

**Alpha Bridge
AB-25G-40R
Datasheet**

Product Features

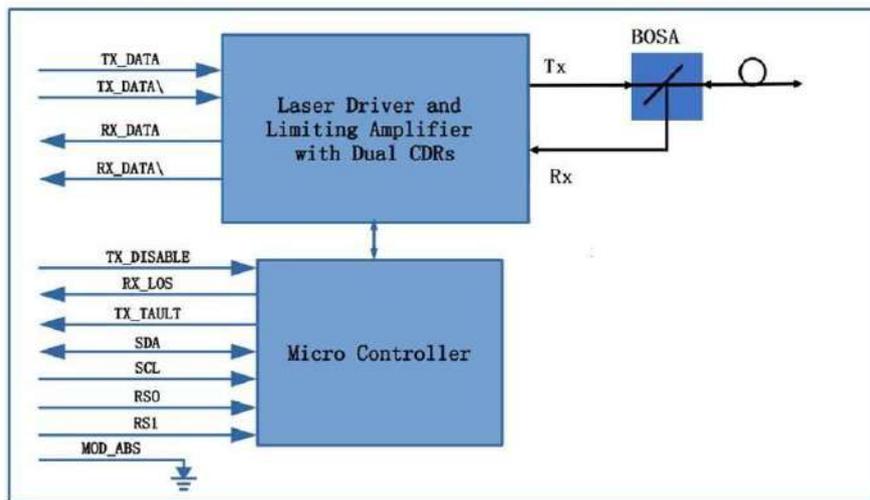
- Up to 25.78Gbps Data Links
- Up to 40km transmission on SMF
- 1310nm/1270nm DFB Laser and APD receiver
- Metal enclosure, for lower EMI
- 2-wire interface with integrated Digital Diagnostic monitoring
- Hot-pluggable SFP28 footprint
- Compliant with SFP+ MSA and SFF-8472 with duplex LC receptacle
- Single 3.3V power supply
- Power dissipation < 1.5 W
- Operating case temperature:0 to +70°C

Applications

- 25GBASE-ER
- eCPRI and CPRI

Standard

- Compliant with SFF-8472 &8431
- RoHS Compliant.



Transceiver functional diagram

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	Ts	-40	85	°C
Relative Humidity	RH	5	95	%
Power Supply Voltage	VCC	-0.3	4	V
Signal Input Voltage	VSI	Vcc-0.3	Vcc+0.3	V
Rx Damage Threshold	PRdmg	-3		dBm

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Case Operating Temperature	Tcase	0		70	°C
Power Supply Voltage	VCC	3.14	3.3	3.47	V
Power Supply Current	ICC			420	mA
Data Rate	BR		25.78		Gbps
Transmission Distance	TD			40	km
Coupled fiber	Single mode fiber				

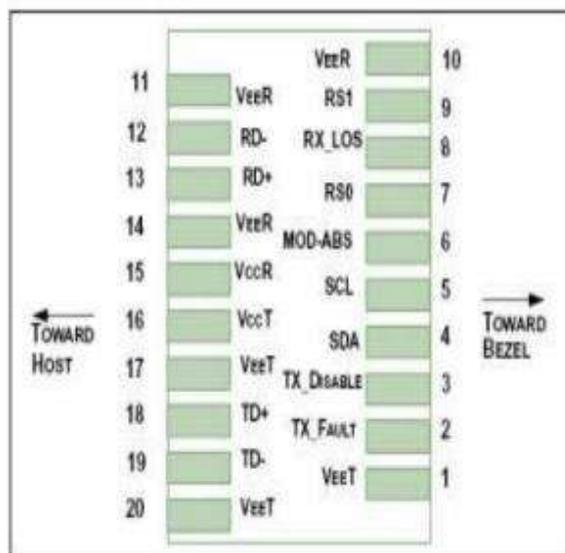
Optical and Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λ_c	1300	1310	1320	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Average Output Power	Pout	0		6	dBm	
Average Launched Power(Laser Off)	Poff			-30	dBm	
Extinction Ratio	ER	3.5			dB	1
Input differential impedance	Rin		100		Ω	2
Single ended data input swing	Vin,pp	180		700	mV	
TX Disable	Disable	2		Vcc+0.3	V	
	Enable	0		0.8	V	
TX Fault	Fault	2		Vcc+0.3	V	
	Normal	0		0.8	V	
Output Eye Mask	{0.31,0.4,0.45,0.34,0.38,0.4}					
Receiver						
Centre Wavelength	λ_c	1260	1270	1280	nm	
Receiver Sensitivity				-17.5	dBm	3
Input Saturation Power (Overload)		-6			dBm	
Los Of Signal Assert	PA	-35			dBm	
Los Of Signal De-assert	Pd			-19	dBm	
LOS -Hysteresis	PHys	0.5	2	6	dB	
Differential data output swing	Vout,pp	300		850	mV	4
LOS	High	2		Vcc+0.3	V	
	Low			0.8	V	

Notes:

1. Measured with a PRBS $2^{31}-1$ test pattern, @25.78Gb/s.
2. Connected directly to TX data input pins. AC coupled thereafter.
3. ER=3.5dB; BER =5×10^{-5} @PRBS= $2^{31}-1$ NRZ.
4. Into 100 ohms differential termination.

Pin Descriptions



Pin	Symbol	Name/Description	Notes
1	VEET	Transmitter Ground (Common with Receiver Ground)	1
2	TFAULT	Transmitter Fault.	2
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	3
4	SDA	2-wire Serial Interface Data Line	4
5	SCL	2-wire Serial Interface Clock Line	4
6	MOD_ABS	Module Absent. Grounded within the module	4
7	RS0	Rate Select 0, internal pull down	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	6
9	RS1	Rate Select 1, internal pull down	5
10	VEER	Receiver Ground (Common with Transmitter Ground)	1
11	VEER	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out.AC Coupled	
13	RD+	Receiver Non-inverted DATA out.AC Coupled	
14	VEER	Receiver Ground (Common with Transmitter Ground)	1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. FAULT is an open collector/drain output, which should be pulled up with a 4.7k – 10k Ohms resistor on the host board if intended for use. Pull up voltage should be between 2.0V to Vcc + 0.3V. A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.
3. Laser output disabled on TDIS>2.0V or open, enabled on TDIS<0.8V.
4. Should be pulled up with 4.7kΩ- 10kΩ host board to a voltage between 2.0V and 3.6V. MOD_ABS pulls line low to indicate module is plugged in.
5. Rate select can also be set through the 2-wire bus in accordance with SFF-8472. Rx Rate Select is set at Bit 3, Byte 110, Address A2h. Tx Rate Select is set at Bit 3, Byte 118, Address A2h.
6. LOS is open collector output. It should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

Ordering information

Part Number	Description
AB-25G-40R	1310T/1270R,25.78Gbps, LC,40km,0°C~+70°C, with DDM

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