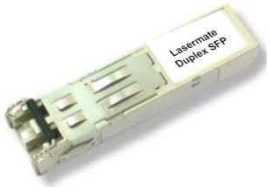
www.lasermate.com

Data Sheet
Rev 01.1220

155Mbps 850nm MMF 2km SFP Optical Transceiver with Duplex LC Connector

CM85V-03F-3S-Tx-LD



DESCRIPTION

The CM85V-03F-3S-Tx-LD duplex SFP (Small Form Pluggable) optical transceivers are high performance, cost effective optical transceiver modules for serial optical data communications application specified for a data rate of 155 Mb/s. The SFP transceiver module provides 2km transmission distance over multi-mode fiber at nominal wavelength of 850nm. The optical transceiver is RoHS compliant.

FEATURES

- RoHS compliant
- Compliant with SFF8472 diagnostic monitoring interface
- Industry standard small form pluggable (SFP) packge
- Single power supply 3.3V
- Duplex LC optical connection
- Class 1 laser product compliant with EN 60825-1
- Input/Output: AC/AC
- Signal Detect: TTL
- Up to 2km over multi-mode fiber

APPLICATIONS

- Fast Ethernet

PRODUCT OVERVIEW

PART NUMBER	OPERATING TEMPERATURE
CM85V-03F-3S-TC-LD	0°C to 70°C
CM85V-03F-3S-TM-LD	-10°C to 85°C
CM85V-03F-3S-TI-LD	-40°C to 85°C

DIAGNOSTICS

PARAMETER	RANGE	ACCURACY	UNIT	CALIBRATION
Temperature	-40 to 95	±3	°C	External
Voltage	3.0 to 3.6	±0.1	V	
Bias Current	0 to 20	±10%	mA	
TX Power	-9.5 to -4	±3	dB	
RX Power	-18 to -4	±3	dB	

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

RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	MAX	UNIT	NOTES
Case Operating Temperature	T_C	0	70	°C	CM85V-03F-3S-TC-LD
		-10	85		CM85V-03F-3S-TM-LD
		-40	85		CM85V-03F-3S-TI-LD
Supply Voltage	V_{CC}	3.1	3.5	V	
Supply Current	$I_{TX} + I_{RX}$		200	mA	

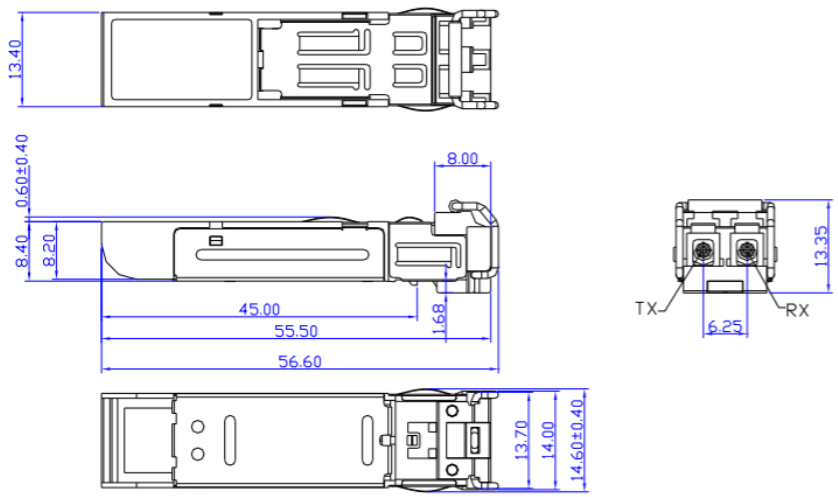
TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS (V_{CC} = 3.1V to 3.5V, T_C = 0°C to 70°C, -10°C to 85°C, -40°C to 85°C)

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT
Data Rate	B		125		Mbps
Average Output Optical Power 62.5/125, 50/125um fiber	P_{out}	-9.5	-	-4	dBm
Extinction Ratio	ER	9	-	-	dB
Center Wavelength	λ_C	830	850	860	nm
Spectral Width (RMS)	$\Delta\lambda$	-	-	0.85	nm
Rise/Fall Time (10~90%)	$T_{r,f}$	-	-	2	ns
Max. P_{out} TX-DISABLE Asserted	P_{OFF}	-	-	-45	dBm
Differential Input Voltage	V_{DIFF}	0.4	-	2.0	V

RECEIVER ELECTRO-OPTICAL CHARACTERISTICS (V_{CC} = 3.1V to 3.5V, T_C = 0°C to 70°C, -10°C to 85°C, -40°C to 85°C)

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTES
Data Rate	B		125		Mbps	
Optical Input Power-Maximum	P_{IN}	-4	-	-	dBm	PRBS7, BER<10^{-10}
Receiver Input Power-Minimum (Sensitivity)	P_{IN}	-	-	-18	dBm	PRBS7, BER<10^{-10}
Operating Center Wavelength	λ_C	770	-	860	nm	
Optical Return Loss	ORL	12	-	-	dB	
Signal Detect-Asserted	P_A	-	-	-18	dBm	
Signal Detect-Deasserted	P_D	-35	-	-	dBm	
Data Output Rise, Fall time (20~80%)	$T_{r,f}$	-	-	0.35	ns	
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	

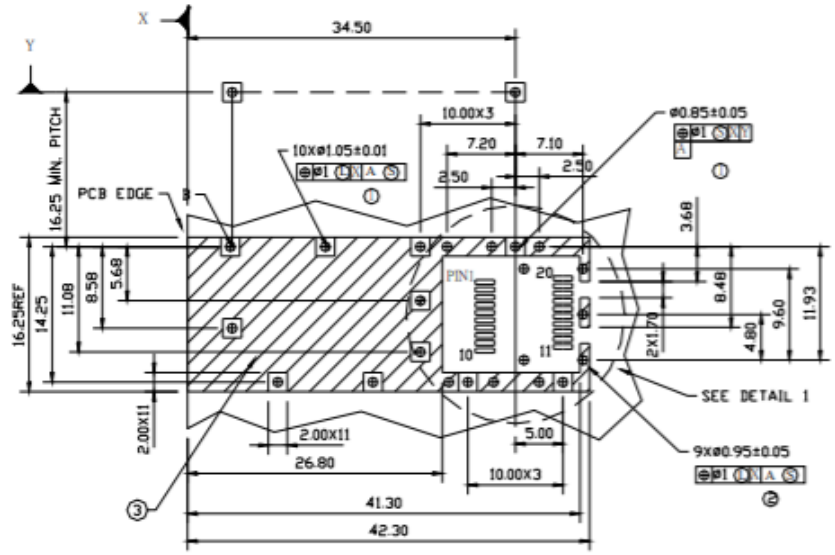
DIMENSIONS

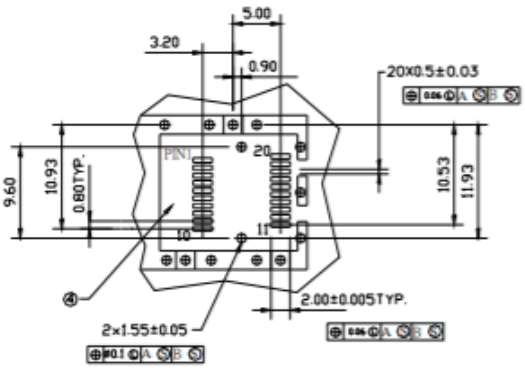


DIMENSIONS ARE IN MILLIMETERS

ALL DIMENSIONS ARE ± 0.2mm UNLESS OTHERWISE SPECIFIED

SFP HOST BOARD MECHANICAL LAYOUT



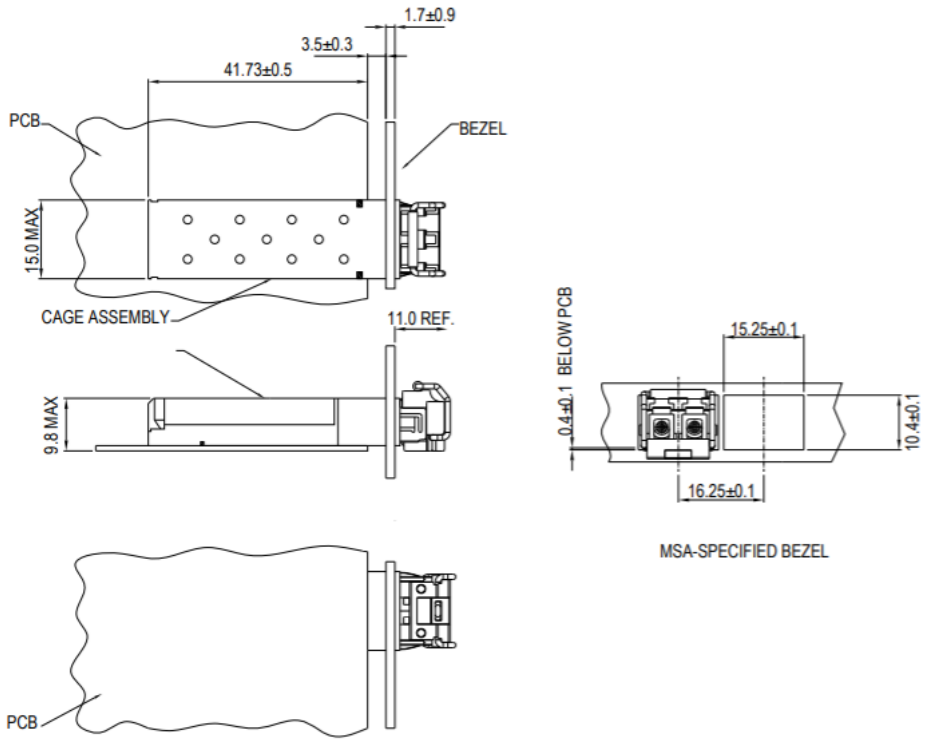


LEGEND

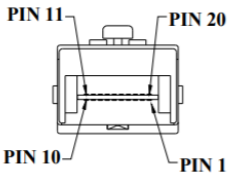
1.PADS AND VIAS ARE CHASSIS GROUND
2.THROUGH HOLES, PLATING OPTIONAL
3.HATCHED AREA DENOTES COMPONENT AND TRACE KEEPOUT(EXCEPT CHASSIS GROUND)
4.AREA DENOTES COMPONENT KEEPOUT (TRACES ALLOWED)

DIMENSIONS ARE IN MILLIMETERS

ASSEMBLY DRAWING (unit: mm)



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	RS0	RX Rate Select, no function implemented	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	RS1	TX Rate Select, no function implemented	19	TX-	Transmit Data Bar, Differential PECL, ac coupled
10	R_{GND}	Receiver Ground	20	T_{GND}	Transmitter Ground

ADDITIONAL NOTES

- Avoid eye or skin exposure to laser radiations.
- The device is sensitive to electro-static discharge (ESD). The device should be handled with ESD proof tools. To assemble the device on PCB, proper grounding is required to prevent ESD.
- Specifications are subject to change without notice.

Lasermate Group, Inc.
19608 Camino De Rosa
Walnut, CA 91789 USA
Tel: (909)718-0999
Fax: (909)718-0998
sales@lasermate.com
www.lasermate.com