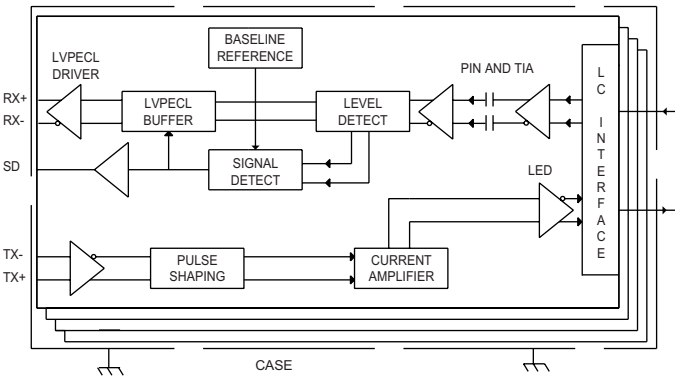
R14G-LP11xx FOUR PORT RJ FORMAT OPTICAL TRANSCEIVER

3.3 Volt, LVPECL, 1310nm LED
Multimode, up to 2.0Km
Fast Ethernet, OC-3 and STM-1 applications

FEATURES

- Compliant with ITU-T Recommendations G.957 / 8
- Duplex Multimode LC receptacle at each port
- Compliant with Bellcore / Telcordia GR - 253
- Wave solder and aqueous wash compatible
- Front panel chassis grounding springs
- Single +3.3 V power supply per port
- IEC 825 / CDRH Class 1 compliant
- Compliant with ANSI T1.15.06-1996
- LVPECL signal detect function
- Compliant with IEEE 802.3u

BLOCK DIAGRAM



APPLICATIONS

The R14G-LP11xx multimode glass optical fiber transceivers provide low profile, cost effective solutions for Fast Ethernet, OC-3 or STM-1 applications (up to 2.0 Km) multimode glass optical fiber data links.

These transceivers are fully compliant with the ITU-T, IEEE, Bellcore / Telcordia and ANSI standards but they can be used for any other data communications purpose within their operating parmeters

DESCRIPTION

The R14G-LP11xx fiber optic transceivers consist of transmitter and receiver functions combined in a four port RJ Format “harmonica” module. The optical transmitters are high ouput 1310nm LED’ s. The transmitter input lines are driven with differential LVPECL signals applied to the Transmit (TX+ and TX-) pins. These signals are internally converted to a suitable modulation current by a CMOS integrated circuit.

The optical receivers consist of PIN and Preamplifier assemblies and CMOS limiting post-amplifier integrated circuits. Outputs from the receivers consist of differential LVPECL data signals on the Receive (RX+ and RX-) pins and single ended LVPECL signal detect functions on the Signal Detect (SD) pins.

ORDERING INFORMATION

R	1	4	G	-	L	P	1	1	x	x
Form Factor	Mounting Option		Protocol Application		Transmitter Wavelength	Signal Detect	Power Supply	Fiber Type / Reach	PCB Tail Length	Operating Temperature
R= RJ Format	1= Single Row	4= Four Port	G= Fast Ethernet / OC-3 / STM-1		L= 1310nm	P= LVPECL	1= 3.3V	1= Multimode 2.0 Km	‘blank’ = 0.125” / 3.2mm	‘blank’ = 0° to +70°C
									L = 0.18” / 4.6mm	H = -40° to +85°C

R	1	4	G	-	L	P	1	1	_	_

STRATOS Lightwave™

TDS-150-001
April 6, 2002

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Web Page: www.stratoslightwave.com

ABSOLUTE MAXIMUM RATINGS

Absolute maximum limits mean that no catastrophic damage will occur if the product is subjected to these ratings for short periods, provided each limiting parameter is in isolation and all other parameters have values within the performance specification. It should not be assumed that limiting values of more than one parameter can be applied to the product at the same time.

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Storage Temperature	T_S	-55		+100	°C
Lead Soldering Temperature	T_{SOLD}			+260	°C
Lead Soldering Time	t_{SOLD}			10	Seconds
Supply Voltage	V_{CC}	-0.5		+4.5	V
Data Input Voltage	V_I	-0.5		V_{CC}	V
Differential Input Voltage (p-p)	V_D			2.0	V
Output Current	I_O			50	mA

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating Temperature Limit Part Number xxxx-xxxx (Commercial Temp) Part Number xxxx-xxxxH (Industrial Temp)	T_A	 0 -40		 +70 +85	°C
Supply Voltage	V_{CC}	+3.135		+3.465	V
TX Common Mode Voltage	V_{CM}		2.00		V
TX Differential Input Voltage (p-p)	V_D	0.35		1.25	V
RX Data Output Load	R_L		50		Ohms

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TRANSMITTERS

VCCTX = 3.00V to 3.6V, T_A = Operating Temperature Range

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Output Power[1]	P_o	-19		-14	dBm
Optical Output Center Wavelength	λ_{OUT}	1263	1310	1360	nm
Spectral Width $\Delta\lambda_{RMS}$ $\Delta\lambda_{FWHM}$				 63 147	nm
Extinction Ratio	ER	10			dB
Supply Current	I_{CC}		120	160	mA
Optical Rise / Fall Time (10 - 90%)	$t_{R,F}$			3.0	ns

1. BER=10^{-10} @ 155.52Mbps, PRBS 2^{23-1}, NRZ, Compliant with Telcordia GR-253 and ITU recommendations G.957 and G.958

RECEIVERS

VCCTX = 3.0V to 3.6V, T_A = Operating Temperature Range

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Sensitivity[1]	P_I	-32		-8	dBm
Optical Input Wavelength	λ_{IN}	1261		1380	nm
Supply Current	I_{CC}		70	120	mA
Signal Detect Assert Time	t_{SDAS}		<10	100	µS
Signal Detect Deassert Time	t_{SDDA}		<10	350	µS
Signal Detect Threshold Decreasing Light Increasing Light	 LSTD LSTI	 -45.0 -45.0		 -32.5 -32.0	 dBm dBm
Signal Detect Hysteresis	HYS	0.5	2.25	3.5	dB
RX Data Output - Low	V_{OL} - V_{CC}	-1.810		-1.475	V
RX Data Output - High	V_{OH} - V_{CC}	-1.165		-0.880	V

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REGULATORY COMPLIANCE

Requirement	Feature	Condition	Notes
MIL-STD-883-3015.7	ESD	Class II	2200V
IEC-801-2	ESD	Human Body Model	25KV
IEC-801-3	EMI	Immunity	10V/M
FCC	EMI	Class B	>20dB
EN 55022 (CISPR 22A)	EMI	Class B	10V/M
IEC-825 Issue 1993-11	Eye Safety	Class 1	TUV Certificate Number R 2171005
FDA CDRH 21-CFR 1040	Eye Safety	Class 1	CDRH Accession Number 9930009

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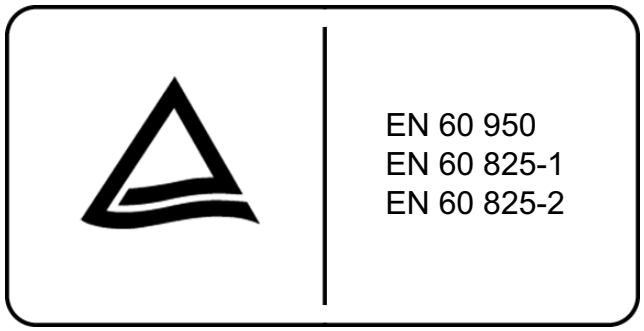

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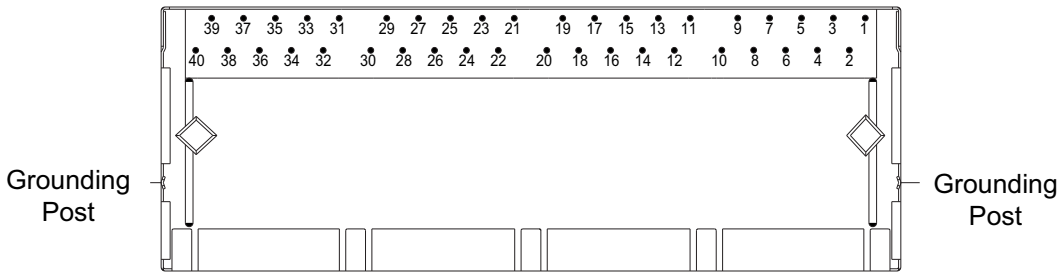
PIN NUMBER ASSIGNMENTS

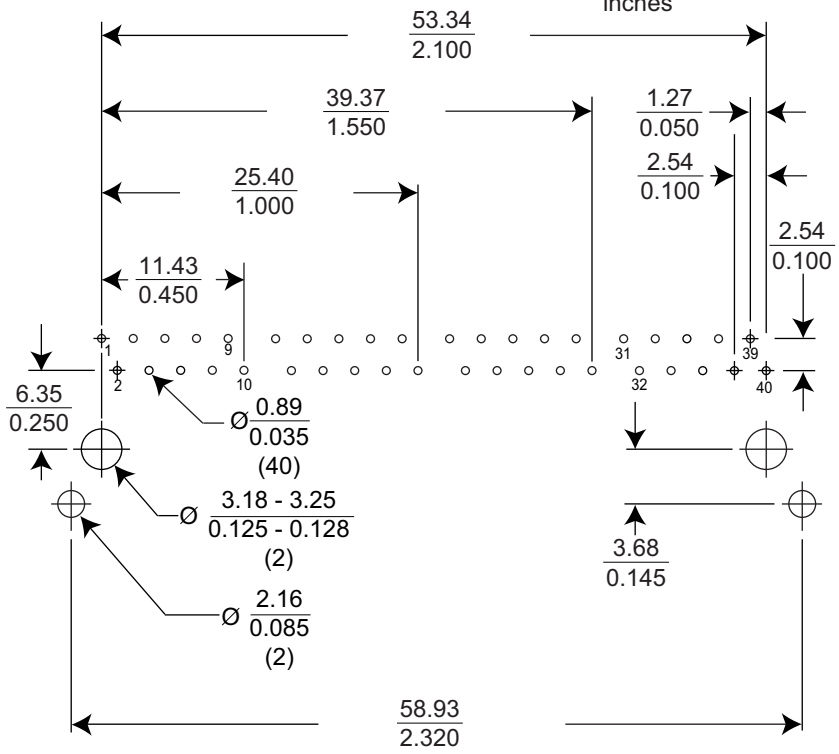
Bottom View of Component



RECOMMENDED PCB HOLE LAYOUT

Top Side View

Dimensions Are Shown As: mm / inches



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PIN FUNCTIONS

Pin Number	Symbol	Description	Logic Family
GP	GP	Grounding Posts Connect to signal ground	N/A
1, 11, 21, 31	TD+	Transmitter DATA In	LVPECL
2, 12, 22, 32	VEETX	Transmitter Signal Ground	N/A
3, 13, 23, 33	TD–	Transmitter DATA In	LVPECL
4, 14, 24, 34	VCCTX	Transmitter Power Supply	N/A
5, 15, 25, 35	SD	Signal Detect Satisfactory Optical Input: Logic “1” Output Fault Condition: Logic “0” Output	LVPECL
6, 16, 26, 36	N/C	N/C	N/A
7, 17, 27, 37	RD–	Receiver DATA Out	LVPECL
8, 18, 28, 38	VCCRX	Receiver Power Supply	N/A
9, 19, 29, 39	RD+	Receiver DATA Out	LVPECL
10, 20, 30, 40	VEERX	Receiver Signal Ground	N/A

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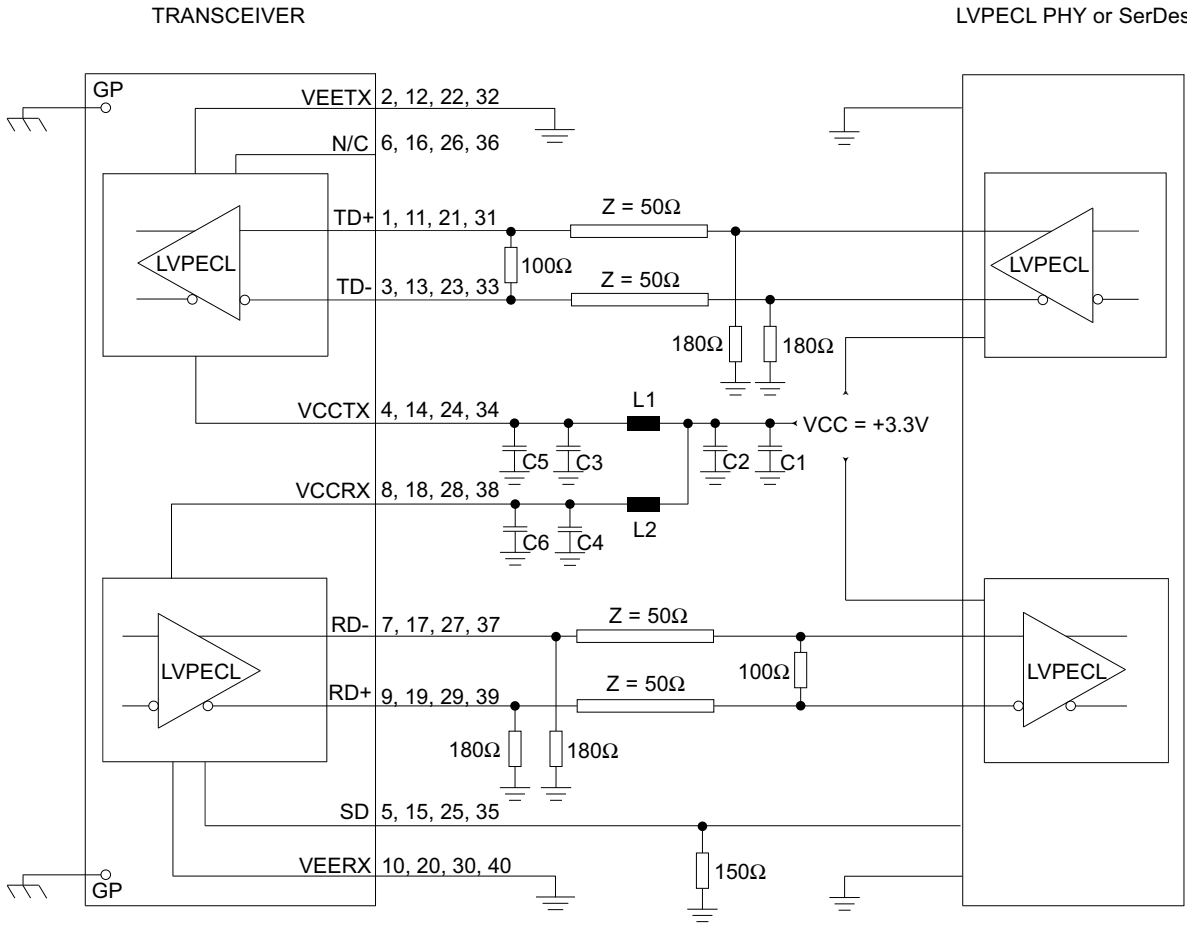
TRANSCEIVER APPLICATION SCHEMATIC

For Interface To +3.3V DC Coupled LVPECL Circuits

Each R14G series unit consists of 4 individual transceivers, as such, all termination components and VCC filtering must be duplicated for each port



L1, L2= MuRata BLM21A601S or equivalent (600Ω@100MHz or better)
C1, C3, C4= 10.0µF
C2, C5, C6= 0.01µF

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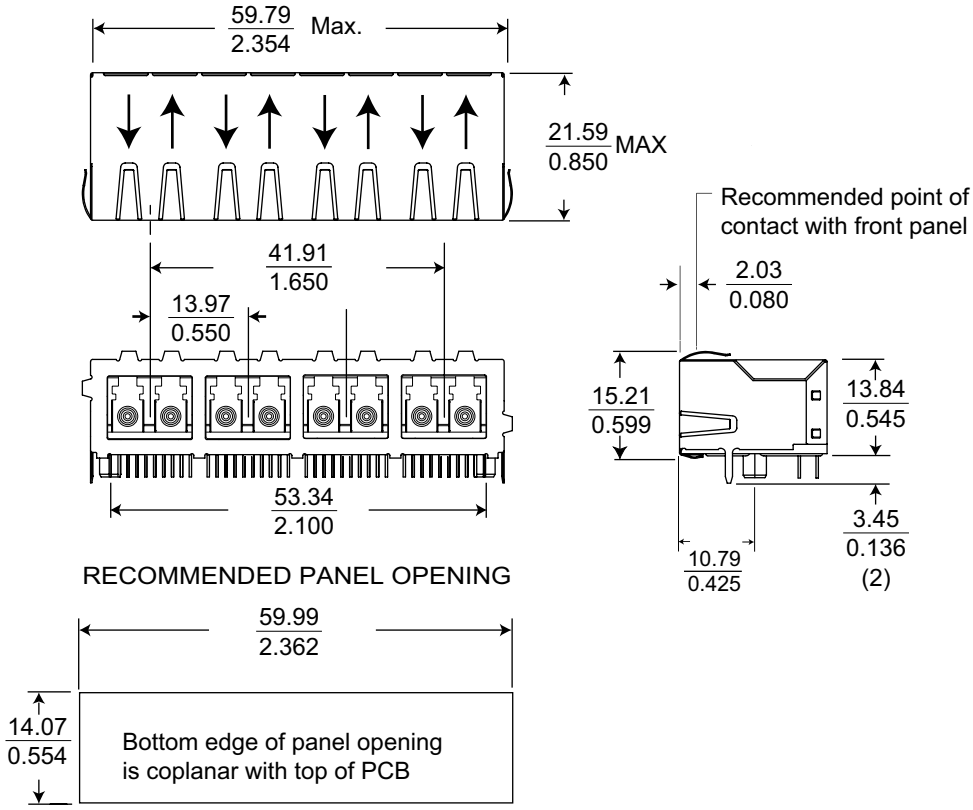
QUAD PORT RJ FORMAT TRANSCEIVER OUTLINE DRAWING

Dimensions Shown As: mm / inches



IMPORTANT NOTICE

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