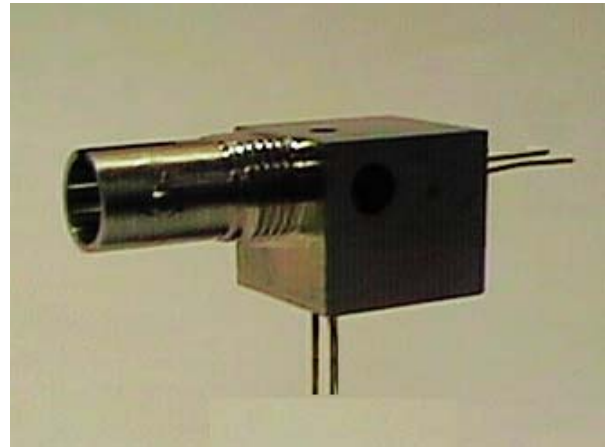


Features

- Full duplex over single fibre
- DC to 25MHz link bandwidth
- 2km+ link budget
- 40dB isolation
- Close mount ST housing
- Other options available



Description

The Honeywell HOD-XXXX series of dual wavelength 'Fibre Duplexers' allow communication over a single optical fibre link. Applications include full duplex data transmission, multiplexing two signals to a single fibre, LED coupled power measurements and reflected power measurements, depending upon the configuration of the duplexer.

The HOD2135-142/GBA comprises a 1300nm LED and an 850nm PIN Diode and its corresponding part, HOD1340-312/GBA, comprises an 850nm LED and a 1300nm PIN Diode. The pair facilitate full duplex communication over a single fibre and are designed to be used where a dual fibre solution is not possible or economical. Alternatively the duplexer can be used to double the capacity of an existing system.

Each part consists of an on-axis port and an off-axis port loaded with the appropriate components, these are then coupled to the single fibre via integral lenses and a 3dB wavelength differentiating mirror within the duplexer body. In this configuration the two pairs of components can communicate in opposing directions simultaneously and independently of each other. Links of 2km+ are possible with this duplexer pair depending upon the receiver circuitry used. The duplexer housing is a special low profile design, being the same width as a standard ST for close mounting, the component ports are positioned to the rear and underside of the housing.

Other standard options are available on request. These include two LEDs in one duplexer for single fibre multiplexing, PIN+Preamplifier receivers, VCSEL emitters or any other preferred components. Housing options include SC or FC/PC optical ports or a low profile ST housing the same height as a standard ST.

**HOD2135-142/GBA Duplexer : 1300nm Transmit, 850nm Receive.
Electro-Optical Specifications.**

1300nm LED (All tests made at 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Fibre Coupled Power	P_{OC}	12 -19.0	28 -17.0		μ W dBm	$I_F = 100\text{mA}$ 50/125 μm fibre
Forward Voltage	V_F		1.4	1.7	V	$I_F = 100\text{mA}$
Reverse Voltage	V_R			2.0		$I_R = 2\mu\text{A}$
Peak Wavelength	λ_p	1290		1350	nm	$I_F = 100\text{mA DC}$
Spectral Bandwidth	$\Delta\lambda$			170	nm	$I_F = 100\text{mA DC}$
Response Time 10-90%	t_r		2.5	4	ns	$I_F = 100\text{mA}$, 50% Duty Cycle, $f=12.5\text{MHz}$
90-10%	t_f		2.5	4		
Analogue Bandwidth	BWE		115		MHz	$I_F = 100\text{mA}$
Po Temperature Coefficient	$\Delta P_O/\Delta T$		-0.03		dB/°C	$I_F = 100\text{mA}$
Capacitance	C		15	50	pF	$V_F = 0\text{V}$, $f = 1\text{MHz}$

850nm PIN Diode (All tests made at 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Flux Responsivity	R	0.40	0.45		A/W	$\lambda = 850\text{nm}$
Dark Current	I_D		0.05	2.0	nA	$V_R = 5\text{V}$, $f = 1\text{MHz}$
Reverse Breakdown Voltage	BVR	110	250		V	$I_R = 5\text{V}$
Response Time 10-90%	t_R		17.0	30.0	ns	$V_R = 5\text{V}$
Capacitance	C		2.1		pF	$V_R = 5\text{V}$, $f = 1\text{MHz}$
Isolation	I_{CX}		40		dB	$I_F (\text{LED}) = 100\text{mA DC}$

Absolute Maximum Ratings

Storage Temperature	-40 to +100°C
Operating Temperature	-40 to +85°C
Lead Solder Temperature	260°C, 10s
Continuous Forward Current	150mA (LED)
Reverse Voltage	2V (LED)

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.

**HOD1340-312/GBA Duplexer : 850nm Transmit, 1300nm Receive.
Electro-Optical Specifications.**

850nm LED (All tests made at 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Fibre Coupled Power	P _{OC}	20 -17.0	30 -15.0		μW dBm	I _F = 100mA 50/125μm fibre
Forward Voltage	V _F		1.70	2.00	V	I _F = 100mA
Reverse Voltage	BVR	1.0	5.0		V	I _R = 10μA
Peak Wavelength	λ _p		850		nm	I _F = 100mA DC
Spectral Bandwidth	Δλ		50		nm	I _F = 100mA DC
Response Time						
-40<T<+100°C, 10-90%	t _r		6	9	ns	1V prebias, 100mA peak
-40<T<+100°C, 90-10%	t _f		8	11		
Analogue Bandwidth	BWE		85		MHz	I _F = 100mA
Po Temperature Coefficient	ΔP _O /ΔT		-0.019		dB/°C	I _F = 100mA
Capacitance	C		70		pF	V _F = 0V, f = 1MHz
Thermal Resistance			250		°C/W	Heatsinked

1300nm PIN Diode (All tests made at 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Flux Responsivity	R	0.50	0.55		A/W	λ = 1300nm
Dark Current	I _D		2.0	5.0	nA	V _R = 5V, f = 1MHz
Response Time						
10 - 90%	t _r			1	ns	λ = 1300nm
90 - 10%	t _f			1		
Cut Off Frequency	F _C		1500		MHz	V _R = 5V, R _L = 50Ω
Capacitance	C		1.5	1.7	pF	V _R = 5V, f = 1MHz
Max. Reverse Voltage	V _{Rmax}			20	V	
Isolation	I _{CX}		40		dB	I _F (LED) = 100mA DC

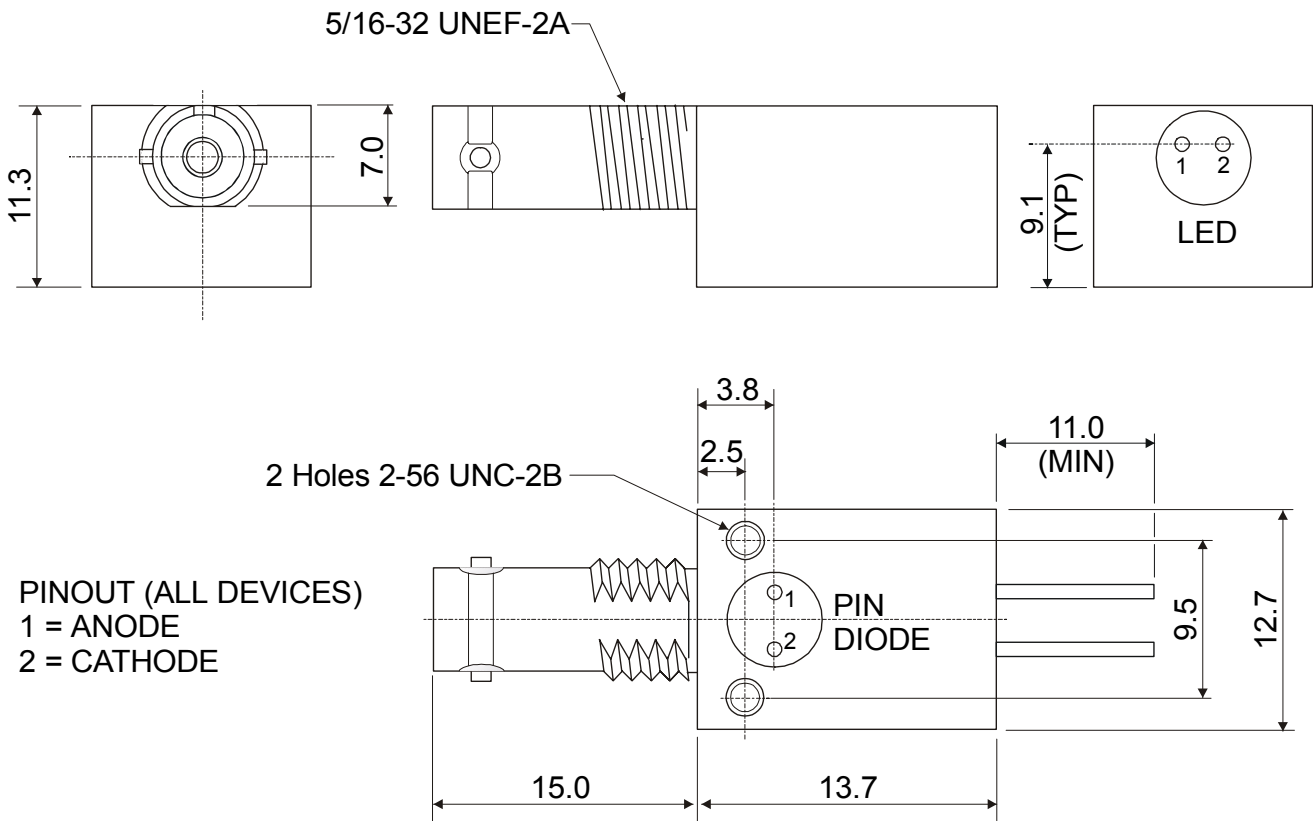
Absolute Maximum Ratings

Storage Temperature	-40 to +100°C
Operating Temperature	-40 to +85°C
Lead Solder Temperature	260°C, 10s
Continuous Forward Current	100mA (LED)
Reverse Voltage	1V @ 10μA (LED)

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.

Duplexer Block Mechanical Dimensions & Device Pin-out



SALES AND SERVICE

Honeywell serves its customers through a world-wide network of sales offices and distributors. For application assistance, current specifications, pricing or name of the nearest Authorised Distributor, contact a nearby sales office or call:

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1-214-470-4271 International

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info@micro.honeywell.com

Ordering Information - Duplexer Part Numbering Scheme

The Duplexer design supports any combination of LED, Laser, PIN Diode or PIN+Preamp. The following table details the Duplexer part numbering scheme. Please contact Optoelectronics Sales on 01189 819511 to discuss any requirements not detailed in this data sheet.

HOD	X	X	X	X	-	X	X	X	/	X	X	X														
	Port 1 Device		Port 2			Port 1 Speed		Port 2 Speed		Optical Budget	Connector	Mounting	Leads													
	1x = 850 LED	2x = 1300 LED	3x = 850 PIN	4x = 1300 PIN		1 = < 3ns	2 = < 6ns	3 = < 10ns	4 = < 20ns	1 = < 10dB	2 = < 20dB	3 = < 30dB	4 = < 40dB	A = SMA	B = ST Low Profile	C = FC/PC	D = ST Close Mount	E = SC	F = Reserved	G = ST Close Mount 2	X = Special	B = PCB	X = Special	A = Normal	B = Formed	C = Special

For example : **HOD1340-312/GBA** defines :-

- 850 LED in Port 1 (on axis)
- 1300 PIN in Port 2 (perpendicular axis)
- LED < 10ns Rise/Fall Time
- PIN < 3ns Rise/Fall Time
- <20dB link budget when used with corresponding duplexer
- Close Mount (Low profile), PCB housing, unformed leads

Specifications may change at anytime and without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use. While we provide application assistance, personally and through our literature, it is up to the customer to determine The suitability of the product in the application.

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Rev : 1