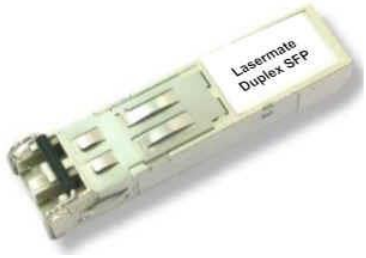
4.25Gbps 850nm MMF 150m SFP Optical Transceiver with Duplex LC Connector

Model No. CM85V-96F-3S-Tx-LD

FEATURES

- Compliant with 4.25G Fiber Channel 400-M5-SN-I and 400-M6-SN-I standard
- Compliant with 2.125G Fiber Channel 200-M5-SN-I and 200-M6-SN-I standard
- Compliant with 1.0625G Fiber Channel 100-M5-SN-I and 100-M6-SN-I standard
- Compliant with IEEE802.3z Gigabit Ethernet standard
- Compliant with SFF8472 diagnostic monitoring interface
- Hot pluggable
- Single power supply 3.3V
- Duplex LC connector
- Differential LVPECL inputs and CML outputs
- TTL signal detect indicator
- Class 1 laser product compliant with EN 60825-1
- Input/Output: AC/AC



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT
Storage Temperature	T_S	-40	85	°C
Supply Voltage	V_{CC}	-0.5	4.0	V
Input Voltage	V_{IN}	-0.5	V_{CC}	V
Output Current	I_o	-	50	mA
Operating Current	I_{OP}	-	400	mA

RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	MAX	UNIT	NOTES
Case Operating Temperature	T_C	-10	70	°C	CM85V-96F-3S-TC-LD
		-20	85		CM85V-96F-3S-TM-LD
		-40	85		CM85V-96F-3S-TI-LD
Supply Voltage	V_{CC}	3.1	3.5	V	
Supply Current	$I_{TX} + I_{RX}$	-	200	mA	

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TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS (V_{CC} = 3.1V to 3.5V, T_C = -10 to 70°C, -20 to 85°C, -40 to 85°C)

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTES
Output Optical Power (50/125um fiber, NA=0.20) (62.5/125um fiber, NA=0.275)	P_{out}	-9	-	-3	dBm	
Extinction Ratio	ER	6	-	-	dB	
Optical Modulation Amplitude @4.25Gb/s	OMA	247			uW	
Optical Modulation Amplitude @2.125Gb/s	OMA	196			uW	
Optical Modulation Amplitude @1.0625Gb/s	OMA	156			uW	
Center Wavelength	λ_C	830	850	860	nm	
Spectral Width (RMS)	$\Delta\lambda$	-	-	0.85	nm	
Relative Intensity Noise	RIN	-	-	-118	dB/Hz	
Output Eye	Compliant with IEEE802.3z and fiber channel 4x					
Max. P_{out} TX-DISABLE Asserted	P_{OFF}	-	-	-35	dBm	
Differential Input Voltage	V_{DIFF}	0.35	-	2.0	V	
Transmit Fault Output-Low	TX_FAULT_L	0.0	-	0.5	V	
Transmit Fault Output-High	TX_FAULT_H	2.4	-	V_{CC}	V	
TX_DISABLE Assert Time	t_off	-	-	10	us	
TX_DISABLE Negate Time	t_on	-	-	1	ms	
Time to initialize, include reset of TX_FAULT	t_init	-	-	300	ms	
TX_FAULT from fault to assertion	t_fault	-	-	100	us	
TX_DISABLE time to start reset	t_reset	10	-	-	us	

RECEIVER ELECTRO-OPTICAL CHARACTERISTICS (V_{CC} = 3.1V to 3.5V, T_C = -10 to 70°C, -20 to 85°C, -40 to 85°C)

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTES
Optical Input Power-Maximum	P_{IN}	0	-	-	dBm	BER<10^{-12}
RX Sensitivity @4.25Gbps	P_{IN}	-	-	-15	dBm	BER<10^{-12}
RX Sensitivity @2.125Gbps	P_{IN}	-	-	-18	dBm	BER<10^{-12}
RX Sensitivity @1.25Gbps	P_{IN}	-	-	-20	dBm	BER<10^{-12}
RX Sensitivity @1.0625Gbps	P_{IN}	-	-	-20	dBm	BER<10^{-12}
Operating Center Wavelength	λ_C	770	-	860	nm	
Optical Return Loss	ORL	12	-	-	dB	
Signal Detect-Asserted	P_A	-20	-	-	dBm	
Signal Detect-Deasserted	P_D	-	-	-30	dBm	
Differential Output Voltage	V_{DIFF}	0.5	-	1.2	V	
Receiver Loss of Signal Output Voltage-Low	RX_LOS_L	0	-	0.5	V	
Receiver Loss of Signal Output Voltage-High	RX_LOS_H	2.4	-	V_{CC}	V	
Receiver Loss of Signal Assert Time (off to on)	t_{A,RX_LOS}	-	-	100	us	
Receiver Loss of Signal Assert Time (on to off)	t_{D,RX_LOS}	-	-	100	us	

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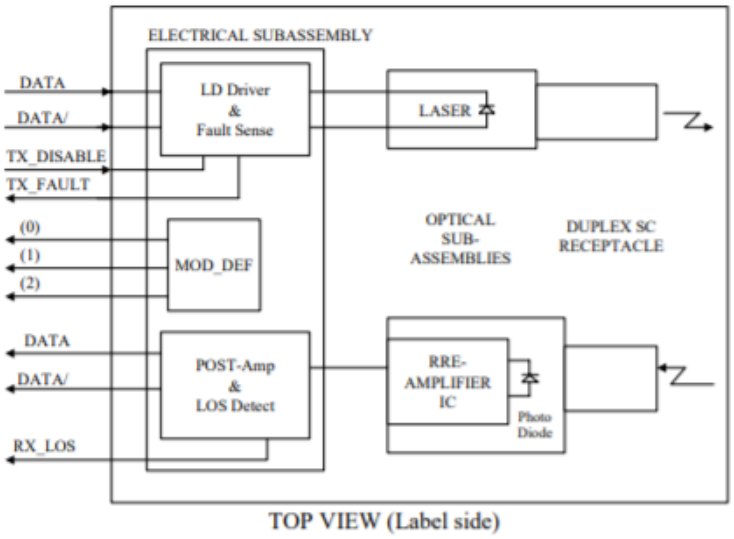
BLOCK DIAGRAM OF TRANSCEIVER



TOP VIEW (Label side)

Transmitter Section - The transmitter section consists of a 850 nm VCSEL in an eye safe optical subassembly (OSA) which mates to the fiber cable. The laser OSA is driven by a LD driver IC which converts differential input LVPECL logic signals into an analog laser driving current.

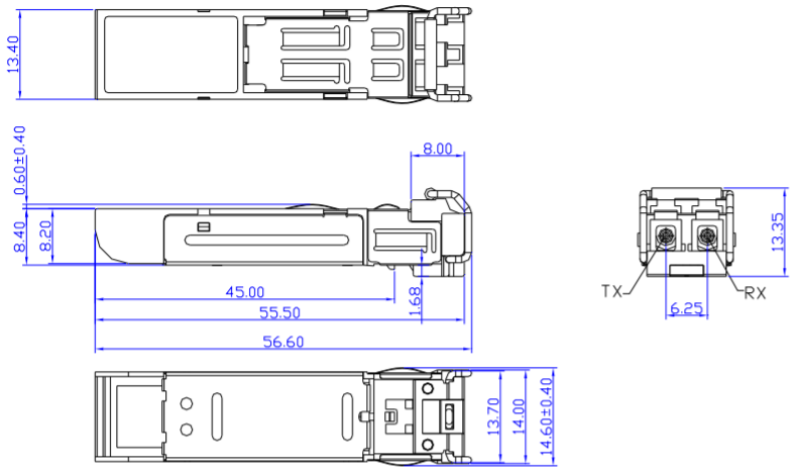
TX_FAULT - When sensing an improper power level in the laser driver, the SFP set this signal high and turns off the Laser. TX_FAULT can be reset with the TX_DISABLE line. The signal is in TTL level.

TX_DISABLE - The TX_DISABLE signal is high (TTL logic "1") to turn off the laser output. The laser will turn on within 1ms when TX_DISABLE is low (TTL logic "0").

Receiver Section - The receiver utilizes a MSM detector integrated with a trans-impedance preamplifier in an OSA. This OSA is connected to a circuit providing post-amplification quantization, and optical signal detection.

Receive Loss (RX_LOS) - The RX_LOS is high (logic "1") when there is no incoming light from the companion transceiver. This signal is normally used by the system for the diagnostic purpose. The signal is operated in TTL level.

DIMENSIONS



DIMENSIONS ARE IN MILLIMETERS

ALL DIMENSIONS ARE ± 0.2mm UNLESS OTHERWISE SPECIFIED

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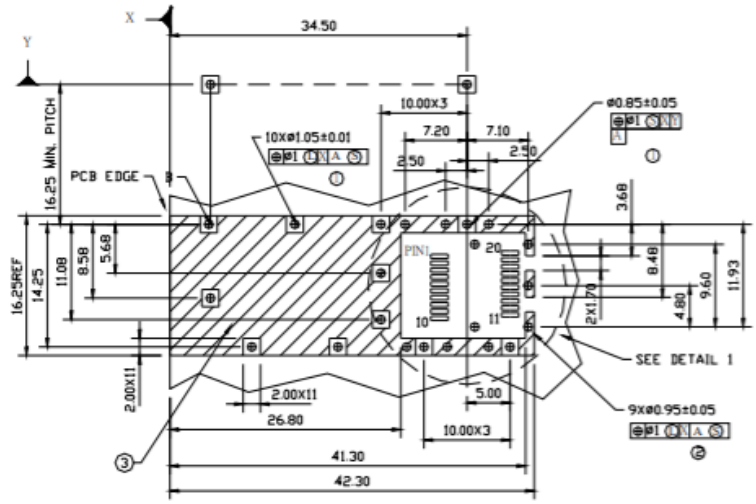
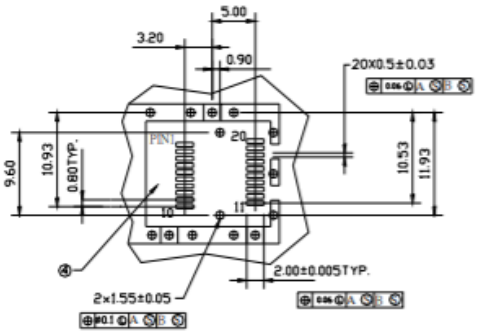
SFP HOST BOARD MECHANICAL LAYOUT



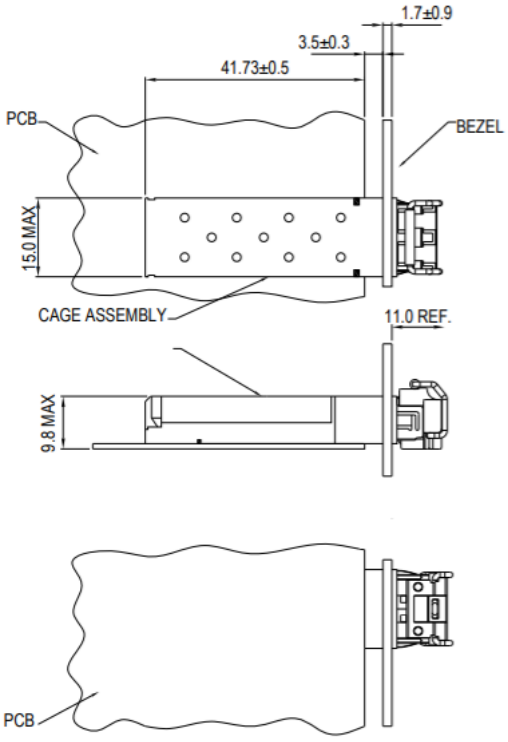


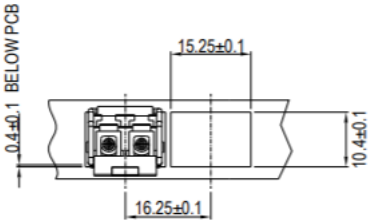
LEGEND

1.PADS AND VIAS ARE CHASSIS GROUND
2.THROUGH HOLES, PLATING OPTIONAL
3.HATCHED AREA DENOTES COMPONENT AND TRACE KEEPOUT(EXCEPT CHASSIS GROUND)
4.AREA DENOTES COMPONENT KEEPOUT (TRACES ALLOWED)

DIMENSIONS ARE IN MILLIMETERS

ASSEMBLY DRAWING (unit: mm)





MSA-SPECIFIED BEZEL

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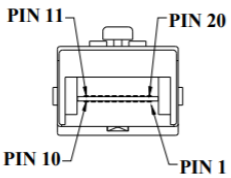
PIN ASSIGNMENT

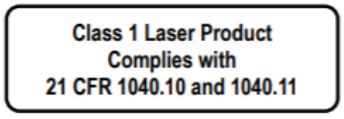


PIN	SIGNAL NAME	DESCRIPTION	PIN	SIGNAL NAME	DESCRIPTION
1	T_{GND}	Transmit Ground	11	R_{GND}	Receiver Ground
2	TX_FAULT	Transmit Fault	12	RX-	Receive Data Bar, Differential PECL, ac coupled
3	TX_DISABLE	Transmit Disable	13	RX+	Receive Data, Differential PECL, ac coupled
4	MOD_DEF (2)	SDA Serial Data Signal	14	R_{GND}	Receiver Ground
5	MOD_DEF (1)	SCL Serial Clock Signal	15	V_{CCR}	Receiver Power Supply
6	MOD_DEF (0)	TTL Low	16	V_{CCT}	Transmitter Power Supply
7	RATE SELECT	Open Circuit	17	T_{GND}	Transmitter Ground
8	RX_LOS	Receiver Loss of Signal, TTL High, open collector	18	TX+	Transmit Data, Differential PECL, ac coupled
9	R_{GND}	Receiver Ground	19	TX-	Transmit Data Bar, Differential PECL, ac coupled
10	R_{GND}	Receiver Ground	20	T_{GND}	Transmitter Ground

EYE SAFETY MARK

The multimode transceiver is a class 1 laser product. It complies with EN 60825-1 and FDA 21 CFR 1040.10 and 1040.11. In order to meet laser safety requirements, the transceiver shall be operated within the Absolute Maximum Ratings.

Required Mark



[Caution] All adjustments have been done at the factory before the shipment of the devices. No maintenance and user serviceable part is required. Tampering with and modifying the performance of the device will result in voided product warranty.

ORDERING INFORMATION

PART NUMBER	OPERATING TEMPERATURE
CM85V-96F-3S-TC-LD	-10 to 70°C
CM85V-96F-3S-TM-LD	-20 to 85°C
CM85V-96F-3S-TI-LD	-40 to 85°C

Note: The specifications subject to change without notice.

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