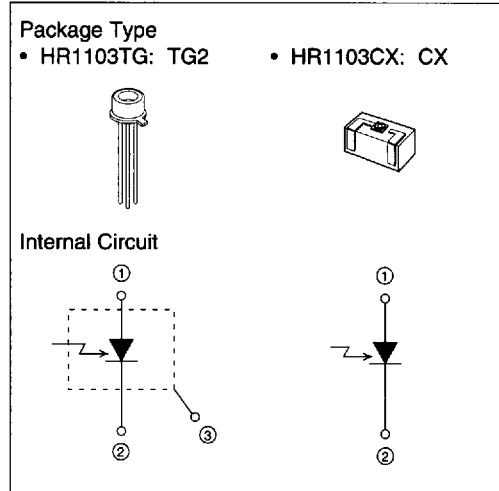


Description

The HR1103TG/CX are InGaAs PIN photodiodes which respond to a 1.0 to 1.65 μm band. Their fast pulse response make them suitable as optical detectors for high capacity optical fiber communication systems.

Features

- Fast pulse response: $t_r, t_f = 0.5 \text{ ns typ.}$
- High sensitivity: $S = 0.9 \text{ mA/mW typ.}$
($\lambda_p = 1550 \text{ nm}$)
- Low dark current: $I_{\text{DARK}} = 1 \text{ nA typ.}$
- Effective reception area: $100 \mu\text{m dia.}$
- Low capacitance: $C_t = 1.0 \text{ pF typ. (HR1103TG)}$
 $C_t = 1.2 \text{ pF typ. (HR1103CX)}$



Absolute Maximum Ratings ($T_C = 25 \pm 3^\circ\text{C}$)

Item	Symbol	Rated Value	Unit
Reverse voltage	V_R	20	V
Forward current	I_F	1.0	mA
Reverse current	I_R	500	μA
Operating temperature	T_{opr}	-40 to +80	$^\circ\text{C}$
Storage temperature	T_{stg}	-45 to +100	$^\circ\text{C}$

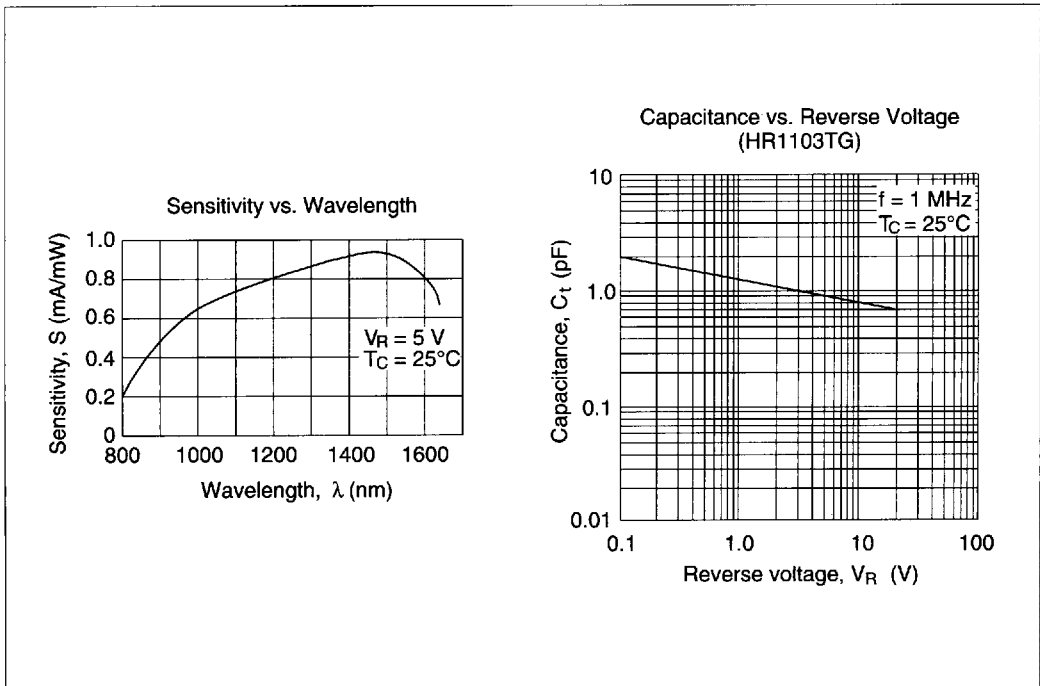
Note: The HR1103CX is intended for use in hermetically sealed packages. When using this product, please consult the "Handling Instructions" section in this book for more information.

HR1103TG/CX

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

Item	Symbol	Min	Typ	Max	Units	Test Conditions
Dark current	HR1103TG I_{DARK}	—	1	20	nA	$V_R = 5\text{ V}$
	HR1103CX	—	1	50		
Capacitance	HR1103TG C_t	—	1.0	1.5	pF	$V_R = 5\text{ V}, f = 1\text{ MHz}$
	HR1103CX	—	1.2	2.0		
Sensitivity	S_1	0.73	0.85	—	mA/mW	$V_R = 5\text{ V}, \lambda_p = 1300\text{ nm}$
	S_2	—	0.9	—		$V_R = 5\text{ V}, \lambda_p = 1550\text{ nm}$
Sensitivity saturation bias 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	$V_R = 5\text{ V}, \lambda_p = 1300\text{ nm}$ $R_L = 50\ \Omega$

Typical Characteristic Curves



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Part

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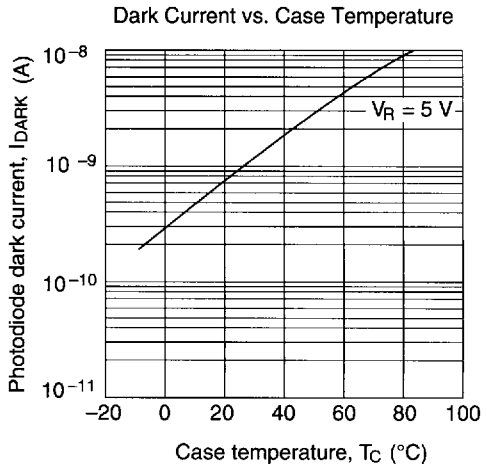
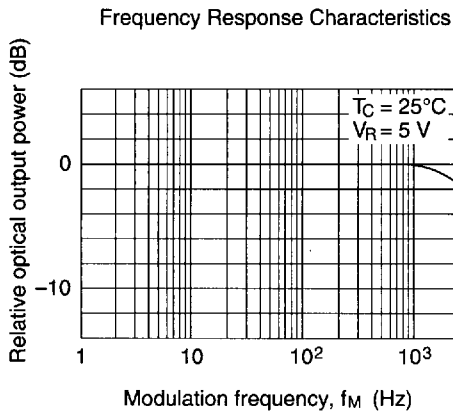
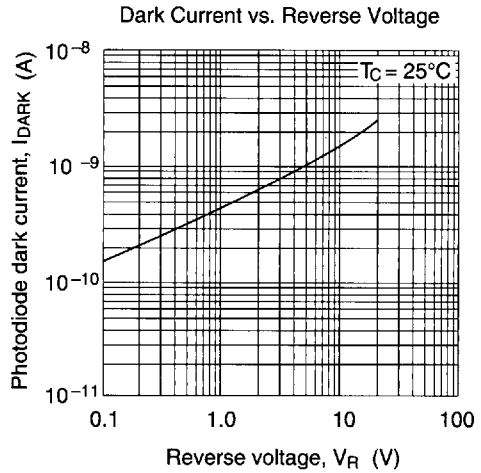
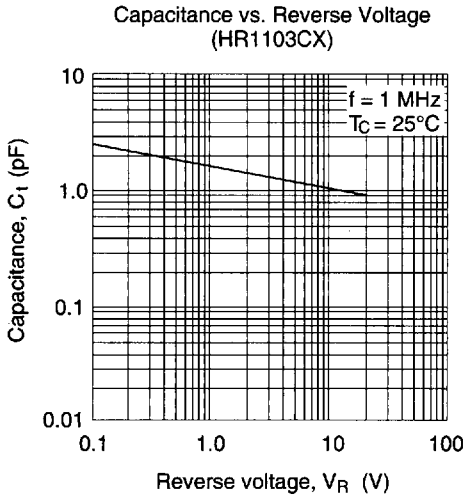
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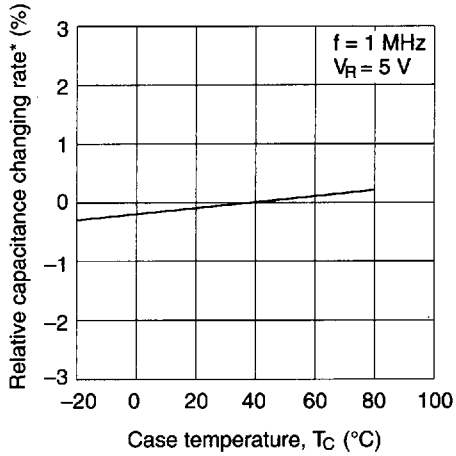
Typical Characteristic Curves (cont.)

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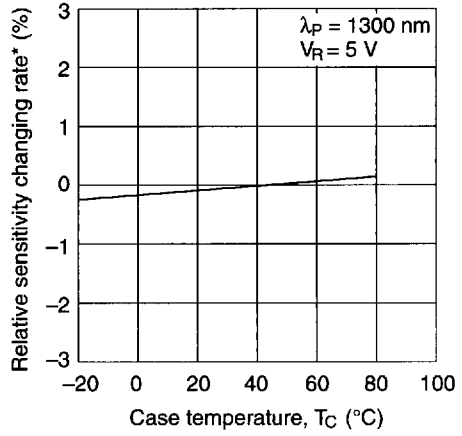
Typical Characteristic Curves (cont.)

Capacitance vs. Case Temperature



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

Sensitivity vs. Case Temperature



(*At $T_C = 25^\circ\text{C}$)

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Part

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