HR1107CR

InGaAs PIN Photodiode

HITACHI

Description

The HR1107CR is an InGaAs PIN photodiode for detecting light in the 1.0 µm to 1.65 µm band. Its fast pulse response makes it suitable as an optical signal detector in high-bit-rate fiberoptic communications equipment.

Features

- Fast pulse response: tr, tf = 0.3 ns Typ
- High sensitivity: S = 0.8 mA/mW Typ (λp = 1550 nm)
- Low dark current: I_{DARK} = 1 nA Typ
- Low capacitance: Ct = 0.9 pF Typ
- Photodetectable area: 80 µm Dia

Fiber Specifications

- Numerical aperture: 0.2
- Core diameter: 50 µm
- Outer diameter: 125 µm
- Jacket diameter: 900 µm
- Refractive index profile: GI
- Fiber length: More than 1000 mm

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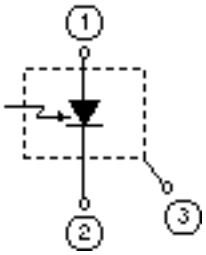
Package Type
- HR1107CR : CR

Internal Circuit



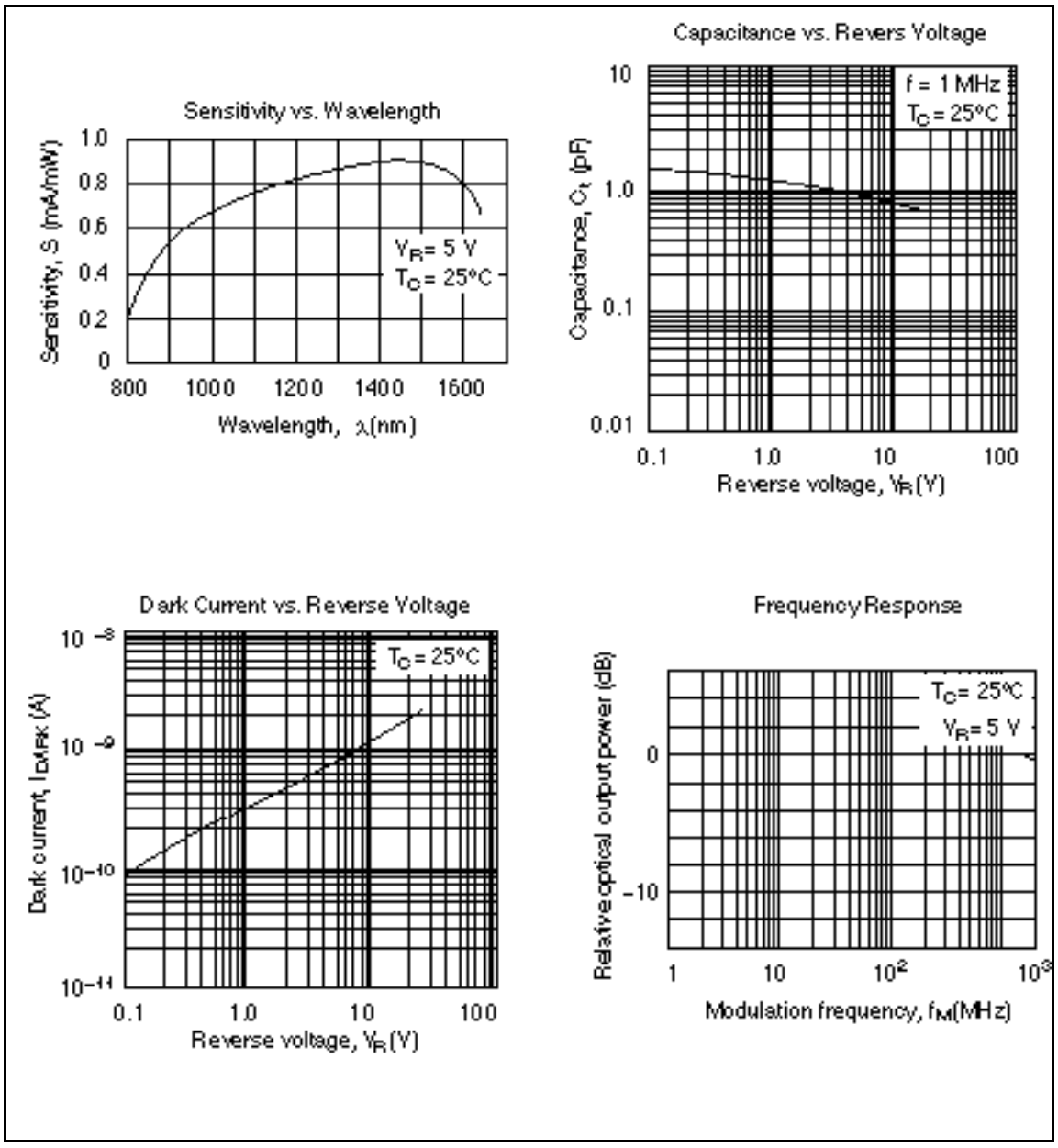
Absolute Maximum Ratings (T_C = 25°C)

Item	Symbol	Rated Value	Unit
Reverse voltage	V_R	20	V
Forward current	I_F	5.0	mA
Reverse current	I_R	500	µA
Operating temperature	Topr	–20 to +70	°C
Storage temperature	Tstg	–40 to +85	°C

Optical and Electrical Characteristics (T_C = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Dark current	I_{DARK}	—	1	5	nA	V_R = 5 V
Capacitance	Ct	—	0.9	1.3		V_R = 5 V, f = 1 MHz
Sensitivity	S_1	0.70	0.78	—	mA/mW	V_R = 5 V, λp = 1300 nm
	S_2	—	0.8		mA/mW	V_R = 5 V, λp = 1550 nm
Photosensitivity saturation voltage	$V_{R\ (S)}$	—	—	2	V	
Rise time	tr	—	0.3	—	ns	V_R = 5 V, λp = 1300 nm R_L = 50 Ω
Fall time	tf	—	0.3	—	ns	V_R = 5 V, λp = 1300 nm R_L = 50 Ω

Typical Characteristic Curves



Typical Characteristic Curves (cont)