
SFPTURKIYESTW01100GD	100G QSFP28 Copper Twinax Cable 1 Meter, passive
SFPTURKIYESTW02100GD	100G QSFP28 Copper Twinax Cable 2 Meter, passive
SFPTURKIYESTW03100GD	100G QSFP28 Copper Twinax Cable 3 Meter, passive
SFPTURKIYESTW04100GD	100G QSFP28 Copper Twinax Cable 4 Meter, passive
SFPTURKIYESTW05100GD	100G QSFP28 Copper Twinax Cable 5 Meter, passive



Features :

- Up to 25Gbps data rate per channel
- Up to 5m transmission
- Operating temperature: -20°C~75°C
- Enhanced EMI / EMC performance
- Compliant with the IEEE 802.3bj standard and Infiniband EDR specifications
- Meets QSFP28 MSA and SFF-8661 / SFF-8665 standards
- Support serial ID function through EEPROM
- RoHS Compliant



Applications:

- 40G/100G Ethernet
- Infiniband, QDR / EDR
- Storage, switch, data center, network center
- Compliant with SFF-8436, SFF-8431, SFF-8432 and SFF-8472

Description:

The QSFP28 passive cable assemblies are high performance, cost effective I/O solutions for 100G Ethernet and 100G Fiber Channel applications. QSFP28 copper modules allow hardware manufactures to achieve high port density, configurability and utilization at a very low cost and reduced power budget. Each channel is capable of transmitting data at 25 Gbps, enabling a 100 Gbps total data rate of 5 meters.

Absolute Maximum Ratings

Table 1- Absolute Maximum Ratings

Item	Requirement	Test Condition
[Operating Temp. Range]	-20°C to +75°C	Cable operating temperature range.
[Storage Temp. Range (in packed condition)]	-40°C to +80°C	Cable storage temperature range in packed condition.
[Thermal Cycling Non-Powered]	No evidence of physical damage	EIA-364-32D, Method A, -25 to 90C, 100 cycles, 15 min. dwells
[Salt Spraying]	48 hours salt spraying after shell corrosive area less than 5%.	EIA-364-26
Mixed Flowing Gas	Pass electrical tests per 3.1 after stressing. (For connector only)	EIA-364-35 Class II, 14 days.
Temp. Life	No evidence of physical damage	EIA-364-17C w/ RH, Damp heat 90°C at 85% RH for 500 hours then return to ambient
Cable Cold Bend	4H, No evidence of physical damage	Condition: -20°C±2°C, mandrel diameter is 6 times the cable diameter.

Electrical Performance

Signal Integrity

Item	Requirement	Test Condition
Differential Impedance	Cable Impedance 105+5/-10Ω	Rise time of 25ps (20 %
	Paddle Card 100±10Ω	



	Impedance		- 80 %).				
	Cable Termination Impedance	100±15Ω					
[Differential (Input/Output) Return loss SDD11/SDD22]	$\text{Return_loss}(f) \geq \begin{cases} 16.5-2\sqrt{f} & 0.05 \leq f < 4.1 \\ 10.66-14\log_{10}(f/5.5) & 4.1 \leq f \leq 19 \end{cases}$ <p>Where f is the frequency in GHz Return loss(f) is the return loss at frequency f</p>		10MHz≤f≤19GHz				
[Differential to common-mode (Input/Output) Return loss SCD11/SCD22]	$\text{Return_loss}(f) \geq \begin{cases} 22-(20/25.78)f & 0.01 \leq f < 12.89 \\ 15-(6/25.78)f & 12.89 \leq f \leq 19 \end{cases}$ <p>Where f is the frequency in GHz Return_loss(f) is the Differential to common-mode return loss at frequency f</p>		10MHz≤f≤19GHz				
[Common-mode to Common-mode (Input/Output) Return loss SCC11/SCC22]	$\text{Return_loss}(f) \geq 2\text{dB}$ <p>0.2≤f≤19 Where f is the frequency in GHz Return_loss(f) is the common-mode to common-mode return loss at frequency f</p>		10MHz≤f≤19GHz				
[Differential Insertion Loss (SDD21 Max.)]	(Differential Insertion Loss Max. For TP _a to TP _b Excluding Test fixture)						10MHz≤f≤19GHz
	F AWG	1.25 GHz	2.5 GHz	5.0 GHz	7.0 GHz	10 GHz	
	30(1m)	4.5 dB	5.4 dB	6.3 dB	7.5 dB	8.5 dB	

	Max.							
30/28(3m) Max.	7.5 dB	9.5 dB	12.2 dB	14.8 dB	18.0 dB	21.5 dB		
26(3m) Max.	5.7 dB	7.2 dB	9.9 dB	11.9 dB	14.1 dB	16.5 dB		



	26/25(5m) Max.	7.8dB	10.0dB	13.5dB	16.0dB	19.0dB	22.0dB	
Differential to common-mode Conversion Loss-Differential Insertion Loss (SCD21-SDD21)	$\text{Conversion_loss}(f) - \text{IL}(f) \geq \begin{cases} 10 & 0.01 \leq f < 12.89 \\ 27 - (29/22)f & 12.89 \leq f < 15.7 \\ 6.3 & 15.7 \leq f \leq 19 \end{cases}$ <p>Where f is the frequency in GHz Conversion_loss (f) is the cable assembly differential to common-mode conversion loss IL(f) is the cable assembly insertion loss</p>							10MHz ≤ f ≤ 19GHz
[MDNEXT (multiple disturber near-end crosstalk)]	≥ 26dB @ 12.89GHz							10MHz ≤ f ≤ 19GHz
[Intra Skew]	15ps/m,							10MHz ≤ f ≤ 19GHz
[Insertion Loss Deviation]	-0.176*f - 0.7 ≤ IL D ≤ 0.176*f + 0.7							50MHz ≤ f ≤ 19GHz

Other Electrical Performance

Item	Requirement	Test Condition
[Low Level Contact Resistance]	70milliohms Max. From initial.	EIA-364-23: Apply a maximum voltage of 20mV And a current of 100 mA.
Insulation Resistance	10Mohm (Min.)	EIA364-21:AC 300V 1minute
[Dielectric Withstanding Voltage]	NO disruptive discharge.	EIA-364-20: Apply a voltage of 300 VDC for 1minute between adjacent terminals And between adjacent terminals and ground.



Mechanical Diagram

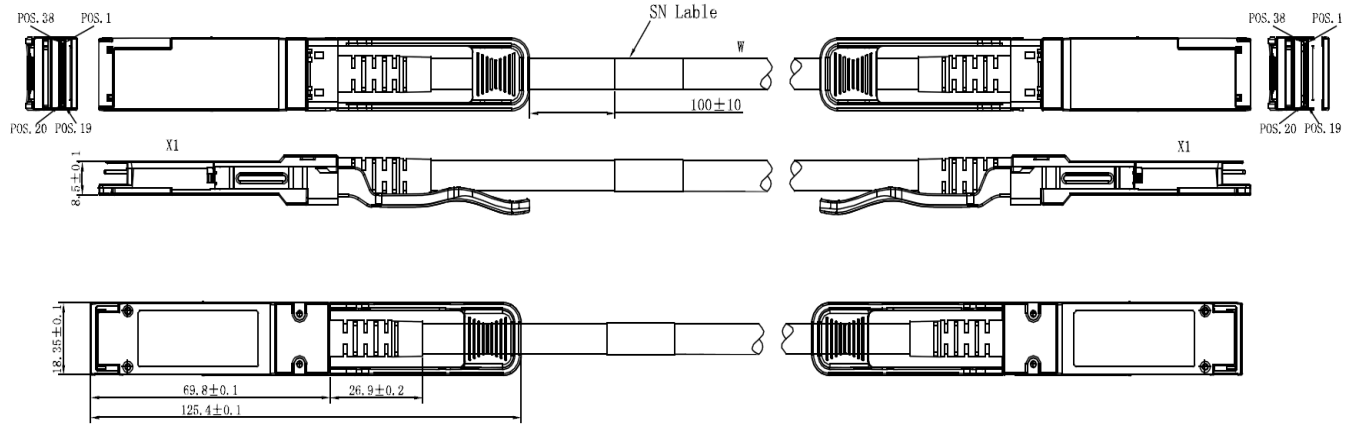


Figure 4, mechanical diagram

Wiring Diagram

X1	X2	REMARKS	X1	X2	REMARKS
18(RX1-)	37(TX1-)	pair	37(TX1-)	18(RX1-)	pair
17(RX1+)	36(TX1+)		36(TX1+)	17(RX1+)	
15(RX3-)	34(TX3-)	pair	34(TX3-)	15(RX3-)	pair
14(RX3+)	33(TX3+)		33(TX3+)	14(RX3+)	
6 (TX4+)	25(RX4+)	pair	25(RX4+)	6 (TX4+)	pair
5 (TX4-)	24(RX4-)		24(RX4-)	5 (TX4-)	
3 (TX2+)	22(RX2+)	pair	22(RX2+)	3 (TX2+)	pair
2 (TX2-)	21(RX2-)		21(RX2-)	2 (TX2-)	
1, 4, 7, 13, 16, 19, 20, 23, 26, 32, 35, 38	1, 4, 7, 13, 16, 19, 20, 23, 26, 32, 35, 38	GND	8, 9, 10, 11, 12, 27, 28, 29, 30, 31	8, 9, 10, 11, 12, 27, 28, 29, 30, 31	EEPROM point at both ends



Mechanical and Physical Characteristics

Item	Requirement	Test Condition
Vibration	Pass electrical tests per 3.1 after stressing.	Clamp & vibrate per EIA-364-28E, TC-VII, test condition letter – D, 15 minutes in X, Y & Z axis.
Twist	No evidence of physical damage	Twist cable 180° ($\pm 90^\circ$ from nominal position) for 100 cycles at 30 cycles per minute with a 0.5kg load applied to the cable jacket. Clamp position: 300mm
Cable Flex	No evidence of physical damage	Flex cable 180° for 20 cycles ($\pm 90^\circ$ from nominal position) at 12 cycles per minute with a 1.0kg load applied to the cable jacket. Flex in the boot area 90° in each direction from vertical. Per EIA-364-41C
Cable Plug Retention in Cage	90N Min. No evidence of physical damage	Force to be applied axially with no damage to cage. Per SFF 8661 Rev 2.1 Pull on cable jacket approximately 1 ft behind cable plug. No functional damage to cable plug below 90N. Per SFF-8432 Rev 5.0
Cable Retention in Plug	90N Min. No evidence of physical damage	Cable plug is fixtured with the bulk cable hanging vertically. A 90N axial load is applied (gradually) to the cable jacket and held for 1 minute. Per EIA-364-38B
Mechanical Shock	Pass electrical tests Per 3.1 after stressing.	Clamp and shock per EIA-364-27B, TC-G,3 times in 6 directions, 100g, 6ms.
Cable Plug Insertion	40N Max.(QSFP28)	Per SFF-8661 Rev 2.1
Cable plug Extraction	30N Max. (QSFP28)	Place axial load on de-latch to de-latch plug.Per SFF8661 Rev 2.1
Durability	50 cycles, No evidence of physical damage	EIA-364-09, perform plug & unplug cycles: Plug and receptacle mate rate: 250times/hour. 50times for QSFP28/SFP28 module (CONNECTOR TO PCB)



Ordering Information

Table 6-ordering information

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