
1		VeeT	Module Transmitter Ground	1
2	LVTTL-O	Tx_Fault	Transmitter Fault	2
3	LVTTL-I	Tx_Disable	Transmitter Disable	3
4	LVTTL-I/O	SDA	MOD-DEF2 2-wire serial interface data line	4
5	LVTTL-I/O	SCL	MOD-DEF1 2-wire serial interface clock line	4
6		Mod_Abs	Module Absent	5
7	LVTTL-I	RS0	Rate Select Zero	
8	LVTTL-O	Rx_LOS	Module Receiver Loss of Signal	2
9	LVTTL-I	RS1	Rate Select One	
10		VeeR	Module Receiver Ground	1
11		VeeR	Module Receiver Ground	1
12	CML-O	RD-	Receiver Inverted Data Output	
13	CML-O	RD+	Receiver Non-Inverted Data Output	
14		VeeR	Module Receiver Ground	1
15		VccR	Module Receiver 3.3V Supply	
16		VccT	Module Transmitter 3.3V Supply	
17		VeeT	Module Transmitter Ground	1
18	CML-I	TD+	Transmitter Non-Inverted Data Input	
19	CML-I	TD-	Transmitter Inverted Data Input	
20		VeeT	Module Transmitter Ground	1

Notes:

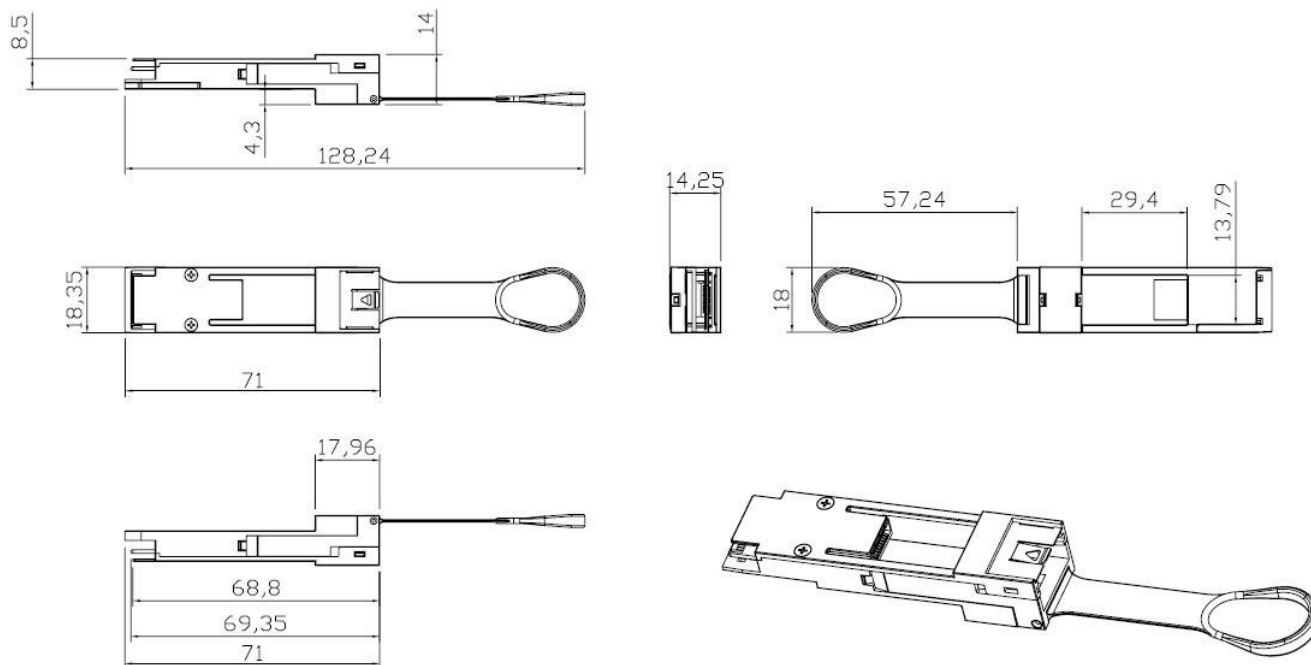
1. The module signal ground pins, VeeR and VeeT, shall be isolated from the module case.
2. This pin is an open collector/drain output pin and shall be pulled up with 4.7-10k to Vcc_Host on the host board. Pull ups can be connected to multiple power supplies, however the host board design shall ensure that no module pin has voltage exceeding module VccT/R + 0.5 V.
3. This pin is an open collector/drain input pin and shall be pulled up with 4.7-10k to VccT in the module.
4. See 2-wire Electrical Specifications .
5. This pin shall be pulled up with 4.7-10k to Vcc_Host on the host board.

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Dimensions



Physical Specifications

Maximum outer dimensions (H x W x D)	13.5 x 18.4 x 78 mm
Weight	Typically less than 100 g

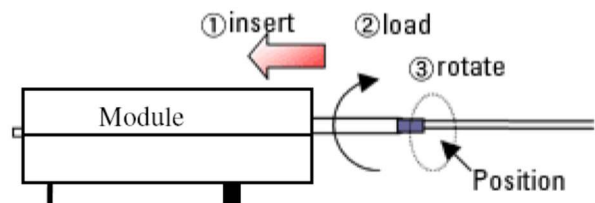
Optical Receptacle Cleaning Recommendations:

All fiber stubs inside the receptacle portions were cleaned before shipment. In the event of contamination of the optical ports, the recommended cleaning process is the use of forced nitrogen. If contamination is thought to have remained, the optical ports can be cleaned using a NTT international Cletop® stick type and HFE7100 cleaning fluid. Before the mating of patch-cord, the fiber end should be cleaned up by using Cletop® cleaning cassette.

Cleaning of patch-cord



Cleaning of fiber stub



1. Insert
Ensure that stick is held straight when inserting into sleeve.
2. Load
Apply sufficient pressure (approx 600-700g) to ensure ferrule a little depressed in sleeve.
3. Rotate
Rotate stick clockwise 4-5 times, while ensuring direct contact with ferrule end-face is maintained.

*Notice: Number of possible wipes:
Maintenance (repair) ~1 use / piece
Equipment construction: 4 uses / piece (max.)*

Note: The pictures were extracted from NTT-ME website. And the Cletop® is a trademark registered by NTT-ME

Ordering Information

Model Number	Part Number	Description	Temperature
Converter Module	OPCVR-QSFP28-SFP25G	100G QSFP28 to 25G SFP28 Adapter Converter Module	-20°C to 85°C