

Magnum EMI Hardened 801 Series

Size 8 Cavity Optical Receiver, PCB Mount, Luxcis®, 1310nm, SD/HD-SDI, SMPTE 259/292M



ARINC 801 / 1.25mm Ferrule / PCB Mounted

Front Release Optical Receiver Insert

FEATURES

- Compliant with SD/HD-SDI / SMPTE 259/292M applications from 270Mbps to 1.485Gbps
- Maximum optical channel bit error rate less than 1×10^{-12}
- Operating temperature range from -55°C to $+85^{\circ}\text{C}$
- Shock and vibration resistant per RTCA / D0-160E
- Electroless nickel plating meets stringent corrosion performance specifications
- Six pin PCB footprint with Loss of Signal (LOS) function
- Luxcis® 1.25mm ceramic optical fiber ferrule 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 definition video transmission over long distances in harsh environments for:

- SD/HD-SDI / SMPTE 259/292M
- Camera and Video Peripherals
- Switches and Converters
- Scalers and Adapters

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

The 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

DESCRIPTION

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 1310nm PIN diodes + limiting amplifiers. Outputs from the receivers consist of differential electrical 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 1.25mm ceramic optic receptacle per ARINC 801. The Magnum optical receiver insert has an integral $62.5/125\mu$ multimode optical stub enabling it to interface to either $62.5/125\mu$ or $50/125\mu$ optical

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 circuit.

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

ORDERING INFORMATION

Application	Part Number
SD/HD-SDI from 0.270 to 1.485Gbps	P44F-RL1V-LK-EMI

Magnum Series, EMI, 1.25mm Ferrule, Size 8 Cavity Insert, Optical Receiver, Multimode, 1310nm, SD/HD-SDI / SMPTE 259/292M Applications

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	-65		+100	°C
Supply Voltage	V_{CC}	-0.5		+4.5	V

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating Temperature	T_A	-55		+85	°C
Power Supply Voltage	V_{CC}	+3.135		+3.465	V
Power Supply Noise (p-p)	N_P			200	mV

SPECIFICATIONS COMPLIANCE

Requirement	Feature	Condition	Notes
RTCA / D0-160E	ESD	Class II	2200V
RTCA / D0-160E	Vibration	3.8g ² /Hz	43G rms
RTCA / D0-160E	Shock	40.0g	6-9mS
RTCA / D0-160E	Flame Resistance	Method 1012	30 Seconds
RTCA / D0-160E	Damp Heat	10 Cycles	24 Hours
ARINC 801	Mating Durability	500 Cycles	<0.5dB Change

MATERIALS

Item	Detail	Notes
D38999 Shell	Aluminum	
D38999 Shell Plating	Nickel	
Insert	Arcap	
Solder Pins	Brass	
Solder Pin Plating	Gold	
Ferrule	Ceramic	
Printed Circuits	Polyimide / FR-4	

Magnum Series, EMI, 1.25mm Ferrule, Size 8 Cavity Insert, Optical Receiver, Multimode, 1310nm, SD/HD-SDI / SMPTE 259/292M Applications

OPTICAL RECEIVERS T_A = Operating Temperature Range, V_{CC} = 3.135V to 3.465V

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Sensitivity (BER10^{-12}, ER=9.0)	P_I	-17.0		0.0	dBm
Optical Wavelength	λ_{IN}	1270		1340	nM
Signal Detect Deassert Level	P_{OFFr}	-28.0			dBm
Signal Detect Hysteresis	HYS	1.5	2.25	3.5	dB

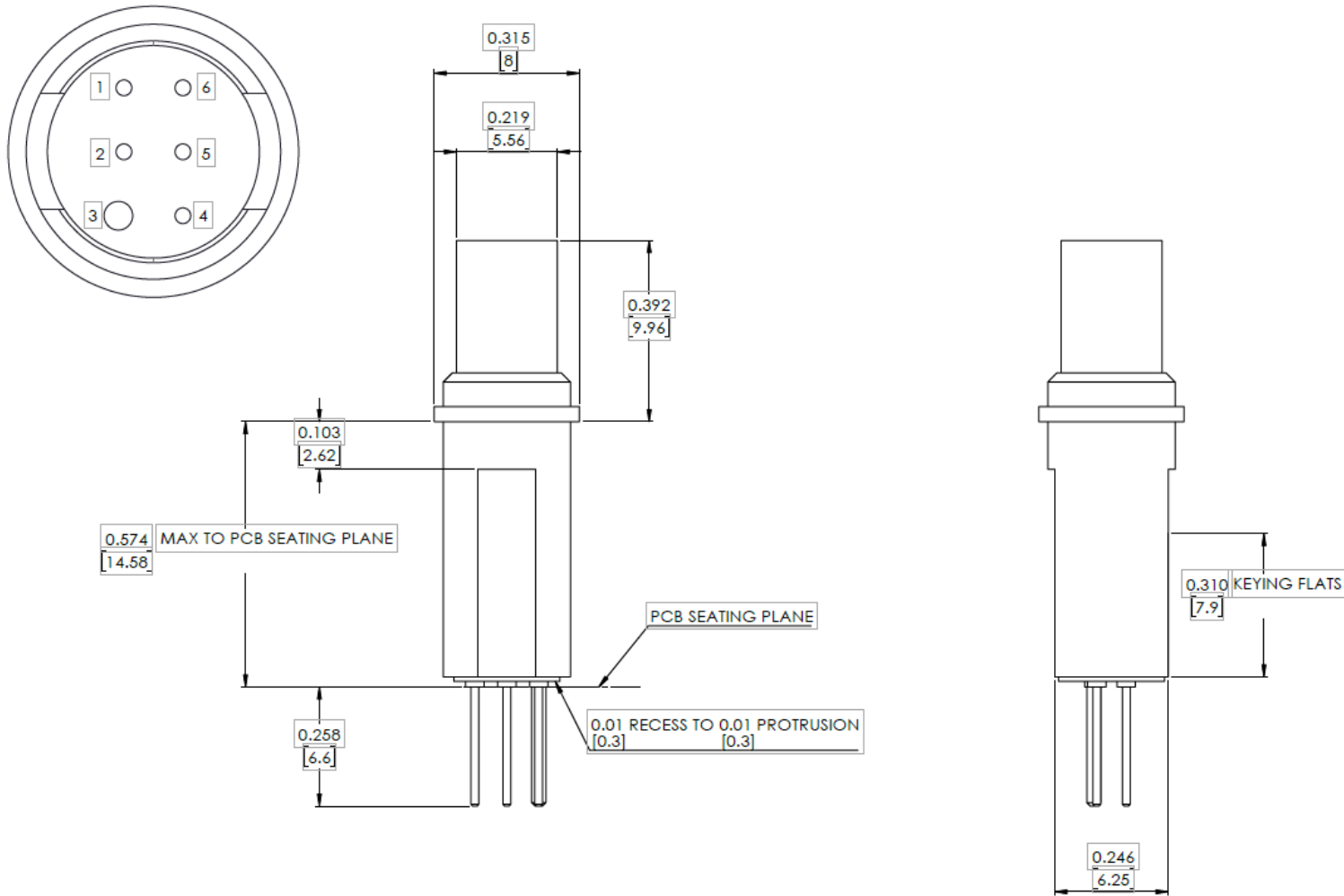
POWER SUPPLY CURRENT T_A = Operating Temperature Range, V_{CC} = 3.135V to 3.465V

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Supply Current	I_{CCT}		75	95	mA

Magnum Series, EMI, 1.25mm Ferrule, Size 8 Cavity Insert, Optical Receiver, Multimode, 1310nm, SD/HD-SDI / SMPTE 259/292M Applications

OUTLINE DRAWING

Dimensions are shown as: inches (mm)



Magnum Series, EMI, 1.25mm Ferrule, Size 8 Cavity Insert, Optical Receiver, Multimode, 1310nm, SD/HD-SDI / SMPTE 259/292M Applications

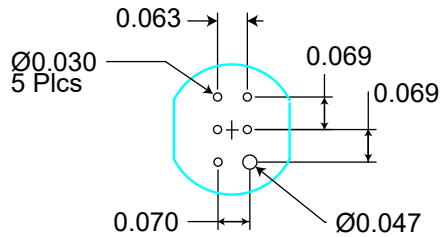
ELECTRICAL PIN ASSIGNMENTS

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	SMPTE 259/292M
6	RX+	Receiver Data - Output	SMPTE259/292M

PRINTED CIRCUIT BOARD FOOTPRINT

Dimensions are shown as: inches

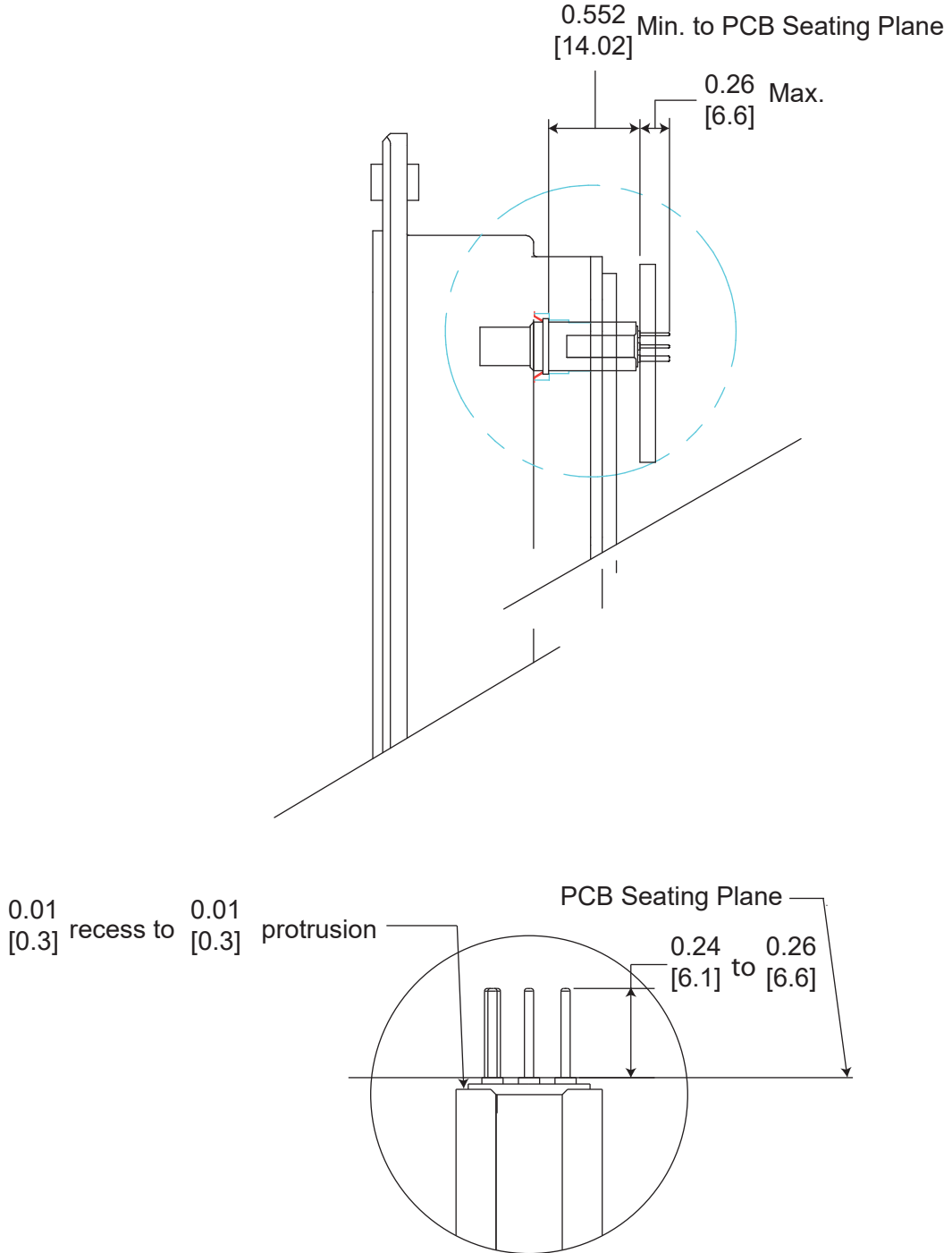
PCB Hole Pattern Mounting Side View



Magnum Series, EMI, 1.25mm Ferrule, Size 8 Cavity Insert, Optical Receiver, Multimode, 1310nm, SD/HD-SDI / SMPTE 259/292M Applications

PCB MOUNTING DETAILS

Dimensions are shown as: inches [mm]

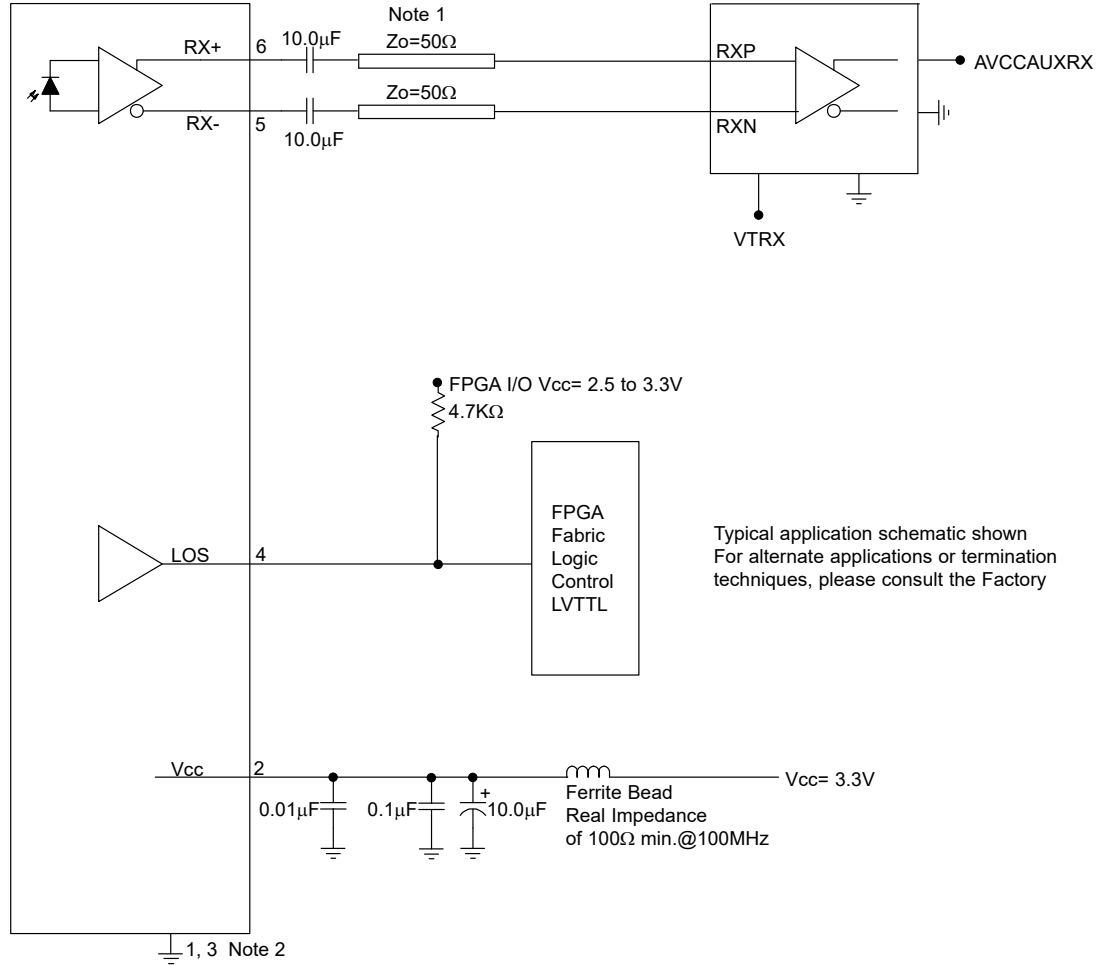


APPLICATION SCHEMATIC

For Xilinx Rocket I/O Interfaces

Optical Receivers

Gennum GS2961



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