



**RoHS compliant
850 nm Multi-mode Transceiver, 2km
Small Form Pluggable (SFP), with Diagnostic Monitoring
2Mbps C37.94**



Features

- IEEE C37.94 application
- RoHS compliant
- Compliant with SFF8472 diagnostic monitoring interface
- Duplex LC connector
- Single power supply 3.3V
- Hot Pluggable
- Class 1 laser product complies with EN 60825-1

Ordering Information

PART NUMBER	INPUT/OUTPUT	SIGNAL DETECT	VOLTAGE	TEMPERATURE	DISTANCE
LM28-A3C-TC-N-EC	AC/AC	TTL	3.3V	0°C to 70 °C	2Km
LM28-A3C-TK-N-EC	AC/AC	TTL	3.3V	-10°C to 85 °C	2Km
LM28-A3C-TI-N-EC	AC/AC	TTL	3.3V	-40°C to 85 °C	2Km

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	± 3 dB	dBm	
RX Power	-32 to -8	± 3 dB	dBm	



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Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNITS	NOTE
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	UNITS	NOTE
Operating Case Temperature	T_C	0	70	°C	
		-10	85		
		-40	85		
Supply Voltage	V_{CC}	3.1	3.5	V	
Supply Current	$I_{TX} + I_{RX}$	---	150	mA	



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Transmitter Electro-optical Characteristics

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Output Optical Power 62.5/125 μ m fiber	P_{out}	-19	---	-11	dBm	Average
Output Optical Power 50/125 μ m 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	



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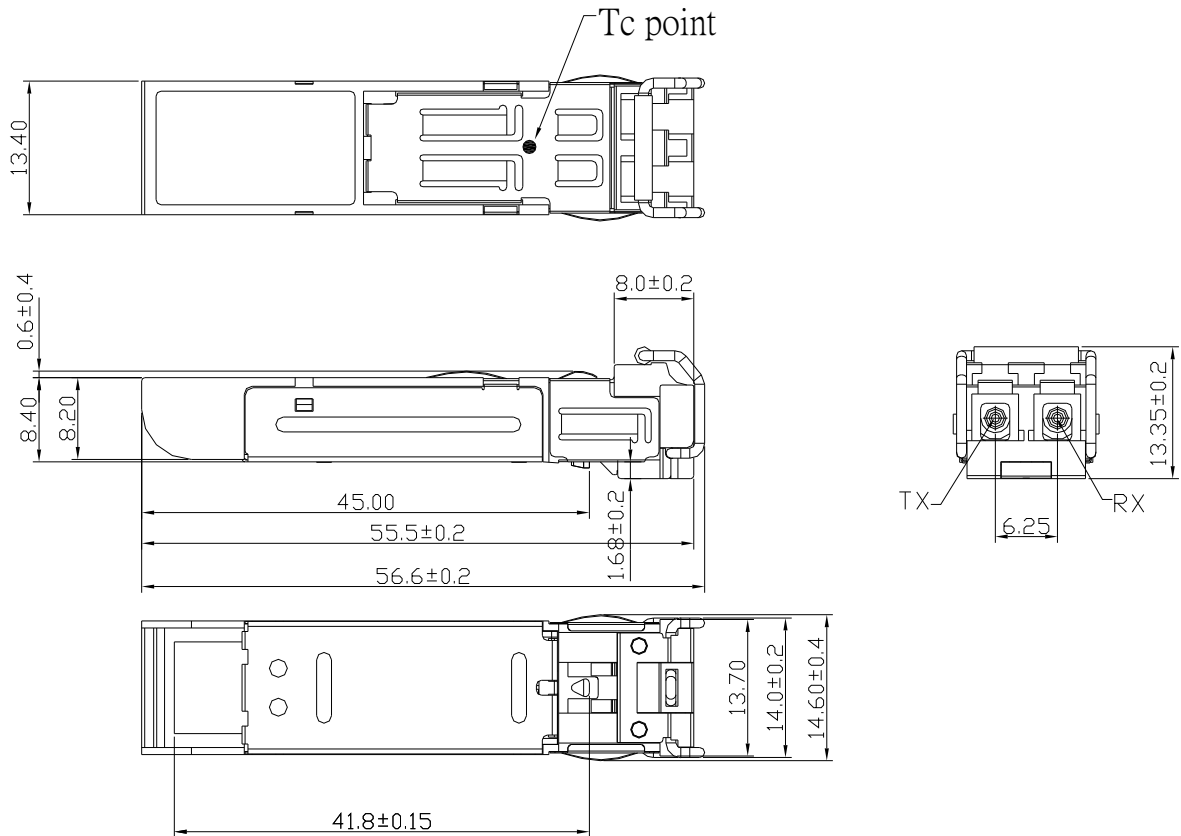
Receiver Electro-optical Characteristics

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Optical Input Power-maximum	P_{IN}	-8	---	---	dBm	PRBS7, BER < 10 ⁻¹⁰
Optical Input Power-minimum (Sensitivity)	P_{IN}	---	---	-32	dBm	PRBS7, BER < 10 ⁻¹⁰
Operating Center Wavelength	λ_C	790	---	870	nm	
LOS-Deasserted	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	



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Dimensions

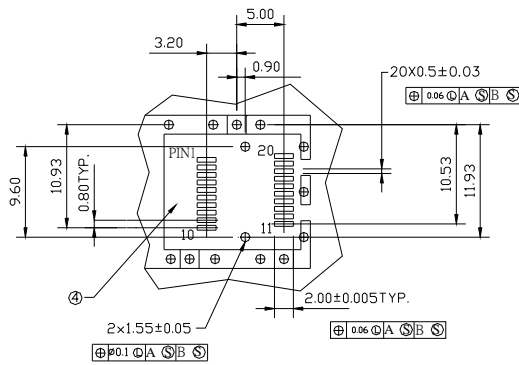
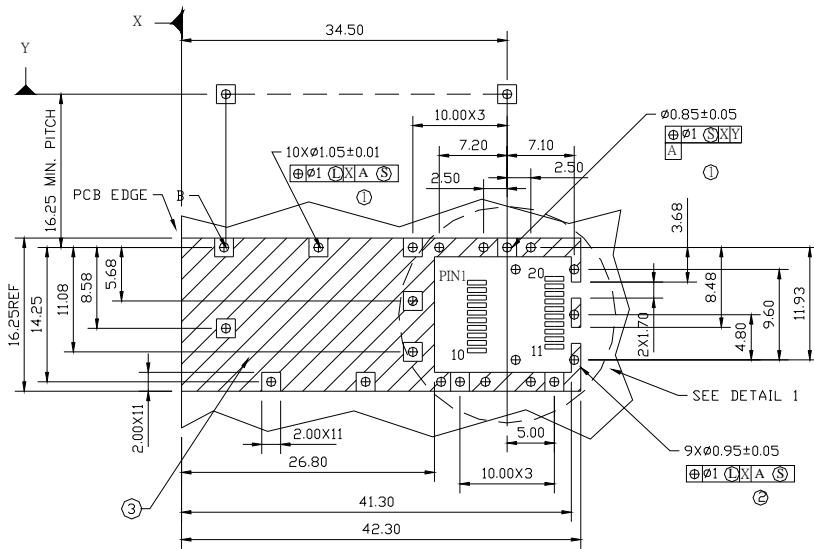


DIMENSIONS ARE IN MILLIMETERS

ALL DIMENSIONS ARE ± 0.1mm UNLESS OTHERWISE SPECIFIED

Unit: mm

SFP host board mechanical layout



DETAIL 1

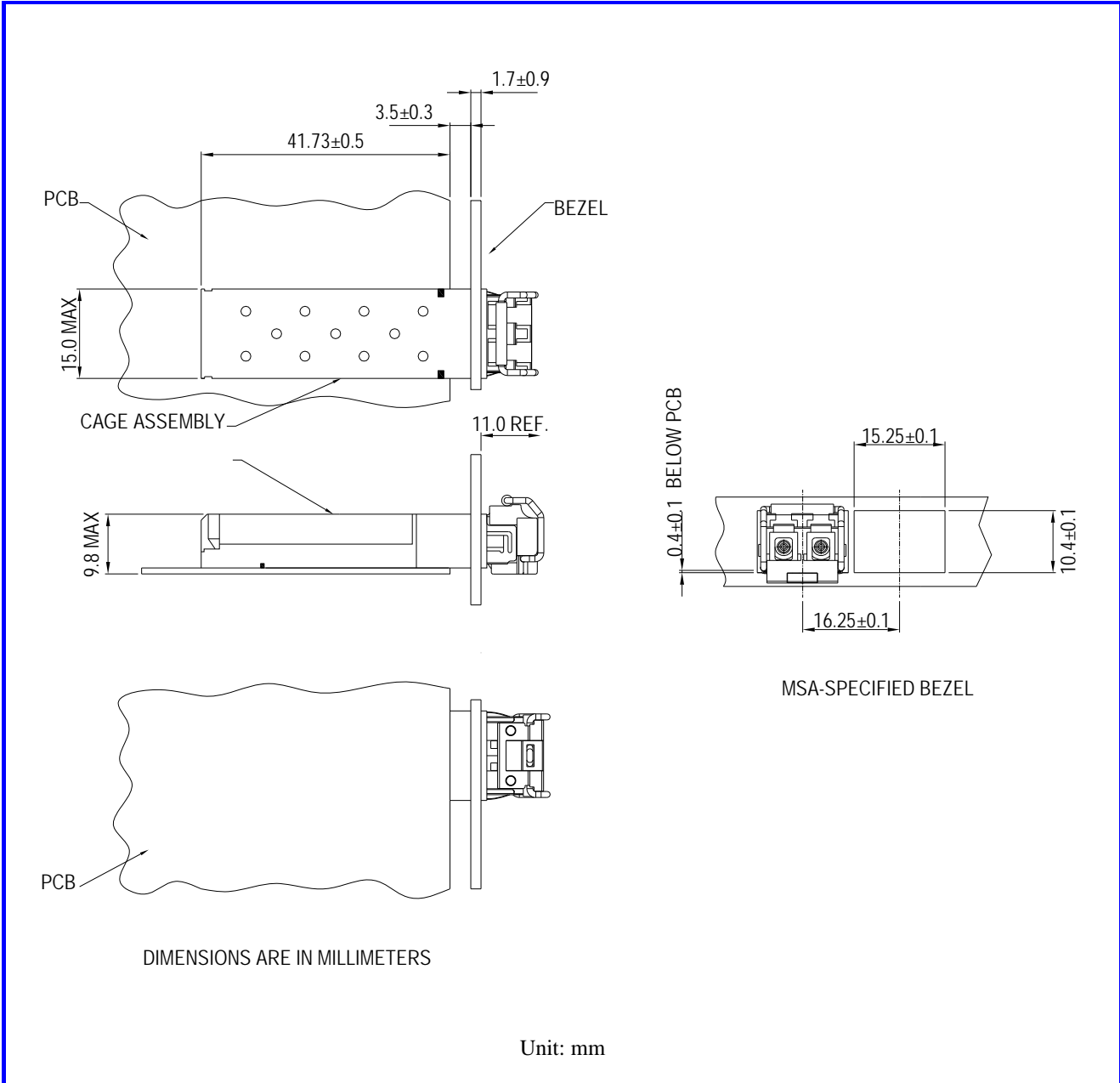
LEGEND

- 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

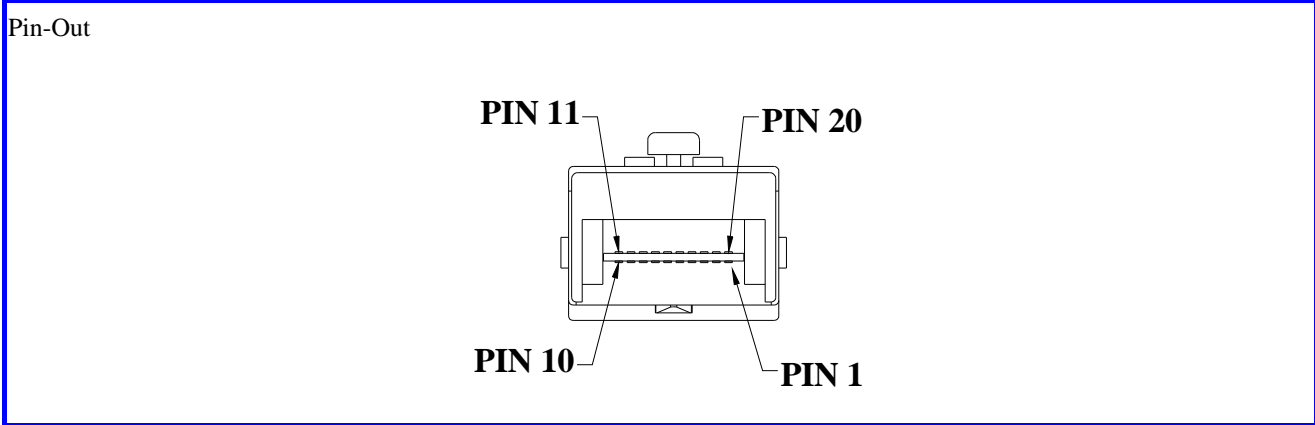
Assembly drawing





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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