

Features

Compliant with IEEE802.3bj (100GBASE-CR4)
Compliant with IEEE802.3by (25 Ethernet)
Data rates : 25 Gbps
Maximum aggregate data rate: 100Gb/s (4 x 25Gb/s)
I/O Connector designed for high speed differential signal
Connector Compliant with QSFP28 MSA
Low Power Consumption < 0.5W
Wire AWG : 32/ 30 / 28 / 26
EEPROM signature can be customized

Applications

- Storage, Switch, & RAID Systems
- High-Performance Computing (HPC)
- Network Interface Cards (NIC's)
- Telecommunication equipment
- Data center and enterprise storage systems

RATINGS

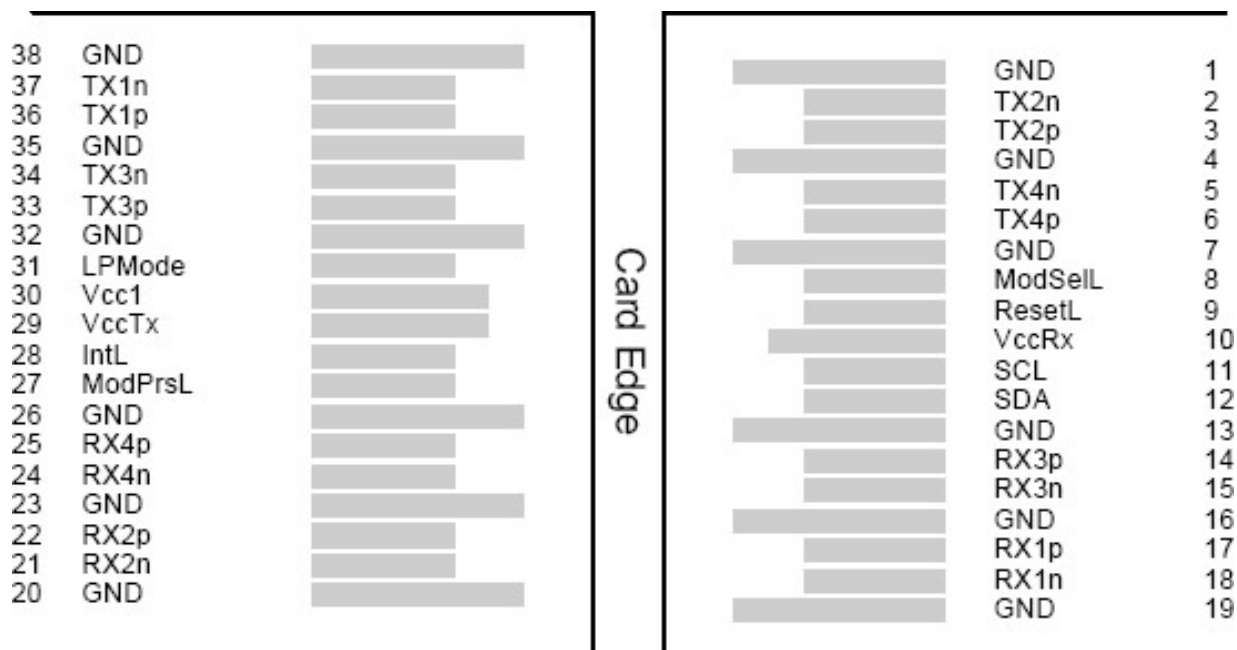
Item	Specification
Voltage	30VAC
Current	0.5A/Contact
Operating Temperature	-40℃ to 80 ℃

ELECTRICAL

Item	Specification
Low Level Contact Resistance	Initial: Baseline, with 75mm cable from the backshell edge. Change : 20 milliohms maximum
Insulation Resistance (Raw cable)	100VDC , 1000Mohm(Min.)
Dielectric Withstanding Voltage	AC 300V 1min, no breakdown or flash

Mechanical Features

- Back shell
Zinc alloy. Nickel plated over all 100u" Min.
- PCB Contact Configure (SFF-MSA Compliance)



MSA Compliant connector

- PCB Contact Plating
100 u" min. nickel under plate over all
15 u" min. gold over nickel at contact area by electron plating
100u" min tin over nickel at soldering area
- Raw cable
High Speed cable, 8 pairs, 100 +/- 5 ohms, cover with shielded braid 85% Min. PVC material Jacket are available for option.

All materials are RoHS and RoHS6 compliance.

PERFORMANCE AND TEST DESCRIPTION

A	Time domain parameter	Test condition	SPEC		Equipment
1	Diff. impedance	Tr:25ps	100+/-10ohms		N5071C or DSA8300
2	Intra-skew		L*15+20	L:length(m) SPEC:ps	
B	Frequency domain parameter	Test condition	Test spec(dB)	f(GHz)	
1	SDD11/SD D22	Freq:50MHz ~20GHz Points:1601 IF: 1KHz	-15+1.5 f	$0.05 \leq f < 4.6$	N5071C
			$-10.66 + 14 * \log_{10}(f/5.5)$	$4.6 \leq f \leq 19$	
2	SCC11/SC C22	Freq:50MHz ~20GHz Points:1601 IF: 1KHz	$\leq -2\text{dB}$	$0.2 \leq f \leq 19$	
3	SDC11/SD C22	Freq:50MHz ~20GHz Points:1601 IF: 1KHz	$-16 + 2 * f/3$	$0.05 \leq f \leq 19$	
5	SCD21-SDD21	Freq:50MHz ~20GHz Points:1601 IF: 1KHz	$\geq \begin{matrix} 10 & 0.01 \leq f < 12.89 \\ 27 - (29/22)f & 12.89 \leq f < 15.7 \end{matrix}$	$0.01 \leq f \leq 19$	
6	MDNEXT	Freq:50MHz ~20GHz Points:1601 IF: 1KHz	$\leq -26\text{dB}@12.89\text{GHz}$	$0.01 \leq f \leq 19$	

MECHANICAL

Item	Specification
Mating Force	40N Max. With retention latch disengaged.
Un-mating Force	30N Max. With retention latch disengaged.
Latch retention force	90N Min.
Durability	250 cycles

ENVIRONMENTAL

Item	Specification
Physical shock	Subject mated specimens to 30G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks
Vibration (random)	Subject mated specimens to 3.10G's rms between 20-500 Hz for 15 minutes in each of 3 mutually perpendicular planes
Thermal shock	100 cycles of: a) -55°C for 30 minutes b) +85°C for 30 minutes
Temperature Life	Subject mated Specimens to +105°C for 500 hours
Humidity and Temperature cycling	Subject unmated specimens to 10 cycles (10 days) between 25 and 65°C at 80% to 100% RH
Visual Examination.	Connectors & contacts shall have no evidence of physical defects or otherwise unfit for testing.

QSFP28 DAC Test Result

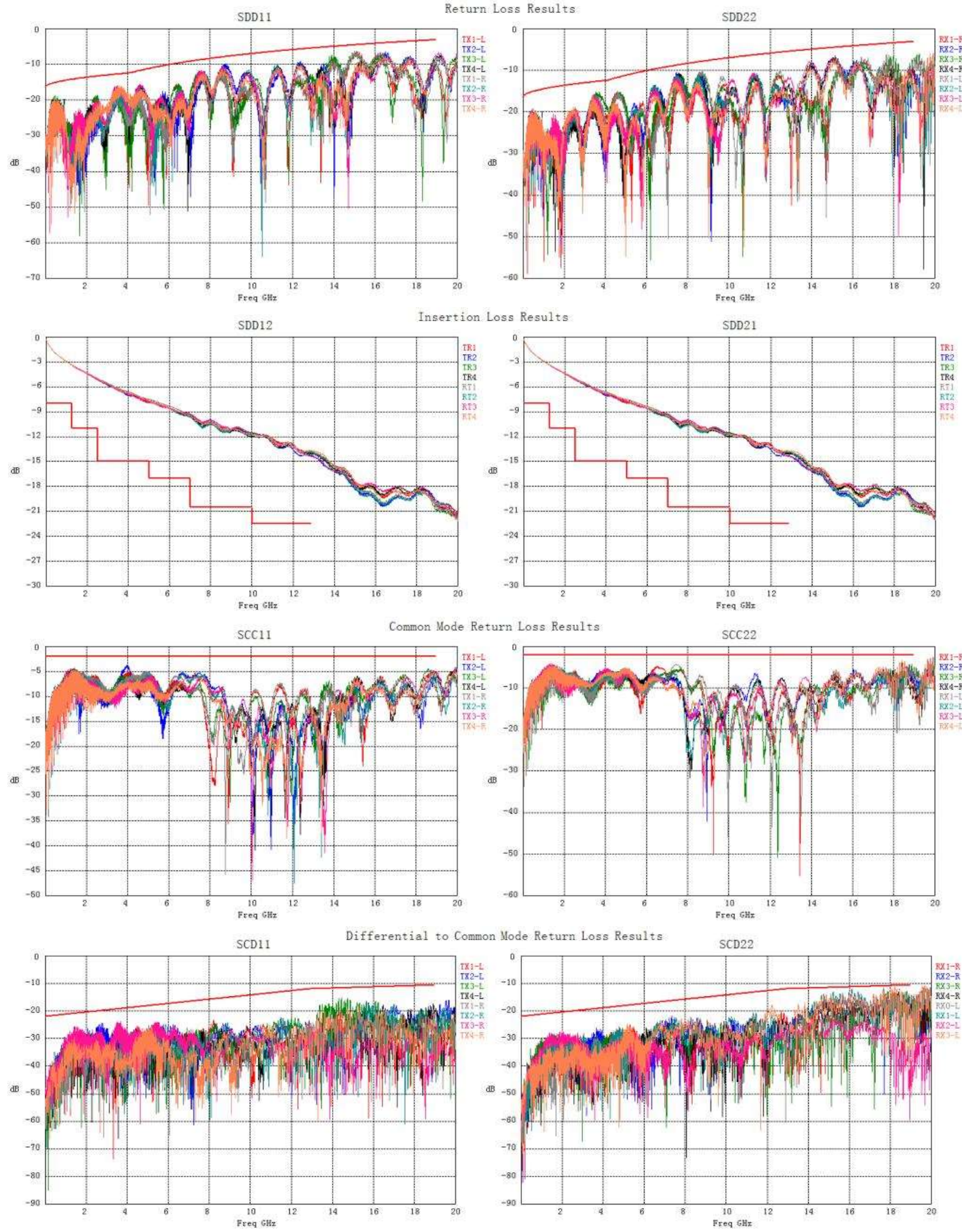
Summary Result

TX1----> RX1							
Type		Value(dB)	Freq(GHz)	Spec	ΔValue	Results	Fail@(GHz)
SCC11	MAX	-4.418	1.43	802.3bj	2.418	PASS	
SCC22	MAX	-4.754	6.52	802.3bj	2.754	PASS	
SCD11	MAX	-19.657	14.36	802.3bj	7.997	PASS	
SCD22	MAX	-12.533	18	802.3bj	1.72	PASS	
SDD11	MAX	-6.443	15.03	User	1.89	PASS	
SDD22	MAX	-7.051	17.86	User	3.549	PASS	
SDD12	MIN	-13.933	12.86	User	8.547	PASS	
SDD21	MIN	-13.947	12.86	User	8.533	PASS	
SCD21-SDD21	MAX	-15.014	8.98	User	10.014	PASS	
ILD	MAX	2.005	16.38	Infiniband	1.475	PASS	
TX2----> RX2							
Type		Value(dB)	Freq(GHz)	Spec	ΔValue	Results	Fail@(GHz)
SCC11	MAX	-3.792	3.92	802.3bj	1.792	PASS	
SCC22	MAX	-4.349	1.36	802.3bj	2.349	PASS	
SCD11	MAX	-17.035	15.76	802.3bj	5.7	PASS	
SCD22	MAX	-13.475	16.11	802.3bj	2.222	PASS	
SDD11	MAX	-6.454	16.52	User	2.477	PASS	
SDD22	MAX	-6.567	15.17	User	2.071	PASS	
SDD12	MIN	-14.353	12.49	User	8.127	PASS	
SDD21	MIN	-14.369	12.49	User	8.111	PASS	
SCD21-SDD21	MAX	-9.8	13.08	User	4.8	PASS	
ILD	MAX	2.466	16.24	Infiniband	1.014	PASS	
TX3----> RX3							
Type		Value(dB)	Freq(GHz)	Spec	ΔValue	Results	Fail@(GHz)
SCC11	MAX	-4.48	1.43	802.3bj	2.48	PASS	
SCC22	MAX	-4.29	18.76	802.3bj	2.29	PASS	
SCD11	MAX	-15.245	14.44	802.3bj	3.603	PASS	
SCD22	MAX	-12.827	17.88	802.3bj	1.986	PASS	
SDD11	MAX	-6.328	15.02	User	1.771	PASS	
SDD22	MAX	-6.677	17.86	User	3.175	PASS	
SDD12	MIN	-13.994	12.83	User	8.486	PASS	
SDD21	MIN	-13.983	12.83	User	8.497	PASS	
SCD21-SDD21	MAX	-12.002	4.87	User	7.002	PASS	
ILD	MAX	1.95	15.09	Infiniband	1.421	PASS	
TX4----> RX4							
Type		Value(dB)	Freq(GHz)	Spec	ΔValue	Results	Fail@(GHz)
SCC11	MAX	-4.754	1.36	802.3bj	2.754	PASS	
SCC22	MAX	-3.798	18.41	802.3bj	1.798	PASS	
SCD11	MAX	-17.375	18.93	802.3bj	6.779	PASS	
SCD22	MAX	-12.218	18.44	802.3bj	1.507	PASS	
SDD11	MAX	-7.248	16.38	User	3.22	PASS	
SDD22	MAX	-6.913	15.18	User	2.421	PASS	
SDD12	MIN	-14.135	12.71	User	8.345	PASS	
SDD21	MIN	-14.14	12.71	User	8.34	PASS	
SCD21-SDD21	MAX	-11.615	9.48	User	6.615	PASS	
ILD	MAX	1.775	15.23	Infiniband	1.632	PASS	

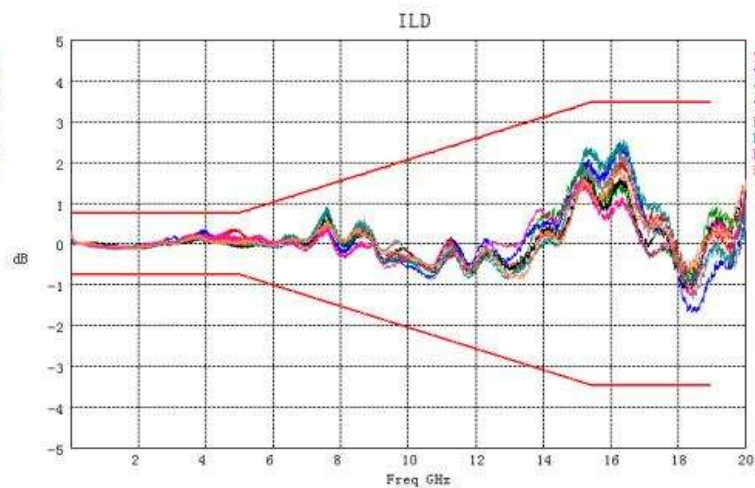
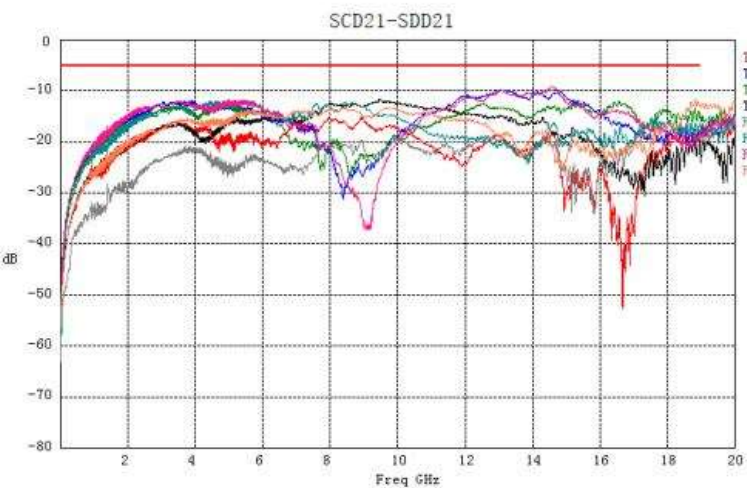
QSFP28 DAC Test Result

RX1----> TX1							
Type		Value(dB)	Freq(GHz)	Spec	△Value	Results	Fail@(GHz)
SCC11	MAX	-4.724	1.36	802.3bj	2.724	PASS	
SCC22	MAX	-4.272	7.44	802.3bj	2.272	PASS	
SCD11	MAX	-18.628	14.73	802.3bj	7.054	PASS	
SCD22	MAX	-11.648	17.68	802.3bj	0.76	PASS	
SDD11	MAX	-6.296	15.14	User	1.788	PASS	
SDD22	MAX	-6.178	17.65	User	2.604	PASS	
SDD12	MIN	-13.99	12.5	User	8.49	PASS	
SDD21	MIN	-14.004	12.51	User	8.476	PASS	
SCD21-SDD21	MAX	-15.607	18.03	User	10.607	PASS	
ILD	MAX	2.281	16.29	Infiniband	1.199	PASS	
RX2----> TX2							
Type		Value(dB)	Freq(GHz)	Spec	△Value	Results	Fail@(GHz)
SCC11	MAX	-4.883	1.29	802.3bj	2.883	PASS	
SCC22	MAX	-4.509	1.54	802.3bj	2.509	PASS	
SCD11	MAX	-17.067	15.63	802.3bj	5.702	PASS	
SCD22	MAX	-12.142	16.12	802.3bj	0.892	PASS	
SDD11	MAX	-6.887	16.52	User	2.909	PASS	
SDD22	MAX	-7.117	15.17	User	2.621	PASS	
SDD12	MIN	-13.945	12.38	User	8.535	PASS	
SDD21	MIN	-13.963	12.38	User	8.517	PASS	
SCD21-SDD21	MAX	-11.814	5.48	User	6.814	PASS	
ILD	MAX	2.554	16.38	Infiniband	0.926	PASS	
RX3----> TX3							
Type		Value(dB)	Freq(GHz)	Spec	△Value	Results	Fail@(GHz)
SCC11	MAX	-4.83	18.85	802.3bj	2.83	PASS	
SCC22	MAX	-3.976	1.36	802.3bj	1.976	PASS	
SCD11	MAX	-23.711	3.67	802.3bj	4.551	PASS	
SCD22	MAX	-20.615	14.47	802.3bj	8.98	PASS	
SDD11	MAX	-7.38	19.01	User	4.254	PASS	
SDD22	MAX	-6.922	15.1	User	2.398	PASS	
SDD12	MIN	-14.385	12.88	User	8.095	PASS	
SDD21	MIN	-14.388	12.88	User	8.092	PASS	
SCD21-SDD21	MAX	-9.054	14.59	User	4.054	PASS	
ILD	MAX	1.608	15.11	Infiniband	1.768	PASS	
RX4----> TX4							
Type		Value(dB)	Freq(GHz)	Spec	△Value	Results	Fail@(GHz)
SCC11	MAX	-4.832	1.43	802.3bj	2.832	PASS	
SCC22	MAX	-3.249	18.41	802.3bj	1.249	PASS	
SCD11	MAX	-18.444	15.21	802.3bj	6.982	PASS	
SCD22	MAX	-11.275	18.22	802.3bj	0.514	PASS	
SDD11	MAX	-7.449	16.39	User	3.424	PASS	
SDD22	MAX	-7.482	15.18	User	2.99	PASS	
SDD12	MIN	-13.867	12.38	User	8.613	PASS	
SDD21	MIN	-13.896	12.38	User	8.584	PASS	
SCD21-SDD21	MAX	-11.576	18.82	User	6.576	PASS	
ILD	MAX	1.829	16.27	Infiniband	1.651	PASS	

QSFP28 DAC Test Result

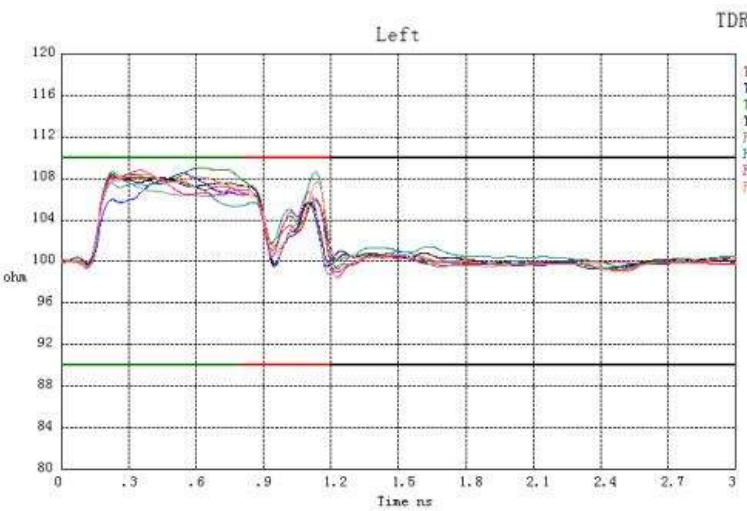


QSFP28 DAC Test Result

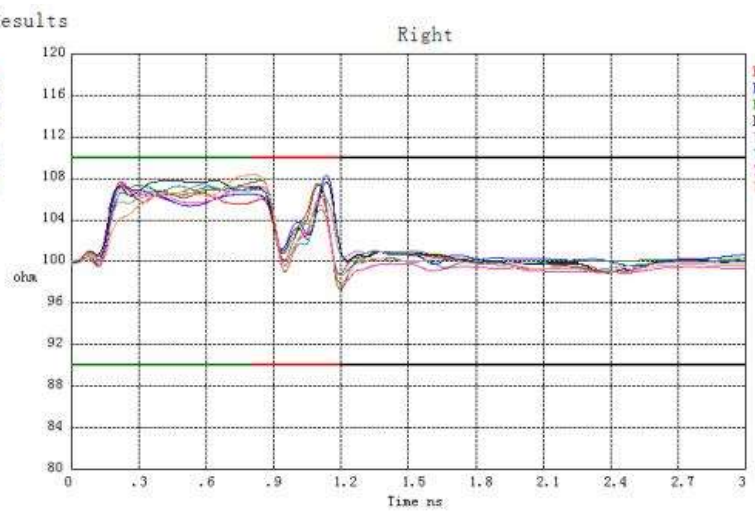


Intra-pair Skew

Channel	Type	Value(ps)	Spec	Δ Value	Results
TR1	MAX	11.22	90ps	78.78	PASS
TR2		18.89	90ps	71.11	PASS
TR3		17.19	90ps	72.81	PASS
TR4		11.26	90ps	78.74	PASS
RT1		4.08	90ps	85.92	PASS
RT2		14.85	90ps	75.15	PASS
RT3		19.67	90ps	70.33	PASS
RT4		9.6	90ps	80.4	PASS
Inter-pair		41.58	90ps	48.42	PASS



TDR Results



QSFP28 DAC Test Result

Differential Mode Impedance											
TDR Results @25ps (20-80%)											
TX1---> RX1						RX1---> TX1					
Type		Value(ohm)	Spec	ΔValue	Results	Type		Value(ohm)	Spec	ΔValue	Results
TDD11	MAX	108.3	110-110-110	1.7	PASS	TDD11	MAX	107.4	110-110-110	2.6	PASS
	MIN	99	90-90-90	9			MIN	99.2	90-90-90	9.2	
TDD22	MAX	107.7	110-110-110	2.3	PASS	TDD22	MAX	108.4	110-110-110	1.6	PASS
	MIN	98.8	90-90-90	8.8			MIN	98.8	90-90-90	8.8	
TX2---> RX2						RX2---> TX2					
Type		Value(ohm)	Spec	ΔValue	Results	Type		Value(ohm)	Spec	ΔValue	Results
TDD11	MAX	108.5	110-110-110	1.5	PASS	TDD11	MAX	107.3	110-110-110	2.7	PASS
	MIN	99.3	90-90-90	9.3			MIN	98.7	90-90-90	8.7	
TDD22	MAX	108.3	110-110-110	1.7	PASS	TDD22	MAX	108.6	110-110-110	1.4	PASS
	MIN	99.6	90-90-90	9.6			MIN	99.3	90-90-90	9.3	
TX3---> RX3						RX3---> TX3					
Type		Value(ohm)	Spec	ΔValue	Results	Type		Value(ohm)	Spec	ΔValue	Results
TDD11	MAX	109	110-110-110	1	PASS	TDD11	MAX	107.3	110-110-110	2.7	PASS
	MIN	99.5	90-90-90	9.5			MIN	97.7	90-90-90	7.7	
TDD22	MAX	107.8	110-110-110	2.2	PASS	TDD22	MAX	108.8	110-110-110	1.2	PASS
	MIN	97.3	90-90-90	7.3			MIN	98.5	90-90-90	8.5	
TX4---> RX4						RX4--->TX4					
Type		Value(ohm)	Spec	ΔValue	Results	Type		Value(ohm)	Spec	ΔValue	Results
TDD11	MAX	108.3	110-110-110	1.7	PASS	TDD11	MAX	108.4	110-110-110	1.6	PASS
	MIN	99.3	90-90-90	9.3			MIN	97.8	90-90-90	7.8	
TDD22	MAX	107.8	110-110-110	2.2	PASS	TDD22	MAX	108.4	110-110-110	1.6	PASS
	MIN	98.9	90-90-90	8.9			MIN	99.2	90-90-90	9.2	