

SFP-10G-EZR

10GBase-EZR SFP+ Transceiver

Hot Pluggable, +3.3V, Duplex LC, 1550nm, up to 120km, Commercial Temperature

FEATURES

- Up to 10Gbps data links
- 120km with 9/125µm SMF
- 1550nm EML laser
- APD receiver
- Duplex LC Connector
- Hot-pluggable SFP+ footprint
- Power Supply: +3.3V
- Commercial Operating Temperature Range: 0 to 70°C
- RoHS compliant
- Digital Diagnostic Monitor (DDM)

APPLICATIONS

- 10GBase-ZR/ZW 10G

DESCRIPTION

ATGBICS SFP-10G-EZR is a 10Gbps enhanced small form factor pluggable SFP+ transceiver compatible with 10GBASE-ZR/ZW. It is suitable for 120KM single-mode fibre (SMF) communications in 10Gbps Ethernet.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Typical	Max.	Unit
Supply Voltage	Vcc	-0.5		4	V
Storage Temperature	Ts	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Power Received Max	Pmax			-7	dBm

RECOMMENDED OPERATING ENVIRONMENT

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	T _c	0		70	°C
Power Supply Voltage	V _{cc}	3.15	3.3	3.45	V
Power Supply Current	I _{cc}			450	mA
Data Rate			10		GBps
Max Link Length on 9/125µm SMF	L _{max}			120	km

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
TRANSMITTER						
Input Differential Impedance	Z _{in}	90	100	110	Ω	
Data Input Swing Differential	V _{in}	250		1200	mV	
Tx-Dis Disable	V _d	2.0		V _{cc}	V	
Tx-Dis Enable	V _{en}	0		0.8	V	
RECEIVER						
Data Output Swing Differential	V _{out}	250		800	mV	
Rx-Los Fault	V _{lf}	2.0		V _{cc} HOST	V	
Rx-Los Normal	V _{ln}	0		0+0.8	V	
Output rise and fall time	T _r , T _f	30			ps	

OPTICAL PARAMETERS

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
TRANSMITTER						
Centre Wavelength	λ _c	1530	1550	1570	pm	
Spectral Width (-20dB)	σ			1	nm	
Average Output Power	P _{out}	1		5	dBm	
Extinction Ratio	ER	8.2			dB	
Average Launch Power of Off Transmitter	P _{off}			-30	dBm	
RECEIVER						
Centre Wavelength	λ _c	1200	1550	1600	nm	
Receiver Sensitivity	PIN			-26	dBm	
Receiver Overload	P _{max}	-7			dBm	
LOS De-Assert	LOSD			-32	dBm	
LOS Assert	LOSA	-37			dBm	
LOS Hysteresis		0.5		4.5	dB	

PIN DESCRIPTION

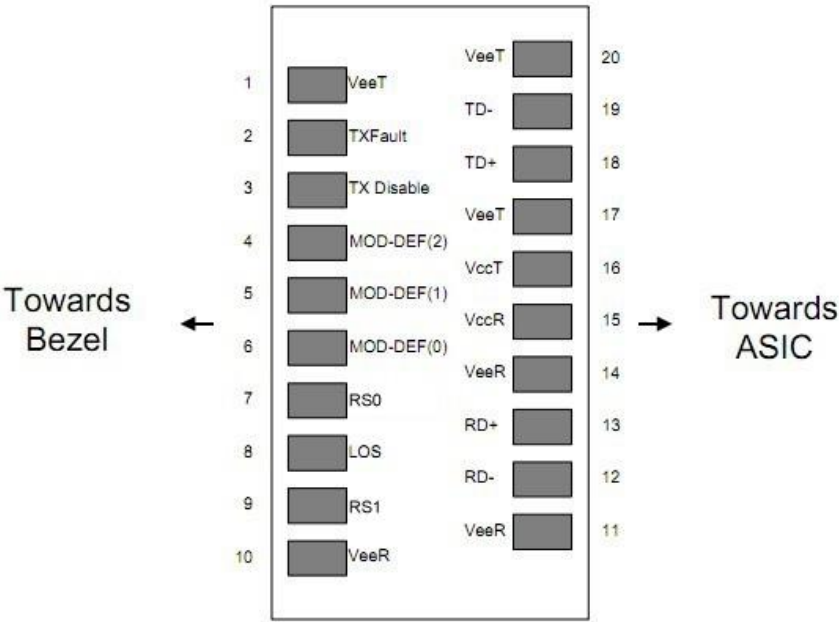


Diagram of Host Board Connector Block Pin Numbers and Names

Pin	Name	Function	Notes
1	VEET	Transmitter Ground (Common with Receiver Ground)	1
2	TFAULT	Transmitter Fault.	
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	3
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	3
7	RS0	Rate Select0, optionally controls SFP+ module receiver. When high input signaling rate>4.25 GBd and low input signaling rate<4.25GBd	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	4
9	RS1	Rate Select1, optionally controls SFP+ module receiver. When high input signaling rate>4.25 GBd and low input signaling rate<4.25GBd	
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. Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
3. Should be pulled up with 4.7k - 10kOhms on host board to a voltage between 2.0V and 3.6V. MOD_DEF(0) pulls line low to indicate module is plugged in.
4. LOS is open collector output. Should be pulled up with 4.7k - 10kOhms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

EEPROM

2 wire address 1010000X (A0h)

0~95
Serial ID Defined by SFP MSA (96 bytes)
96~127
Vendor Specific (32 bytes)
128~255
Reserved (128 bytes)

DDM THRESHOLD

	Low Alarm	Low Warn	High Warn	High Alarm	Unit
Temperature	-5	0	70	75	°C
Voltage	3	3.1	3.6	3.7	V
Tx Bias	15	20	90	100	mA
Tx Power	-3	-2	5	7	dBm
Rx Power	-27	-26	-8	-7	dBm

REGULATORY COMPLIANCE

ATGBICS transceivers are Class 1 Laser Products and comply with FDA regulations, meet Class 1 eye safety requirements of EN 60825 and the electrical safety requirements of EN 60950.

MECHANICAL DIMENSIONS (UNIT: mm)

