

100G QSFP28 to 4×25G SFP28 Active Optical Cables

TSQSS-851HG-xxxC

Features

- Electrical interface compliant to SFF-8436 and SFF-8431
- 850nm VCSEL laser and PIN photo-detector
- Built-in digital diagnostic functions
- Operating case temperature 0°C to 70°C
- Hot Pluggable
- RoHS compliant



Applications

- 100GbE and 25GbE break-out applications for Datacom switch and router connections
- 100G to 4×25G density applications for Datacom and Proprietary protocol applications
- Data centers

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	T _S	-20	85	°C
Relative Humidity	RH	0	85	%
Case Operating Temperature	T _{Case}	0	70	°C
Supply Voltage	V _{CC}	-0.3	3.6	V

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Case Operating Temperature	T _{Case}	0	-	70	°C
Supply Voltage	V _{CC}	3.13	3.3	3.47	V
Supply Current (QSFP28)	I _{CC}	-	-	1000	mA
Supply Current(SFP28)	I _{CC}	-	-	300	mA
Data Rate Per Lane	DR	-	25.78125	-	Gbit/s

Transmitter Specifications

Measurement condition: Channel data rate 25.78125Gbps, VCC=3.3V, PRBS31 pattern, Case operating temperature 0-70°C.

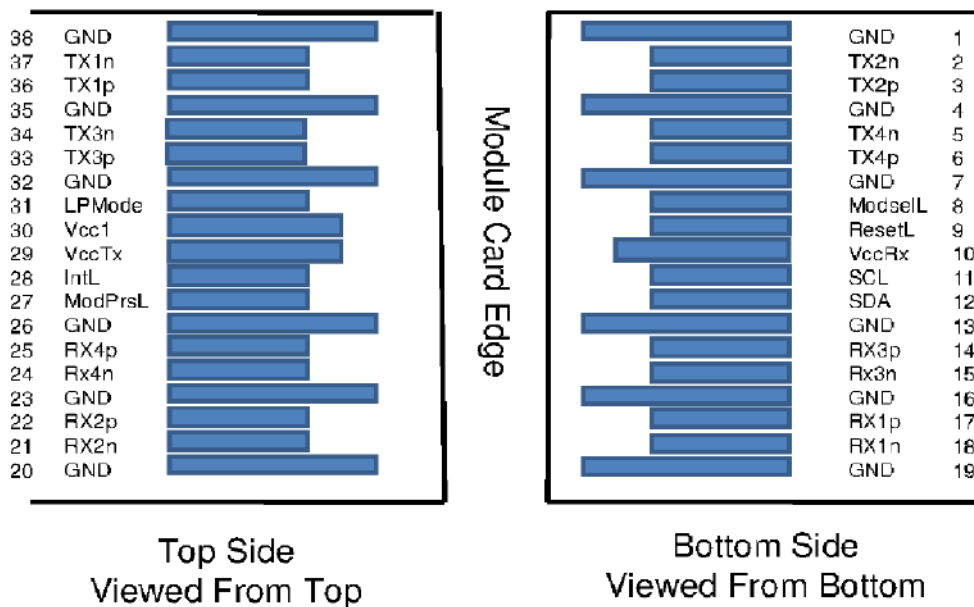
Parameter	Symbol	Min	Typical	Max	Unit
QSFP28					
Center wavelength	λ_c	840	850	860	nm
Differential Input Impedance	Z_{in}	90	100	110	Ohm
Differential Input Voltage	V_{in}	300	-	1100	mVp-p
Average Launch Power per Lane	P_{AVG}	-7.5	-1	+2.5	dBm
Extinct Ratio	ER	2.0	-	-	dB
SFP28					
Center wavelength	λ_c	840	850	860	nm
Differential Input Impedance	Z_{in}	90	100	110	Ohm
Differential Input Voltage	V_{in}	300	-	1100	mVp-p
Average Launch Power	P_{AVG}	-7.5	-1	+2.5	dBm
Extinct Ratio	ER	2.0	-	-	dB

Receiver Specifications

Measurement condition: Channel data rate 25.78125Gbps, VCC=3.3V, PRBS31 pattern, Case operating temperature 0-70°C

Parameter	Symbol	Min	Typical	Max	Unit
QSFP28					
Center wavelength	λ_c	840	850	860	nm
Differential Output Impedance	Z_{out}	90	100	110	Ohm
Differential Output Voltage	V_{out}	500	-	800	mVp-p
Receiver Overload	P_{inmax}	+2.5	-	-	dBm
Bit Error Rate	BER	-	-	10^{-12}	-
SFP28					
Center wavelength	λ_c	840	850	860	nm
Differential Output Impedance	Z_{out}	90	100	110	Ohm
Differential Output Voltage	V_{out}	500	-	800	mVp-p
Receiver Overload	P_{inmax}	+2.5	-	-	dBm
Bit Error Rate	BER	-	-	10^{-12}	-

QSFP28 Pin Descriptions



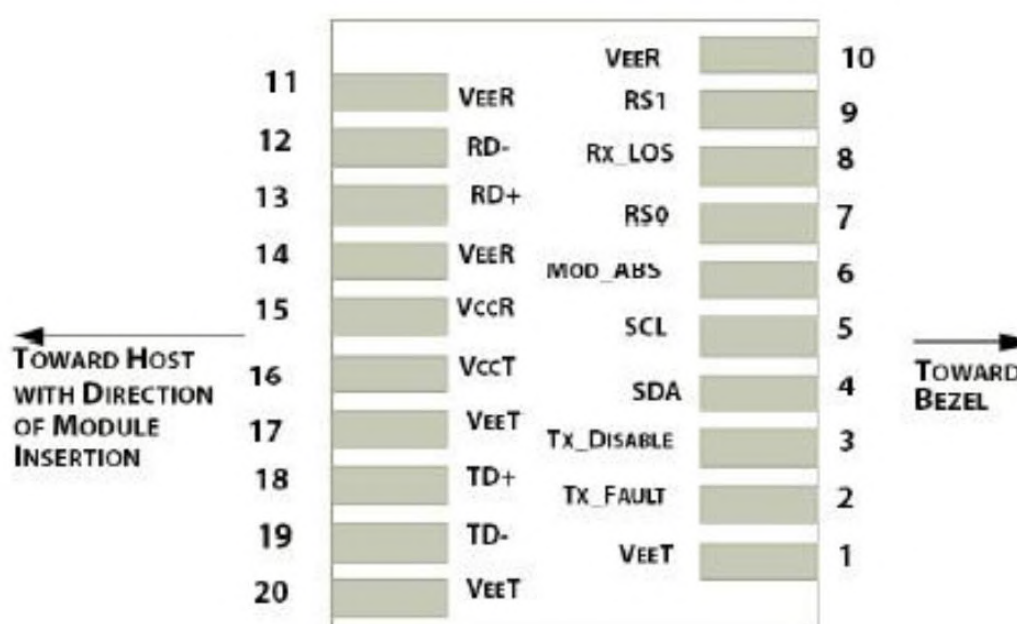
Pin	Symbol	Name/Description
1	GND	Ground
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3 V Power supply receiver
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	Receiver Non-Inverted Data Output
15	Rx3n	Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground
21	Rx2n	Receiver Inverted Data Output
22	Rx2p	Receiver Non-Inverted Data Output
23	GND	Ground
24	Rx4n	Receiver Inverted Data Output
25	Rx4p	Receiver Non-Inverted Data Output
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt

Information and specifications are subject to change without notice. Please visit www.china-tscom.com for more information.



29	Vcc Tx	+3.3 V Power supply transmitter
30	Vcc1	+3.3 V Power Supply
31	LPMode	Low Power Mode
32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
	Tx1n	Transmitter Inverted Data Input
38	GND	Ground

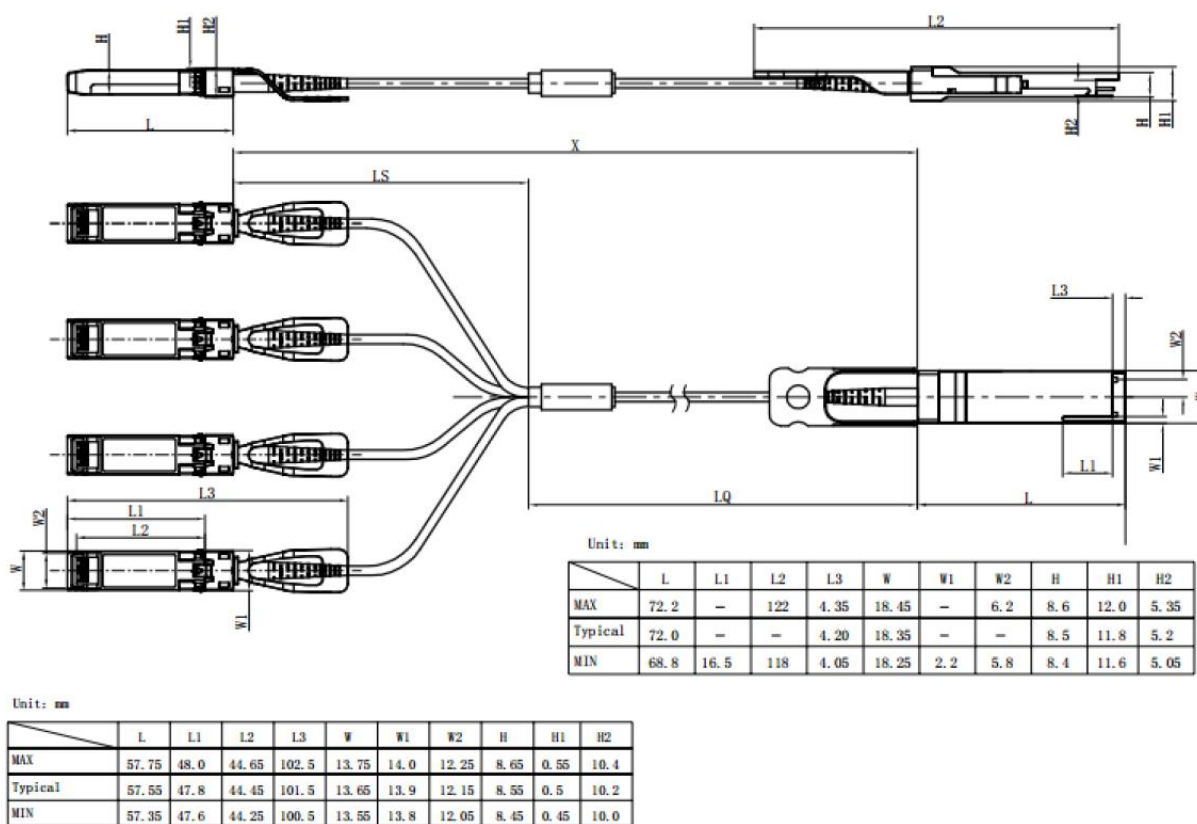
SFP28 Pin Descriptions



PIN	Symbol	Name/Description
1	VeeT	Transmitter Signal Ground
2	TX_FAULT	Transmitter Fault (LVTTTL-O) – Not used. Grounded inside the module
3	TX_DISABLE	Transmitter Disable (LVTTTL-I) – High or open disables the transmitter
4	SDA	Two Wire Serial Interface Data Line (LVCMOS – I/O) (same as MOD-DEF2 in INF-8074)
5	SCL	Two Wire Serial Interface Clock Line (LVCMOS – I/O) (same as MOD-DEF1 in INF-8074)
6	MOD_ABS	Module Absent (Output), connected to VeeT or VeeR in the module
7	RS0	Rate Select 0 - Not used, Presents high input impedance.
8	RX_LOS	Receiver Loss of Signal (LVTTTL-O)
9	RS1	Rate Select 1 - Not used, Presents high input impedance.
10	VeeR	Receiver Signal Ground
11	VeeR	Receiver Signal Ground

12	RD-	Receiver Data Out Inverted (CML-O)
13	RD+	Receiver Data Out (CML-O)
14	VeeR	Receiver Signal Ground
15	VccR	Receiver Power + 3.3 V
16	VccT	Transmitter Power + 3.3 V
17	VeeT	Transmitter Signal Ground
18	TD+	Transmitter Data In (CML-I)
19	TD-	Transmitter Data In Inverted (CML-I)
20	VeeT	Transmitter Signal Ground

Mechanical Specifications



Order Information

Part Number

TSQSS-851HG-xxxC

xxx = denotes the AOC length with unit meter. For example, 001 denote 1m, 002 denote 2m ... 099 denote 99m.