

Specification

LC/UPC Receptacle XFP

Optical Transceiver Module

10 Gigabit Ethernet

10GBASE-ER



Ordering Information

TAS-XxUS5-KA6

Operating Case Temperature

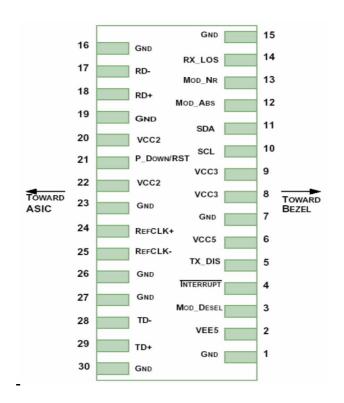
Model Name	Voltage	Category	Device type	Interface	Temperature	Distance
TAS-X5US5-KA6		With DDMI	1550 nm EML	AC-AC / TTL	-5°C ~ +70°C	
TAS-X1US5-KA6	3.3V				-0°C ~ +70°C	40 km
TAS-X2US5-KA6					-40°C ~ +85°C	



Features

- > STM64 or 10GBase ER/EW application
- Supports Data rate 9.95 ~ 11.3 Gbps
- > Up to 40km transmission distance over SMF
- 1550nm DFB Laser transmitter
- > 1550nm receiver with PIN-TIA
- > 2-wire interface for integrated digital diagnostic Monitoring
- ➤ Operation case temperature -40~85°C for industrial and -5~70°C for commercial
- Single +3.3V power supply
- > XFP MAS package with LC/UPC receptacle optical interface
- > RoHS compliance

Pin Assignment and Pin Description







Pin Definitions

PIN	Logic	Symbol	Name/Description	Note
1		GND	Ground	1
2		VEE5	Optional -5.2V power supply, not in use	3
_	IN/THE	Mad Datal	Module Deselect; when held low allows	
3 LVTLL-I		Mod_DeSel	module to respond 2-wire serial interface	
			Indicates presence of an important condition	
4	LVTLL-O	Interrupt	which can be read over the 2-wire serial	2
			interface	
5	LVTLL-I	TX_DIS	Transmitter Disable; turn off transmitter laser	
	LVILL-I	17_013	output	
6		VCC5	+5V power supply, not in use	3
7		GND	Ground	1
8		VCC3	+3.3V power supply	
9		VCC3	+3.3V power supply	
10	LVTTL-I/O	SCL	2-wire serial interface clock	2
11	LVTTL-I/O	SDA	2-wire serial interface data	2
12	LVTTL-O	Mod_Abs	Indicates module is not present. ground in the	2
12			module	
13	LVTTL-O	Mod NR	Module not ready, indicating module	2
	EVITEO	IVIOU_IVI	operational fault	
14	LVTTL-O	RX_LOS	Receiver loss of signal indicator	2
15		GND	Ground	1
16		GND	Ground	1
17	CML-O	RD-	Receiver Inverted Data Output	
18	CML-O	RD+	Receiver Non-Inverted Data Output	
19		GND	Ground	1
20		VCC2	+1.8V power supply, not in use	3
			Power down; when high, requires the module	
21	LVTTL-I	P_Down/RST	to limit power consumption to 1.5w or	
21			below ,2-wire serial interface must be	
			functional in the low power mode	
			Reset; the falling edge initiates a complete	
			reset of the module including the 2-wire	
			Serial interface, equivalent to a power cycle	





22		VCC2	+1.8V power supply, not in use			
23		GND	Ground	1		
			Reference clock non-inverted input, ac			
24	PECL-I	RefCLK+	coupled on the host board, not in use	3		
			Reference clock inverted input, ac coupled on	3		
25	PECL-I	RefCLK-	the host board, not in use			
26		GND	Ground	1		
27		GND	Ground	1		
28	CML-I	TD-	Transmitter inverted data input			
29	CML-I	TD+	Transmitter non-inverted data input			
30		GND	Ground	1		

Notes:

- 1. Module ground pins GND are isolated from the module case and chassis ground within the module.
- 2. Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.
- 3. Not connected internally.

Absolute Maximum Ratings

It has to be noted that the operation in excess of any individual absolute maximum ratings might cause permanent damage to this module.

Parameters	Symbol	Min.	Max.	Unit
Power Supply Voltage	Vcc	3.15	3.45	V
Power Dissipation			2.5	W
Storage Temperature	Тс	-40	85	°C
Operating Case Temperature	Tc	-5	70	°C
Operating Case Temperature	10	-40	85	C



Optical Characteristics

The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min.	Тур.	Max	Unit	Notes	
Operating Reach, SMF				40	Km		
Transmitter							
Center Wavelength	λt	1530	1550	1570	nm		
Spectral Width (-20dB)				1	nm		
Side Mode Suppression Ratio (SMSR)		30			dB		
Average Optical Power	Pavg	0		4	dBm		
Transmitter and dispersion penalty (max)	TDP			2	dB	3	
Optical Return Loss Tolerance		-12			dB		
Average launch power of Off transmitter	Poff			-45	dBm		
Extinction Ratio	ER	8.2			dB		
Transmitter Mask (PRBS2 ³¹ -1@9.95G)		Comp	liant Wit	h ITU-T			
	Receiver						
Center Wavelength	λr	1270	1550	1610	nm		
Sensitivity (PRBS2 ³¹ -1@9.95G, BER<10 ⁻¹²)				-16	dBm		
Overload (PRBS2 ³¹ -1@9.95G, BER<10 ⁻¹²)		0.5			dBm		
Los Assert	LosA	-30			dBm		
Los Dessert	LosD			-18	dBm		
Los Hysteresis	LosH	0.5			dB		

Note:

- 1. Average optical power shall be measured using the methods specified in TIA/EIA-455-95.
- 2. Receiver sensitivity is informative. Stressed receiver sensitivity shall be measured with conformance test signal for BER =1x 10⁻¹².
- 3. Path penalty is intended as the power penalty of the interface between back-to-back and the maximum applied dispersion.





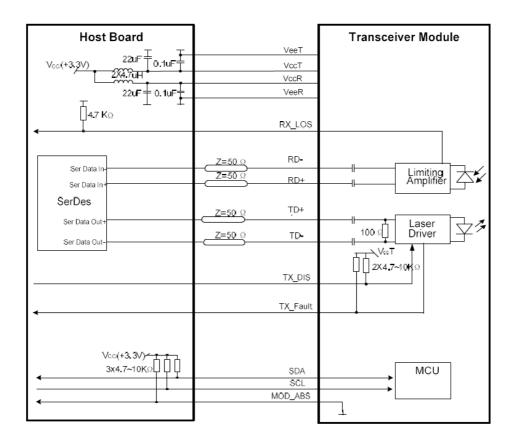
Electrical Characteristics

The following electrical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

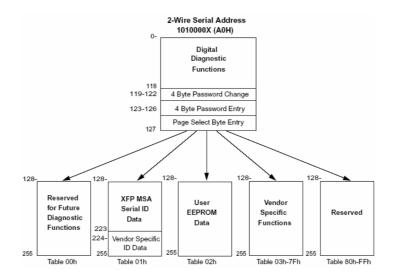
Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Data Rate		9.953	9.953	11.3	Gbps	
Data Input Swing Differential/TX		120		820	mV	
Data Output Swing Differential/RX		340		850	mV	
Date Differential Impedance		90	100	110	Ω	
Output High		2.4		Vcc	V	
Output Low		0		0.4	V	
Input High		2		Vcc+0.3	V	
Input Low		0		0.8	V	
LOS Assert Time	T _{LOSA}			100	us	
LOS De-assert Time	T_{LOSD}			100	us	



Typical Interface Circuit

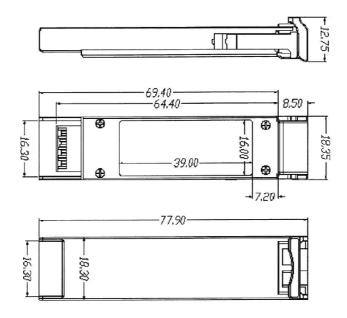


EEPROM Memory Map





Mechanical Dimensions



ESD

Normal ESD precautions are required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

LASER Safety

This is a Class 1 Laser Product according to IEC/EN60825-1:2014 (Third Edition).. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007)

Contact Information

Formerica OptoElectronics Inc.

5F-11, No.38, Taiyuan St., Zhubei City, Hsinchu County 30265, Taiwan

Tel: +886-3-5600286 Fax: +886-3-5600239

San Diego, CA

Tel: 1-949-466-8069

<u>inquiry@formericaoe.com</u> <u>www.formericaoe.com</u>