



SF3-LT11x Small Form Factor Optical Fiber Transceivers

**3.3 Volt, 1310nm Laser, Multimode, up to
350 Meters, up to 700 MBaud**

FEATURES

- Optimized for single mode glass optical fiber cables
- Differential LVPECL data inputs and outputs
- Metal shield with integral chassis ground
- LVTTTL signal detect and transmit disable
- Mounts on 0.55" front panel centerlines
- Multisourced 2 x 5 transceiver footprint
- PCI Mezzanine Card height compliant
- Solder and aqueous wash compatible
- IEC 825 / CDRH Class 1 compliant
- Extended temperature range option
- Duplex LC single mode receptacle
- Single +3.3 V power supply

ORDERING INFORMATION

Application	Description	Part Number
ATM OC-12	0 to +70° C	SF3-LT11S
ATM OC-12	-40 TO +85° C	SF3-LT11H

APPLICATIONS

The SF3-LT11x multimode glass optical fiber transceivers provide low profile, cost effective solutions for ATM OC-12 (up to 700 Megabaud, up to 350 meters) multimode glass optical fiber data links.

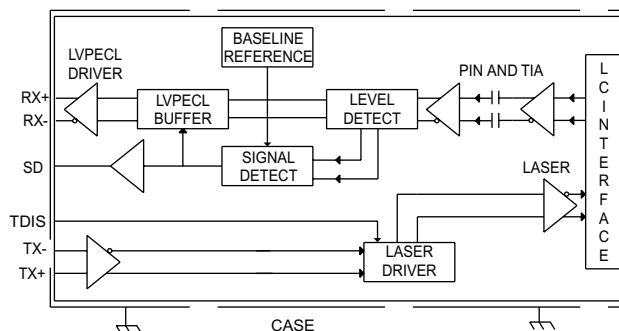
These transceivers are fully compliant with the IEEE, ATM and ANSI standards but they can be used for any other data communications purpose within their operating parameters.

DESCRIPTION

The SF3-LT11x fiber optic transceivers consist of transmitter and receiver functions combined in a multisourced 2 x 5 SFF transceiver module. The optical transmitter is a 1310nm Fabry-Perot laser. The transmitter input lines are driven with LVPECL signals applied to the Transmit (TD+ and TD-) pins. The optical transmitter can be disabled by applying an LVTTTL signal to the Transmit Disable (TDIS) pin.

The optical receiver consists of a PIN + preamplifier assembly and a limiting post-amplifier integrated circuit. Outputs from the receiver consist of LVPECL data signals on the Receive (RD+ and RD-) pins and a single ended LVTTTL signal detect function on the Single Detect (SD) pin.

BLOCK DIAGRAM



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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		6.0	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 Temp. Limit: xxx-xxxxS	T_A	0		+70	° C
Operating Temp. Limit: xxx-xxxxH	T_A	-40		+85	° C
Supply Voltage	V_{CC}	+3.135		+3.465	V
Data Input Voltage - Low	$V_{IL} - V_{CC}$	-1.810		-1.475	V
Data Input Voltage - High	$V_{IH} - V_{CC}$	-1.165		-0.880	V
Data Output Load	R_L		50		Ohms
Differential Input Voltage (p-p)	V_D	0.800			V



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TRANSMITTERS

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Baud Rate		100		700	MBaud
Optical Output Power	P_O	-19		-14	dBm
Optical Output Wavelength	λ_{OUT}	1261	1310	1360	nm
Extinction Ratio	ER	8.2			dB
Supply Current	I_{CC}		120	160	mA
Power Dissipation	P_{DISS}		0.40	0.53	W
Optical Rise Time (10%-90%)	t_R			1.25	nS
Optical Fall Time (10%-90%)	t_F			1.25	nS

RECEIVERS

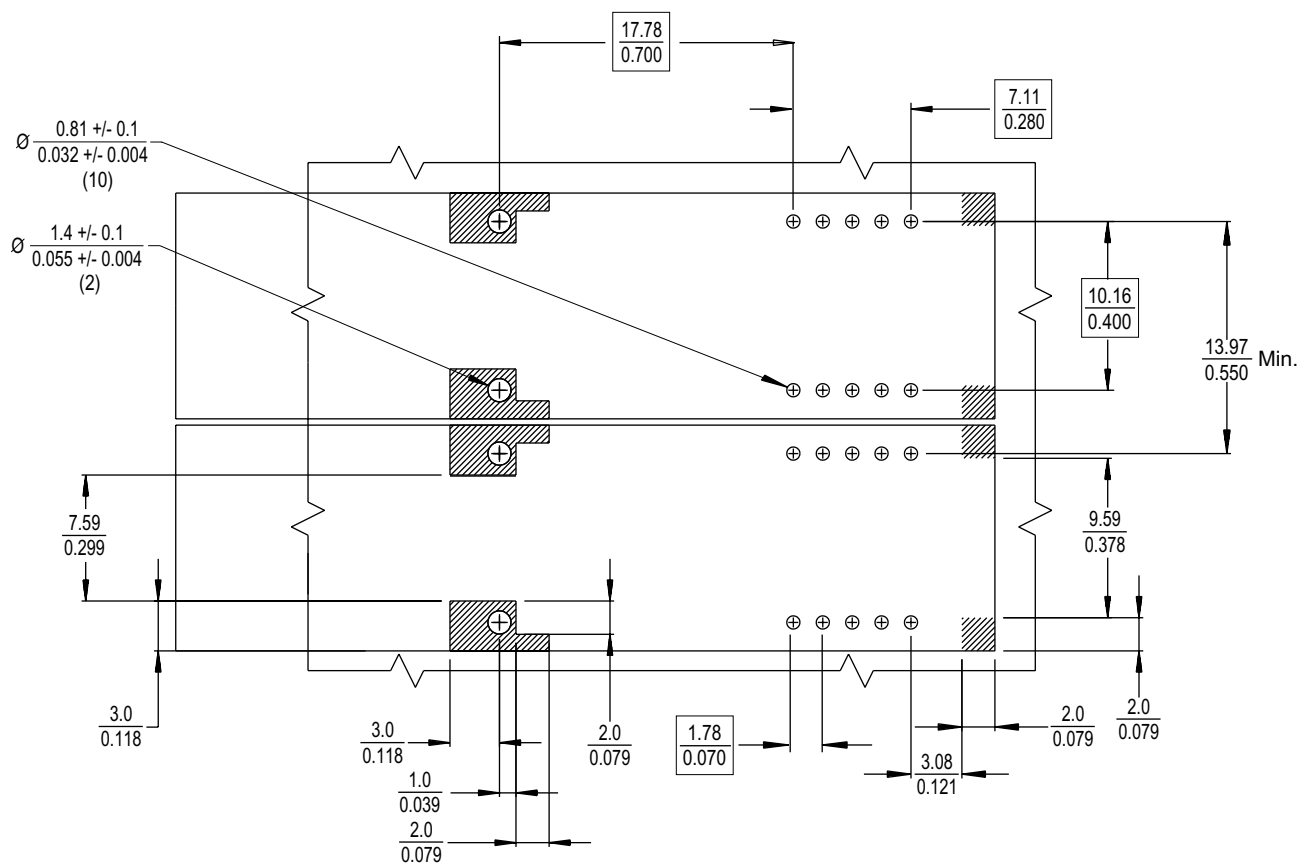
Parameter	Symbol	Minimum	Typical	Maximum	Unit
Baud Rate		100		700	MBaud
Optical Wavelength	λ_{IN}	1261		1380	nM
Optical Sensitivity	P_I	-28		-8	dBm
Supply Current	I_{CC}		70	120	mA
Power Dissipation	P_{DISS}		0.23	0.40	W
Signal Detect Assert Time			<10	100	μ S
Signal Detect Deassert Time			<10	350	μ S

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TRANSCEIVER PRINTED CIRCUIT BOARD LAYOUT
PER 1997 MULTISOURCE AGREEMENT

Component Side Shown
Dimensions Are Shown As: $\frac{\text{mm}}{\text{inches}}$



CROSS-HATCHED AREAS SHOULD HAVE NO SIGNAL TRACES ON THE TOP LAYER

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Optical Fiber Transceivers

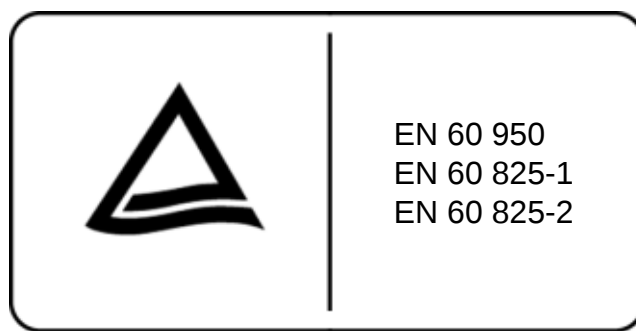
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REGULATORY COMPLIANCE

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	>20dB
FCC	EMI	Class B	10V/M
EN 55022 (CISPR 22A)	EMI	Class B	>20dB
IEC-825 Issue 1993-11	Eye Safety	Class 1	



UL / CSA File Number: E209124



TUV File Number: R2071012



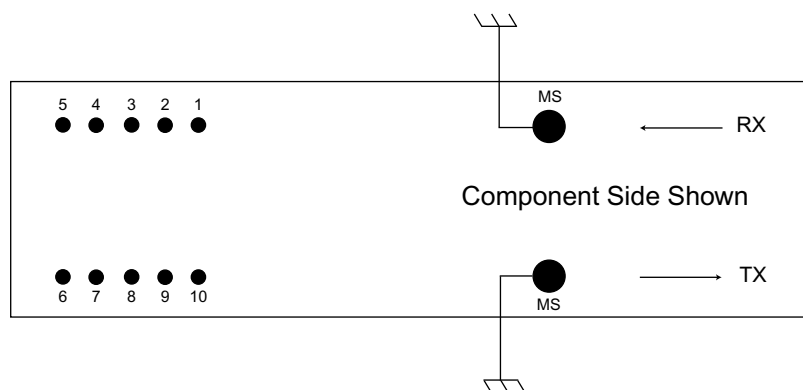
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SMALL FORM FACTOR TRANSCEIVER PIN ASSIGNMENTS

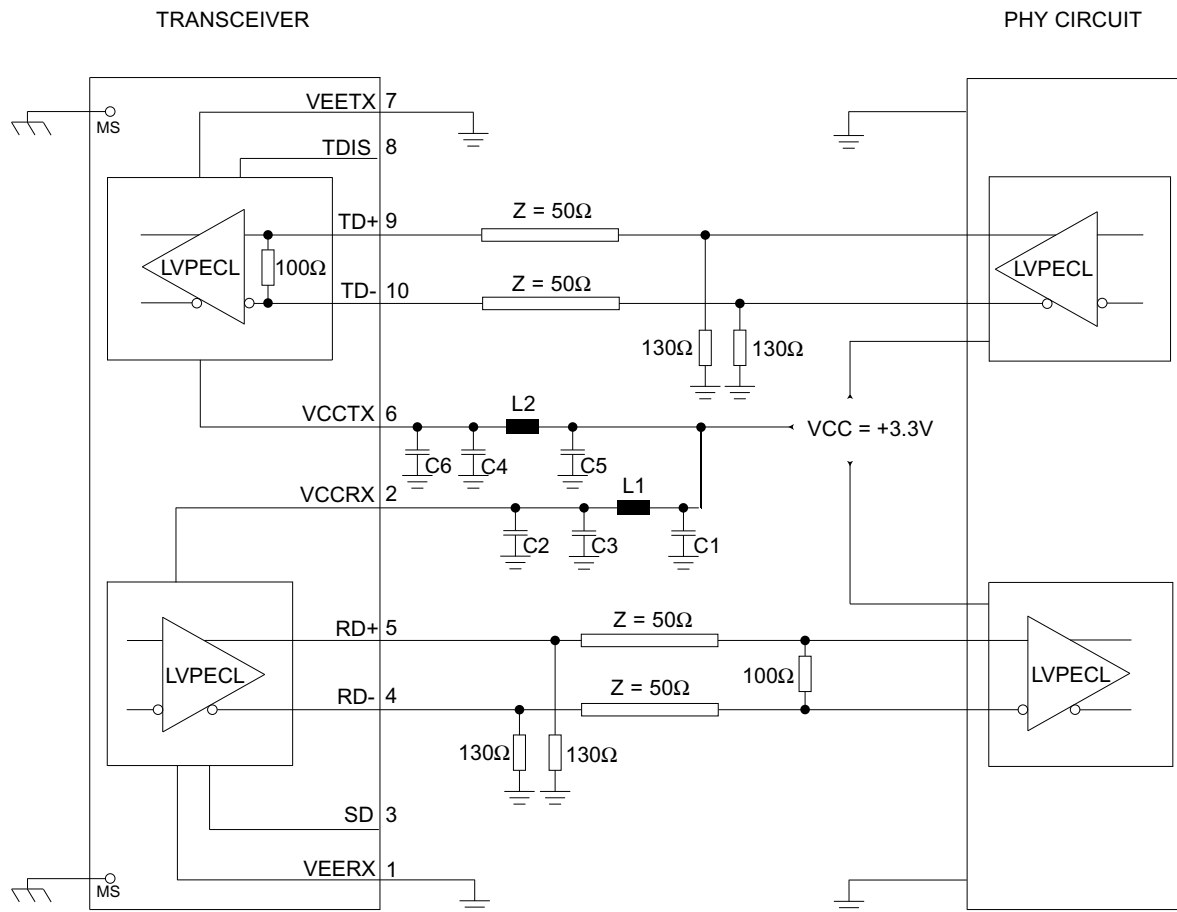


Pin Number	Symbol	Description	Logic Family
MS	MS	Mounting Studs <i>Connect to Chassis Ground</i>	N/A
1	VEERX	Receiver Signal Ground	N/A
2	VCCR _X	Receiver Power Supply	N/A
3	SD	Signal Detect <i>Normal Operation: Logic "1" Output</i> <i>Fault Condition: Logic "0" Output</i>	LVTTTL
4	RD ₋	Receiver DATA Out	LVPECL
5	RD ₊	Receiver DATA Out	LVPECL
6	VCCT _X	Transmitter Power Supply	N/A
7	VEET _X	Transmitter Signal Ground	N/A
8	TDIS	Transmitter Diabie <i>Transmitter Enabled: $VEETX < V < -(VEETX+0.8)$ or open circuit</i> <i>Transmitter Disabled: $VCCTX-1.5 < V < VCCTX$</i>	LVTTTL
9	TD ₊	Transmitter DATA In	LVPECL
10	TD ₋	Transmitter DATA In	LVPECL

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TRANSCEIVER APPLICATION SCHEMATIC For Interface To +3.3V LVPECL Circuits



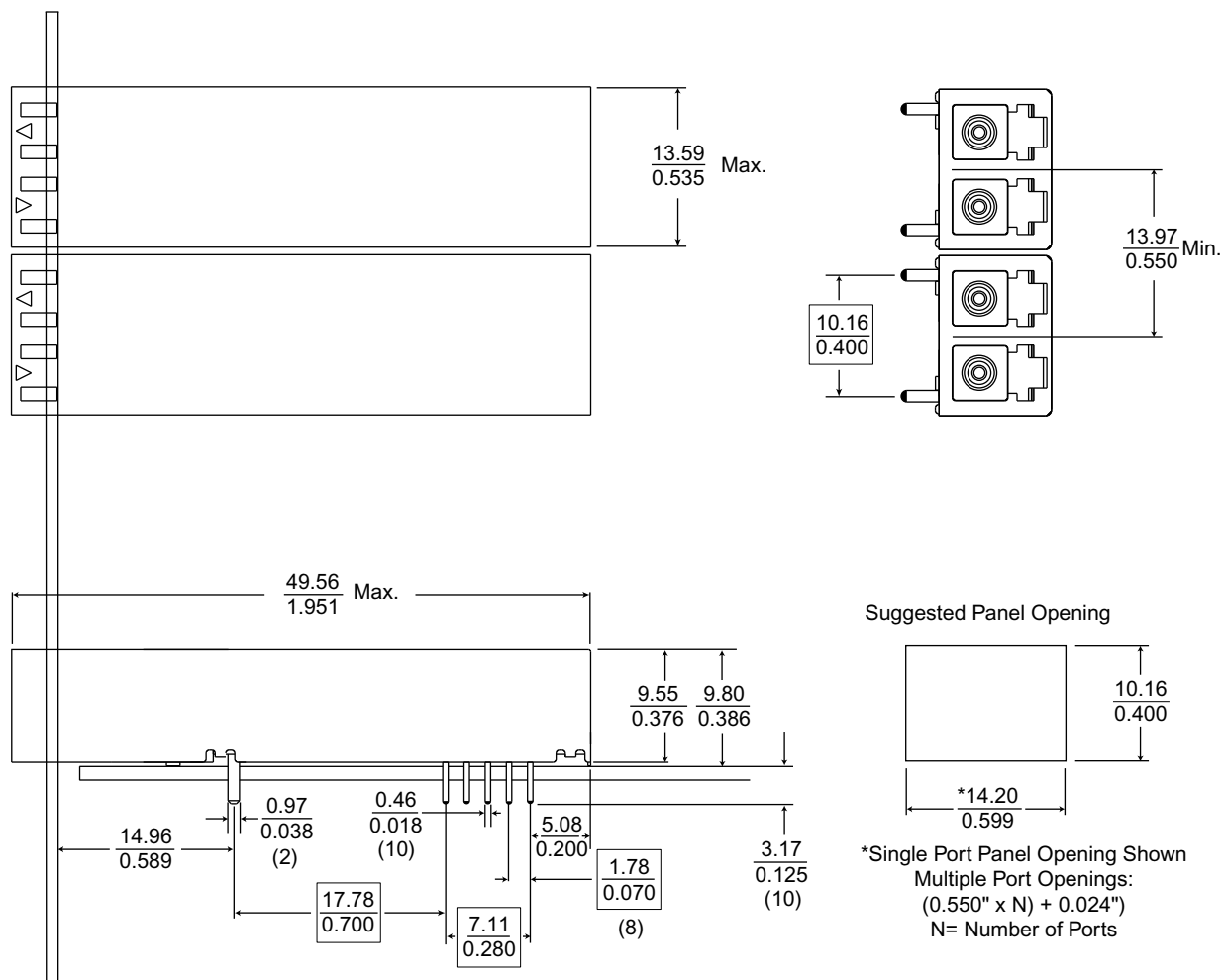
L1, L2 = 1μH to 4.7μH*
C1, C2, C6 = 10nF
C3, C4, C5 = 4.7μF to 10μF
* Or ferrite bead alternative

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SMALL FORM FACTOR OUTLINE DIMENSIONS PER 1997 MULTISOURCE AGREEMENT

Dimensions Are Shown As: $\frac{\text{mm}}{\text{inches}}$



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