

Network SWITCH



Optical Module

AS-31X-1OD

10Gb/s SFP+ LR 10km DDM Transceiver SMF 1310nm

PRODUCT FEATURES

- Support data rate up to 11.3Gb/s
- Hot-Pluggable SFP Footprint and duplex LC connector
- Up to 10km reach for G.652 SMF
- 1310nm DFB laser and PIN receiver
- Temperature Range:
 - Commercial: 0°C ~70°C
 - Extended: -20°C ~85°C
 - Industrial: -40°C ~85°C
- Power consumption <1W
- RoHS 6 compliance
- Complies with EU Directive 2015/863/EU

APPLICATION

- 10GBASE-LR/LW
- OTU2/2e
- Other Optical Links

STANDARD

- Compliant with SFP-8431
- Compliant with SFP-8432
- Compliant with SFP-8472
- Compliant with IEEE802.3ae

SPECIFICATION

Digital Diagnostics

Parameter	Range	Accuracy	Unit	Calibration
Temperature	-40 to 85	±3	°C	Internal
Voltage	0 to VDD	±3%	V	Internal
Tx Bias Current	0 to 100	±10%	mA	Internal
Tx Output Power	-6.2 to 0.5	±3	dB	Internal
Rx Input Power	-14.4 to 0.5	±3	dB	Internal

Pin Definitions

Pin #	Name	Function	Notes
1	VrefT	Module transmitter ground	1
2	Tx Fault	Module transmitter fault	2
3	Tx Disable	Transmitter Disable, Turns off transmitter laser output	3
4	SDA	2 wire serial interface data input/output (SDA)	4
5	SCL	2 wire serial interface clock input (SCL)	4
6	MOD-ABS	Module Absorb, connect to VrefR or VrefT in the module	4
7	RSD	Rate select0, optionally control SFP+ receiver. When high, input data rate =4.5Gb/s, when low, input data rate =4.5Gb/s	5
8	LOS	Receiver Loss of Signal Indication	5
9	RS1	Rate select1, optionally control SFP+ transmitter. When high, input data rate =4.5Gb/s, when low, input data rate =4.5Gb/s	5
10	VrefR	Module receiver ground	1
11	VrefB	Module receiver ground	1
12	RD+	Receiver inverted data output	1
13	RD-	Receiver non-inverted data output	1
14	VrefR	Module receiver ground	1
15	VrefB	Module receiver ground	1
16	VrefT	Module transmitter 3.3V supply	1
17	VrefT	Module transmitter ground	1
18	TD+	Transmitter inverted data output	1
19	TD-	Transmitter non-inverted data output	1
20	VrefT	Module transmitter ground	1

Notes:
1. Consult ground is internally selected from chassis ground

Pin Diagram



Optical and Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter						
Average Output Power	POUT	-6.2		0.5	dBm	1
Average Output Power(Laser Off)	POFF			-30	dBm	
Wavelength	λ	1260		1355	nm	
Spectrum Bandwidth @ -20dB	Δλ			1	nm	
Side mode suppression ratio(SMSR)	SMSR	30			dB	
Extinction ratio	ER	3.5			dB	
Transmitter and dispersion penalty (TDP)				3.2	dB	
RINQOMA	RIN			-128	dBHz	
Optical return loss tolerance	ORLT	20			dB	
Receiver						
Wavelength	λ	1260		1620	nm	
Received Sensitivity	Pr			-14.4	dBm	2
Optical Power Overload	Pr (SAT)	0.5			dBm	
Damage threshold			1.5		dBm	
Receiver Reflectance	RFL			+12	dB	
Rx_LOS of Signal Assert	PL	-30			dBm	
Rx_LOS of Signal De-assert	PL			+18	dBm	
Rx_LOS of Signal Hysteresis	Phy	0.5		5	dB	
Optical Return Loss Tolerance	ORLT	20			dB	

Notes:
1. Output power is coupled into a 9/125μm SFP.
2. Average received power: BER less than 1E-12 and PRBS 231-1 test pattern.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Storage Temperature	Tstg	-40		+85	°C	
Case Operating Temperature (Commercial)	To	0		70	°C	
Case Operating Temperature (Industrial)	To	-40		85	°C	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Case Operating Temperature	Tstg	0		70	°C	Commercial
Power Supply Voltage	Vcc	3.13	3.3	3.47	V	Industrial
Power Supply Current				1	W	
Transmission Distance	TD	-	-	10	km	Over SFP