

MAGNUM 801 SERIES

SIZE 8 CAVITY OPTICAL RECEIVER, PCB MOUNT, 850 NM - ARINC 664, 818, 801, 803 AND 804 COMPLIANT



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 receiver is a 1.25 mm ceramic fiber optic receptacle per ARINC 801. The Magnum optical receiver insert has an integrated 50 / 125 μm multimode optical fiber stub enabling it to interface to either 62.5 / 125 μm or 50 / 125 μm optical fiber cable.

The electrical interface to the Magnum 801 series size 8 cavity insert optical receiver 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.

MAGNUM SERIES, 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 10 Gigabit Ethernet - 10GBase-SR
- Suitable for 10 Gigabit Ethernet, 2x / 4x Fibre Channel and sFPDP applications up to 10.3125 Gbps
- Maximum optical channel bit error rate less than 1×10^{-12}
- Operating temperature range from -40° to +85° C
- Designed to perform when subjected to shock and vibration per RTCA / DO-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-DTL-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.

- 10 Gigabit Ethernet switches and peripheral
- sFPDP data links
- 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
Transmitter operation 2.0 to 10.3125 Gbps	P44F-RS1H-LK

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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		+4.0	V
RX Output Current	I_o			25	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	Feature	Condition	Notes
RTCA / D0-160E	ESD	Class II	2200 V
ARINC 801	Mating Durability	500 Cycles	< 0.5 dB Change
FDA / CDRH / IEC-825-1	Eye Safety	Class 1	No Safety Interlocks Required

MATERIALS

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

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

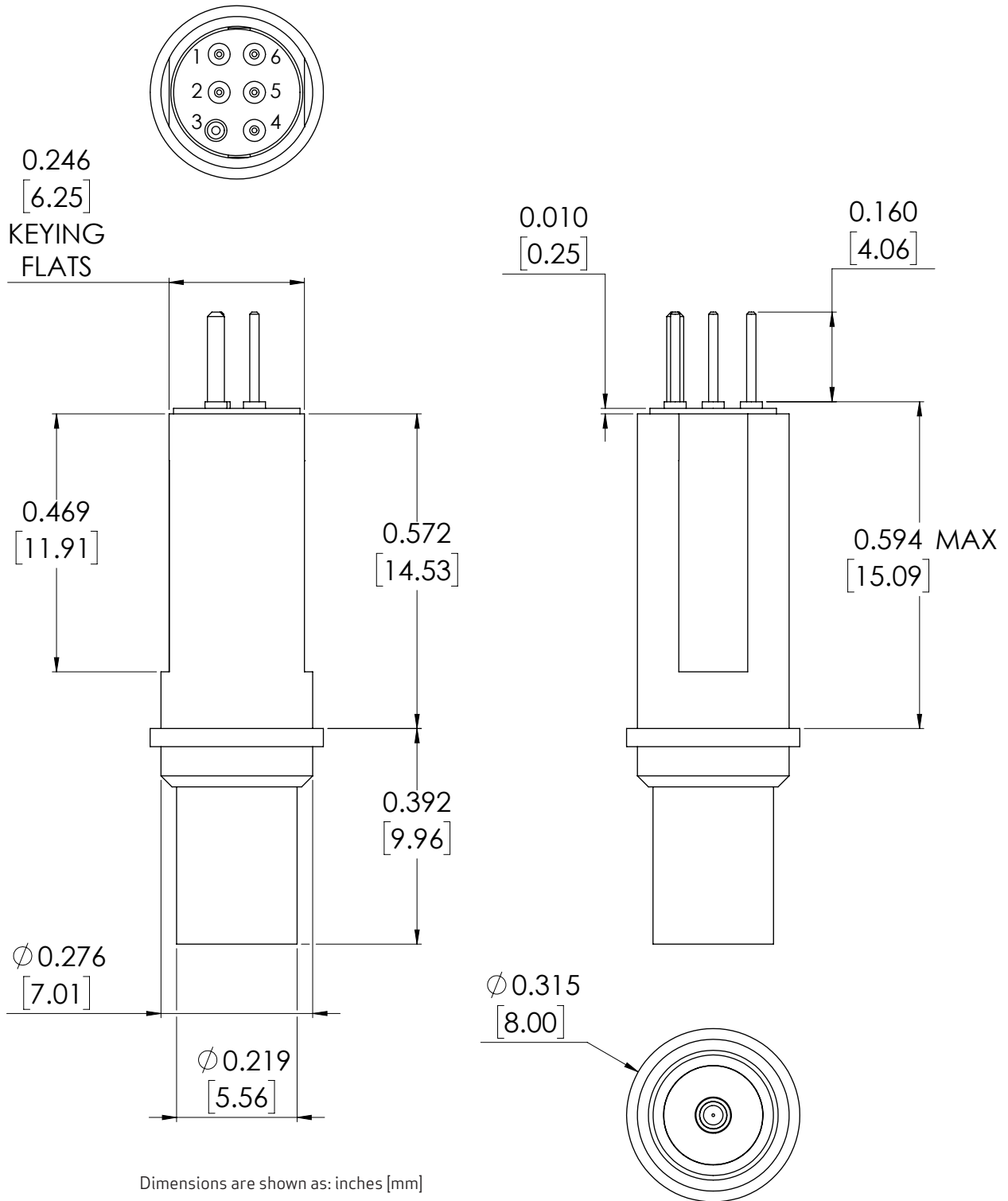
Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Sensitivity (BER < 10^{-12} , ER = 5.0)	P_i	-11.1		0.5	dBm
Optical Wavelength	λ_{IN}	770	850	860	nm
CML Differential Output Voltage (p-p)	V_{DIFF}	600	780	1200	mV
Loss of Signal (LOS) Assert Level	P_{OFFr}	-28.0			dBm
Loss of Signal (LOS) Hysteresis	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

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OUTLINE DRAWING



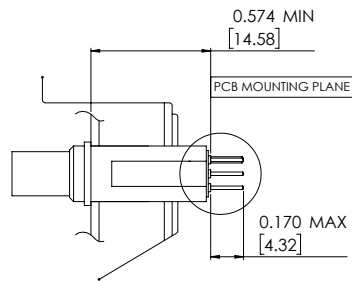
MAGNUM SERIES, 1.25 MM FERRULE, SIZE 8 CAVITY INSERT, OPTICAL RECEIVER, MULTIMODE, 850 NM, ARINC 664, 818, 801, 803 AND 804 COMPLIANT

ELECTRICAL PIN ASSIGNMENTS - MAGNUM SIZE 8 CAVITY INSERT

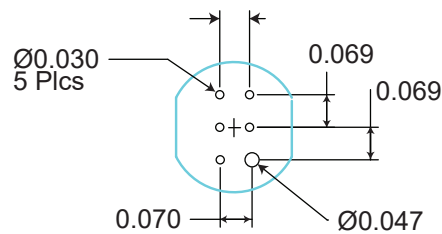
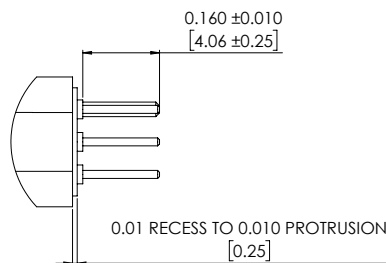
Pin Number	Symbol	Description	Logic Family
1	GND	Ground	N/A
2	V _{CC}	Power Supply - Input	N/A
3	GND	Signal Ground	N/A
4	LOS	Loss of Signal - Output Satisfactory Optical Input: Logic "0" Output Unsatisfactory Optical Input: Logic "1" Output	General Purpose Output - 3.3 V / 5 mA
5	RX+	Receiver Data - Output	CML
6	RX-	Receiver Data - Output	CML

PRINTED CIRCUIT BOARD FOOTPRINT

PCB Hole Pattern
Mounting Side View

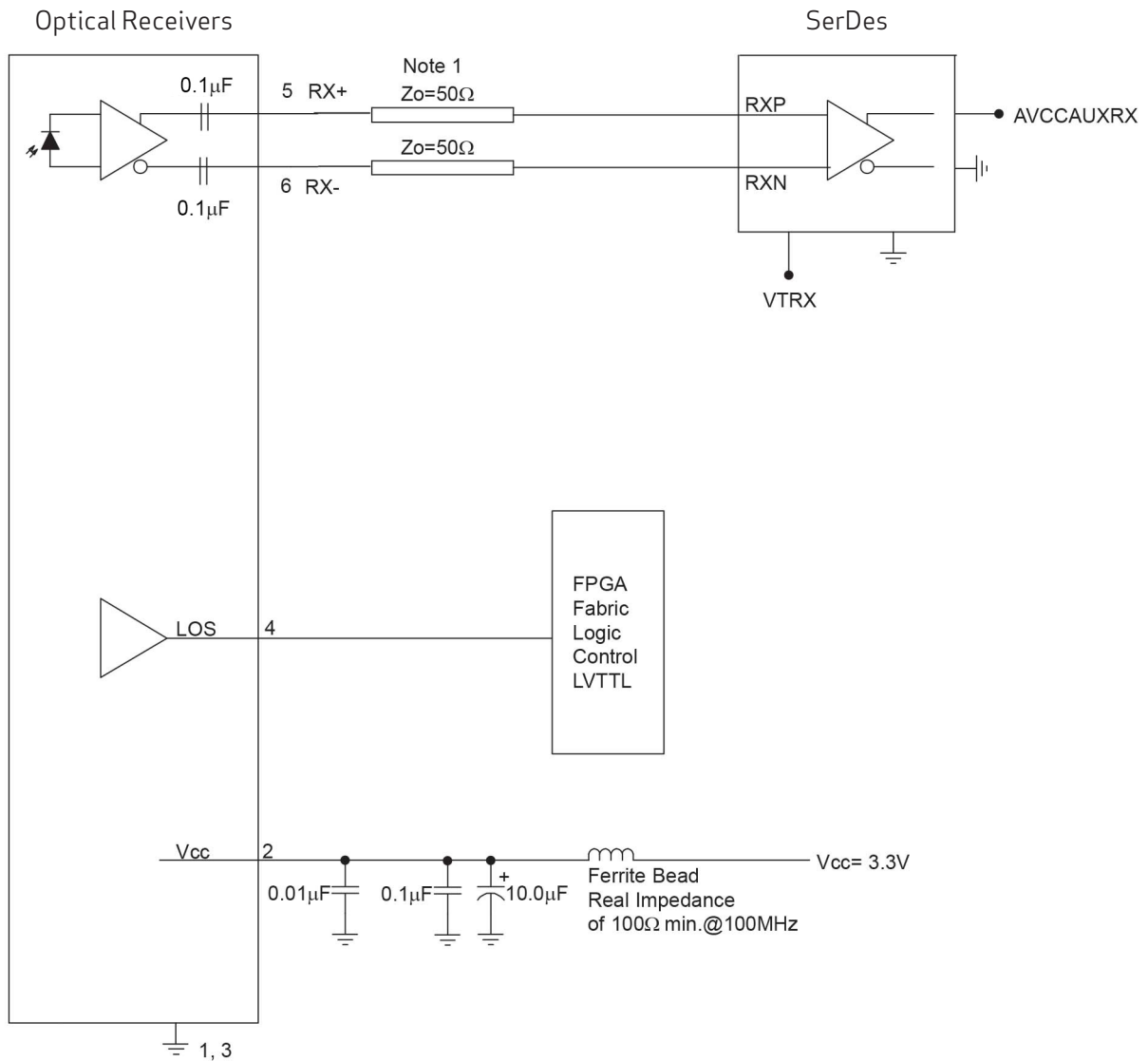


Dimensions are shown as: inches [mm]



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APPLICATION SCHEMATIC FOR 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.



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