C-13-155-F-SLCxA



Features

- Duplex LC Singlemode Transceiver
- Small Form Factor Multi-sourced 2 x 5 Pin Package
- Intermediate and Long reach SONET OC-3/ SDH STM-1 Compliant
- Single +3.3 V Power Supply
- LVPECL Differential Inputs and Outputs
- Temperature Range: -40 to +85°C
- Class 1 Laser International Safety Standard IEC 825 Compliant
- Solderability 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 Bellcore TA-NWT-000983
- Uncooled laser diode with MQW structure

Application

- ATM 155 Mbps Links
- SONET/SDH Equipment Interconnect

Absolute Maximum Ratings						
Parameter	Symbol	Min	Max	Unit	Notes	
Supply Voltage	V _{cc}	0	3.6	V		
Data Input Voltage	-	GND	V_{cc}	V		
Output Current	I _{out}	0	30	mΑ		
Soldering Temperature	-	-	260	°C	10 seconds on leads only	
Operating Temperature	T _{opr}	-40	+85	°C	icado emp	
Storage Temperature	Tstg	-40	+85	°C		

Recommended Operating Conditions						
Parameter	Symbol	Min	Тур	Мах	Unit	
Supply Voltage	V _{cc}	3.1	3.3	3.5	V	
Operating Temperature	T _{opr}	-40	-	+85	°C	
Data Rate			155	-	Mbps	

Transmitter Specifications (-40°C < T _{opr} < 85°C, 3.1 V < V _{cc} < 3.5 V)								
Parameter	Symbol	Min	Тур	Max	Unit	Note		
Optical								
Optical Transmit Power								
C-13-155-F-SLC3A	Po	-15	-	-8	dBm	Output power is coupled into a 9/125 μm singlemode fiber		
C-13-155-F-SLC5A	Po	-5	-	0	dBm	Output power is coupled into a 9/125 μ m singlemode fiber		
Output Center Wavelength								
C-13-155-F-SLC3A	λ	1261		1360	nm			
C-13-155-F-SLC5A	λ	1280		1335	nm			
Output Spectrum Width								
C-13-155-F-SLC3A	$\Delta\lambda_{rms}$	-	-	7.7	nm	RMS		
C-13-155-F-SLC5A	$\Delta\lambda_{rms}$	-	-	4	nm	RMS		
Extinction Ratio	E _R	8.2	-	-	dB			
Output Pulse Mask	Compliant with FDDI SMF-PMD1							
Output Eye	Compliant with Bellcore TR-NWT-000253 and ITU recommendation G.957							
Optical Rise Time	t _r			2	ns	10%-90% Values		
Optical Fall Time	t _f			2	ns	10%-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.		
Electrical								
	I _{cc}			150	mA	Maximum current is specified at V _{cc} =Maximum		
Power Supply Current						@maximum temperature.		
Transmit Enable Voltage	V _{FN}	0		0.8	V			
Transmitter Disable Voltage	V _D	V _{cc} -1.3		V _{cc}	V			
Data Input Current-Low	I _{IL}	-200			μΑ			
Data Input Current-High	I _{IH}			200	μΑ			
Data Input Voltage-Low	$V_{IL}-V_{CC}$	-1.98		-1.71	V	These inputs are compatible with 10K, 10KH and		
Data Input Voltage-High	$V_{IH}-V_{CC}$	-1.1		-0.91	V	100K ECL and LVPECL inputs.		

C-13-155-F-SLCxA

Receiver Specifications (-40°C < T _{opr} < 85°C, 3.1V < V _{cc} < 3.5 V)							
Parameter	Symbol	Min	Тур	Мах	Unit	Notes	
Optical							
Sensitivity	-	-	-	-30	dBm	Measured with 2 ²³ -1 PRBS with 72 ones and 72 zeros. (CCITT recommendation G.958)	
Maximum Input Power	P _{in}	-7	-	-	dBm		
Signal Detect – Asserted	Pa	-	-	-30	dBm	Measured on transition: low to high	
Signal Detect –Deasserted	P _d	-47	-	-	dBm	Measured on transition: high to low	
Signal detect –Hysteresis		1.0	-	4.0	dB		
Wavelength of Operation		1100	-	1600	nm		
Electrical							
Power Supply Current	I _{cc}		-	100	mA	The current excludes the output load current	
Data output Voltage—Low	V _{OL} -V _{CC}	-1.98	-	-1.71	V		
Data output Voltage—High	Vон-Vсс	-1.1	-	-0.91	V	These outputs are compatible with 10K ,	
Signal Detect Output Voltage—Low	Vsdl-Vcc	-1.98	-	-1.71	V	10KH and 100K ECL and LVPECL outputs.	
Signal Detect Output Voltage—High	Vsdl-Vcc	-1.1	-	-0.91	V		

Pin	Symbol	Unit
1	RxGND	Directly connect this pin to the receiver ground plane
2	$R_x V_{cc}$	+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	T _x V _{cc}	+3.3V dc power for the transmitter section
7	T _x GND	Directly connect this pin to the transmitter ground plane
8	T _x DIS	Transmitter disable (LVTTL)
9	TD+	Transmitter Data In (LVPECL)
10	TD-	Transmitter Data In Bar (LVPECL)

Connection Diagram



Recommended Circuit Schematic



The split-load 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 $R_X V_{CC}$ and $T_X V_{CC}$. A GND plane under the module is required for good EMI and sensitivity performance.



C-13-155-F-SLCxA



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.

Legal Notice

IMPORTANT NOTICE!

All information contained in this document is subject to change without notice, at Luminent's sole and absolute discretion. Luminent warrants performance of its products to current specifications only in accordance with the company's standard one-year warranty; however, specifications designated as "preliminary" are given to describe components only, and Luminent expressly disclaims any and all warranties for said products, including express, implied, and statutory warranties, warranty information, fitness for a particular purpose, and non-infringement of proprietary rights. Please refer to the company's Terms and Conditions of Sale for further warranty information.

Luminent assumes no liability for applications assistance, customer product design, software performance, or infringement of patents, services, or intellectual property described herein. No license, either express or implied, is granted under any patent right, copyright, or intellectual property right, and Luminent makes no representations or warranties that the product(s) described herein are free from patent, copyright, or intellectual property rights. Products described in this document are NOT intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. Luminent customers using or selling products for use in such applications do so at their own risk and agree to fully defend and indemnify Luminent for any damages resulting from such use or sale.

THE INFORMATION CONTAINED IN THIS DOCUMENT IS PROVIDED ON AN "AS IS" BASIS. Customer agrees that Luminent is not liable for any actual, consequential, exemplary, or other damages arising directly or indirectly from any use of the information contained in this document. Customer must contact Luminent to obtain the latest version of this publication to verify, before placing any order, that the information contained herein is current.

© Luminent, Inc. 2002 All rights reserved