VTP PROCESS

FAST RESPONSE HIGH DARK RESISTANCE

FEATURES

- *Visible to enhanced IR spectral range.*
- *Integral visible rejection filters available*
- *Response @ 940nm, 0.55 A/W, typ.*
- *1-2% linearity over 7 to 9 decades.*
- *Low dark currents.*
- *High shunt resistance.*
- *High reverse voltage rating.*
- *Low capacitance.*

PRODUCT DESCRIPTION

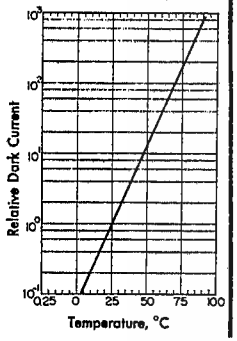
This series of P on N silicon diodes is primarily intended for use with reverse bias but may be used in the photovoltaic mode. These diodes have excellent response in the IR region and are well matched to IR LEDS. Due to the low capacitance, these devices may be used with high load resistance and still have a fast response time. The low dark current under bias minimize DC offsets in transimpedance connected op-amp circuits.

GENERAL CHARACTERISTICS

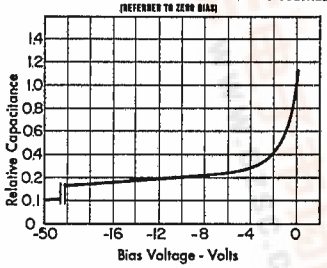
Data Typical Except as Noted

PARAMETER	SYM.	WITH VISIBLE REJECTION FILTER	WITH GLASS OR EPOXY WINDOW	UNITS
OPEN CIRCUIT VOLTAGE 100fc 2850K, SOURCE	V_{OC}	300	350	mV
BREAKDOWN VOLTAGE	V_{BR}	140	140	V
SPECTRAL RESPONSE - PEAK	λpk	925	925	nm
APPLICATION RANGE	$\lambda range$	725-1150	400-1150	nm
RADIOMETRIC SENSITIVITY @PEAK	S_{RPK}	0.50	0.55	A/W
TEMPERATURE COEFFICIENT SHORT CIRCUIT CURRENT 2850K SOURCE	TCIL	+0.24	+0.20	%/°C
OPEN CIRCUIT VOLTAGE 2850K SOURCE	TCOCV	−2.0	−2.0	mV/°C
DARK CURRENT	TCID	+11.0	+11.0	%/°C
ATTENUATION FACTOR FOR WAVE-LENGTH SHORTER THAN 700nm		100	—	—

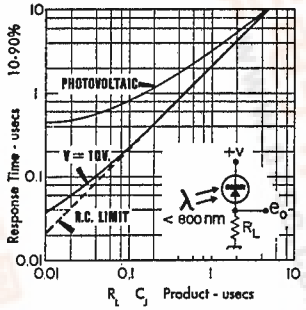
RELATIVE DARK CURRENT VS TEMPERATURE



RELATIVE JUNCTION CAPACITANCE VS BIAS VOLTAGE (REFERRED TO ZERO BIAS)



RISE/FALL TIMES - NON SATURATED



EG&G VACTEC

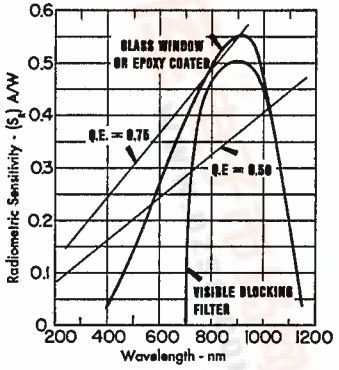
ELECTRO-OPTICAL CHARACTERISTICS (at 25°C)

PART NO.	CASE NO.	Responsivity (2) (6) R_E 940 nm uA/(uW/cm²) min	typ.	2850K (3) uA/fc min	typ.	Dark Current I_D H=0 nA max @ Volts	Dark Resistance R_D H=0 V = 10 mV Megohms min	Breakdown Voltage V_{BR} H=0 I_R = 0.10mA Volts min	Junction Capacitance C_J H=0 pF max @ Volts		Active Area A (in²) mm²	Angular (5) Response θ Half Power typ.	CASE STYLE
MOUNTED CELLS													
VTP3310L	50	—	0.015	0.24	0.36	35	10	—	30	25	3	28°	LONG T1
VTP7110	7	—	0.015	0.06	0.09	35	10	—	30	25	3	(0.0016) 1.032	58°	LATERAL
VTP 1012	17	—	0.011	0.1	0.17	7	50	—	—	6	15	(0.0025) 1.6	35°	TO-18 FLAT WINDOW
VTP 1013		—	0.011	0.1	0.17	1.5	50	—	—	6	15			
VTP 1112	19	—	0.033	0.3	0.90	7	50	—	—	6	15		15°	TO-18 LENSED
VTP 1113		—	0.033	0.3	0.90	1.5	50	—	—	6	15			
VTP 9412	20	—	0.011	0.1	0.17	7	50	—	—	6	15		58°	6 mm CERAMIC
VTP 9413		—	0.011	0.1	0.17	1.5	50	—	—	6	15			
VTP 5040	14	—	0.02	0.30	0.55	15	50	—	—	15	15	(0.008) 5.16	45°	TO-5
VTP 5041		—	0.02	0.30	0.55	3	50	—	—	15	15			
VTP5041IR		—	0.02	0.20	0.38	30	10	—	33	30	10			W/IRT FILTER*
VTP 8440	21	—	.025	0.30	0.55	15	50	—	—	15	15		58°	8 mm CERAMIC
VTP 8441		—	.025	0.30	0.55	3	50	—	—	15	15			
VTP 100	52	.036	0.047	—	0.72	30	10	—	30	50	3	(0.012) 7.45	70°	SIDELOOKER IRT EPOXY FLAT
VTP 100A	52A	.036	0.047	—	0.72	30	10	—	30	50	3			
VTP 413	51	.050	0.078	—	1.20	30	10	—	30	50	3		48°	SIDELOOKER IRT LENSED
VTP 1150S	12	0.10	0.15	—	2.0	—	—	50	—	120	0		45°	CLEAR LENSED CERAMIC
VTP 1150		0.10	0.15	—	2.0	30	10	—	33	30	3			
VTP 1250S	12	0.09	0.13	—	1.5	—	—	50	—	120	0		45°	BLACK-IRT* LENSED CERAMIC
VTP 1250		0.09	0.13	—	1.5	30	10	—	33	30	3			
VTP 4050S	13	0.04	0.06	—	0.8	—	—	50	—	120	0		60°	CERAMIC
VTP 4050		0.04	0.06	—	0.8	30	10	—	33	50	3			
VTP 5050	14	—	0.05	0.4	0.7	18	50	—	—	24	15		45°	TO-5
VTP 5051		—	0.05	0.4	0.7	3.5	50	—	—	24	15			
VTP 8350S	11	0.04	0.06	—	0.8	—	—	50	—	120	0		60°	CERAMIC
VTP 8350		—	0.06	0.65	0.8	30	10	—	33	30	3			
VTP 8351		—	0.06	0.65	0.8	18	50	—	—	24	15			
VTP 8551	22	—	0.05	0.5	0.7	30	10	—	33	30	3		58°	CLEAR MINI DIP
VTP 8552		—	0.05	0.5	0.7	2	10	—	33	30	3			
VTP 8651	22	—	0.045	0.35	0.6	30	10	—	33	30	3		58°	BLACK-IRT* MINI DIP
VTP 8652		—	0.045	0.35	0.6	2	10	—	33	30	3			
VTP 6060	15	—	0.14	1.2	2.0	35	50	—	—	60	15	(0.032) 20.6	45°	TO-8
VTP 6061		—	0.14	1.2	2.0	7	50	—	—	60	15			

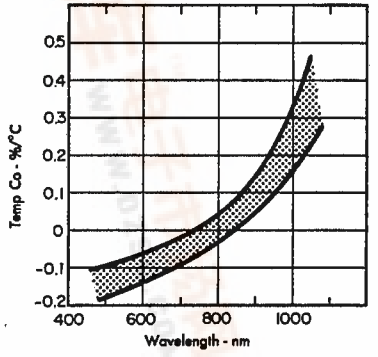
REFER TO SPECIFICATION NOTES, PAGE 11.

* IRT = INFRA RED TRANSMITTING

ABSOLUTE SPECTRAL RESPONSE



TEMPERATURE COEFFICIENT OF LIGHT CURRENT VS WAVELENGTH



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