SNR-SFP+WXX-MM

SFP WDM MM series

SNR-SFP+W37-MM/ SNR-SFP+W73-MM

Tx: 1270nm/Rx: 1330nm BIDI SFP+ Transceiver for CPRI&OBSAI
Tx: 1330nm/Rx: 1270nm BIDI SFP+ Transceiver for CPRI&OBSAI
Multi Rate 600Mbps~11.3Gbps
RoHS 6 Compliant

Features

- Operating data rate up to 11.3Gbps
- Two types:

  A: 1270nm DFB Transmitter/ 1330nm Receiver

  B: 1330nm DFB Transmitter/ 1270nm Receiver
- Single 3.3V Power supply and TTL Logic Interface
- LC Connector Interface
- Hot Pluggable
- With DDM function
- Distance up to 150m@OM3
- Power Dissipation < 1.5W
- Operating Case Temperature
  Standard: 0~+70℃
  Industrial -40~+85℃
- Compliant with SFP+ MSA Specification SFF-8431
- Compliant with SFF-8472

Applications

- 10GBASE-LR at 10.3125Gbps
- 10GBASE-LW at 9.953Gbps
- OBSAI rates 6.144 Gb/s, 3.072 Gb/s, 1.536 Gb/s, 0.768Gb/s
- CPRI rates 9.830 Gb/s,7.373Gb/s, 6.144 Gb/s, 4.915 Gb/s, 2.458 Gb/s, 1.229 Gb/s, 0.614Gb/s
- Other Optical Links

Ordering information

Part No.*Note1	Data Rate	Laser	Temp.	Distance *Note2	Optical Interface	DDMI
SNR-SFP+W73-MM	Up to 11.3Gbps	1270nm DFB	Standard	150m	LC	YES
SNR-SFP+W37-MM	Up to 11.3Gbps	1330nm DFB	Standard	150m	LC	YES
SNR-SFP+W73-MM-I	Up to 11.3Gbps	1270nm DFB	Industrial	150m	LC	YES
SNR-SFP+W37-MM-I	Up to 11.3Gbps	1330nm DFB	Industrial	150m	LC	YES

Note1: Customized version

Note2: 150m with 50/125um MMF.

Regulatory Compliance*

Product Certificate	Certificate Number	Applicable Standard
TUV	R50135086	EN 60950-1:2006+A11+A1+A12
		EN 60825-1:2007
		EN 60825-2:2004+A1+A2
UL	E317337	UL 60950-1
		CSA C22.2 No. 60950-1-07
EMC CE	AE 50285865 0001	EN 55022:2010
		EN 55024:2010
CB	JPTUV-049251	IEC 60825-1
		IEC 60950-1
FCC	WTF14F0514437E	47 CFR PART 15 OCT., 2013
FDA	1331340-000	CDRH 1040.10
ROHS	RHS01G006464	2011/65/EU

*The above certificate number updated to June 2014, because some certificate will be updated every year, such as FCC, FDA and ROHS. For the latest certification information, please check with NAG.

Product Description

The SNR-SFP+W73-MM module is designed for Multi-mode fiber and operates at a nominal wavelength of 1270nm; SNR-SFP+W37-MM module is designed for Multi-mode fiber and operates at a nominal wavelength of 1330nm. The transmitter section uses a multiple quantum well DFB, which is class 1 laser compliant according to International Safety Standard IEC-60825.

The receiver section uses an integrated InGaAs detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC.

Absolute Maximum Ratings*

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T_S	-40	+85	°C
Supply Voltage	V_{CC}	-0.5	3.6	V

* Exceeding any one of these values may destroy the device permanently.

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Power Supply Voltage	V_{CC}	3.15	3.3	3.45	V
Power Supply Current	I_{CC}			430	mA
Surge Current	I_{Surge}			+30	mA
Operating Case Temperature	T_C@ SNR-SFP+WXX-MM	0		70	°C

	T_C@ SNR-SFP+WXX-MM-I	-40		85	
Baud Rate		0.6		11.3	GBaud

Performance Specifications - Electrical

Parameter	Symbol	Min.	Typ.	Max	Unit	Notes
Transmitter						
CML Inputs(Differential)	Vin	150		1200	mVpp	AC coupled inputs
Input Impedance (Differential)	Zin	85	100	115	ohms	Rin > 100 kohms @ DC
Tx_DISABLE Input Voltage - High		2		Vcc+0.3	V	
Tx_DISABLE Input Voltage - Low		0		0.8	V	
Tx_FAULT Output Voltage - High		2		Vcc+0.3	V	Io = 400μA; Host Vcc
Tx_FAULT Output Voltage - Low		0		0.5	V	Io = -4.0mA
Receiver						
CML Outputs (Differential)	Vout	350		700	mVpp	AC coupled outputs
Output Impedance (Differential)	Zout	85	100	115	ohms	
Rx_LOS Output Voltage - High		2		Vcc+0.3	V	Io = 400μA; Host Vcc
Rx_LOS Output Voltage - Low		0		0.8	V	Io = -4.0mA
MOD_DEF (2:0)	VoH	2.5			V	With Serial ID
	VoL	0		0.5	V	

Optical and Electrical Characteristics

(SNR-SFP+W73-MM DFB & PIN/TIA)

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate		0.6		11.3	Gbps
Transmitter					
Centre Wavelength	λ_C	1260	1270	1280	nm
Average Output Power*note3	$P_{out, AVG}$	-5		0	dBm
Extinction Ratio	ER	4.5	6		dB
Average Power of OFF Transmitter				-30	dBm
Relative Intensity Noise	RIN			-128	dB/Hz
TX Disable Assert Time	t_off			10	us
Receiver					
Centre Wavelength	λ_C	1320		1340	nm
Sensitivity*note4	P_{IN}			-11.1	dBm
Receiver Overload	P_{MAX}	0.5			dBm
LOS De-Assert	LOS_D			-12.5	dBm
LOS Assert	LOS_A	-25			dBm

(SNR-SFP+W37-MM, 1330nm DFB & PIN/TIA)

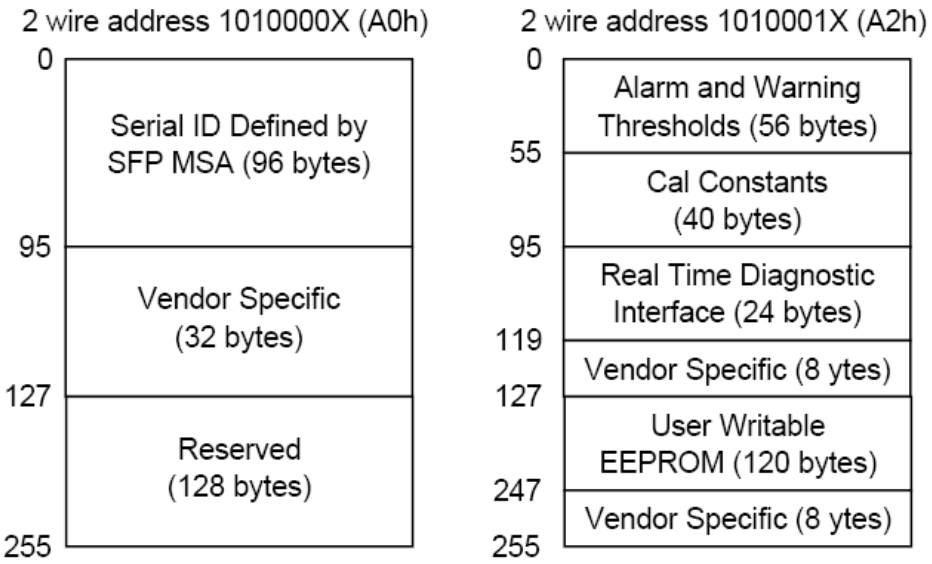
Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate		0.6		11.3	Gbps
Transmitter					
Centre Wavelength	λ_C	1320	1330	1340	nm
Average Output Power*note3	$P_{out, AVG}$	-5		0	dBm
Extinction Ratio	ER	4.5	6		dB
Average Power of OFF Transmitter				-30	dBm
Relative Intensity Noise	RIN			-128	dB/Hz
TX Disable Assert Time	t_off			10	us
Receiver					
Centre Wavelength	λ_C	1260		1280	nm
Sensitivity*note4	P_{IN}			-11.1	dBm
Receiver Overload	P_{MAX}	0.5			dBm
LOS De-Assert	LOS_D			-12.5	dBm
LOS Assert	LOS_A	-25			dBm

*Note3: Output is coupled into a 50/125um MMF.
*Note4: Measured with worst ER, BER less than 1E-12 and PRBS 231-1 at 10.3125Gbps.

EEPROM

The serial interface uses the 2-wire serial CMOS EEPROM protocol defined for the ATMEL AT24C02/04 family of components. When the serial protocol is activated, the host generates the serial clock signal (SCL). The positive edge clocks data into those segments of the EEPROM that are not writing protected within the SFP+ transceiver. The negative edge clocks data from the SFP+ transceiver. The serial data signal (SDA) is bi-directional for serial data transfer. The host uses SDA in conjunction with SCL to mark the start and end of serial protocol activation. The memories are organized as a series of 8-bit data words that can be addressed individually or sequentially.

The Module provides diagnostic information about the present operating conditions. The transceiver generates this diagnostic data by digitization of internal analog signals. Calibration and alarm/warning threshold data is written during device manufacture. Received power monitoring, transmitted power monitoring, bias current monitoring, supply voltage monitoring and temperature monitoring all are implemented. If the module is defined as external calibrated, the diagnostic data are raw A/D values and must be converted to real world units using calibration constants stored in EEPROM locations 56 – 95 at wire serial bus address A2h. The digital diagnostic memory map specific data field define as following .For detail EEPROM information, please refer to the related document of SFF 8472 Rev 10.2.



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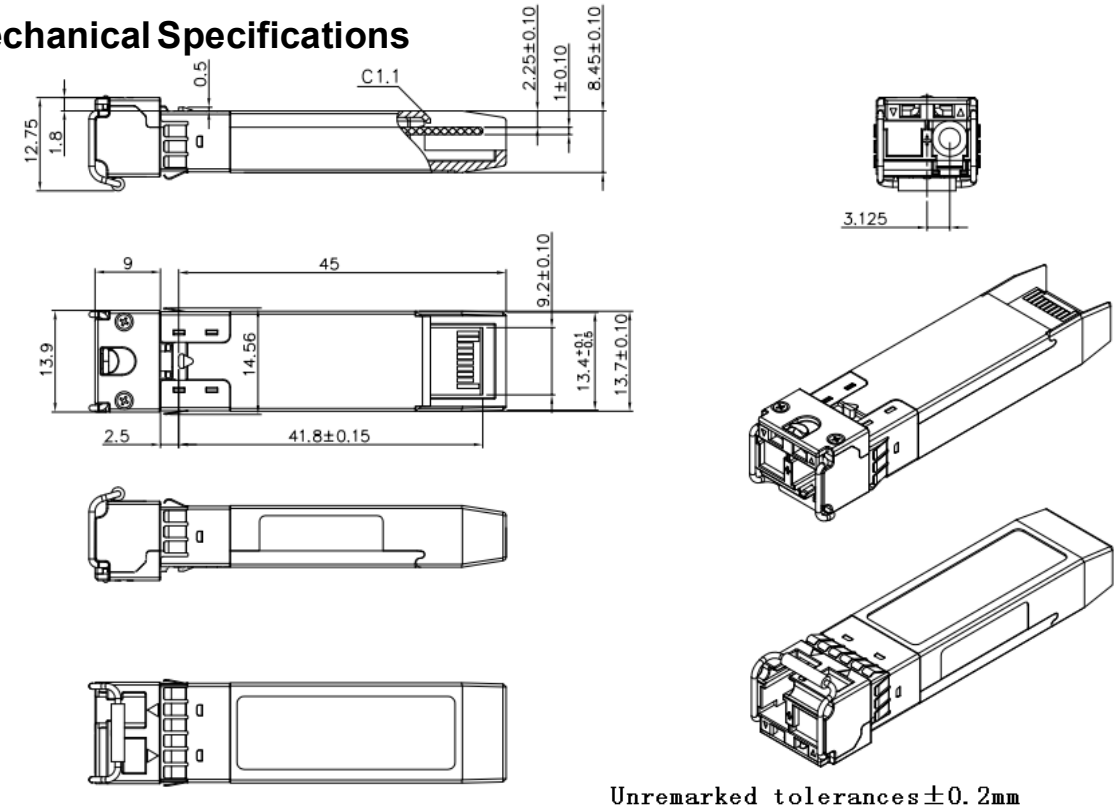
Mechanical Specifications



Unremarked tolerances±0.2mm

Eye Safety

This transceiver is a Class 1 laser product. It complies with IEC-60825 and FDA 21 CFR 1040.10 and 1040.11. The transceiver must be operated within the specified temperature and voltage limits. The optical ports of the module shall be terminated with an optical connector or with a dust plug.

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GUARANTEE:

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