TITLE 800G OSFP112 Loopback Module	DOC No. RFD-20240412008-001	
	REVISION：01	AUTHORIZED BY：Andy Yang
	DATE：2024.04.19	CLASSIFICATION：CONFIDENTIAL

1.Description

Designed and engineered to accommodate customers high usage 2000 cycles at -40°C to 85°C, the loopback module series are the most reliable products in the market to enable the quickest customers systems production and deployment. Software defined multiple power consumption may emulate the optical module power, and the embedded insertion loss characteristics emulates the real-world cabling for 100G/400G/800G Ethernet/Infiniband/FC. The built-in surge current mitigation technology mitigates the

DUT risks from being damaged. The broad operating temperature range accommodates the enterprise, datacom and telecom applications. The loopback module may be used for ports testing, field deployment testing and equipment troubleshooting.

2.Features

- Industry’s highest rated mating cycles for 2000 and above
- Built-in surge current mitigation technology
- Adjustable power consumption evenly distributed to the 4 regions, each region is individually
- programmed between 1.0W through 7.5W with 0.5W increment
- Operating temperature: -40℃ to 85℃
- +3.3V power supply
- Supports 8*10G/25G/56G PAM4/112G PAM4 data rates
- 2-wire interface for integrated Digital Diagnostic Monitoring
- Signal integrity performance meets IEEE 802.3ba, 802.3bj, 802.3cd , 802.3ck standards respectively
- Enhanced EMC/EMI design for noise harsh environment

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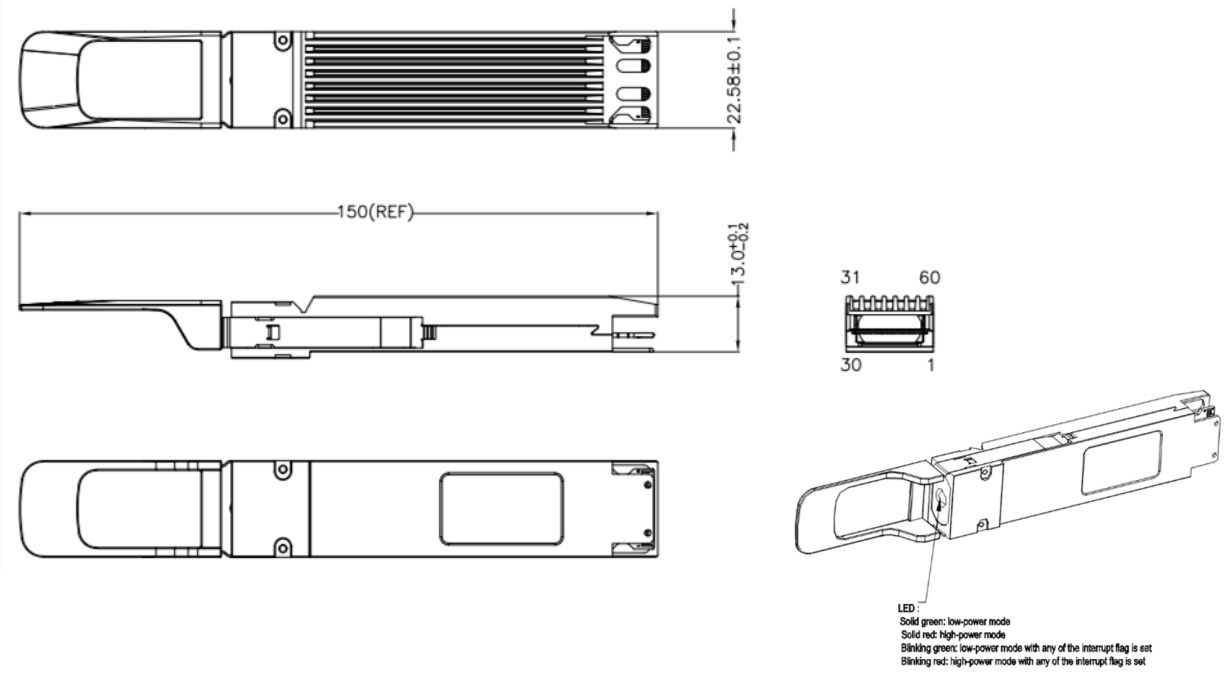
- Enhanced heat dissipation technology for high power testing
- Custom EEPROM available
- A multi-color LED indicator for high/low power modes
- Hot-pluggable
- RoHS 2.0 compliant

3.Production Description

3.1 Dimension, Materials, Plating and Marking

See the package outline for details.



Mechanical Package Outline (All dimensions in mm)

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4.Application and Standard

- OSFP port/system testing
- Ethernet IEEE 802.3 (Gigabit, 10~800 Gigabit Ethernet)
- SONET, SDH, GBE, Fiber Channel Support
- Common Management Interface Specification, Rev 4.0
- SFF-8024, SFF Cross Reference to Industry Products, Rev 4.7
- OSFP Octal Small Form Factor Pluggable Module, Rev 3.0
- EIA 364 Series
- IEEE 803.2bm
- IEEE 803.2bj
- IEEE 802.3cd
- IEEE802.3bs
- IEEE 802.3ck D3.0

5.Product Specification

5.1 Absolute Maximum Ratings

Absolute Maximum Ratings				
Parameter	**Symbol**	**Min**	**Max**	**Unit**
Storage Temperature	Ts	-40	+85	℃
Ambient Operating Temperature	Ta	-40	+85	℃
Storage Relative Humidity	RH_S	0	95	%

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Operating Relative Humidity	RH_O	0	85	%
Power Supply Voltage	Vcc	2.97	+3.63	V

5.2 Recommended Operating Conditions

Recommended Operating Conditions					
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Unit**
Ambient Operating Temperature	Ta	-40	-	+85	℃
Power Supply Voltage	Vcc	2.97	3.3	3.63	V
Data Rate	BRate	0.1	-	800	Gbps
Durability Cycles		-	2000	2250	Cycles

5.3 High Speed Charateristics

High Speed Characteristics						
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Unit**	**Notes**
Input/Output Impedance	Zd	90	95	105	Ohm	Differential Impedance
Differential Input/Output Return Loss	SDD11	Per IEEE802.3ck			dB	At Nyquist Frequency
	SDD22	Per IEEE802.3ck			dB	At Nyquist Frequency

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Insertion Loss	SDD21	$IL_{LBmin}(f) = 0.23 * (-0.00125 - + 0.12\sqrt{f} + 0.0575 * f)$	-	$IL_{LBmax}(f) = 0.61 * (-0.00125 - + 0.12\sqrt{f} + 0.0575 * f)$	dB	
		f is frequency in GHz between 0.01 GHz and 50 GHz $IL_{LBmin}(f)$ is the minimum loopback insertion loss at frequency; $IL_{LBmax}(f)$ is the maximum loopback insertion loss at frequency; Exclude the MCB insertion loss, at 28GHz, the loopback insertion loss is: • ILLBmin (28GHz) = 0.52 dB, and • ILLBmax (28GHz) = 1.37 dB				
Insertion Loss Deviation	ILD	Per IEEE802.3ck			dB	At Nyquist Frequency
Intra Pair Skew	IPS			100	ps	

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6.Modification History

Rev.	Comments	Date	Originator	Approval
01	Preliminary Draft	2024/04/19	Andy Yang	Mike Sun