Rev.02H2.70_20190706

40G QSFP+ to 4 x SFP+ Passive Direct Attach Cable (DAC) Hot Pluggable, Copper Cable, 1M~5M

Part number: FDAC-40G-QPSP-Pxx-yy

Overview:

FDAC-40G-QPSP-Pxx-yy QSFP+ to 4xSFP+ Passive copper direct attach cables (DAC) are high performance, cost effective I/O solutions for 40Gb Ethernet applications. The QSFP+ DAC are suitable for very short distances and offer a cost effective way to connect QSFP+ and SFP+ port. The direct-attach assemblies support 4 lanes of 10Gbps (40Gbps composite). It offers Passive copper cables in lengths of 1meter ~ 5 meters.

Applications:

- 40/10GBase Ethernet Application
- Infiniband QDR Applications
- Data center cabling infrastructure
- High capacity I/O in Storage Area Networks, Network Attached Storage, and Storage Servers
- Switched fabric I/O such as ultra high bandwidth switches and routers

Features:

- QSFP+ 40GBASE Rated Connector (SFF-8436 Compliant)
- 4 x SFP+ 10GBASE Rated Connector (SFF-8431 Compliant)
- Fully compatible with IEEE802.3ba and Infiniband QDR specification
- Up to 10.3125GBASE transfer rate per SFP+ channel (40GBASE aggregate)
- Hot Pluggable
- I/O Connector designed for high speed differential signal applications
- Low Near-End crosstalk
- Precision process control for minimization of pair-to-pair skew
- 2-wire I2C interface for management
- Single +3.3V power supply
- All-metal housing for superior EMI performance
- RoHS Compliant

Recommended Operating Conditions :

Parameters	Symbol	Min.	Max.	Unit
Storage Temperature	T_{ST}	-40	+85	°C
Case Operating Temperature	T_{OP}	0	+70	°C
Supply Voltage	V_{cc}	3.13	3.47	V
Storage Relative Humidity	RH	5	95	%

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Product Specifications :

Parameters	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	V_{cc}	+3.13	+3.3	+3.47	V
Supply Current	I_{cc}			20	mA
Total Power Consumption	Pd			0.1	W
Data Rate (per lane)	DR1		10.3125	10.5	Gbps
Data Rate (Aggregated)	DR2		41.25	42.0	Gbps

Electrical Characteristics :

Parameters	Symbol	Min.	Typ.	Max.	Unit	Notes
Differential Impedance	Zd	90	100	110	Ω	
Differential Input Return Loss	SDDXX	<-12+2* SQRT (f) with f in GHz			dB	0.01~4.1GHz
		<-6.3+13* Log10/(f/5.5) with f in GHz				4.1~11.1GHz
Common mode Output Return Loss	SCCXX	< -7+1.6*f with f in GHz			dB	0.01~2.5GHz
				-3		2.5~11.1GHz
Difference Waveform Distortion Penalty	dWDPc			6.75	dB	
VMA Loss	L			4.4	dB	
VMA Loss to Crosstalk Ratio	VCR	32.5			dB	

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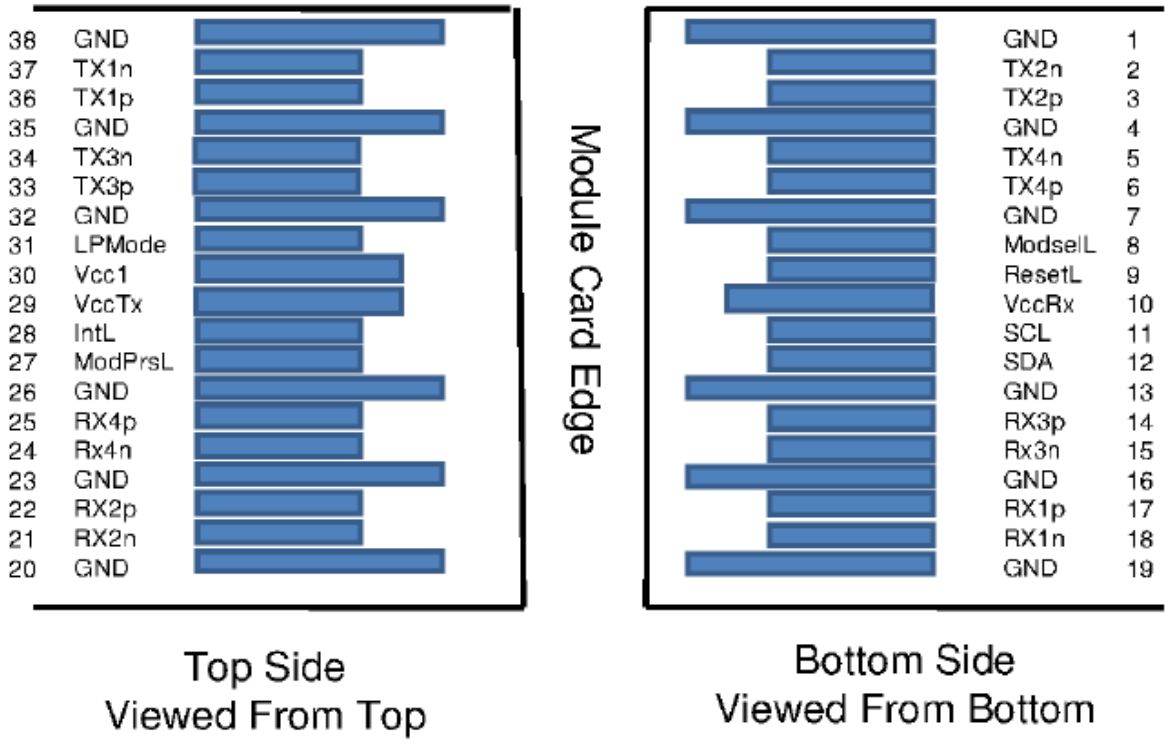
40G QSFP+ Pin Assignment :



40G QSFP+ Pin Description :

Pin	Logic	Name	Function / Description
1		GND	Module Ground
2	CML-I	Tx2n	Transmitter Inverted Data Input
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input
4		GND	Module Ground
5	CML-I	Tx4n	Transmitter Inverted Data Input
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input
7		GND	Module Ground
8	LVTLL-I	ModSelL	Module Select
9	LVTLL-I	ResetL	Module Reset
10		VccRx	+3.3V Power Supply Receiver
11	LVCMOS-I/O	SCL	2-Wire Serial Interface Clock

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12	LVCMOS-I/O	SDA	2-Wire Serial Interface Data
13		GND	Module Ground
14	CML-O	Rx3p	Receiver Non-Inverted Data Output
15	CML-O	Rx3n	Receiver Inverted Data Output
16		GND	Module Ground
17	CML-O	Rx1p	Receiver Non-Inverted Data Output
18	CML-O	Rx1n	Receiver Inverted Data Output
19		GND	Module Ground
20		GND	Module Ground
21	CML-O	Rx2p	Receiver Non-Inverted Data Output
22	CML-O	Rx2n	Receiver Inverted Data Output
23		GND	Module Ground
24	CML-O	Rx4p	Receiver Non-Inverted Data Output
25	CML-O	Rx4n	Receiver Inverted Data Output
26		GND	Module Ground
27	LVTLL-O	ModPrsL	Module Present
28	LVTLL-O	IntL	Interrupt
29		VccTx	+3.3V Power Supply Transmitter
30		Vcc1	+3.3V Power Supply
31	LVTLL-I	LPMode	Low Power Mode
32		GND	Module Ground
33	CML-I	Tx3n	Transmitter Inverted Data Input
34	CML-I	Tx3p	Transmitter Non-Inverted Data Input
35		GND	Module Ground
36	CML-I	Tx1n	Transmitter Inverted Data Input
37	CML-I	Tx1p	Transmitter Non-Inverted Data Input
38		GND	Module Ground

Note1: 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 unless otherwise noted. Connect these directly to the host board signal common ground lane.

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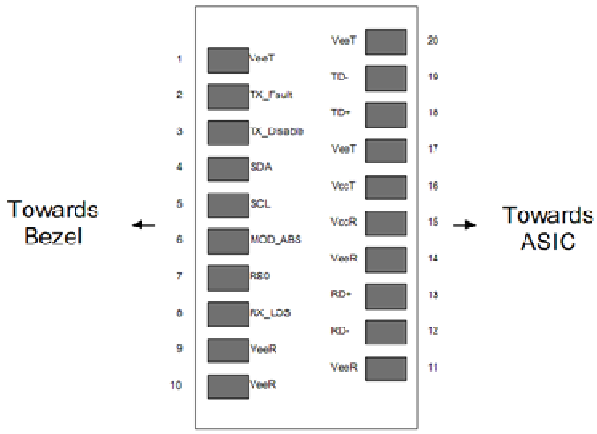
10G SFP+ Pin Assignment :



Host PCB SFP+ pad assignment top view

10G SFP+ Pin Description :

Pin	Name	Function / Description
1	VeeT	Transmitter Ground
2	TX_Fault	Not Connected – Open Circuit
3	TX_Disable	Not Connected – Open Circuit
4	SDA	2-wire Serial Interface Data Line (SDA: Serial Data Signal) (3)
5	SCL	2-wire Serial Interface Clock (SCL: Serial Clock Signal) (3)
6	MOD_ABS	Module Absent, connected to VeeT or VeeR in the module (3)
7	RS0	Not Connected – Open Circuit
8	Rx_LOS	Receiver Loss of Signal (4)
9	VeeR	Receiver Ground
10	VeeR	Receiver Ground
11	VeeR	Receiver Ground
12	RD-	Received Inverted Data output, AC coupled
13	RD+	Received Non-Inverted Data output, AC coupled
14	VeeR	Receiver Ground
15	VccR	Receiver 3.3V Power Supply
16	VccT	Transmitter 3.3V Power Supply
17	VeeT	Transmitter Ground
18	TD+	Transmitter Non-Inverted Data In, AC coupled
19	TD-	Transmitter Inverse Data In, AC coupled
20	VeeT	Transmitter Ground

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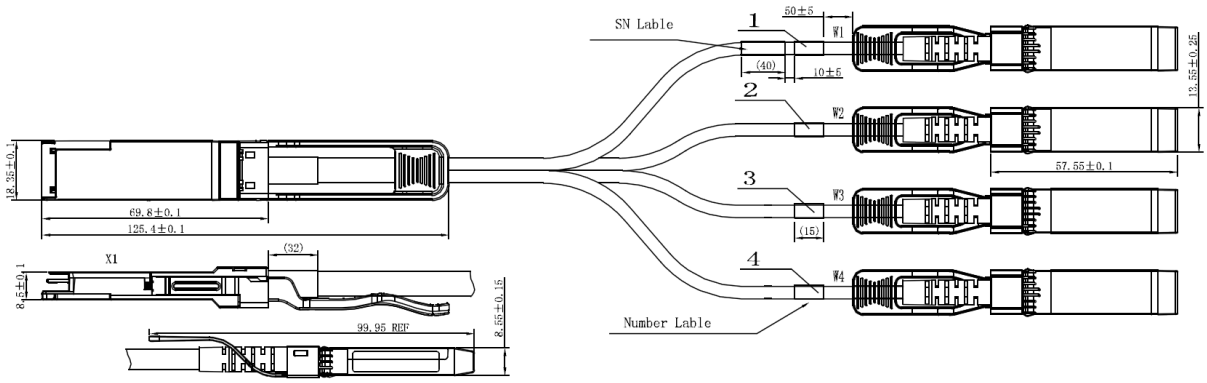
Mechanical Dimensions :



(All Dimensions are ±0.20mm Unless Otherwise Specified, Unit: mm)

Ordering Information :

Part No.	Product Description	Length Tolerance
FDAC-40G-QPSP-P01-30	40GBase-CR4 to 4x10GBase-CU, Copper Cable, 30AWG, 1.0m, Passive	± 30 mm
FDAC-40G-QPSP-P02-30	40GBase-CR4 to 4x10GBase-CU, Copper Cable, 30AWG, 2.0m, Passive	± 35 mm
FDAC-40G-QPSP-P03-30	40GBase-CR4 to 4x10GBase-CU, Copper Cable, 30AWG, 3.0m, Passive	± 45 mm
FDAC-40G-QPSP-P04-26	40GBase-CR4 to 4x10GBase-CU, Copper Cable, 26AWG, 4.0m, Passive	± 50 mm
FDAC-40G-QPSP-P05-26	40GBase-CR4 to 4x10GBase-CU, Copper Cable, 26AWG, 5.0m, Passive	± 65 mm

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