Alpha Bridge ASFP28-25G-SR Datasheet

Features

- Hot-pluggable SFP28 Form Factor
- Supports 25.78Gbps Data Rate
- 850nm VCSEL laser and PIN photo-detector
- Maximum link length of 70m on OM3 MMF and 100m on OM4 MMF
- Internal CDR on both Transmitter and Receiver channel
- Single 3.3V power supply
- Power dissipation < 1W
- Digital Diagnostics Functions are available via the I2C interface
- RoHS6 compliant
- Operating case temperature: 0℃~70℃
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Applications

- 25GBASE-SR Ethernet
- Other optical links

Description

This is a single-channel, Pluggable, Fiber-Optical SFP28 for 25Gigabit Ethernet and Infiniband EDR Applications. It is a high performance module for short-range data communication and interconnect applications which operate at 25.78125 Gbps up to 70m using OM3 fiber or 100m using OM4 fiber. This module is designed to operate over multimode fiber systems using a nominal wavelength of 850nm. The electrical interface uses a 20 contact edge type connector. The optical interface uses duplex LC receptacle.

Absolute Maximum Ratings

Parameter	*Symbol*	*Min.*	*Typ.*	*Max.*	*Units*	*Note*
Storage Temperature	Tc	-40		85	℃	
Power Supply Voltage	VCC	0		3.6	V	
Relative Humidity(Non-Condensation)	RH	0		85	%	

Recommended Operating Conditions

Parameter	*Symbol*	*Min.*	*Typ.*	*Max.*	*Units*	*Note*
Operating Case Temperature	*Tc*	0		70	℃	
Power Supply Voltage	*Vcc*	3.13	3.3	3.47	V	
Power Supply Current	*ICC*			300	mA	
Bit Rate		10.3	25.78125		Gbps	
Fiber Length on OM3 MMF				70	m	
Fiber Length on OM4 MMF				100	m	

Diagnostics

Parameter	*Symbol*	*Accuracy*	*Units*	*Note*
Temperature Monitor Absolute Error	*DMI_Temp*	± 3	℃	
Supply Voltage Monitor Absolute Error	*DMI_VCC*	±0.1	V	
TX Power	*DMI_TX*	± 3 dB	dB	
RX Power	*DMI_RX*	± 3 dB	dB	
Bias Current Monitor	*DMI_Ibias*	± 10%	mA	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Transmitter						
Bit Rate		10.3	25.78125		Gbps	
Center Wavelength	λt	840	850	860	nm	
Spectral Width(-20dB)				0.6	nm	
Average Optical Power	Pavg	-8.4		2.4	dBm	
Optical Return Loss Tolerance	TORL			12	dB	
Extinction Ratio	ER	2			dB	
Jitter	J			0.3	UI	
Optical Eye Mask		5			%	
Receiver						
Bit Rate		10.3	25.78125		Gbps	
Center Wavelength	λr	840	850	860	nm	
Receiver Sensitivity	Psens			-10.3	dBm	1
Damage Threshold	DT	3.4			dBm	
Receive Sensitivity (OMA)	SOMA			-9.5	dBm	2
Receiver Reflectance	RREFL			-12	dB	
Jitter	J			0.2	UI	
LOS De-Assert	LOSD			-13	dBm	
LOS Assert	LOSA	-30	-		dBm	
LOS Hysteresis	LOSH	0.5			dB	

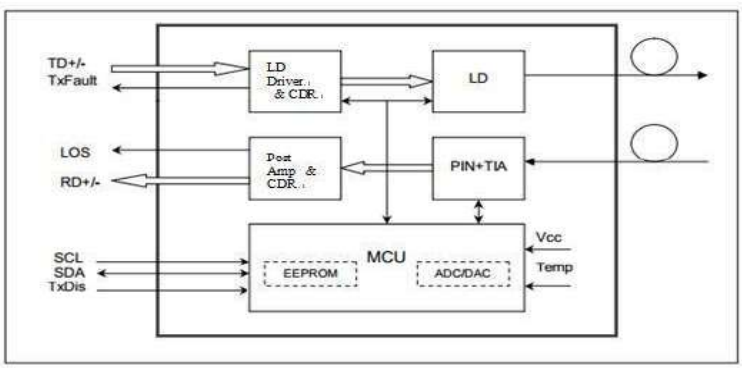
Notes:

1. BER=5x10^{-5}; PRBS 2^{31}-1 @25.78125Gbps.
2. The stressed sensitivity value in the table are for system level BER measurements which include the effects of CDR cruit.

Electro Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Transmitter						
Differential Data Input Swing	Vin,pp	200		1000	mV	
Input Differential Impedance	ZIN	90	100	110	Ω	
Disable	VIL	2		Vcc	V	
TX Disable						
Enable	VIHL	0		0.8	V	
Fault	VOH	2		Vcc	V	
TX Fault						
Normal	VOL	0		0.8	V	
Receiver						
Differential Data Output Swing	Vout,pp	300	-	800	mV	
Output Differential Impedance	ZD	90	100	110	Ω	
LOS	High	2		Vcc	V	
	Low			0.8	V	

Transceiver Block Diagram



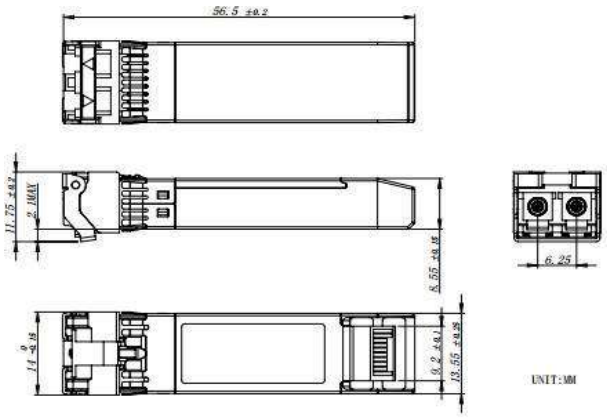
Pin Description

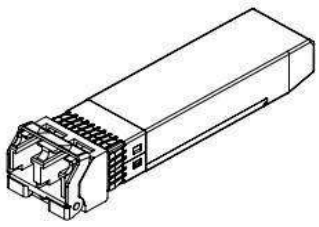
Pin	Symbol	Function/Description	Note
1	VEET	Transmitter Ground	1
2	Tx_FAULT	Transmitter Fault	2
3	Tx_DIS	Transmitter Disable. Laser output	
4	SDA	2-wire Serial Interface Data Line	2
5	SCL	2-wire Serial Interface Clock Line	2
6	MOD_ABS	Module Definition. Grounded within the module	
7	RS0	Receiver Rate Select	
8	RX_LOS	Receiver Loss of Signal Indication Active LOW	
9	RS1	Transmitter Rate Select (not used)	
10	VEER	Receiver Ground	1
11	VEER	Receiver Ground	1
12	RD-	Receiver Inverted Data Output	
13	RD+	Receiver Date Output	
14	VEER	Receiver Ground	1
15	VCCR	Receiver 3.3V Supply	
16	VCCT	Transmitter 3.3V Supply	
17	VEET	Transmitter Ground	1
18	TD+	Transmitter Non-Inverted Data Input	
19	TD-	Transmitter Inverted Data Input	
20	VEET	Transmitter Ground	1

Notes:

1. Module ground pins GND are isolated from the module case.
2. Shall be pulled up with 4.7k -10kohms to a voltage between 3.15V and 3.45V on the host board.

Dimensions



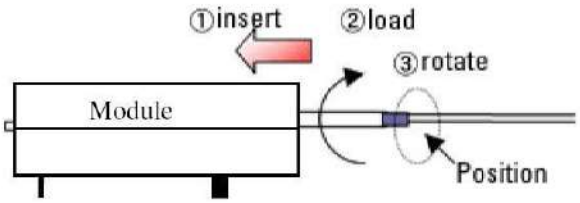


Optical Receptacle Cleaning Recommendations:

All fiber stubs inside the receptacle portions were cleaned before shipment. In the event of contamination of the optical ports, the recommended cleaning process is the use of forced nitrogen. If contamination is thought to have remained, the optical ports can be cleaned using a NTT international Cletop® stick type and HFE7100 cleaning fluid. Before the mating of patch- cord, the fiber end should be cleaned up by using Cletop® cleaning cassette.

Cleaning of patch-cord

Cleaning of fiber stub



1. Insert
   Ensure that stick is held straight when inserting into sleeve.
2. Load
   Apply sufficient pressure (approx 600-700g) to ensure ferrule a little depressed in sleeve.
3. Rotate
   Rotate stick clockwise 4-5 times, while ensuring direct contact with ferrule end-face is maintained.

Notice: Number of possible wipes: Maintenance (repair) ~1 use / piece Equipment construction: 4 uses / piece (max.)

Note: The pictures were extracted from NTT-ME website. And the Cletop® is a trademark registered by NTT-ME

Ordering Information

Model Number	Part Number	Wavelength	Temperature
ASFP28-25G-SR	OPAX-MX1-85-CH	850nm	0 °C to 70 °C

Note: All information contained in this document is subject to change without notice.