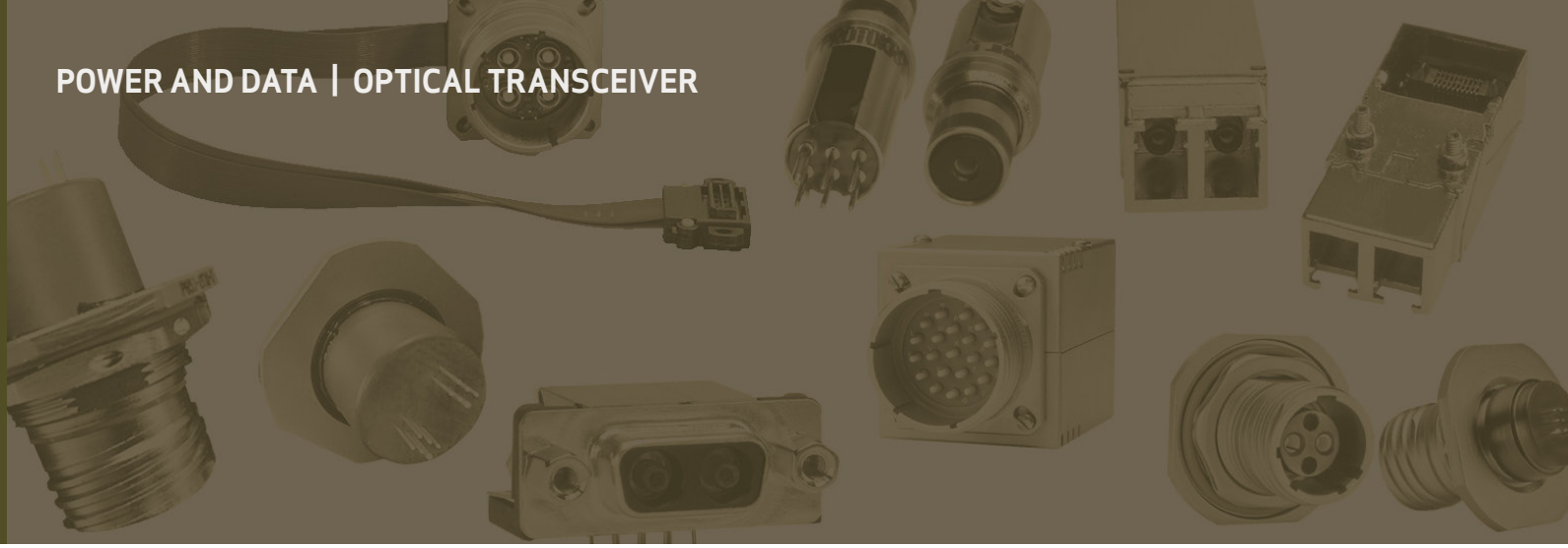


MAGNUM EMI HARDENED 801 SERIES

SIZE 8 CAVITY OPTOELECTRONIC PCB INSERT, 1.25 MM, 850 NM - ARINC 801, 803 AND 804 COMPLIANT - FRONT RELEASE

Magnum - 801 series optoelectronic size 8 cavity PCB insert receivers consist of optoelectronic receiver functions integrated into a printed circuit board mounted pin contact. The optical receivers are 850 nm PIN diodes + integrated limiting amplifiers. Outputs from the receivers consist of differential CML data signals on the receiver (RX+ and RX-) lines. A CMOS output signal is generated on the Loss of Signal (LOS) line upon loss of a valid incoming optical data. The receiver data lines are squelched upon LOS assertion, preventing errant data generation when an invalid incoming optical signal is presented to the optical receiver.

The optical mating interface to the Magnum series size 8 cavity insert optical receivers is a 1.25 mm ceramic fiber optic receptacle per ARINC 801.

The electrical interface to the Magnum - 801 series size 8 cavity insert optical receivers is a six position pin header suitable for thru-hole soldering to a flexible or rigid printed circuit.

Magnum series size 8 cavity insert optical receivers are vibration isolated, environmentally hardened components designed for use in harsh environment applications.

MOOG

MAGNUM SERIES, EMI, 1.25 MM FERRULE, SIZE 8 CAVITY INSERT, OPTICAL RECEIVER, MULTIMODE, 850 NM, ARINC 664, 818, 801, 803 AND 804 COMPLIANT

Front Release Optical Receiver Insert
ARINC 801 / 1.25 mm Ferrule / PCB Mounted

FEATURES

- Compliant with ARINC 664, 801, 803, 804 and 818
- Suitable for Fast Ethernet, Gigabit Ethernet and 1x / 2x / 4x Fibre Channel applications from 50 Mbps to 4.25 Gbps
- Maximum optical channel bit error rate less than 1×10^{-12}
- Operating temperature range from -40 to +85 °C
- Shock and vibration resistant per RTCA / D0-160E
- ARCAP contact insert material meets stringent EMI / RFI / ESD and EMP performance specifications
- Six pin PCB footprint with Loss of Signal (LOS) functions
- 1.25 mm ceramic optical fiber receptacle connector interface per ARINC 801
- Compatible with ARINC 600 and MIL-STD-83527 size 8Q (Quadrax) insert cavities

APPLICATIONS

Magnum - 801 series printed circuit board mounted optical receivers enable high speed network communications over long distances in harsh environments.

- Fast or Gigabit Ethernet switches and peripherals
- Fibre Channel switches and peripherals
- Serial Rapid I/O (sRIO) interfaces
- Video displays

This size 8Q optoelectronic cavity insert provides a rugged optical interface that is compliant with ARINC 801 1.25 mm ceramic optical ferrules.

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

US Pat.# 7,690,849

ORDERING INFORMATION

Application	Part Number
50 Mbps to 4.25 Gbps	P44F-RS1G-LK-EMI

MAGNUM SERIES, EMI, 1.25 MM FERRULE, SIZE 8 CAVITY INSERT, OPTICAL RECEIVER, MULTIMODE, 850 NM, ARINC 664, 818, 801, 803 AND 804 COMPLIANT

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
RX Output Current	I_O			50	mA

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

DESIGNED TO PERFORM UNDER THE FOLLOWING CONDITIONS

Requirement	Description	Section
MIL-STD-461	Conducted Emissions	CE102
MIL-STD-461	Conducted Susceptibility	CS101, CS114-116
MIL-STD-461	Radiated Emissions	RE102
MIL-STD-461	Radiated Susceptibility	RS103
MIL-STD-810	High / Low Temp Opp	M 501.6 / 502.6 P II
MIL-STD-810	High / Low Temp Storage	M 502.6 / 502.6 O I
MIL-STD-810	Altitude Opp / Non-Opp	M 500 P I, 15 k feet
MIL-STD-810	Humidity	M 507, P II
MIL-STD-810	Acoustic Noise	M 515.7 P I
MIL-STD-810	Shock	> 100 G
MIL-STD-810	Vibration	M 514
MIL-STD-810	Sea Salt Atmosphere	M 509
MIL-STD-810	Fungus	M 508.6
ANSI/ESD S20.20	ESD	Class 1

MATERIALS

Item	Detail	Notes
Insert	Arcap	
Solder Pins	Brass	
Solder Pin Plating	Gold	
Ferrule	Ceramic	
Printed Circuits	Polyimide / FR-4	

MAGNUM SERIES, EMI, 1.25 MM FERRULE, SIZE 8 CAVITY INSERT, OPTICAL RECEIVER, MULTIMODE, 850 NM, ARINC 664, 818, 801, 803 AND 804 COMPLIANT

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

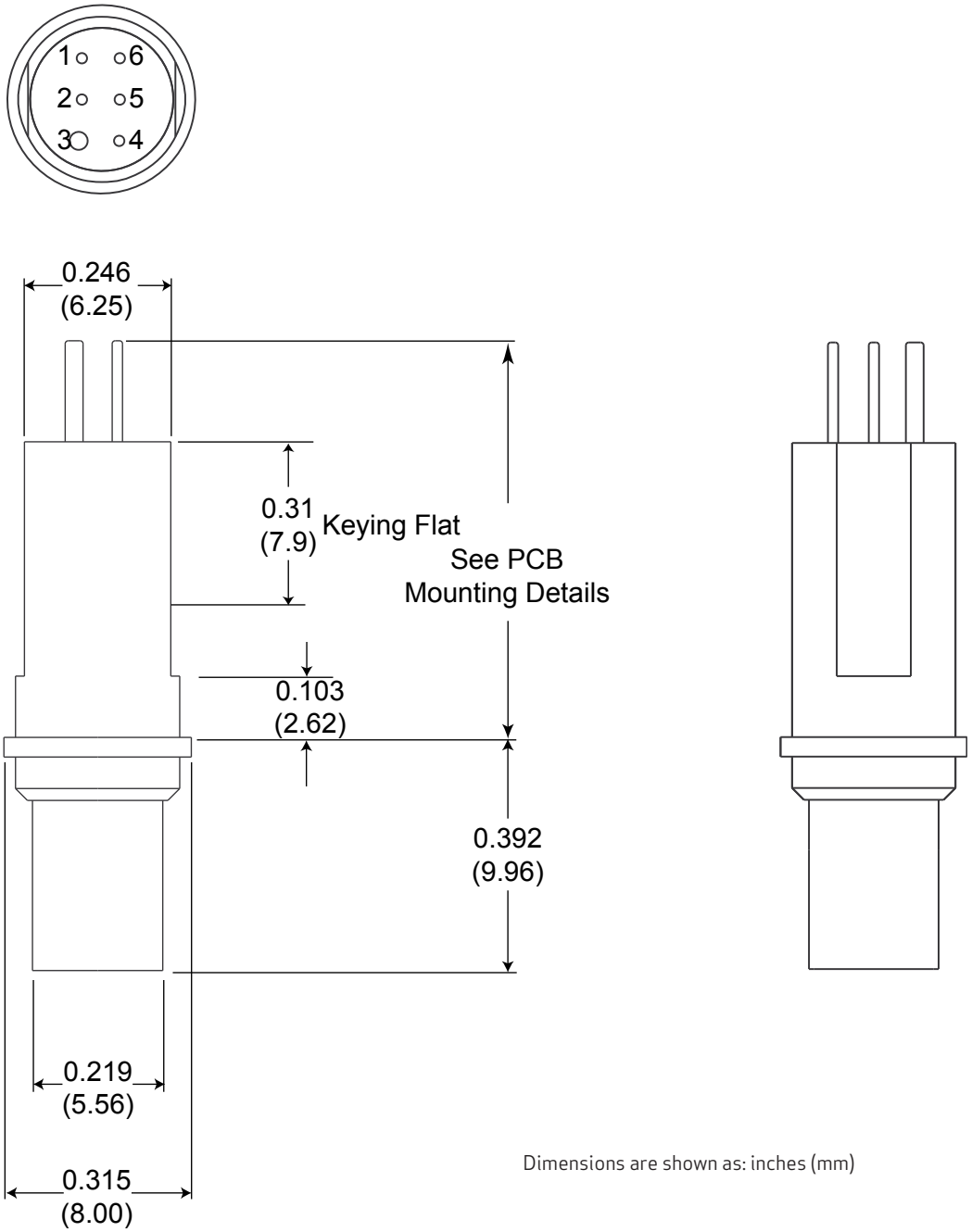
Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Sensitivity (BER < 10^{-12}, ER = 9.0)					
xxxx-xxxE-xx @ 50 Mbps to 1.25 Gbps xxxx-xxxE-xx @ 2.125 Gbps xxxx-xxxE-xx @ 2.5 Gbps to 3.19 Gbps xxxx-xxxG-xx @ 3.2 Gbps to 4.25 Gbps	P_I	-17.0 -15.0 -15.0 -14.0		0.0	dBm
Optical Wavelength	λ_{IN}	840		860	nM
CML Differential Output Voltage (p-p)	V_{Diff}	600	780	1200	mV
Loss of Signal (LOS) Deassert Level	P_{OFFr}	-28.0			dBm
Loss of Signal (LOS) Hysteresis	HYS	1.5	2.25	3.5	dB

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 Receiver	I_{CCT}		80	110	mA

MAGNUM SERIES, EMI, 1.25 MM FERRULE, SIZE 8 CAVITY INSERT, OPTICAL RECEIVER, MULTIMODE, 850 NM, ARINC 664, 818, 801, 803 AND 804 COMPLIANT

OUTLINE DRAWING



Dimensions are shown as: inches (mm)

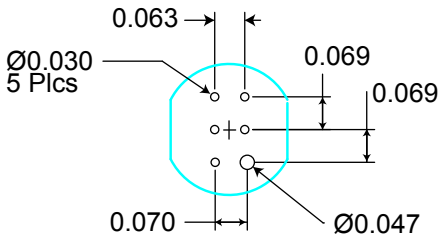
MAGNUM SERIES, EMI, 1.25 MM FERRULE, SIZE 8 CAVITY INSERT, OPTICAL RECEIVER, MULTIMODE, 850 NM, ARINC 664, 818, 801, 803 AND 804 COMPLIANT

ELECTRICAL PIN ASSIGNMENTS MAGNUM SIZE 8 CAVITY INSERT

Pin Number	Symbol	Description	Logic Family
1	GND	Ground	N/A
2	V_{CC}	Power Supply - Input	N/A
3	GND	Ground	N/A
4	LOS	Loss of Signal - Output Satisfactory Optical Input: Logic “0” Output Unsatisfactory Optical Input: Logic “1” Output	Open Drain CMOS
5	RX-	Receiver Data - Output	CML
6	RX+	Receiver Data - Output	CML

PRINTED CIRCUIT BOARD FOOTPRINT

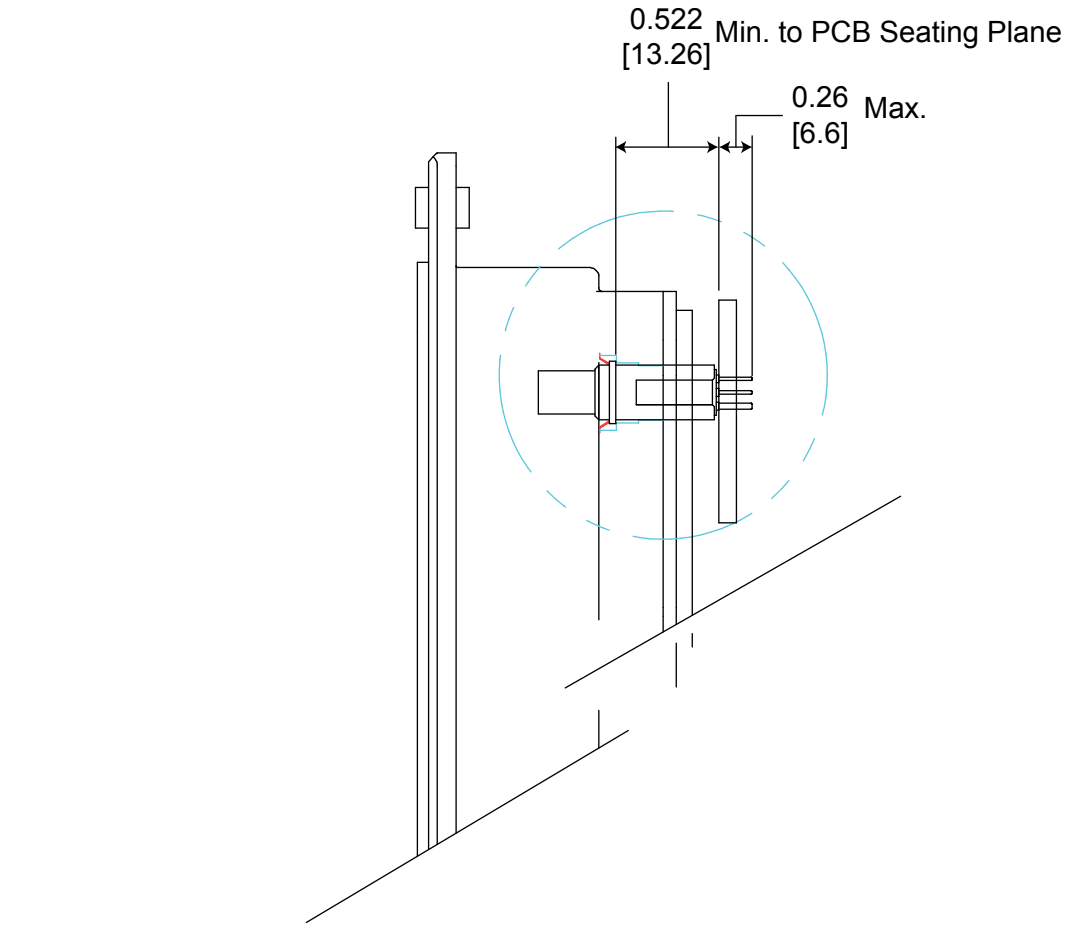
MOUNTING SIDE VIEW
PCB Hole Pattern

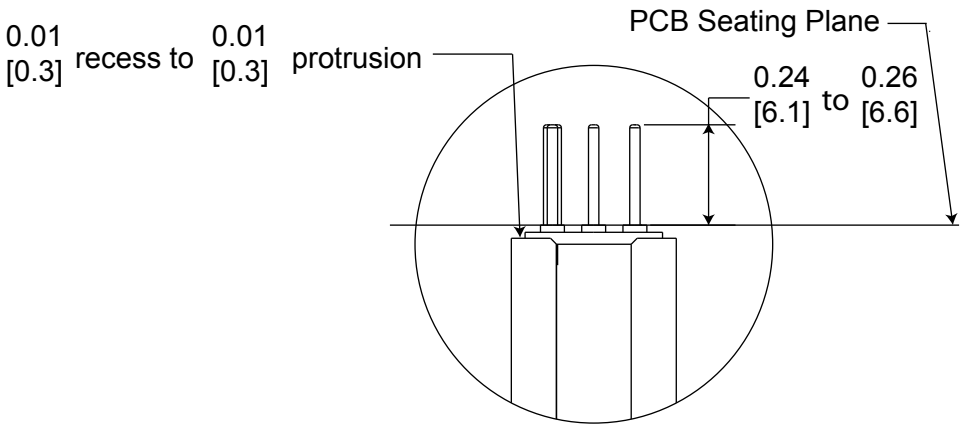


Dimensions are shown as: inches

MAGNUM SERIES, EMI, 1.25 MM FERRULE, SIZE 8 CAVITY INSERT, OPTICAL RECEIVER, MULTIMODE, 850 NM, ARINC 664, 818, 801, 803 AND 804 COMPLIANT

PCB MOUNTING DETAILS

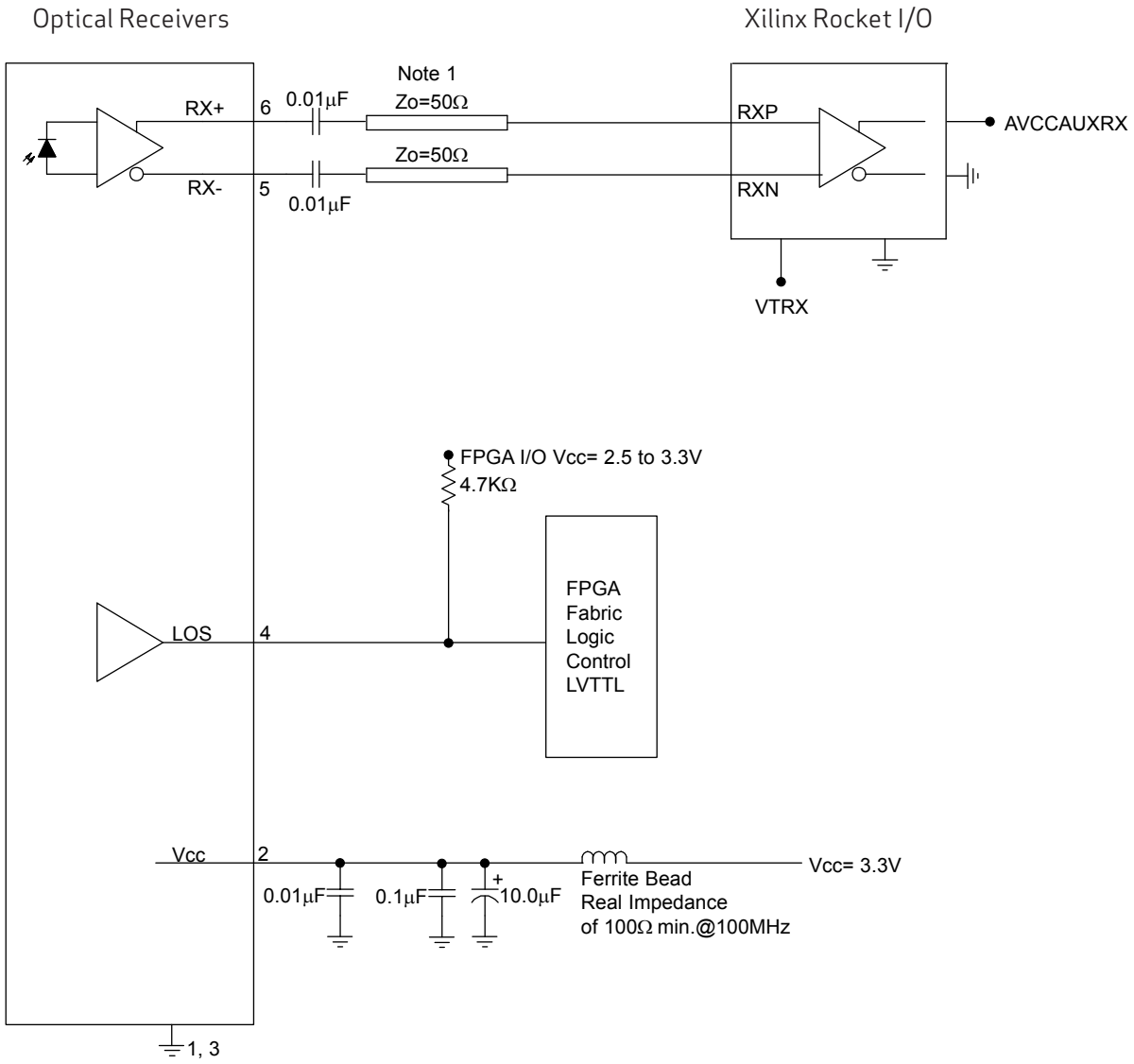




Dimensions are shown as: inches [mm]

MAGNUM SERIES, EMI, 1.25 MM FERRULE, SIZE 8 CAVITY INSERT, OPTICAL RECEIVER, MULTIMODE, 850 NM, ARINC 664, 818, 801, 803 AND 804 COMPLIANT

APPLICATION SCHEMATIC FOR XILINX ROCKET I/O INTERFACES



Typical application schematic shown. For alternate applications or termination techniques, please consult the factory.

Notes:

1. 50 Ohm impedance termination shown. For alternate impedance requirements, please consult the factory.

MOOG PROTOKRAFT

192 Bob Fitz Road, Johnson City, TN 37615
salesmp@moog.com
moogprotokraft.com