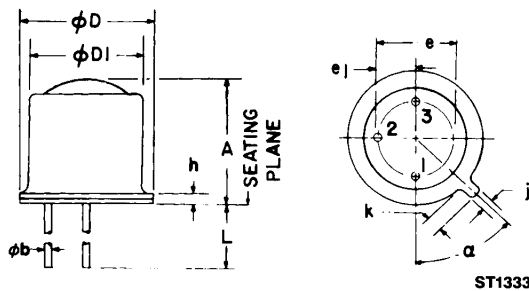


PACKAGE DIMENSIONS



ST1333

DESCRIPTION

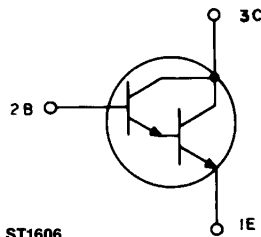
The BPW38 is a silicon photodarlington mounted in a narrow angle TO-18 package.

FEATURES

- Hermetically sealed package
- Narrow reception angle
- European "Pro Electron" registered

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	.225	.255	5.71	6.47	
ϕb	.016	.021	.407	.533	
ϕD	.209	.230	5.31	5.84	
ϕD_1	.178	.195	4.52	4.96	
e	.100 NOM		2.54 NOM		2
e_1	.050 NOM		1.27 NOM		2
h	—	.030	—	.76	
j	.036	.046	.92	1.16	
k	.028	.048	.71	1.22	1
L	.500	—	12.7	—	
α	45°	45°	45°	45°	3

PACKAGE OUTLINE



ST1606

NOTES:

1. MEASURED FROM MAXIMUM DIAMETER OF DEVICE.
2. LEADS HAVING MAXIMUM DIAMETER .021" (.533mm) MEASURED IN GAUGING PLANE .054" + .001" - .000 (1.37 + .025 - .000mm) BELOW THE REFERENCE PLANE OF THE DEVICE SHALL BE WITHIN .007" (.778mm) THEIR TRUE POSITION RELATIVE TO MAXIMUM WIDTH TAB.
3. FROM CENTERLINE TAB.



HERMETIC SILICON PHOTODARLINGTON

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)	
Storage Temperature	-65°C to $+150^\circ\text{C}$
Operating Temperature	-65°C to $+125^\circ\text{C}$
Soldering:	
Lead Temperature (Iron)	240°C for 5 sec. ^(3,4,5,6)
Lead Temperature (Flow)	260°C for 10 sec. ^(3,4,6)
Collector-Emitter Breakdown Voltage	25 Volts
Collector-Base Breakdown Voltage	25 Volts
Emitter-Base Breakdown Voltage	12 Volts
Power Dissipation ($T_A = 25^\circ\text{C}$)	300 mW ⁽¹⁾
Power Dissipation ($T_C = 25^\circ\text{C}$)	600 mW ⁽²⁾

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified) (All measurements made under pulse conditions.)						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Collector-Emitter Breakdown	BV_{CEO}	25		—	V	$I_C = 10\text{ mA}$, $E_e = 0$
Emitter-Base Breakdown	BV_{EBO}	12		—	V	$I_E = 100\ \mu\text{A}$, $E_e = 0$
Collector-Base Breakdown	BV_{CBO}	25		—	V	$I_C = 100\ \mu\text{A}$, $E_e = 0$
Collector-Emitter Leakage	I_{CEO}	—		100	nA	$V_{CE} = 12\text{ V}$, $E_e = 0$
Reception Angle at $1/2$ Sensitivity	θ		± 8		Degrees	
On-State Collector Current	$I_{C(ON)}$	3.0		—	mA	$E_e = .05\text{ mW/cm}^2$, $V_{CE} = 5\text{ V}$ ^(7,8)
Rise Time	t_r		300		μS	$I_C = 10\text{ mA}$, $V_{CC} = 10\text{ V}$, $R_L = 100\ \Omega$
Fall Time	t_f		250		μS	$I_C = 10\text{ mA}$, $V_{CC} = 10\text{ V}$, $R_L = 100\ \Omega$

NOTES
1. Derate power dissipation linearly $3.00\text{ mW}/^\circ\text{C}$ above 25°C ambient.
2. Derate power dissipation linearly $6.00\text{ mW}/^\circ\text{C}$ above 25°C case.
3. RMA flux is recommended.
4. Methanol or Isopropyl alcohols are recommended as cleaning agents.
5. Soldering iron tip $1/16"$ (1.6 mm) minimum from housing.
6. As long as leads are not under any stress or spring tension.
7. Light source is a GaAs LED emitting light at a peak wavelength of 940 nm.
8. Figure 1 and figure 2 use light source of tungsten lamp at 2870°K color temperature. A GaAs source of 0.05 mW/cm^2 is approximately equivalent to a tungsten source, at 2870°K , of 0.2 mW/cm^2 .

TYPICAL CHARACTERISTICS

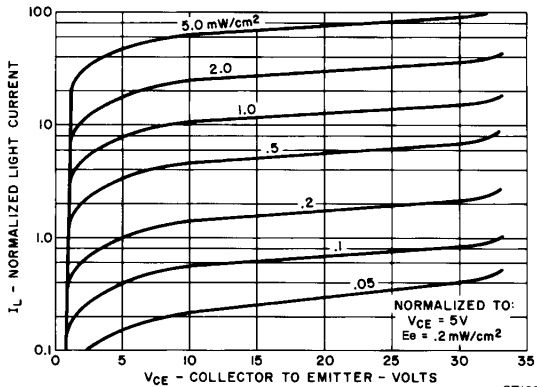


Fig. 1. Light Current vs. Collector to Emitter Voltage

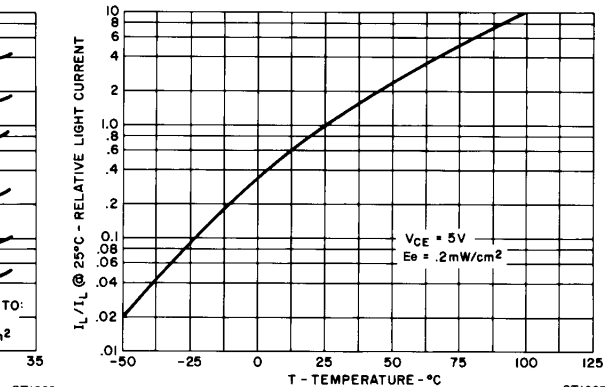


Fig. 2. Relative Light Current vs. Ambient Temperature

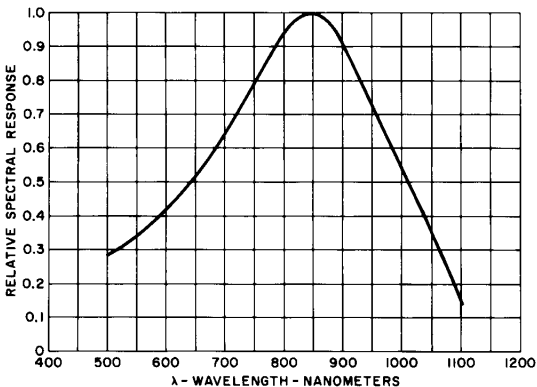


Fig. 3. Spectral Response Curve

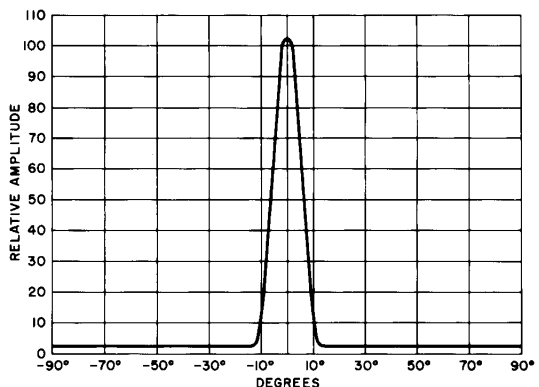


Fig. 4. Angular Response

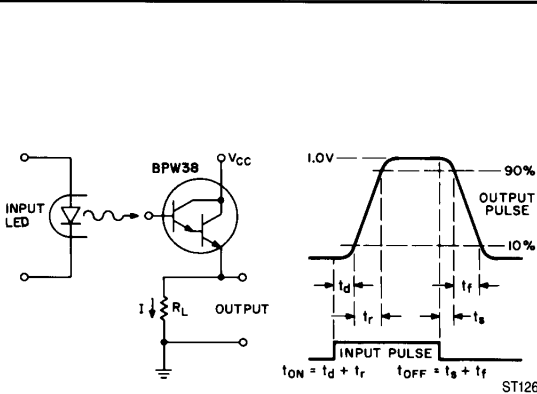


Fig. 5. Test Circuit and Voltage Waveforms

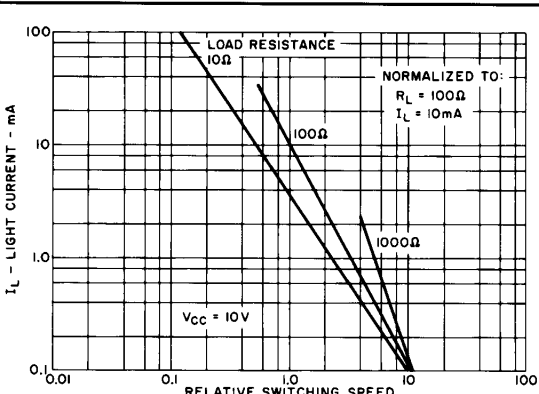


Fig. 6. Light Current vs. Relative Switching Speed