

## C-13-622(C)-F-SLC(A)-(-55)-G5



### Features

- Duplex LC Single Mode Transceiver
- Small Form Factor Multi-sourced 2 x 5 Pin Package
- Complies with ITU-T/STM-4, OC-12
- 1310nm Wavelength, FP Laser
- Single +3.3V Power Supply
- LVPECL Differential Inputs and Outputs
- LVTTTL Signal Detection Output (C-13-622C-F-SLC(A)-55-G5)
- LVPECL Signal Detection Output (C-13-622-F-SLC(A)-55-G5)
- 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 Bell core GR-468-CORE
- Uncooled laser diode with MQW structure
- ATM 622 Mbps Links application
- SONET/SDH Equipment Interconnect application
- RoHS compliant

### 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	$T_{opr}$	0	70	°C	
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)	$T_{opr}$	0	-	70	°C	C-13-622(C)-F-SLC(-55)-G5
Operating Temperature (Case)	$T_{opr}$	-40	-	85	°C	C-13-622(C)-F-SLCA(-55)-G5
Data Rate	-	-	622	-	Mbps	

### Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Optical</b>						
Optical Transmit Power	$P_o$	-15	-	-8	dBm	
Output center Wavelength	$\lambda_p$	1274	1310	1356	nm	
Output Spectrum Width	$\Delta\lambda_{rms}$	-	-	2.5	nm	RMS( $\sigma$ )
Extinction Ratio	ER	8.2	-	-	dB	
Output Eye	Compliant with ITU-T G.957/STM-4 Eye Mask					
Optical Rise Time	$t_r$	-	-	1.2	ns	10% to 90% Values
Optical Fall Time	$t_f$	-	-	1.2	ns	10% to 90% Values
Relative Intensity Noise	RIN	-	-	-120	dB/Hz	
Total Jitter	TJ	-	-	0.55	ns	Measured with 2 <sup>23</sup> -1 PRBS with 72 ones and 72 zeros.

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## Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Electrical</b>						
Supply Current	$I_{CC}$	-	-	160	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	-	-	$\mu$ A	
Data Input Current-High	$I_{IH}$	-	-	200	$\mu$ 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	

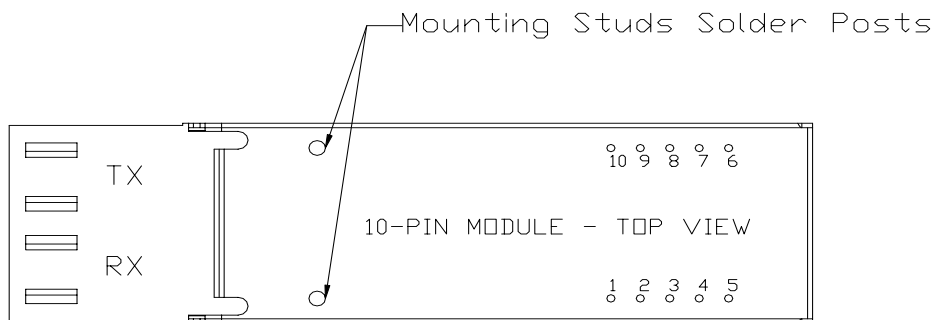
## Receiver Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Optical</b>						
Sensitivity	-	-	-	-28	dBm	Measured with 23-1 PRBS, BER=10 <sup>-10</sup>
Maximum Input Power	$P_{in}$	-3	-	-	dBm	
Signal Detect-Asserted	$P_a$	-	-	-28	dBm	Measured on transition: low to high
Signal Detect-Deasserted	$P_d$	-40	-	-	dBm	Measured on transition: high to low
Signal Detect-Hysteresis		1	-	5	dB	
Wavelength of Operation		1100	-	1600	nm	

## Receiver Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Note
<b>Electrical</b>						
Supply Current	$I_{CC}$	-	-	120	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 PECL 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	

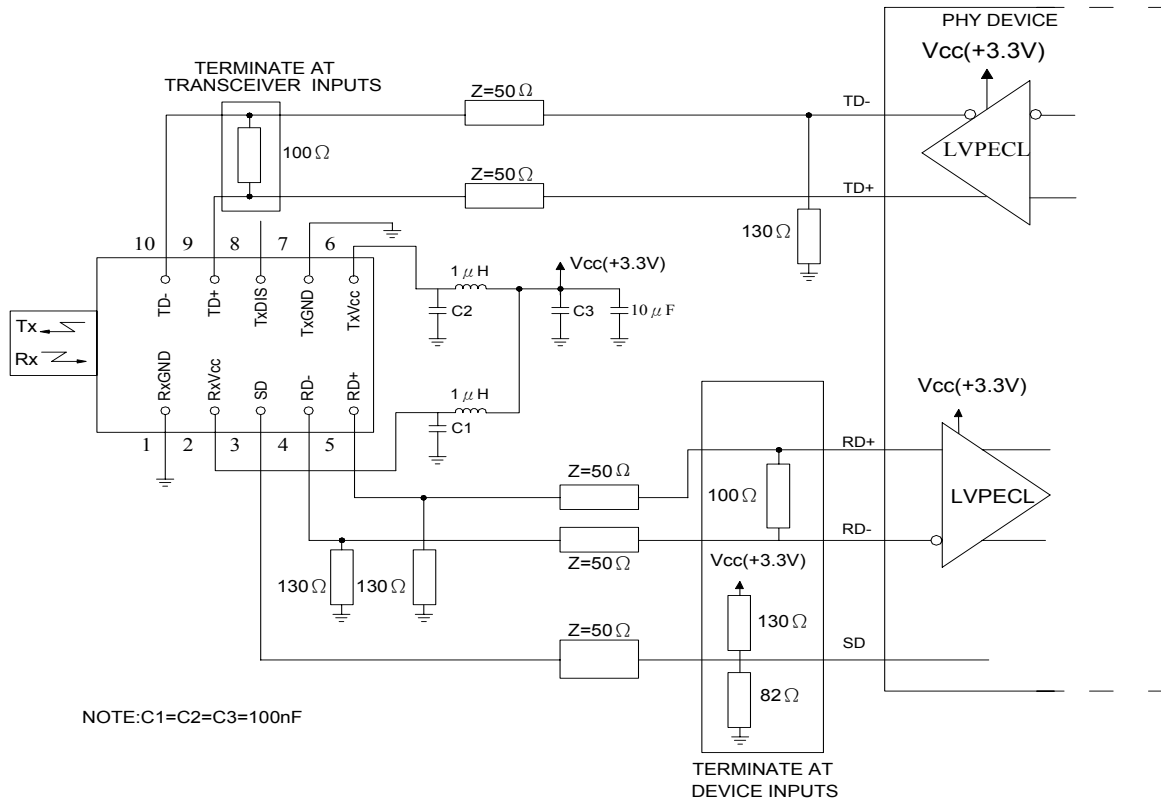
Connection Diagram



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)
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 (LVTTTL)
9	TD+	Transmitter Data In (LVPECL)
10	TD-	Transmitter Data In Bar (LVPECL)
<b>Attaching Posts</b>		The attaching posts are at case potential and may be connected to chassis ground. They are isolated from circuit ground.

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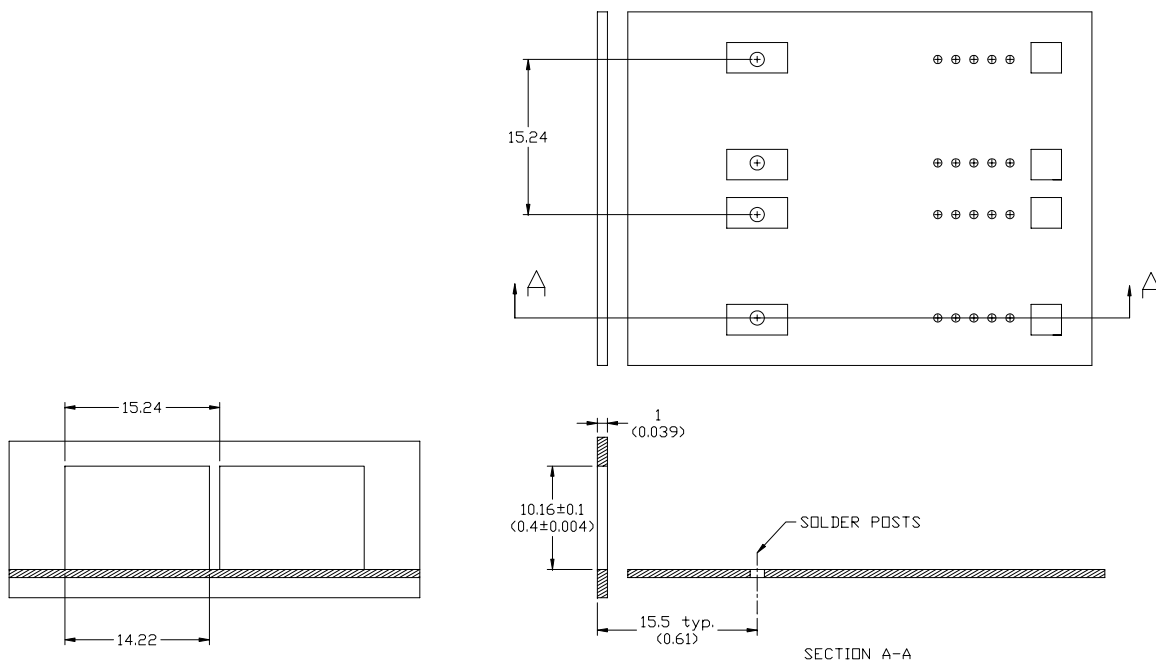
Recommended Circuit Schematic



The split-loaded terminations for ECL signals need to be located at the input of devices receiving those ECL signals. The power supply filtering is required for good EMI performance. Use short tracks from the inductor L1/L2 to the module Rx Vcc. A GND plane under the module is required for good EMI and sensitivity performance.



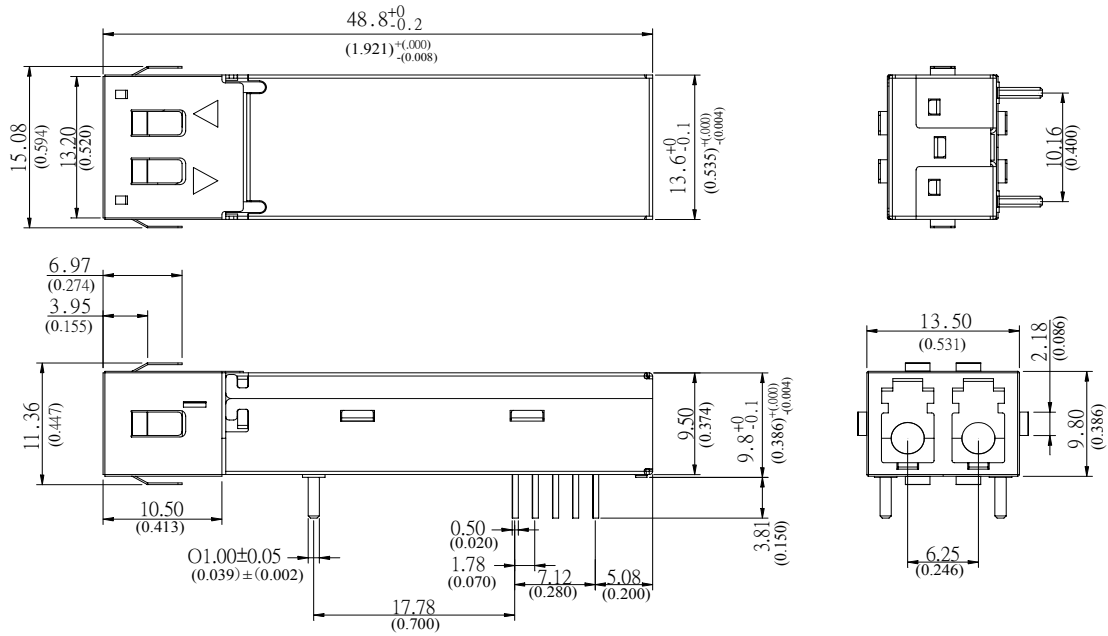
Recommended Panel mounting



DIMENSION IN MILLIMETER (INCHES)

C-13-622(C)-F-SLC(A)-(-55)-G5

Package Diagram



### Ordering Information

**Available Options :**

C-13-622-F-SLC-G5	C-13-622-F-SLC-55-G5
C-13-622C-F-SLC-G5	C-13-622C-F-SLC-55-G5
C-13-622-F-SLCA-G5	C-13-622-F-SLCA-55-G5
C-13-622C-F-SLCA-G5	C-13-622C-F-SLCA-55-G5

**Part numbering Definition:**

**C - 13 - 622(C) - F - S LC TxPower Temperature Range -xx -RoHS**

- 13 = Wavelength 1310nm
- Communication protocol (622 Mbps)  
622 = PECL Signal Detection Output  
622C = TTL Signal Detection Output
- F = +3.3V SFF Transceiver, FP
- Single mode fiber
- Connector options
- Tx Power range  
Blank = -15 to -8 dBm
- Temperature range  
Blank = commercial temperature(0 to 70 °C)  
A = industrial temperature(-40 to 85 °C)
- -55 = lead soldered  
Blank = lead free solderd
- Ordering Information  
G5 = RoHS compliant



**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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