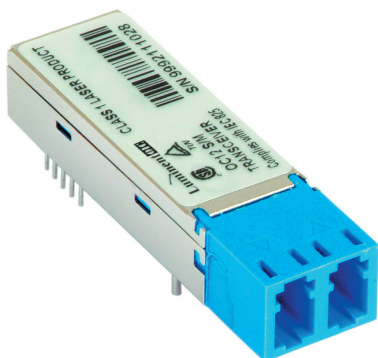


C-13-155-F-SLCx(-55)-G5



Features

- Duplex LC Single Mode Transceiver
- Small Form Factor Multi-sourced 2x5 Pin Package
- Ultra Long reach SONET OC-3/SDH STM-1 Compliant
- Single +3.3V Power Supply
- LVPECL Differential Inputs and Outputs
- LVPECL Signal Detection Output (C-13-155-F-SLCx)
- Temperature Range: -40 to 85 °C [C-13-155-F-SLCxA]
- Class 1 Laser International Safety Standard IEC 825 Compliant
- Solder ability to MIL-STD-883, Method 2003
- Pin coating is Sn/Pb with minimum 2% Pb content
- Flammability to UL94V0
- Humidity RH 5-85% (5-95% short term) to IEC 68-2-3
- Complies with Telcordia(Bellcore) GR-468-CORE
- Uncooled laser diode with MQW structure
- EMI Shielding Finger Optional
- ATM 155 Mbps links
- RoHS compliance

Absolute Maximum Rating

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V_{CC}	0	3.6	V	
Output Current	I_{out}	0	30	mA	
Soldering Temperature	-	-	260	°C	10 seconds on leads only
Operating Temperature	T_{opr}	-40	85	°C	C-13-155-F-SLCxA
Storage Temperature	T_{stg}	-40	85	°C	

Recommended Operating Condition

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Power Supply Voltage	V_{CC}	3.1	3.3	3.5	V	
Operating Temperature (Case)	T_{opr}	-40	-	85	°C	C-13-155-F-SLCxA
Data Rate	-	-	155	-	Mbps	

Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Optical Transmit Power	P_o	-19	-	-12	dBm	C-13-155-F-SLC
Optical Transmit Power	P_o	-15	-	-8	dBm	C-13-155-F-SLC3
Optical Transmit Power	P_o	-5	-	0	dBm	C-13-155-F-SLC5
Output Center Wavelength	λ_p	1261	1310	1360	nm	C-13-155-F-SLC3
Output Center Wavelength	λ_p	1263	1310	1360	nm	C-13-155-F-SLC5
Output Spectrum Width	$\Delta\lambda_{rms}$	-	-	7.7	nm	RMS(σ), C-13-155-F-SLC(3)
Output Spectrum Width	$\Delta\lambda_{rms}$	-	-	3	nm	RMS(σ), C-13-155-F-SLC5
Extinction Ratio	ER	8.2	-	-	dB	C-13-155-F-SLC3
Extinction Ratio	ER	10	-	-	dB	C-13-155-F-SLC5
Output Eye		Compliant with Bellcore GR-253-CORE and ITU recommendation G.957				
Optical Rise Time	t_r	-	-	2	ns	10% to 90% Values
Optical Fall Time	t_f	-	-	2	ns	10% to 90% Values
Relative Intensity Noise	RIN	-	-	-116	dB/Hz	
Total Jitter	TJ	-	-	1.2	ns	Measured with 2 ²³ -1 PRBS with 72 ones and 72 zeros.

C-13-155-F-SLCx(-55)-G5

Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Electrical						
Power Supply Current	I_{CC}	-	-	180	mA	Maximum current is specified at V_{CC} = Maximum @ maximum temperature
Transmitter Enable Voltage	V_{EN}	0	-	0.8	V	
Transmitter Disable Voltage	V_D	2	-	V_{CC}	V	
Data Input Current-Low	I_{IL}	-200	-	-	μ A	
Data Input Current-High	I_{IH}	-	-	200	μ A	
Data Input Voltage-Low	$V_{IL-V_{CC}}$	-2.0	-	-1.58	V	These inputs are compatible with 10K, 10KH and 100K ECL and PECL inputs
Data Input Voltage-High	$V_{IH-V_{CC}}$	-1.1	-	-0.74	V	

Receiver Specifications

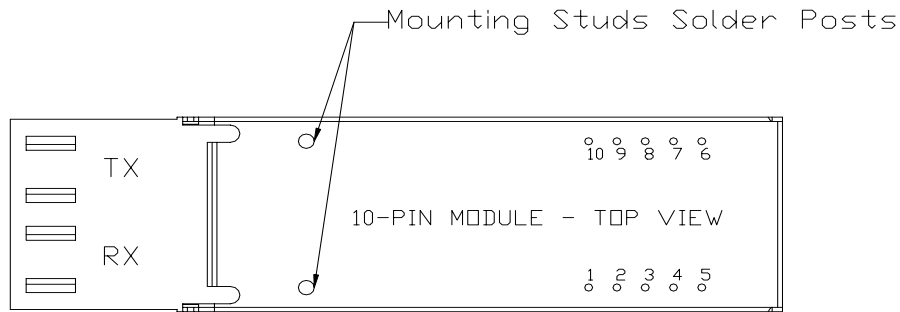
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Sensitivity ¹	-	-	-	-30	dBm	C-13-155-F-SLC
Sensitivity ¹	-	-	-	-34	dBm	C-13-155-F-SLC3
Sensitivity ¹	-	-	-	-35	dBm	C-13-155-F-SLC5
Maximum Input Power	P_{in}	-7	-	-	dBm	C-13-155-F-SLC(3)
Maximum Input Power	P_{in}	-3	-	-	dBm	C-13-155-F-SLC5
Signal Detect-Asserted	P_a	-	-	-30	dBm	C-13-155-F-SLC Measured on transition: low to high
Signal Detect-Asserted	P_a	-	-	-34	dBm	C-13-155-F-SLC(3) Measured on transition: low to high
Signal Detect-Asserted	P_a	-	-	-35	dbm	C-13-155-F-SLC5 Measured on transition: low to high
Signal Detect-Deasserted	P_d	-48	-	-	dBm	Measured on transition: high to low
Signal Detect-Hysteresis		1	-	4	dB	
Wavelength of Operation		1100	-	1600	nm	

Note1: Measured with $2^{23}-1$ PRBS/BER= 10^{-10}

Receiver Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Note
Electrical						
Power Supply Current	I_{CC}	-	-	100	mA	The current excludes the output load current
Data Output Voltage-Low	$V_{OL-V_{CC}}$	-2.0	-	-1.58	V	These outputs are compatible with 10K, 10KH and 100KECL and LVPECL outputs
Data Output Voltage-High	$V_{OH-V_{CC}}$	-1.1	-	-0.74	V	
Signal Detect Output Voltage-Low	$V_{SDL-V_{CC}}$	-2.0	-	-1.58	V	
Signal Detect Output Voltage-High	$V_{SDH-V_{CC}}$	-1.1	-	-0.74	V	

Connection Diagram



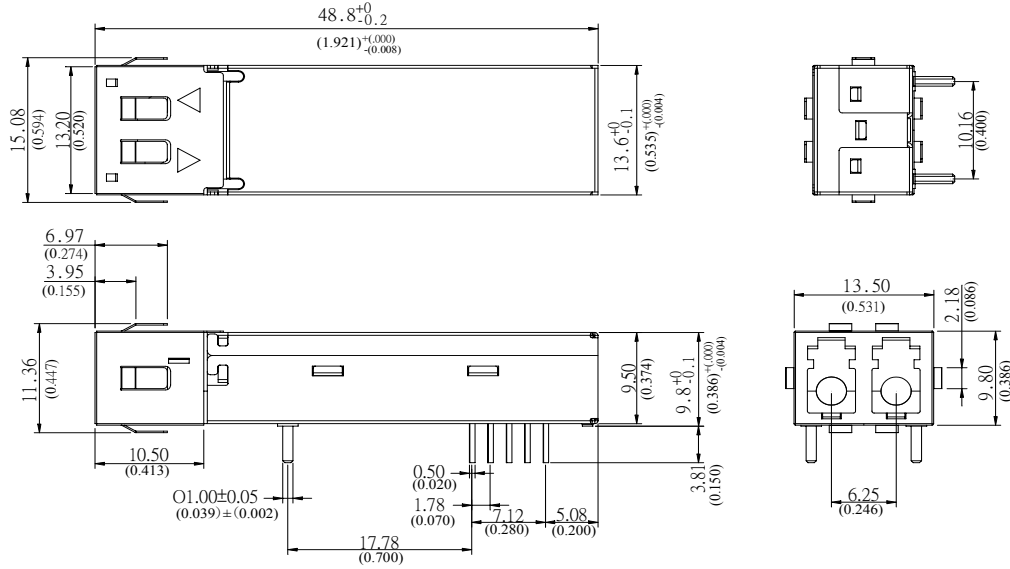
PIN	Symbol	Notes
1	RxGND	Directly connect this pin to the receiver ground plane
2	RxVcc	+3.3V dc power for the receiver section
3	SD	Active high on this indicates a received optical signal(LVPECL/LVTTL)
4	RD-	Receiver Data Out Bar (LVPECL)
5	RD+	Receiver Data Out (LVPECL)
6	TxVcc	+3.3V dc power for the trasmitter section
7	TxGND	Directly connect this pin to the transmitter ground plane
8	TxDIS	Transmitter disable (LVTTL)
9	TD+	Transmitter Data In (LVPECL)
10	TD-	Transmitter Data In Bar (LVPECL)
Attaching Posts		The attaching posts are at case potential and may be connected to chassis ground. They are isolated from circuit ground.

C-13-155-F-SLCx(-55)-G5

Package Diagram

C-13-155-F-SLCx(A)S-55-G5

Units: mm (inches)



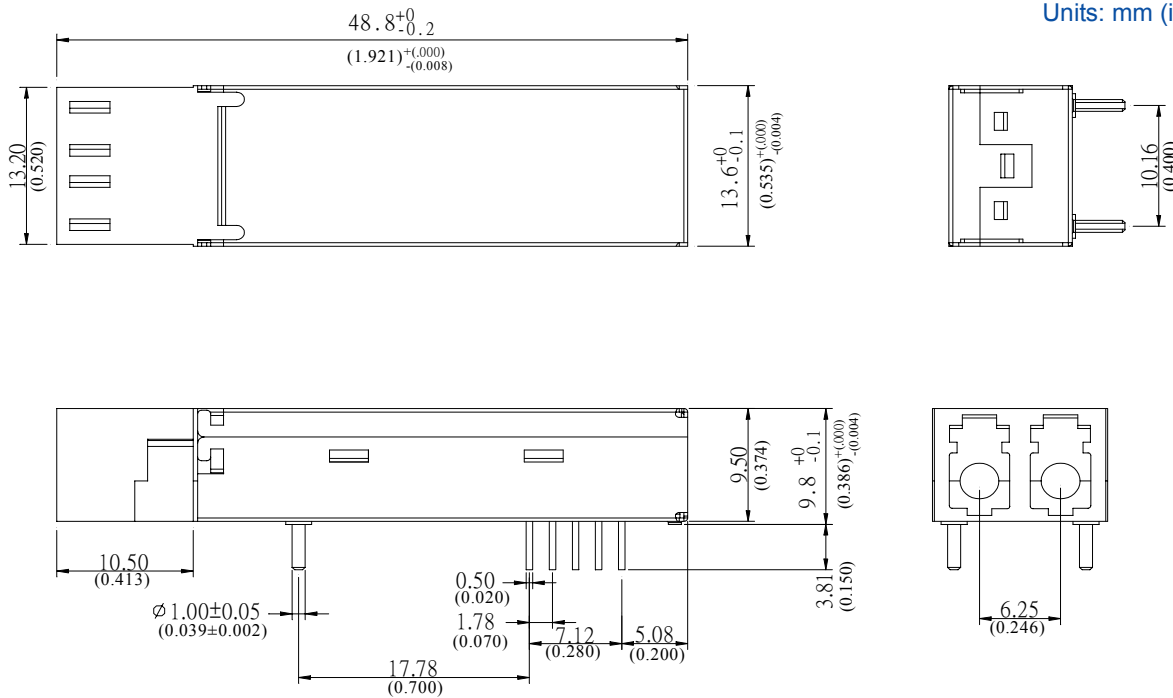
Case with metal shielding finger

C-13-155-F-SLCx(-55)-G5

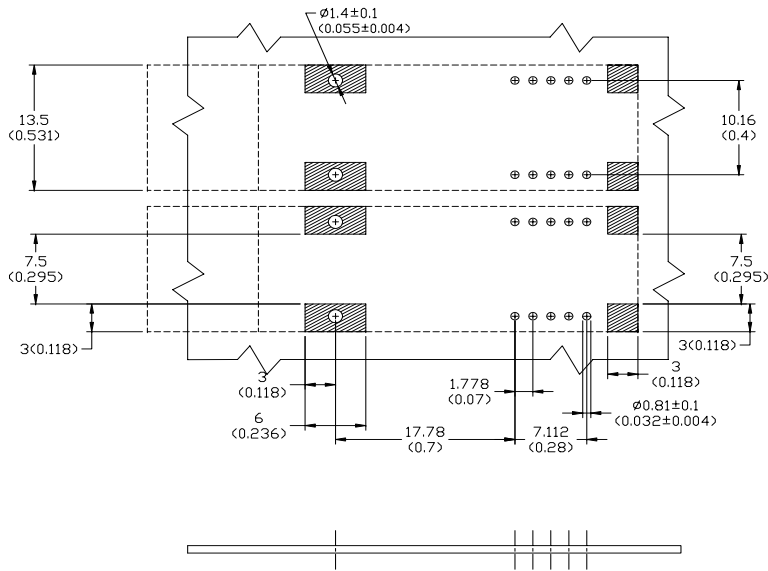
Package Diagram

C-13-155-F-SLCx(A)-55-G5

Units: mm (inches)



Recommended Board Layout Hole Pattern

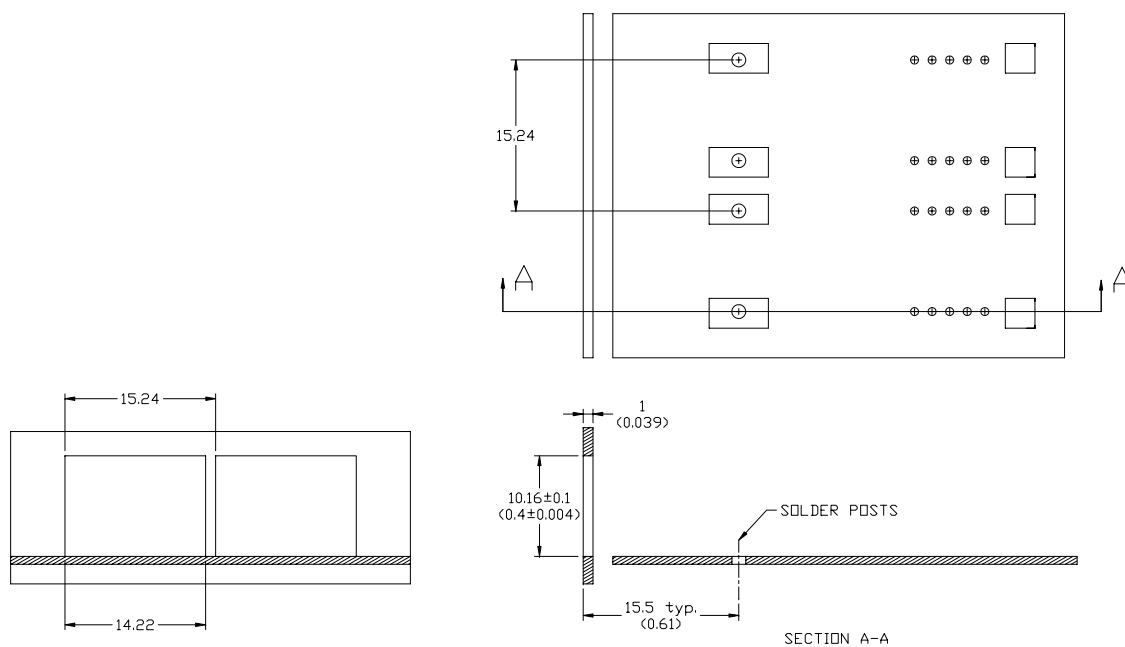


DIMENSION IN MILLIMETER (INCHES)

NOTES:

1. THIS FIGURE DESCRIBE THE RECOMMAND CIRCUIT BOARD LAYOUT FOR THE SFF TRANSCEIVER.
2. THE HATCHED AREAS ARE KEEP-OUT AREAS RESERVED FOR HOUSING STANDOFF. NO METAL TRACES OR GROUND CONNECTION IN KEEP-OUT AREAS.
3. THE MOUNTING STUDS SHOULD BE SOLDERED TO CHASSIS GROUND FOR MECHANICAL INTEGRITY.

Recommended Panel mounting



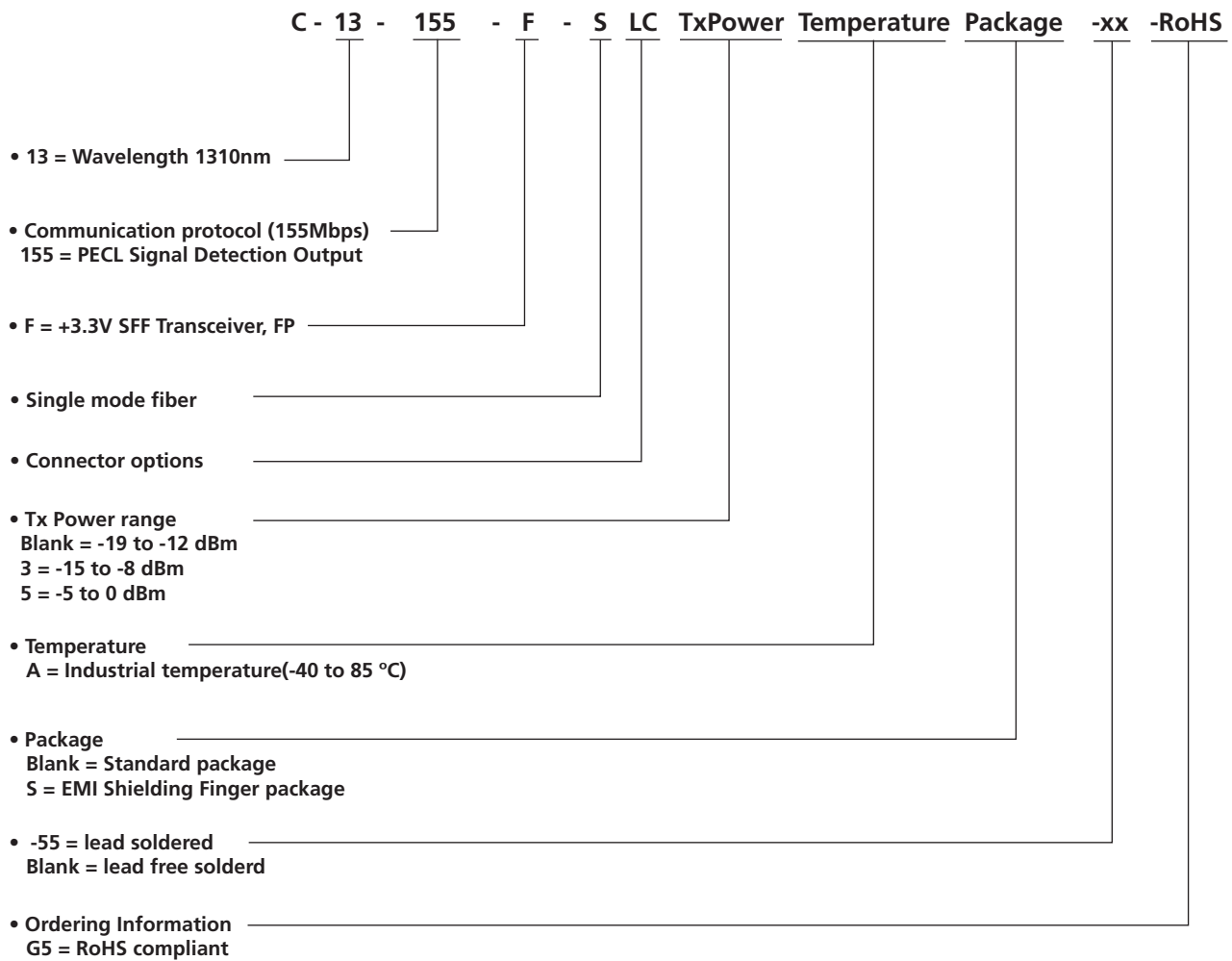
DIMENSION IN MILLIMETER (INCHES)

Ordering Information

Available Options:

C-13-155-F-SLC3A-G5	C-13-155-F-SLC3AS-55-G5
C-13-155-F-SLCAS-G5	C-13-155-F-SLCAS-55-G5
C-13-155-F-SLC5AS-G5	C-13-155-F-SLC5AS-55-G5

Part numbering Definition:



Warnings:

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

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