

SMPD5000-V

Silicon PIN Photodiode



❖ Basic Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Breakdown Voltage	$V_{(BR)}$	$I_R = 100 \mu A, E = 0$	60	-		V
Reverse Dark Current	I_{ro}	$V_R = 10 V, E = 0$		2	30	nA
Diode Capacitance	C_D	$V_R = 0 V, f = 1 MHz, E = 0$		70		pF
		$V_R = 3 V, f = 1 MHz, E = 0$		25	40	
Open Circuit Voltage	V_O	$E_e = 1 mW/cm^2, \lambda = 950 nm$		350		mV
Temp. Coefficient of V_O	TK_{V_O}	$E_e = 1 mW/cm^2, \lambda = 950 nm$		-2.6		mV/K
Short Circuit Current	I_k	$E_A = 1 klx$		70		μA
		$E_e = 1 mW/cm^2, \lambda = 950 nm$		50		
Temp. Coefficient of I_k	TK_{I_k}	$E_e = 1 mW/cm^2, \lambda = 950 nm$		0.1		%/K
Reverse Light Current	I_{ra}	$E_A = 1 klx, V_R = 5 V$		75		μA
		$E_e = 1 mW/cm^2, \lambda = 950 nm, V_R = 5 V$	40	55		
Angle of Half Sensitivity	φ			± 65		deg
Wavelength of Peak Sensitivity	λ_p			900		nm
Range of Spectral Bandwidth	$\lambda_{0.5}$			600 .. 1050		nm
Noise Equivalent Power	NEP	$V_R = 10 V, \lambda = 950 nm$		4×10^{-14}		W / \sqrt{Hz}
Rise Time	t_r	$V_R = 10 V, R_L = 1 k\Omega, \lambda = 820 nm$		100		ns
Fall Time	t_f	$V_R = 10 V, R_L = 1 k\Omega, \lambda = 820 nm$		100		ns

❖ Typical Characteristics

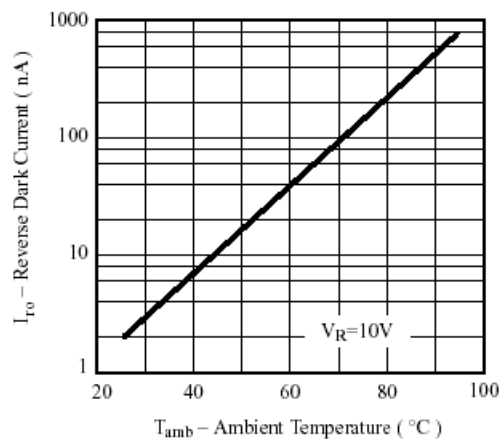


Fig. 1. Reverse Light Current vs. Ambient Temperature

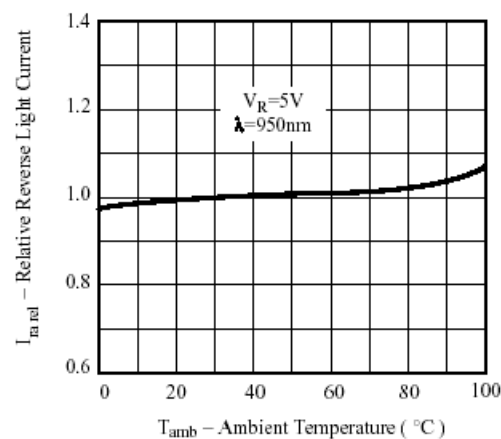


Fig. 2. Relative Reverse Light Current vs. Ambient Temperature

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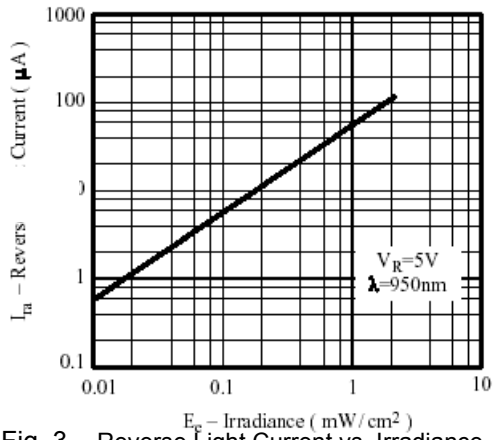


Fig. 3. Reverse Light Current vs. Irradiance

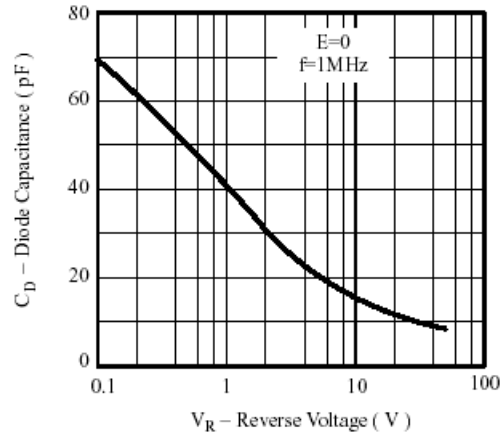


Fig. 4. Diode Capacitance vs. Reverse Voltage

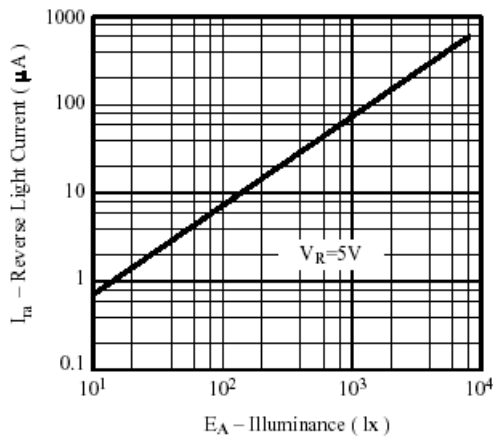


Fig. 5. Reverse Light Current vs. Illuminance

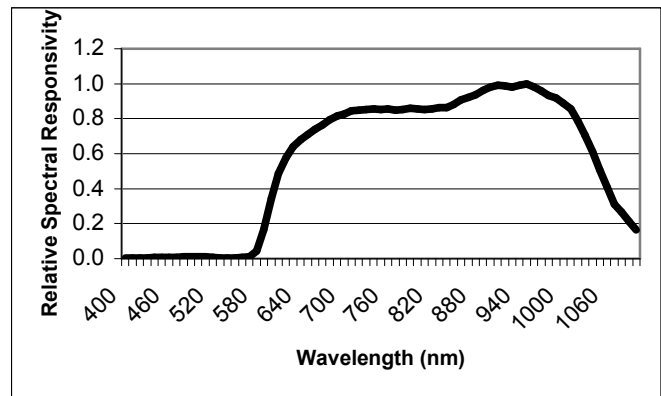


Fig. 6. Relative Spectral Sensitivity vs. Wavelength

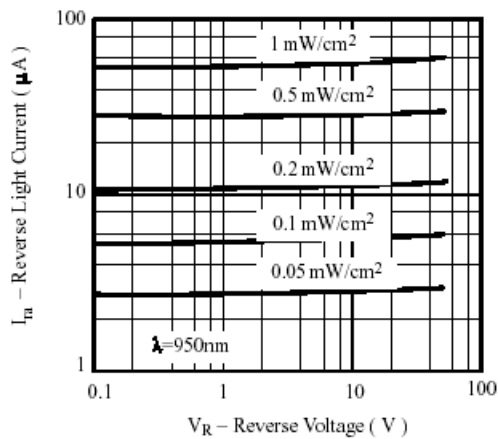


Fig. 7. Reverse Light Current vs. Reverse Voltage

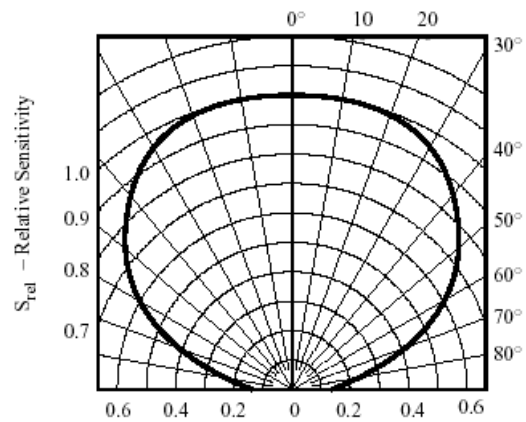


Fig. 8. Relative Radiant Sensitivity vs. Angular Displacement