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Connecting. Converting. Leading !

Datasheet for 10G SFP Module, Singlemode 20Km, SFPG+ Series



The SFPG+ transceivers are high performance, cost effective modules supporting data rate of 10Gbps and 20km transmission distance with SMF. The transceiver consists of three sections: a DFB laser transmitter, a PIN photodiode integrated with a trans-impedance preamplifier (TIA) and MCU control unit. All modules satisfy class I laser safety requirements.

The transceivers are compatible with SFP Multi-Source Agreement and SFF-8472 digital diagnostics functions.

Features

- ✓ Hot-pluggable SFP+ footprint
- ✓ Supports up to 10.7Gbps bit rates
- ✓ 1310nm DFB laser and PIN photodiode
- ✓ Compliant with SFP+ MSA and SFF-8472 with duplex LC receptacle
- ✓ Compatible with RoHS
- ✓ Single +3.3V power supply
- ✓ Real Time Digital Diagnostic Monitoring
- ✓ Operating case temperature:
 - Standard: 0 to +70°C
 - Industrial: -40 to +85°C

Applications

- ✓ 10GBASE-ER/EW & 10G Ethernet
- ✓ 10G Fiber Channel

Standard

- ✓ Compliant with MSA SFP+ specification (SFF-8431)
- ✓ Compliant with SFF-8472
- ✓ Compliant to IEEE 802.3ae

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.5	4.5	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	5	85	%

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Standard	0		+70	°C
	Extended	-20		+80	°C
	Industrial	-40		+85	°C
Power Supply Voltage	Vcc	3.135	3.30	3.465	V
Power Supply Current	Icc			350	mA
Data Rate			10.3	10.7	Gbps
Transmission Distance			20		km

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Optical and Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λ_c	1270	1310	1350	nm	
Side-Mode Suppression Ratio	SMSR	30	-		dB	
Average Output Power	P_{out}	-6.5		-0.5	dBm	1
Extinction Ratio	ER	3.5			dB	
Data Input Swing Differential	V_{IN}	180		850	mV	2
Input Differential Impedance	Z_{IN}	90	100	110	Ω	
TX Disable	Disable		2.0	V_{cc}	V	
	Enable		0	0.8	V	
TX Fault	Fault		2.0	V_{cc}	V	
	Normal		0	0.8	V	
Receiver						
Centre Wavelength	λ_c	1260		1600	nm	
Receiver Sensitivity				-14.4	dBm	3
Receiver Overload		0.5			dBm	3
LOS De-Assert	LOS_D			-17	dBm	
LOS Assert	LOS_A	-30			dBm	
LOS Hysteresis		0.5			dB	
Data Output Swing Differential	V_{out}	300		900	mV	4
LOS	High	2.0		V_{cc}	V	
	Low			0.8	V	

Notes:

1. The optical power is launched into SMF.
2. PECL input, internally AC-coupled and terminated.
3. Measured with a PRBS $2^{31}-1$ test pattern @10312Mbps, BER $\leq 1 \times 10^{-12}$.
4. Internally AC-coupled.

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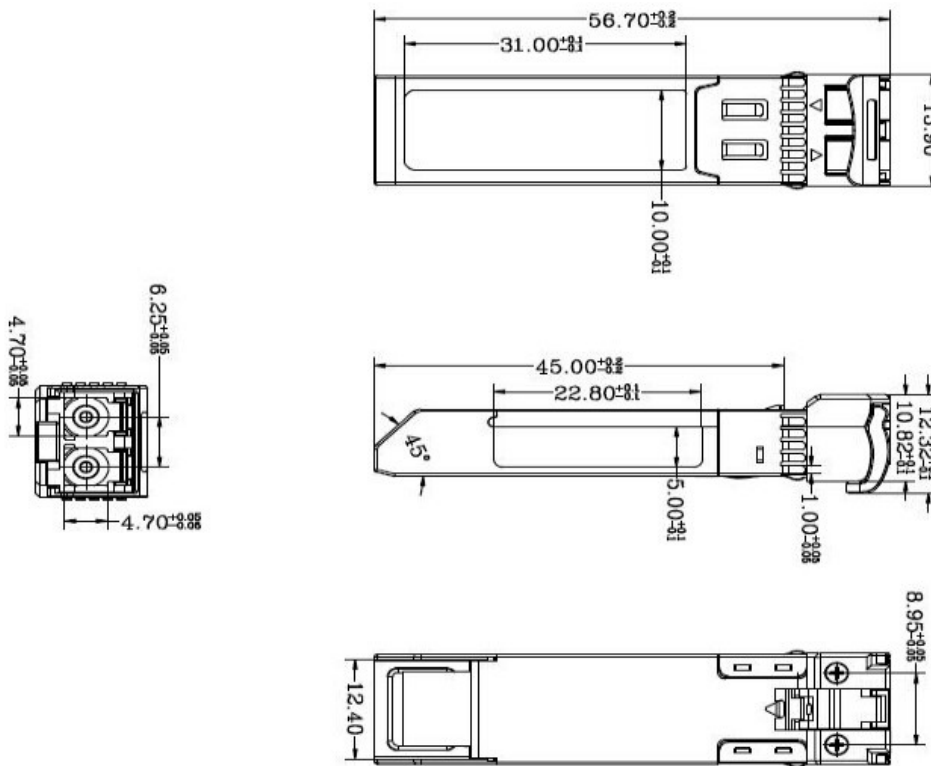
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Digital Diagnostic Memory Map

The transceivers provide serial ID memory contents and diagnostic information about the present operating conditions by the 2-wire serial interface (SCL, SDA)

The diagnostic information with internal calibration or external calibration all are implemented, including received power monitoring, transmitted power monitoring, bias current monitoring, supply voltage monitoring and temperature monitoring.

Mechanical Dimensions



Product Ordering Code : SFPG+ M/S020 1310 E D

- SFP : Base Code for Small Form factor Pluggable
- G+ : 10G
- M/S : M : Multimode, S : Singlemode. Default S : Singlemode
- XXX : Distance in Km, 300m for MM. Default : 20Km for SM
- 1310 : Wavelength: 1310nm upto 20 Km.
- E : Extended temperature of -40 to 85°C
- D : DDMI feature