SFP28 25Gb/s 10km LWDM Transceiver (KW3010DI-LXXX)
Hot Pluggable, Duplex LC, +3.3V, LWDM DFB+PIN,Single mode

Features:

- ✧ UP to 25.78Gb/s data links
- ✧ Hot-Pluggable SFP28 footprint
- ✧ Duplex LC connector
- ✧ LWDM COOL DFB Laser and PIN receiver
- ✧ Up to 10km on 9/125m SMF
- ✧ 2-wire interface with integrated Digital Diagnostic monitoring
- ✧ Build-in dual CDR with bypass function
- ✧ Specifications compliant with SFF 8472
- ✧ Power Supply :+3.3V
- ✧ Operating case temperature Range:
  Industrial: -40°C to +85°C
- ✧ RoHS compliant

Applications:

- ✧ 25GE LWDM Ethernet
- ✧ eCPRI&CPRI

Part Number Ordering Information

KW3010DI-L269	SFP28 10km LWDM 1269.23nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L273	SFP28 10km LWDM 1273.54nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L277	SFP28 10km LWDM 1277.89nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L282	SFP28 10km LWDM 1282.26nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L286	SFP28 10km LWDM 1286.66nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L291	SFP28 10km LWDM 1291.10nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L295	SFP28 10km LWDM 1295.56nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L300	SFP28 10km LWDM 1300.05nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L304	SFP28 10km LWDM 1304.58nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L309	SFP28 10km LWDM 1309.14nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L314	SFP28 10km LWDM 1313.73nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE
KW3010DI-L318	SFP28 10km LWDM 1318.35nm optical transceiver with full real-time digital diagnostic monitoring , -40~85℃,25GE

Description:

KEWEI's KW3010D-LXXX SFP28 transceivers are designed for use in Ethernet links up to25.78Gb/s data rate and up to 10 km link length. They are compliant SFF-8472 , and compatible with SFF-8432 and applicable portions of SFF-8431. The product is RoHS compliant and lead-free per Directive 2011/96/EU.

The transceiver consists of four sections: the LD driver, the limiting amplifier, the LWDM DFB laser and the PIN photo-detector. The module data link up to 10KM in 9/125um single mode fiber.

The optical output can be disabled by a TTL logic high-level input of Tx Disable. Tx Fault is provided to indicate that degradation of the laser. Loss of signal (LOS) output is provided to indicate the loss of an input optical signal of receiver or the link status with partner.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Tcase	0		70	ºC	Commercial
		-40		85	ºC	Industrial
Storage Temperature	Ts	-40	-	85	ºC	
Relative Humidity	RH	0	-	85	%	
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Supply current	ICC	-		550	mA	Commercial
		-		600	mA	Industrial
Data Rate	BR		25.78		Gbps	TX/RX Rate
Transmission Distance	TD		10		km	

Electrical Interface Characteristics

Parameter	Symbo	Min.	Typ.	Max.	Unit	Note
Transmitter						
Input differential impedance	Rin		100		Ω	1
Single ended data input swing	Vin,pp	180		700	mV	
Transmitter Fault Output-High	VFaultH	2	-	Vcc+0.3	V	
Transmitter Fault Output-Low	VFaultL	0	-	0.8	V	
Transmitter Disable Voltage- High	VDisH	2	-	Vcc+0.3	V	
Transmitter Disable Voltage- low	VDisL	0	-	0.8	V	
Receiver						
Differential data output swing	Vout,pp	300		850	mV	2
LOS Output Voltage-High	VLOSH	2	-	Vcc+0.3	V	
LOS Output Voltage-Low	VLOSL	0	-	0.8	V	

Notes:
(1)、Connected directly to TX data input pins. AC coupled thereafter.
(2)、Into 100 ohms differential termination.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter						
Optical Modulation Amplitude (AVG)	PO	+2.0		+7.0	dBm	
Optical Modulation Amplitude (OMA)	OMA	+1.0		+7.0	dBm	
Center Wavelength Range	λC	λ-2.5	-	λ+2.5	nm	Refer to product selection
Spectrum Bandwidth(-20dB)	Δλ	-	-	1	nm	
Side-Mode Suppression Ratio	SMSR	30	-	-	dB	
Extinction Ratio	ER	3.5		-	dB	Note (1)
Relative Intensity Noise	RIN 20OMA			-130	dB/Hz	
Average Launched Power(Laser Off)	P_{off}	-	-	-30		
Optical return loss tolerance				20	dB	
Transmitter reflectance				-26	dB	
Transmitter eye mask definition {X1, X2, X3, Y1, Y2, Y3} Hit ratio 5x10 -5 hits per sample	{0.31, 0.4, 0.45, 0.34, 0.38, 0.4}					Note (2)
Receiver-PIN						
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Note**
Input Optical Wavelength	λIN	1250	-	1620	nm	
Damage threshold		3.5			dBm	
Receiver sensitivity (OMA)(EOL), each lane at 5 x 10-5BER	Psen1	-	-	-14	dBm	Note (3)
Input Saturation Power (Overload)	PSAT1	2.0	-	-	dBm	Note (3)
Los Of Signal Assert	PA	-30	-	-	dBm	
Los Of Signal De-assert	PD	-	-	-15	dBm	
LOS -Hysteresis	PHys	0.5		6	dB	

Note:
(1): Measured with a PRBS 231-1 test pattern, @25.78Gb/s.
(2): Transmitter eye mask definition, Compliant with IEEE 802.3cc.
(3): Measured with Light source 1310nm, ER=3.5dB; BER =<$5X10^{-5}$ @PRBS=2^{31}-1 NRZ.

Pin Function Definitions

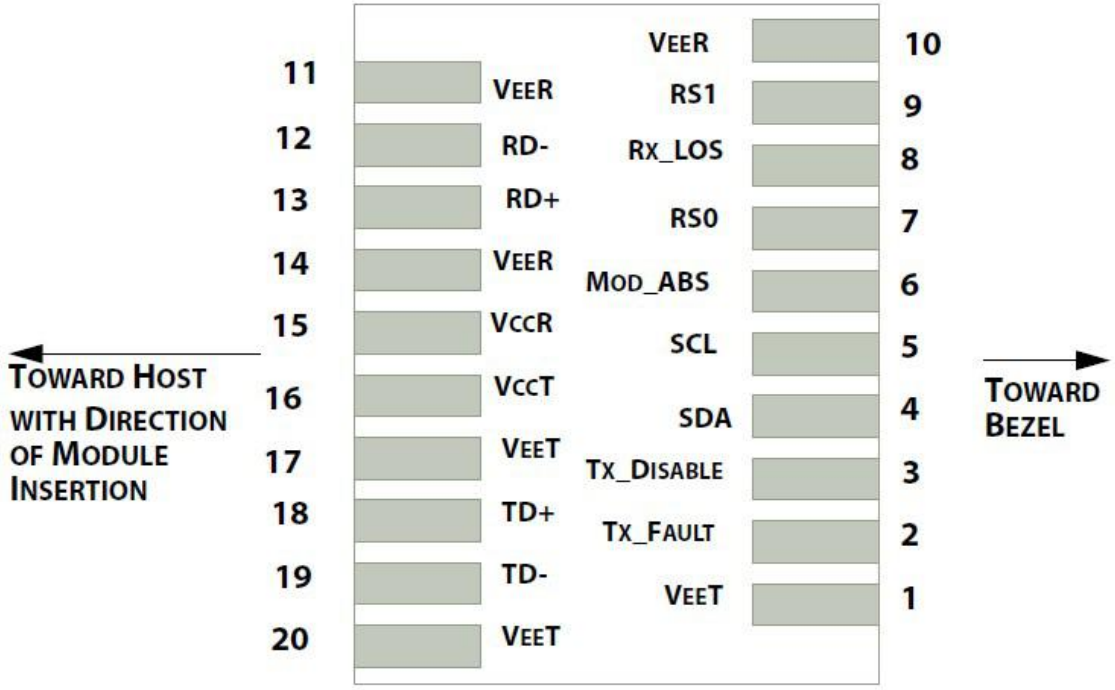


Diagram of Host Board Connector Block Pin Numbers and Name

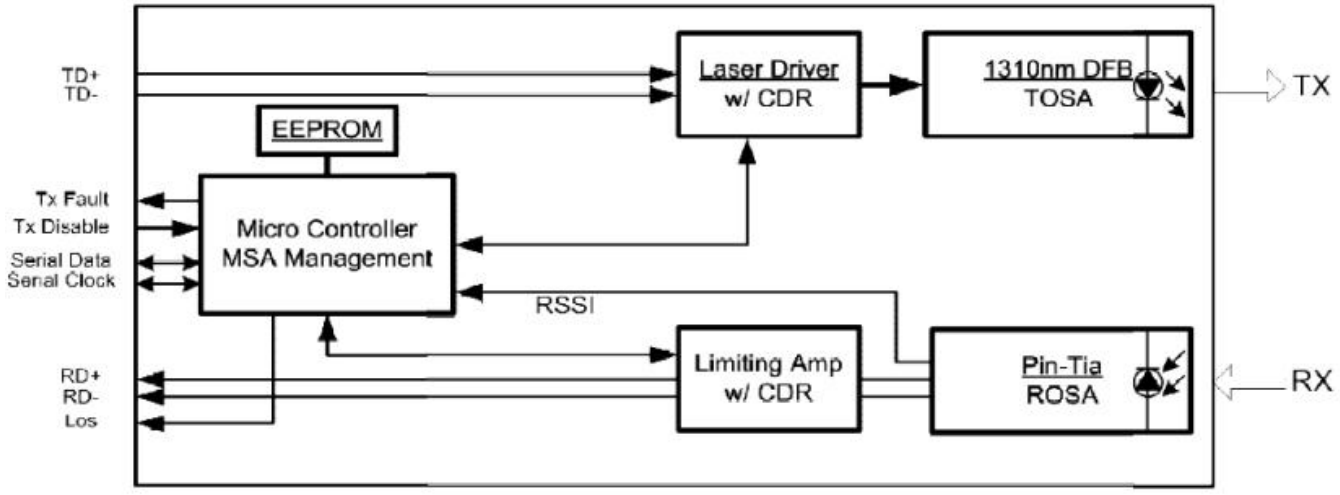
PIN #	Name	Function	Notes
1	V_{EET}	Transmitter Ground. Common with receiver ground.	1
2	TX_{FAULT}	Transmitter Fault	2
3	TX_{DIS}	Transmitter Disable. Laser output disabled on high or open.	3
4	SDA	2-wire Serial Interface Data Line	4
5	SCL	2-wire Serial Interface Clock Line	4
6	MOD_ABS	Module Absent. 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	V_{EER}	Receiver Ground. Common with transmitter Ground.	1
11	V_{EER}	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	V_{EER}	Receiver Ground. Common with transmitter Ground.	1
15	V_{CCR}	Receiver Power Supply	
16	V_{CCT}	Transmitter Power Supply	
17	V_{EET}	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	V_{EET}	Transmitter Ground. Common with receiver ground.	1

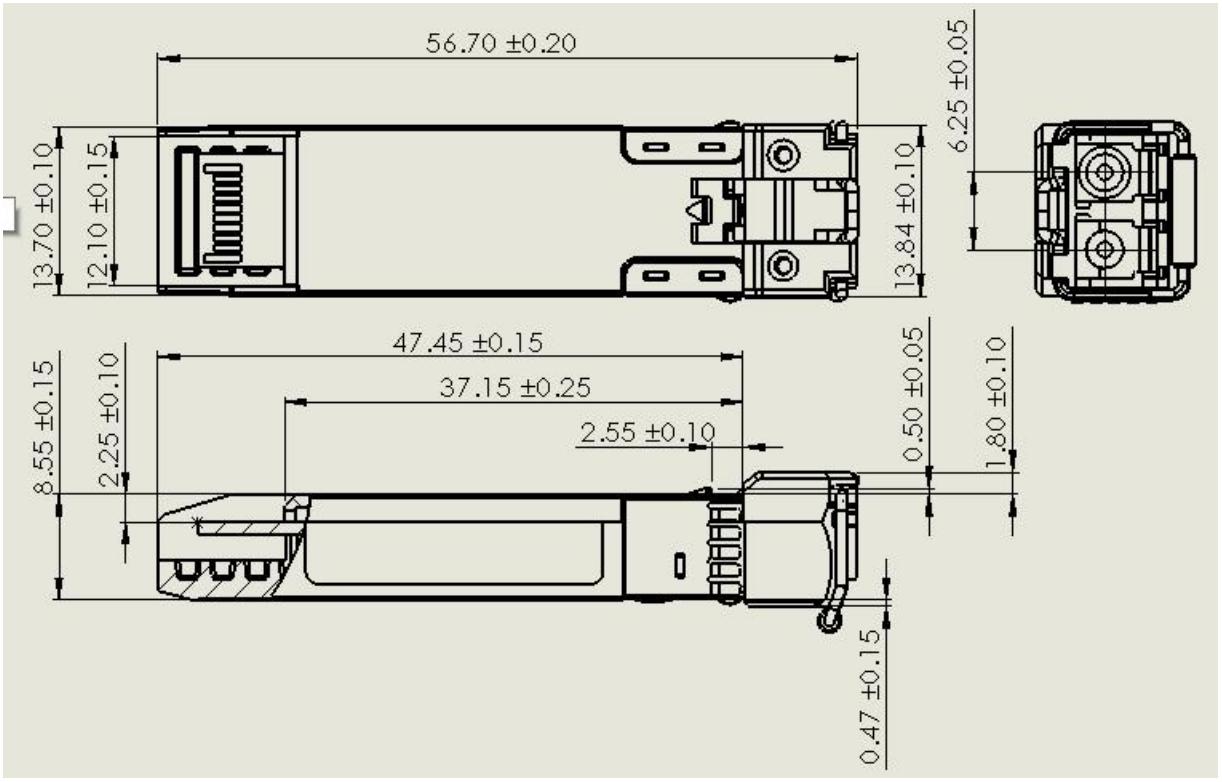
Notes:

1. Circuit ground is internally isolated from chassis ground.
2. TFAULT is an open collector/drain output, which should be pulled up with a 4.7k – 10k Ohms resistor on the hostboard if intended for use. Pull up voltage should be between 2.0V to Vcc + 0.3V.A high output indicates atransmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarmthresholds. 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 lowto indicate module is plugged in.
5. Internally pulled down per SFF-8431 Rev 4.1.
6. LOS is open collector output. It should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 2.0Vand 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

Block Diagram of Transceiver



Outline Dimensions



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