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Data Sheet
Rev 01.1220

2Mbps 850nm Multimode 2km SFP IEEE C37.94 Optical Transceiver with Duplex LC Connector

CM85-2MF-3C-Tx-L

DESCRIPTION

The CM85-2MF-3C-Tx-L are high performance, cost-effective optical transceivers for serial optical data communication applications specified for 2Mb/s. The optical transceiver module is a duplex LC connector designed to provide an IEEE C37.94 link for 2Mb/s applications. It provides up to 2km transmission distance over multi-mode fiber at nominal wavelength of 850nm. The optical transceiver is RoHS compliant.

FEATURES

- IEEE C37.94 application
- RoHS compliant
- Compliant with SFF8472 diagnostic monitoring interface
- Duplex LC connector
- Single power supply 3.3V
- Hot pluggable SFP package
- Class 1 laser product compliant with EN 60825-1
- TTL signal detect
- Input/Output: AC/AC
- Up to 2km over multimode fiber

APPLICATIONS

- IEEE C37.94

PRODUCT OVERVIEW

PART NUMBER	OPERATING TEMPERATURE
CM85-2MF-3C-TC-L	0°C to 70°C
CM85-2MF-3C-TM-L	-10°C to 85°C
CM85-2MF-3C-TI-L	-40°C to 85°C

DIAGNOSTICS

PARAMETER	RANGE	ACCURACY	UNIT	CALIBRATION
Temperature	-40 to 85	±3	°C	Internal
Voltage	3.1 to 3.5	±0.1	V	
Bias Current	0 to 16	±10%	mA	
TX Power	-19 to -11	±3db	dBm	
RX Power	-32 to -8	±3db	dBm	

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT	NOTES
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	

OPERATING ENVIRONMENT

PARAMETER	SYMBOL	MIN	MAX	UNIT	NOTES
Case Operating Temperature	T_C	0	70	°C	CM85-2MF-3C-TC-L
		-10	85		CM85-2MF-3C-TM-L
		-40	85		CM85-2MF-3C-TI-L
Supply Voltage	V_{CC}	3.1	3.5	V	
Supply Current	I_{TX}+ I_{RX}	-	150	mA	

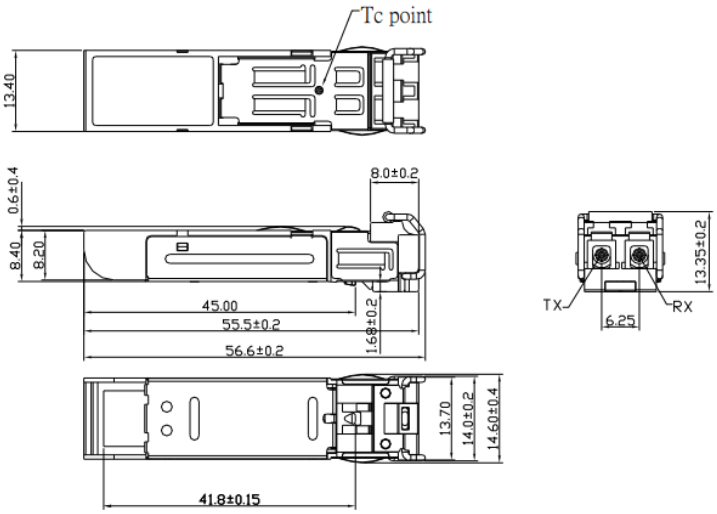
TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTES
Output Optical Power 62.5/125um fiber	P_{out}	-19	-	-11	dBm	Average
Output Optical Power 50/125um fiber	P_{out}	-23	-	-11	dBm	Average
Extinction Ratio	ER	12	-	-	dB	
Center Wavelength	λ_C	830	850	860	nm	
Spectral Width (RMS)	$\Delta\lambda$			1	nm	
Max. P_{out} TX-DISABLE Asserted	P_{OFF}	-	-	-45	dBm	
Differential Input Voltage	V_{DIFF}	0.4	-	2.0	V	

RECEIVER ELECTRO-OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTES
Optical Input Power-Maximum	P_{IN}	-8	-	-	dBm	PRBS7, BER<10^{-9}
Receiver Input Power-Minimum (Sensitivity)	P_{IN}	-	-	-32	dBm	PRBS7, BER<10^{-9}
Operating Center Wavelength	λ_C	790	-	870	nm	
LOS-Deaserted	P_A	-	-	-32	dBm	
LOS-Asserted	P_D	-45	-	-	dBm	
Differential Output Voltage	V_{DIFF}	0.6	-	1.8	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

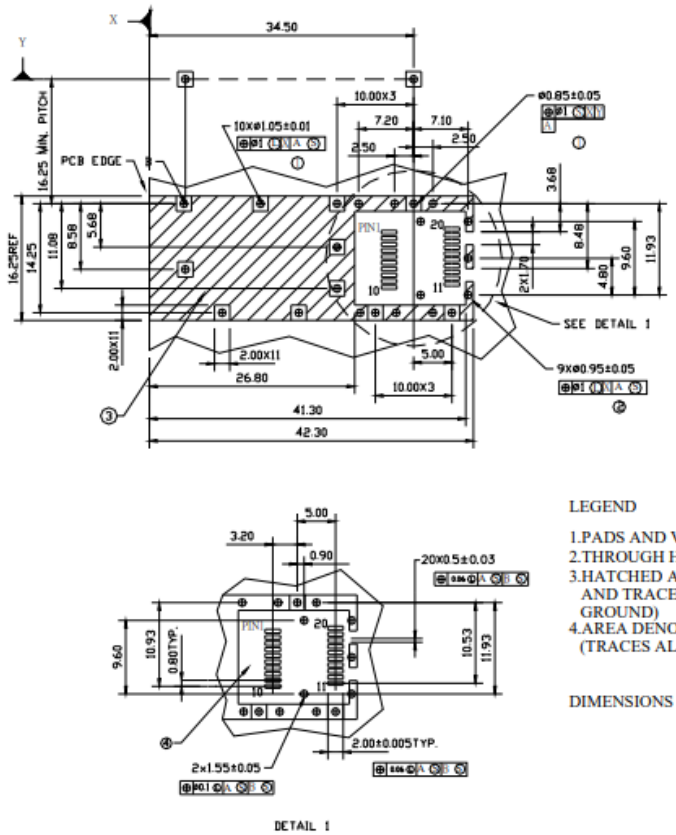


DIMENSIONS ARE IN MILLIMETERS

ALL DIMENSIONS ARE ± 0.1mm UNLESS OTHERWISE SPECIFIED

Unit: mm

SFP HOST BOARD MECHANICAL LAYOUT



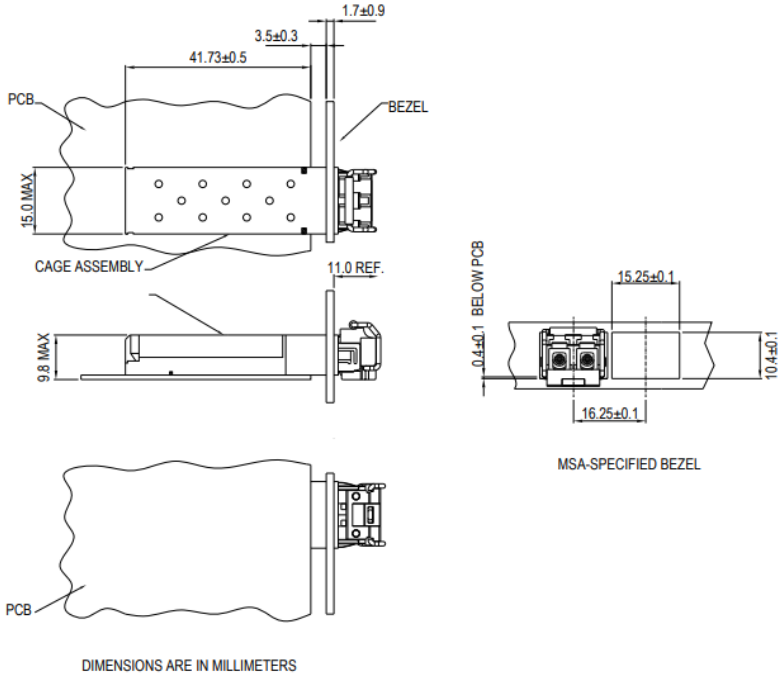
LEGEND

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

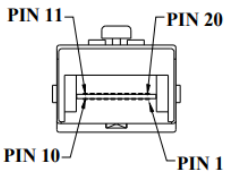
Unit: mm

ASSEMBLY DRAWING



Unit: mm

PIN ASSIGNMENT



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

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