

FEATURES

- 7-pin coaxial package “HW”
- InGaAs-PIN with 3.3V pre-amplifier
- Differential output

APPLICATIONS

This PIN with preamplifier is intended to function as an optical receiver at 1,310nm or 1,550nm in SONET, SDH or other optical fiber systems operating up to 10.7Gb/s. The typical transimpedance (Z_t) value of 2,500 Ω optimizes the total bandwidth for 10Gb/s application. The detector preamplifier has an electrical differential output.



DESCRIPTION

The FRM5J141HW incorporates a high bandwidth InGaAs PIN photo diode, a preamplifier in a hermetically sealed coaxial package. The PIN is processed with modern epitaxial techniques resulting in a reliable performance over a wide range of operating conditions. The module incorporates a highly stable optical coupling system.

ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Ratings		Unit
		Min.	Max.	
Storage Temperature	T_{stg}	-40	+85	$^{\circ}\text{C}$
Operating Temperature	T_{op}	-5	70	$^{\circ}\text{C}$
Supply Voltage	V_{CC}	-0.5	4	V
PIN Reverse Voltage	V_{R}	0	+20	V
PIN Reverse Current	I_{R}	-	4(peak)	mA

OPTICAL & ELECTRICAL CHARACTERISTICS

(T_a=25°C, λ=1,550nm, V_{CC}=3.3V, V_R=5V, unless otherwise specified)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
PIN Responsivity	R13	λ = 1,310nm	0.7	0.9	-	A/W
	R15	λ = 1,550nm	0.7	0.9	-	
AC Transimpedance	Z _t	f = 750MHz, Single-end	2000	2500	-	Ω
Maximum Output Voltage Swing	V _{clip}	Saturated Output Voltage, Single-end	-	250	-	mV
Bandwidth	BW	-3dB from 750MHz	7.0	8.0	-	GHz
Output Return Loss	S22	130MHz to 6GHz	-	8.0	-	dB
Minimum Sensitivity	P _r	10Gb/s, NRZ, PRBS=2 ³¹ -1, B.E.R.=10 ⁻¹²	25°C, Rext=13dB	-	(-19.0)	dBm
			25°C, Rext=8.2dB	-	(-17.5)	
			25°C, Rext=6.0dB	-	(-16.0)	
			-5 to 70°C, Rext=13dB	-	(-18.0)	
Maximum Overload	P _o	10Gb/s, NRZ, PRBS=2 ³¹ -1, B.E.R.=10 ⁻¹² , Rext=13dB, T _a =-5 to 70°C	0	(2.0)	-	dBm
Optical Return Loss	ORL	λ = 1,550nm	27	-	-	dB
		λ = 1,310nm	27	-	-	
Preamp Supply Current	I _{cc}	-	-	40	50	mA
Preamp Supply Voltage	V _{CC}	-	3.13	3.3	3.47	V
PIN Supply Voltage	V _R	-	4.5	5.0	12	V

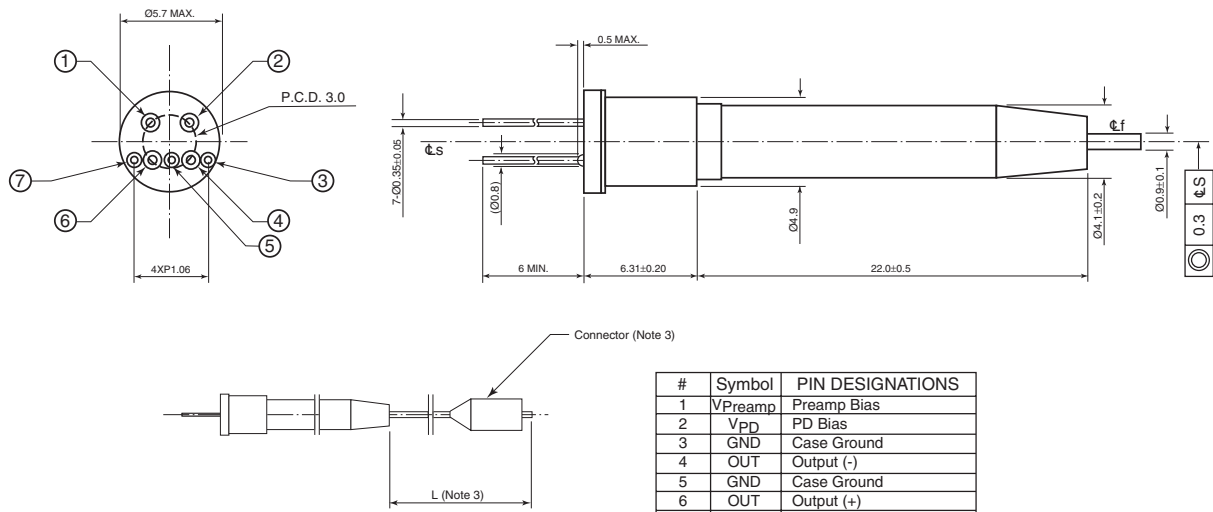
Note 1: All the parameters are measured with 50Ω AC-coupled.

Note 2: Values in "()" are target values and based on evaluation results from small quantity samples.

Notes

“HW” PACKAGE

UNIT: mm



Note 1: ϕ_f : Fiber center line
 Note 2: ϕ_s : Stem center line
 Neither ϕ_f nor ϕ_s are necessarily corresponding
 Note 3: The fiber length and connector shall be specified in the detail (individual) specification.

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- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.

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