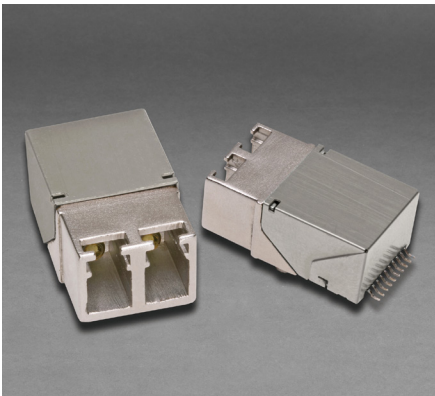


RAZOR SERIES

PCB MOUNTED DUPLEX OPTICAL TRANSMITTERS, ARINC 818 AND sFPDP APPLICATIONS, MULTIMODE, 850 NM



Razor series optical fiber transmitters consist of optoelectronic transmitter functions integrated into a printed circuit board mounted Duplex LC compliant receptacle connector. The optical transmitters are 850 Nm VCSEL lasers. The transmitter input lines are driven with differential CML signals applied to the transmitter (TX+ and TX-) lines. Dual loop, temperature compensated, VCSEL drivers convert the transmitter input signals to suitable VCSEL bias and modulation currents.

The electrical interface to the Razor optical transmitters is a solder pin header with a 10 position SMT / PCB footprint compatible with the industry standard mounting requirements.

PCB MOUNTED DUPLEX OPTICAL TRANSMITTERS, ARINC 818 AND sFPDP APPLICATIONS, MULTIMODE, 850 NM

Duplex Optical Transmitter Unit

Two TX Channels Operating from 125 Mbps to 4.25 Gbps

FEATURES

- Compliant with sFPDP and ARINC 818 data links
- Optical fiber link distances up to 550 Meters (50/125 μ 500MHz*Km MMF)
- Maximum optical channel bit error rate less than 1×10^{-12}
- Operating temperature range from -40° to +85° C
- Nickel plated brass shell meets stringent corrosion performance requirements
- Die cast housings are strong, durable and light weight
- Duplex LC compliant optical fiber connector interface
- Threaded PCB retention features provide secure mounting in high shock and vibration environments

APPLICATIONS

Razor series printed circuit board mounted optical transceivers enable high speed network communications over long distances in harsh environments.

- ARINC 818 video displays
- sFPDP data links
- Camera interfaces

The multimode optical fiber interface supports applications where copper cable link distance, bandwidth, weight or bulk make the use of twisted pair, twinax or quadrx copper conductors unacceptable.

ORDERING INFORMATION

Application	Part Number
Transceiver @ 0.125 - 4.25Gbps	R25N-2T1G

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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
Supply Voltage	V_{cc}	-0.5		+4.5	V
TX_DIS Input Voltage	V_I	-0.5		$V_{cc} + 0.5$	V

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating Temperature	T_A	-40		+85	°C
Power Supply Voltage	V_{cc}	+3.135		+3.465	V
Power Supply Noise (p-p)	N_p			200	mV
TX Differential Input Voltage (p-p)	V_D	0.35		1.25	V

ENVIRONMENTAL OPERATING CONDITIONS

Requirement	Feature	Condition	Notes
RTCA / D0-160E	ESD	HBM	2200V
RTCA / D0-160E	Damp Heat	10 Cycles	24 Hours
EIA-455-25	Mating Durability	500 Cycles	<0.5dB Change
FDA / CDRH / IEC-825-1	Eye Safety	Class 1	No Safety Interlocks Required

MATERIALS

Item	Detail	Notes
Razor Shell	Nickel Plated Steel	
Razor Body	Zamak 5	
Solder Pins	Brass	
Solder Pin Plating	Gold over Nickel	
Alignment Sleeves	Composite Polymer	
Printed Circuits	Polyimide / FR-4	
PCB Conformal Coating	Type AR	MIL-I-46058
Threaded Mounting Posts	Stainless Steel	

PCB MOUNTED DUPLEX OPTICAL TRANSMITTERS, ARINC 818 AND sFPDP APPLICATIONS, MULTIMODE, 850 NM

OPTICAL TRANSMITTERS T_A = OPERATING TEMPERATURE RANGE, V_{CC} = 3.135 V TO 3.465 V

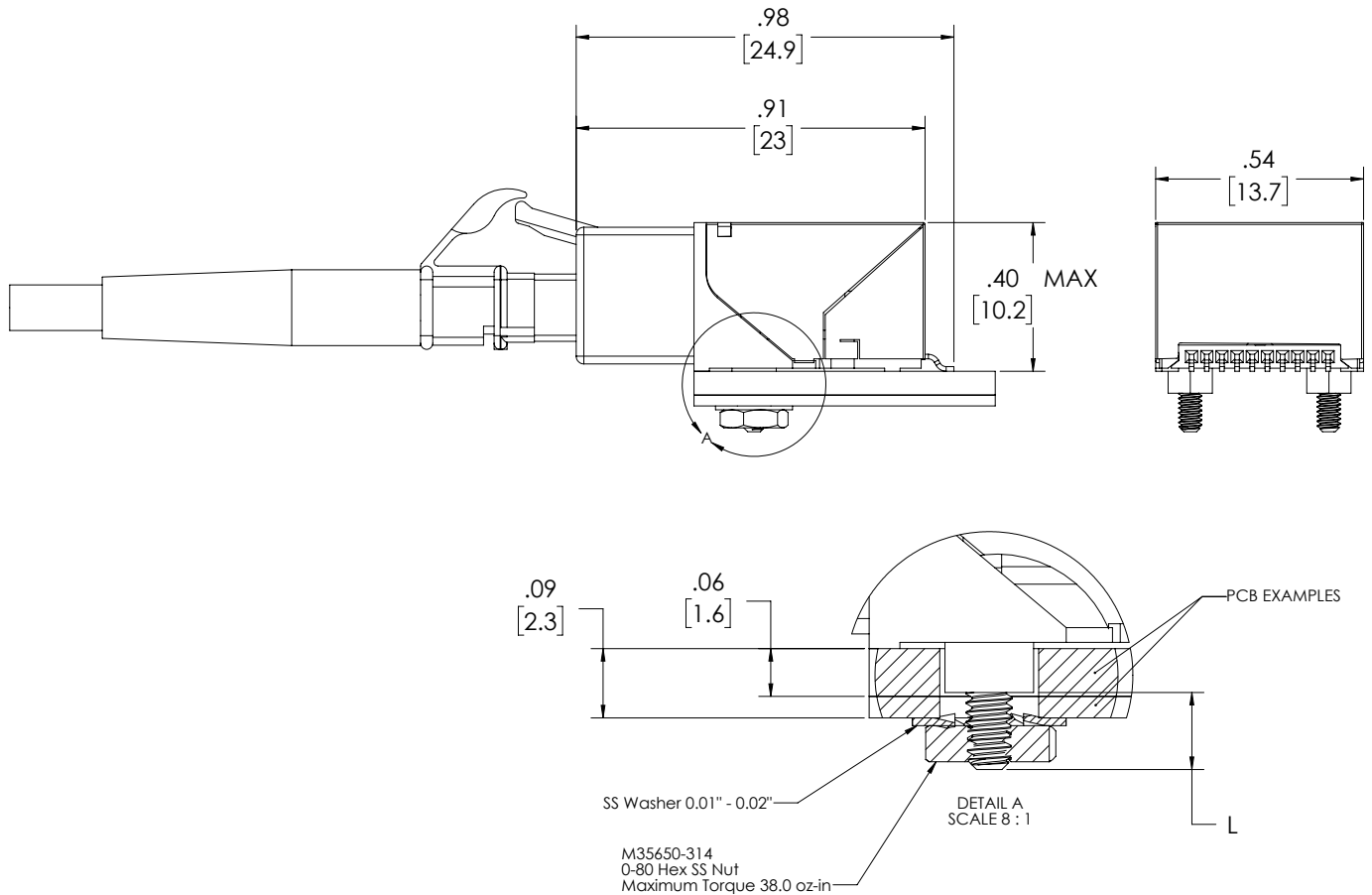
Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Output Power (BER10^{-12})	P_o	-9.5		-1.0	dBm
Optical Output Wavelength	λ_{OUT}	830	850	860	nM
Spectral Width	$\Delta\lambda_{RMS}$			0.85	nM

POWER SUPPLY CURRENT T_A = OPERATING TEMPERATURE RANGE, V_{CC} = 3.135 V TO 3.465 V

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Supply Current (per channel)	I_{CCT}		95	150	mA

OUTLINE DRAWING

Dimensions are shown as: inches [mm]



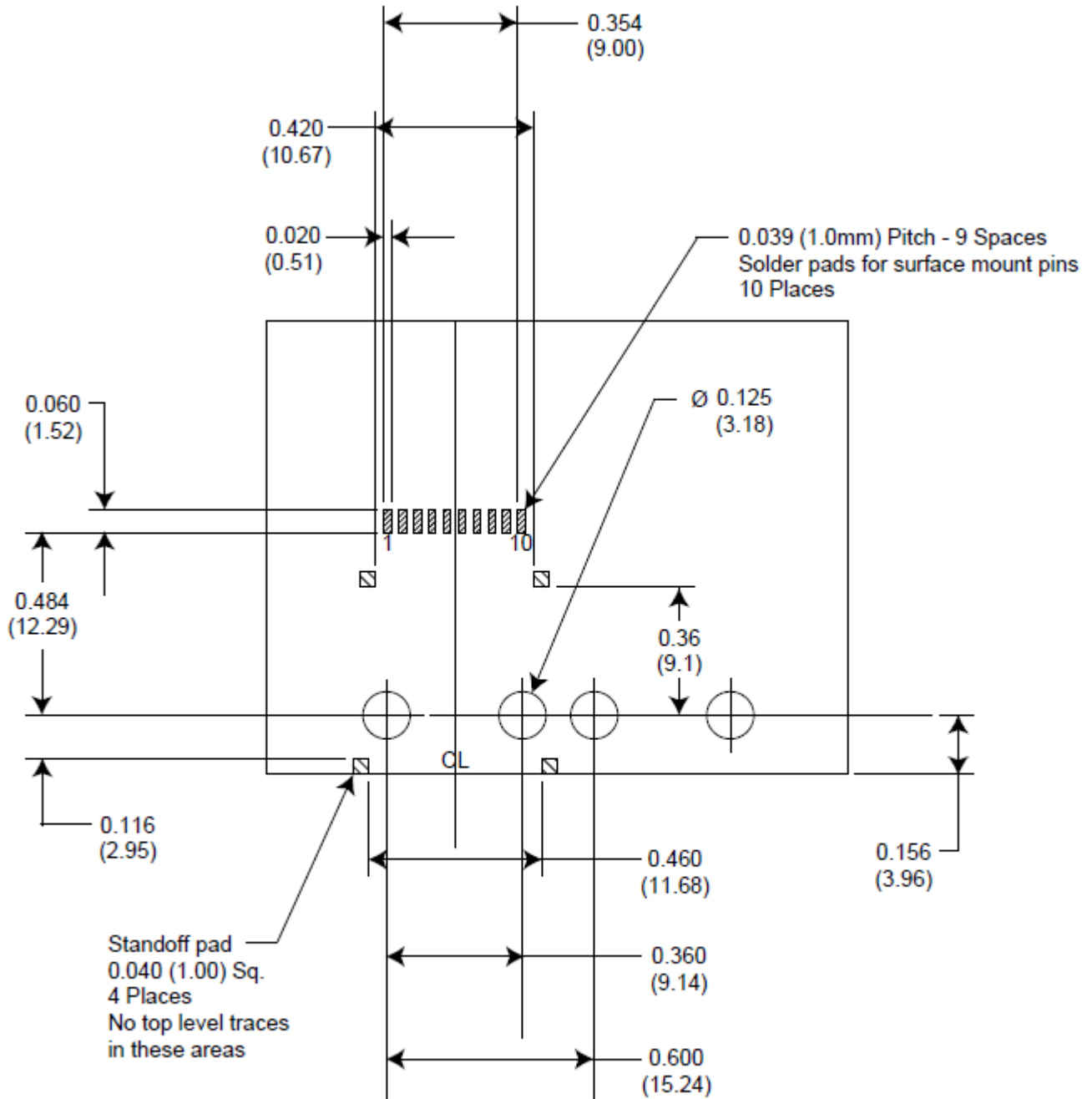
THREADED STUD LENGTH OPTIONS

L	ITEM #
0.10 [2.5]	R25N-2S5G
0.16 [4.1]	R25P-2S5G

PCB MOUNTED DUPLEX OPTICAL TRANSMITTERS, ARINC 818 AND sFPDP APPLICATIONS, MULTIMODE, 850 NM

PRINTED CIRCUIT BOARD FOOTPRINT

Razor Duplex Optical Transceiver
 Dimension are shown as reference only: inches (mm)

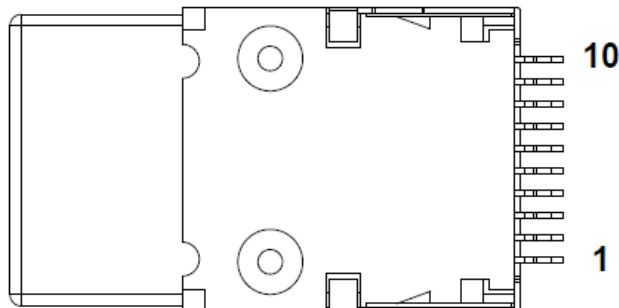


Top View Shown

PCB MOUNTED DUPLEX OPTICAL TRANSMITTERS, ARINC 818 AND sFPDP APPLICATIONS, MULTIMODE, 850 NM

ELECTRICAL PIN ASSIGNMENTS

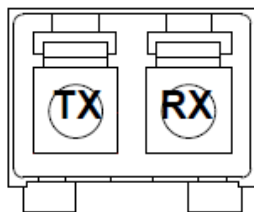
Razor Duplex Optical Transceiver
Component Bottom View Indicated



Pin Number	Symbol	Port	Description	Logic Family
1	TX+	0	Transmitter Data - Input	CML Internal 100Ω differential termination
2	GND	0	Ground	N/A
3	TX-	0	Transmitter Data - Input	CML Internal 100Ω differential termination
4	V _{cc}	0	Power Supply - Input	N/A
5	TX Dis	0	Transmit Disable - Input Logic 1: Disable Optical Output Logic 0: Enable Optical Output	CMOS Internal 4.7Ω pull-down
6	TX DIS	1	Transmit Disable - Input Logic 1: Disable Optical Output Logic 0: Enable Optical Output	CMOS Internal 4.7Ω pull-down
7	TX+	1	Transmitter Data - Input	CML Internal 100Ω differential termination
8	V _{cc}	1	Power Supply - Input	N/A
9	TX-	1	Transmitter Data - Input	CML Internal 100Ω differential termination
10	GND	1	Ground	N/A

INSERT ARRANGEMENT

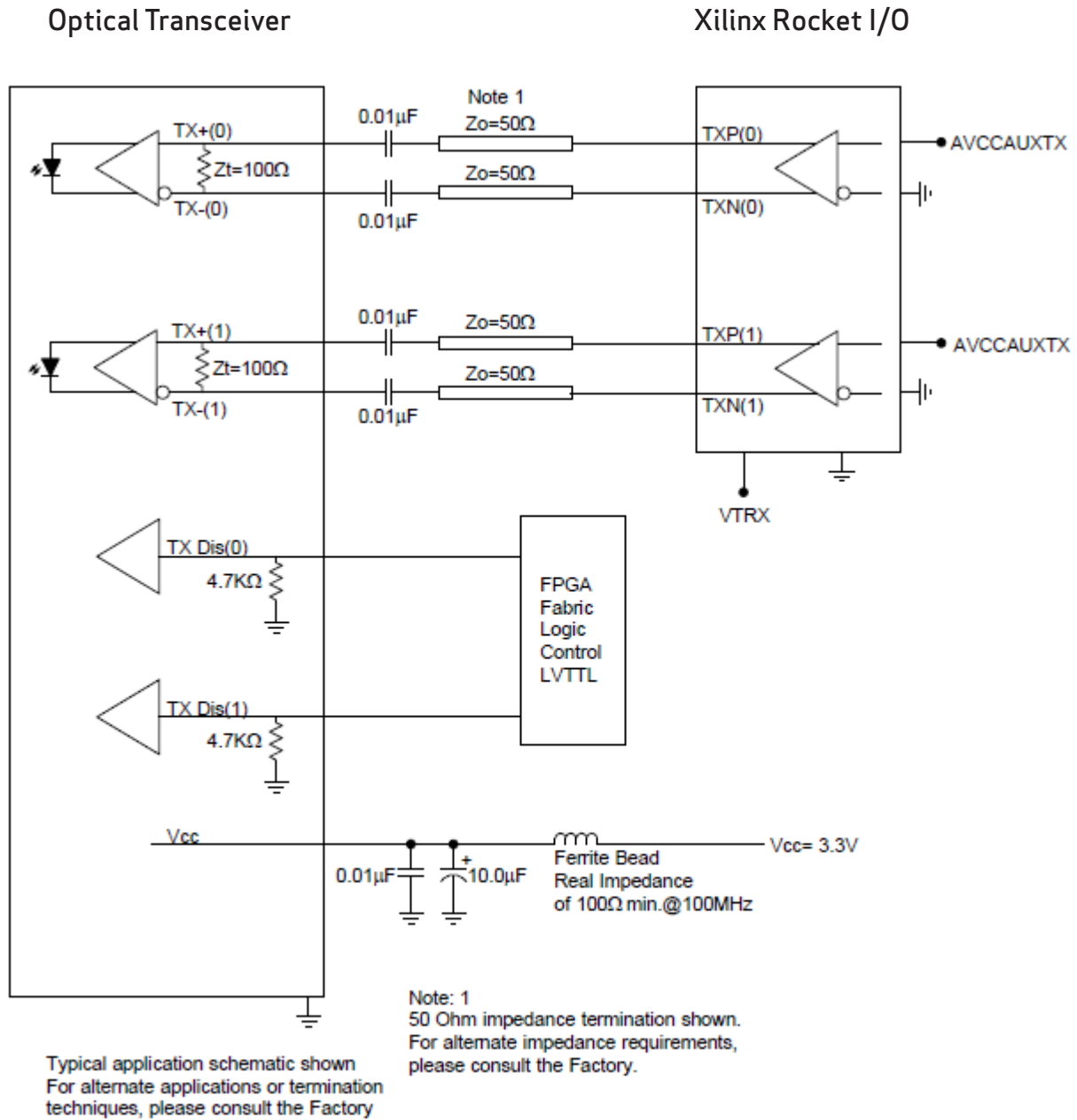
Razor Duplex Optical Transceiver
Optical interface of the transceiver interface shown
Mating cable plug interface opposite



PCB MOUNTED DUPLEX OPTICAL TRANSMITTERS, ARINC 818 AND sFPDP APPLICATIONS, MULTIMODE, 850 NM

APPLICATION SCHEMATIC

For Xilinx Rocket I/O Interfaces



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