

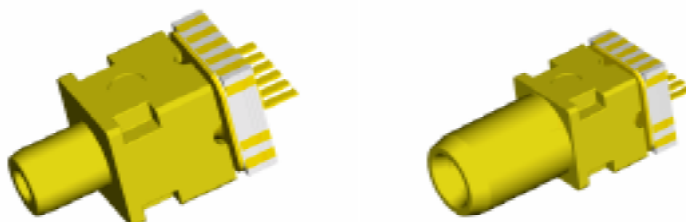
Fiber Optic LAN Components PIN Plus Preamplifier

Preliminary
HFD6X80-001

FEATURES

- LC ROSA HFD6180-001
- SC ROSA HFD6380-001
- High performance GaAs PIN photodiode with separate transimpedance amplifier
- Microwave Ceramic package capable of 20GHz
- Data rates from DC to 12.5Gbps
- Receive signal strength indicator (RSSI)
- Low bias currents and voltages

The HFD6X80-001 is a high-performance GaAs PIN



photodetector packaged with a transimpedance amplifier designed to meet performance requirements for 10Gbps data communication over multimode optical fiber. Applications include Ethernet, Fibre Channel and ATM protocols. The optical assembly is designed to interface either 50 μ m or 62.5 μ m multimode fiber.

To achieve the full operational bandwidth, it is recommended that the products component leads be attached to within 0.010" of the ceramic package with a controlled impedance path.

The HFD6X80-001 incorporates a received signal strength indicator to facilitate optical link health monitoring.

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ABSOLUTE MAXIMUM RATINGS

Parameter	Rating
Storage Temperature	-40 to +85°C
Case Operating Temperature	0 to +85°C
Lead Solder Temperature	260°C, 10 sec.
Power Supply Voltage	-0.3V to 5V
Incident Optical Power	0 dBm average, +4 dBm peak

NOTICE

Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operations section for extended periods of time may affect reliability.

ELECTRO-OPTICAL CHARACTERISTICS (V_{CC}=3.3V, AC coupled to 50Ω, 0°C<T<70°C unless otherwise specified)

Parameters	Test Condition	Symbol	Min.	Typ.	Max.	Units	Notes
Active Area				40		μm	
Input Optical Wavelength	0°C to 70°C	λ _p	800	850	870	nm	
Responsivity	P _R = -12dBm.	R	200	300	350	mV/mW	1,2
Differential Output Voltage Swing	P _R = -7dBm, AC Coupled to R _L =50Ω	V _{o(pk-pk)}	350	600	750	V	
Supply Voltage			3.0	3.3	3.6	V	
Supply Current	P _R = 0μW peak, R _L =50Ω	ICC		45	65	mA	1
-3dB Optical/Electrical Bandwidth	P _R = -12dBm Temp = 25°C	BW	7	9	13.2	GHz	1,3
Low Frequency -3dB Cutoff	P _R = -12dBm	BW _{LF}		70	150	KHz	1,3
RMS Input Referred Noise Equivalent Power	7500 MHz, 4-pole BT Filter, P _R =0uW (Dark), BER 10 ⁻¹²	NEP			20	μW	4
Power Supply Rejection Ratio	P _R = 0μW (Dark), Freq = 1000MHz	PSRR		30		dB	1,8
Pulse Width Distortion	P _R = -12dBm	PWD			TBD	ps	1,5
Rise/Fall Time	P _R = -12dBm, (20%-80%)	T _R /T _F			50	ps	1,6
RSSI Gain	P _{IN} < 200μW		900	1200	1500	Ω	
	P _{IN} > 200μW		1200	1800	3000		
RSSI Bandwidth	P _R = -12dBm		10	70		kHz	

Notes:

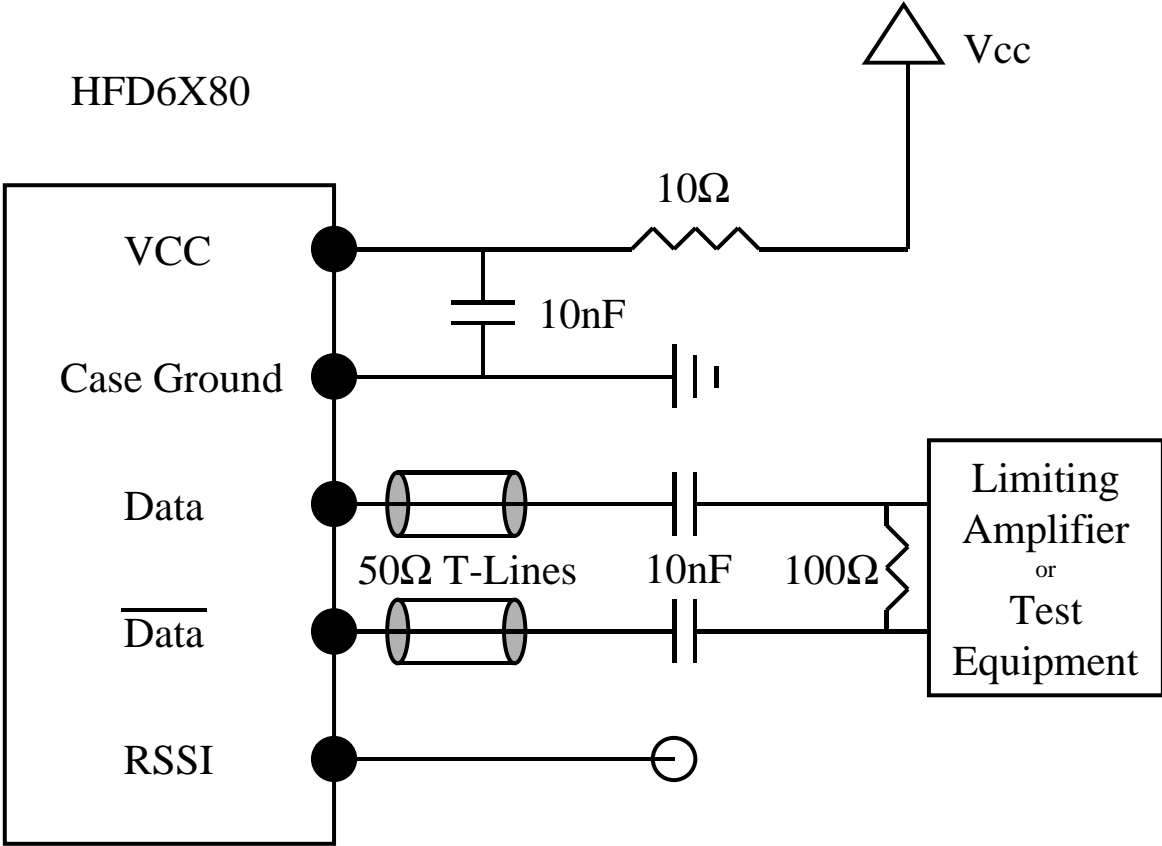
1. P_R is the average optical power at the fiber face.
2. Responsivity measured with source wavelength of 850nm, with light source modulated at 1000MHz.
3. Bandwidth is measured with a small signal sinusoidal light source with -12dBm average power
4. RMS input referred optical noise equivalent power is obtained by measuring the RMS output noise into an 7500 MHz, 4-pole Bessel-Thompson filter then dividing by the responsivity.
5. Measured at the 50% level of output pulses.
6. Rise/Fall times are corrected for optical source Rise/Fall times. The corrected value is calculated as the square root of the difference of the squares of the measured differential detector output and the source.
7. Value shown is with no external power supply filtering. Improved performance can be obtained by using external filtering close to the power supply leads.

8. Typical values represent measured data at 25°C.

NOTICE

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product

RECOMMENDED INTERFACE CIRCUIT FOR THE HFD6X80-001

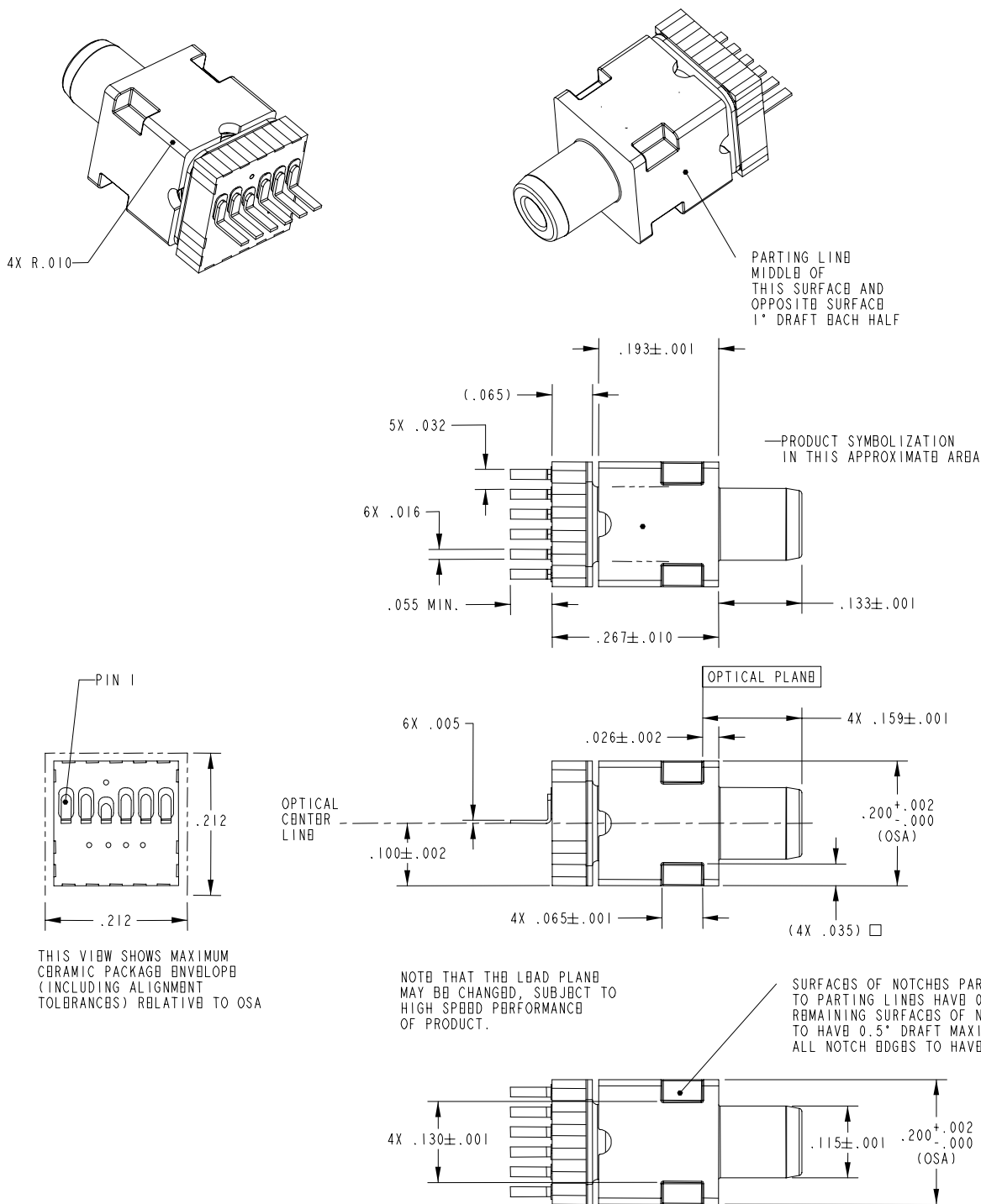


The 100Ω resistor prior to the limiting amplifier is needed only when the input impedance of the amplifier is not 50Ω. DC blocking capacitors must also be present at the TIA outputs to avoid a large DC current which may damage the chip.

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HFD6180-001

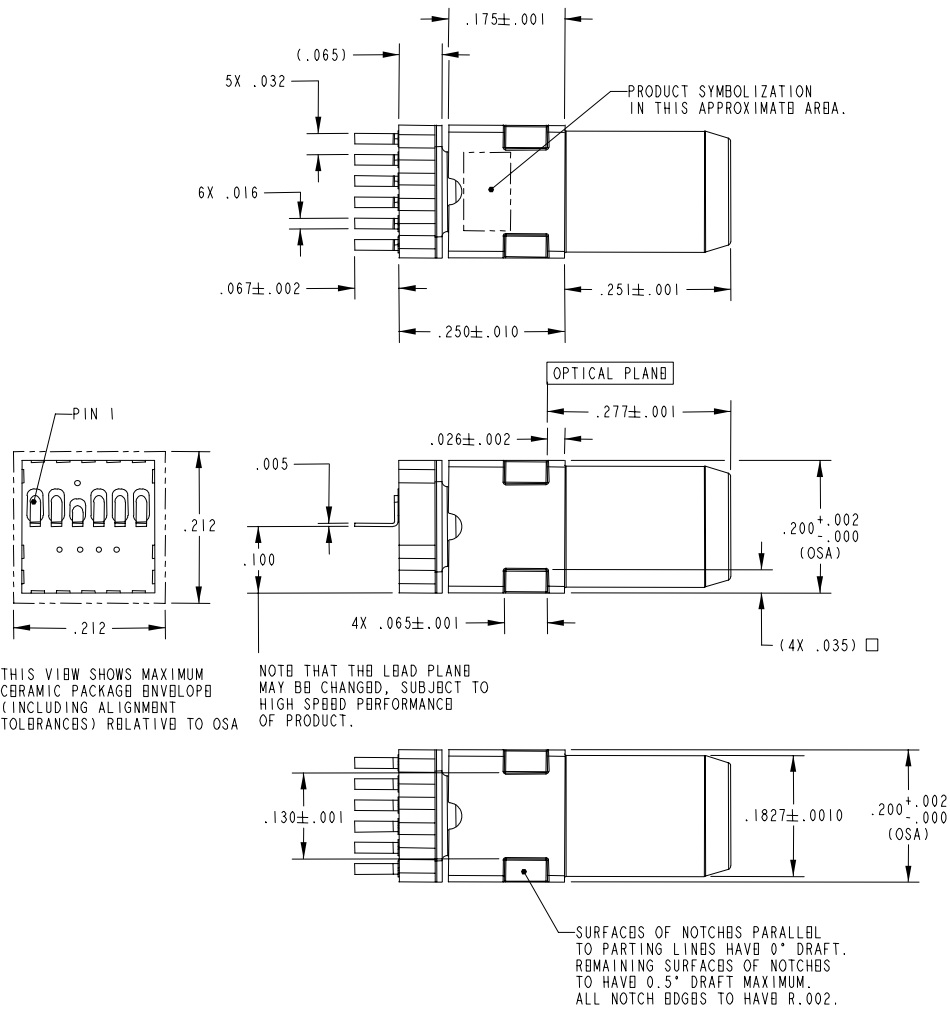
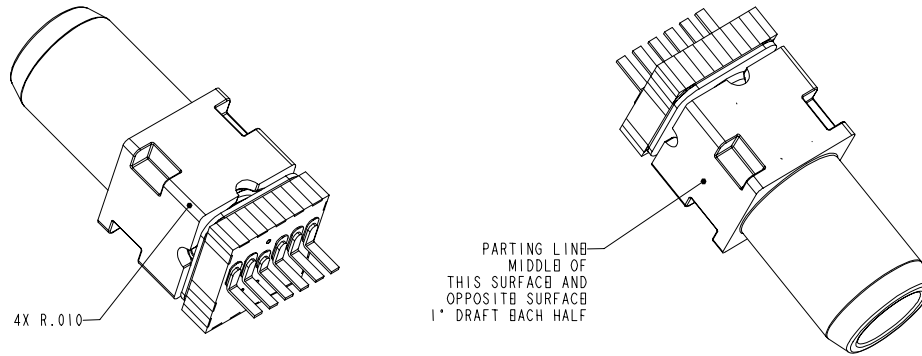


Dimension in Inches [mm]

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HFD6380-001



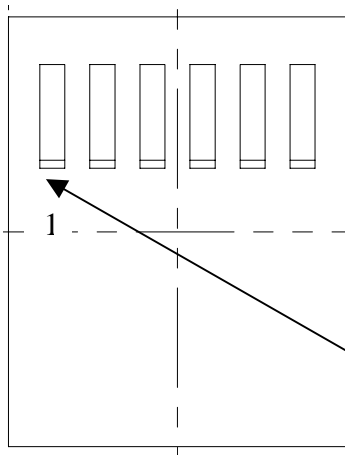
Dimension in Inches [mm]

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ORDER GUIDE

Catalog Listing	Description
HFD6180-001	LC Receptacle, 850nm PIN Plus Preamplifier
HFD6380-001	SC Receptacle, 850nm PIN Plus Preamplifier



PINOUT

Number	Function
1	Vcc
2	GND
3	DataN
4	DataP
5	GND
6	RSSI

PIN 1

SALES AND SERVICE

Honeywell VCSEL Optical Products serves its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact a nearby sales office or call:

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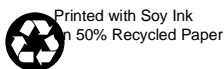
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Preliminary

07/24/02

Honeywell



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