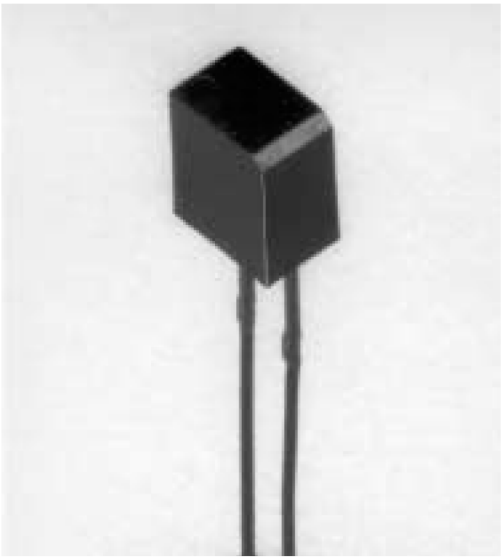
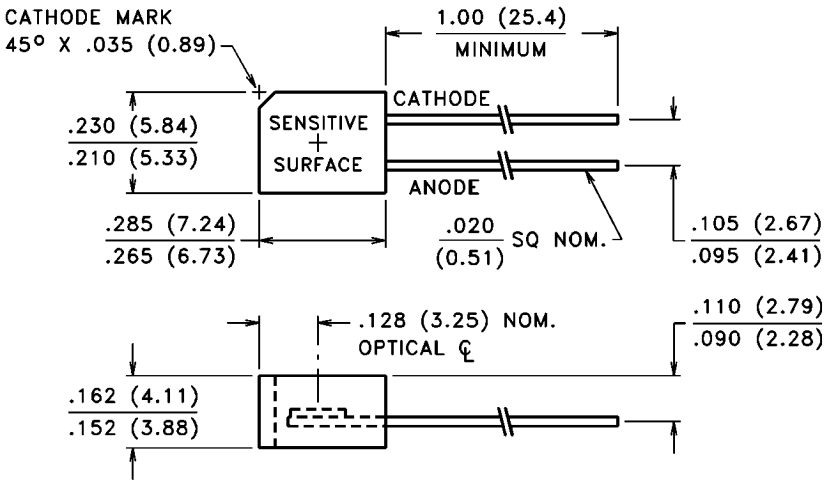
VTP Process Photodiodes

VTP100H



PACKAGE DIMENSIONS inch (mm)



CASE 52 FLAT SIDELOOKER
CHIP ACTIVE AREA: .012 in^2 (7.45 mm^2)

PRODUCT DESCRIPTION

Planar silicon photodiode in a molded plastic sidelooker package. The package material is infrared transmitting (blocking visible light). These diodes exhibit low dark current and fast speed of response.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature:	-40°C to 100°C
Operating Temperature:	-40°C to 100°C

RoHS Compliant

ELECTRO-OPTICAL CHARACTERISTICS @ 25°C (See also VTP curves, pages 45-46)

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VTP100H			UNITS
			Min.	Typ.	Max.	
I_{SC}	Short Circuit Current	H = 100 fc, 2850 K	35	55		µA
TC I_{SC}	I_{SC} Temperature Coefficient	2850 K		.24		%/°C
V_{OC}	Open Circuit Voltage	H = 100 fc, 2850 K		300		mV
TC V_{OC}	V_{OC} Temperature Coefficient	2850 K		-2.0		mV/°C
I_D	Dark Current	H = 0, VR = 10 V			30	nA
R_{SH}	Shunt Resistance	H = 0, V = 10 mV		.25		GΩ
C_J	Junction Capacitance	H = 0, V = 3 V			50	pF
Re	Responsivity	940 nm	.036	.047		A/(W/cm^2)
S_R	Sensitivity	@ Peak		.50		A/W
λ_{range}	Spectral Application Range		725		1150	nm
λ_p	Spectral Response - Peak			925		nm
V_{BR}	Breakdown Voltage		30	140		V
$\theta_{1/2}$	Angular Resp. - 50% Resp. Pt.			±70		Degrees
NEP	Noise Equivalent Power			2.5 x 10^{-14} (Typ.)		$W/\sqrt{Hz}$
D*	Specific Detectivity			1.1 x 10^{13} (Typ.)		$cm\sqrt{Hz}/W$

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VTP PROCESS
FAST RESPONSE, HIGH DARK RESISTANCE

FEATURES

- *Visible to enhanced IR spectral range*
- *Integral visible rejection filters available*
- *Response @ 940 nm, 0.60 A/W, typical*
- *-1 to 2% linearity over 7 to 9 decades*
- *Low dark currents*
- *High shunt resistance*
- *High reverse voltage rating*
- *Low capacitance*

PRODUCT DESCRIPTION

Photodiodes in this series have been designed for low junction capacitance. The lower the capacitance, the faster the response of the diode. Also, speed can be further increased by reverse biasing the diodes which lowers the capacitance even more.

These diodes have excellent response in the IR region and are well matched to IR LEDs. Responsivity is categorized at 940 nm (GaAs LED). Some diodes are available in packages which incorporate a visible rejection filter effectively blocking any light below 700 nm.

Diodes made with the VTP process are suitable for operation under reverse bias conditions but may be used in the photovoltaic mode. Typical reverse breakdown voltages are around 140 V. Low dark currents under reverse bias are also a feature of this series.