

# HR1103TR

## Photodiode

### Description

HR1103TR is an InGaAs PIN photodiode for detecting 1.0–1.65  $\mu\text{m}$  light.

Its high speed pulse response makes it suitable as an optical signal detector in high-bit-rate fiber-optic communications equipment.

This package, with a receptacle, is easily connected to fiber with FC-type connector.

Hermetic sealing of the package achieves high reliability.

### Features

- High sensitivity :  $S \approx 0.6 \text{ mA/mW}$   
( $\lambda_p = 1300 \text{ nm}$ )
- Fast pulse response :  $t_r, t_f = 0.5 \text{ ns typ.}$
- Wide operating-temperature range :  $T_{opr} = -20 \text{ to } +85^\circ\text{C}$
- Photodetectable area :  $100 \mu\text{m dia.}$

### Absolute Maximum Ratings ( $T_C = 25^\circ\text{C}$ )

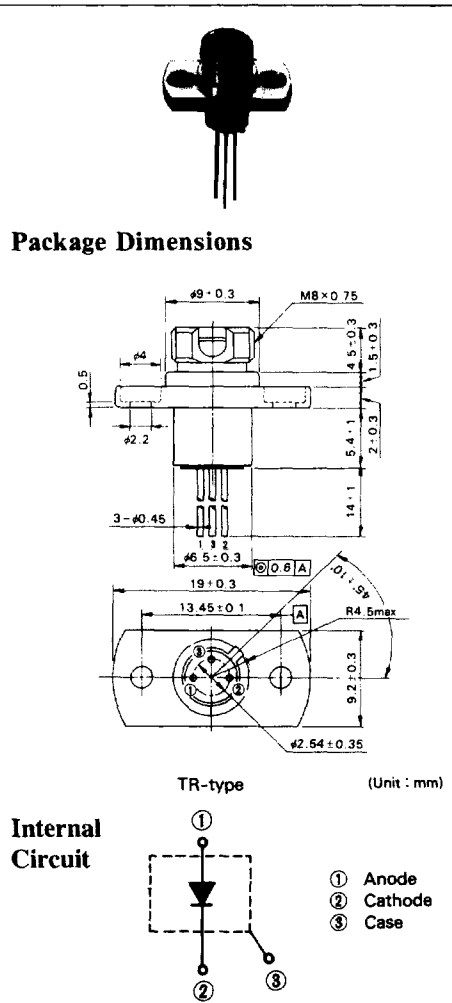
Items	Symbols	Values	Units
Reverse voltage	$V_R$	20	V
Forward current	$I_F$	1.0	mA
Reverse current	$I_R$	500	$\mu\text{A}$
Operating temperature	$T_{opr}$	-40 to +85	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-45 to +100	$^\circ\text{C}$

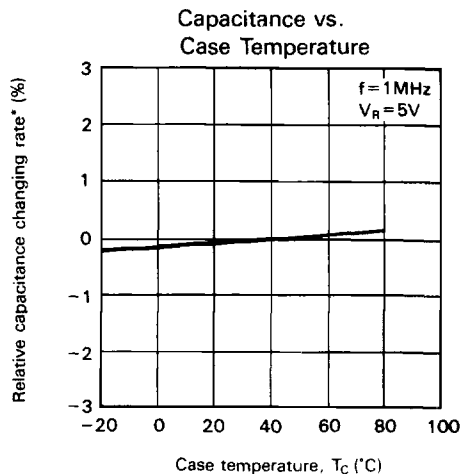
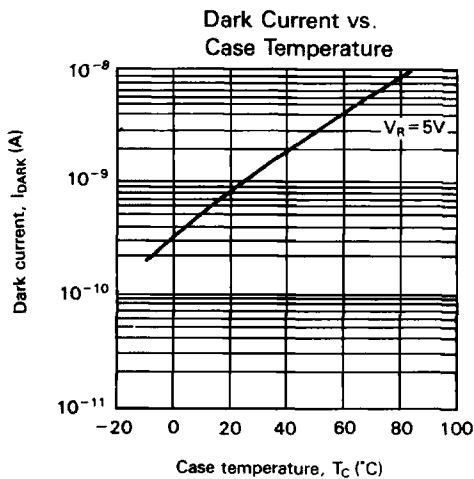
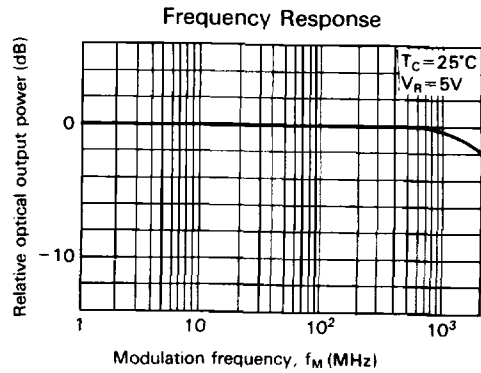
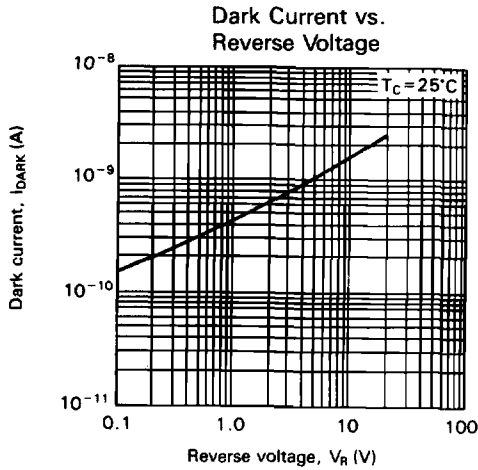
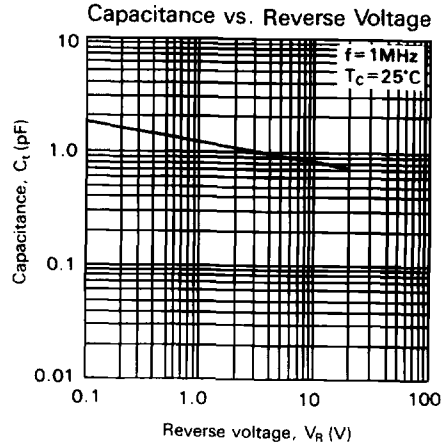
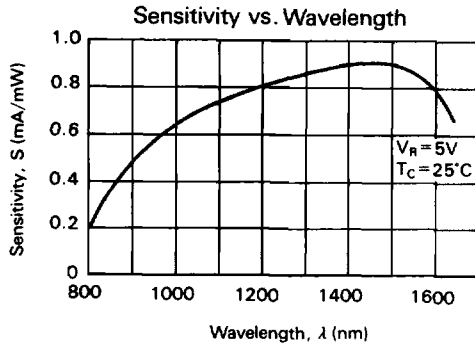
The absolute maximum ratings are limiting values, to be applied individually, beyond which the device may be permanently damaged. Functional operation under any of these conditions is not guaranteed. Exposing a circuit to its absolute maximum rating for extended periods of time may affect the device's reliability.

### Optical and Electrical Characteristics ( $T_C = 25^\circ\text{C}$ )

Items	Symbols	min.	typ.	max.	Units	Test conditions
Dark current	$I_{\text{DARK}}$		1	20	nA	$V_R = 5 \text{ V}$
Capacitance	$C_t$		1.0	1.5	pF	$V_R = 5 \text{ V}, f = 1 \text{ MHz}$
Sensitivity	$S_1^*$	0.6		0.7	mA/mW	$V_R = 5 \text{ V}, \lambda_p = 1300 \text{ nm}$
	$S_2^*$		0.85		mA/mW	$V_R = 5 \text{ V}, \lambda_p = 1550 \text{ nm}$
Photosensitivity saturation voltage	$V_{R(S)}$			2	V	
Rise time	$t_r$		0.5		ns	$V_R = 5 \text{ V}, \lambda_p = 1300 \text{ nm}$ $R_L = 50 \Omega$
Fall time	$t_f$		0.5		ns	$V_R = 5 \text{ V}, \lambda_p = 1300 \text{ nm}$ $R_L = 50 \Omega$

\* At GI50/125 fiber





(\* Between terminal pins at  $T_C = 25^\circ C$ )

