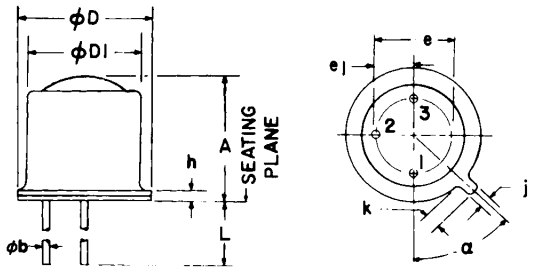
OPTOELECTRONICS

HERMETIC SILICON PHOTODARLINGTON

BPW38

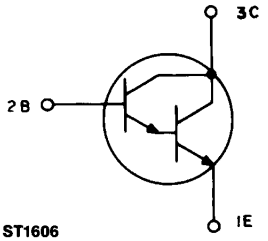
PACKAGE DIMENSIONS



ST1333

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	.225	.255	5.71	6.47	
Ⓜb	.016	.021	.407	533	
ⓂD	.209	.230	5.31	5.84	
ⓂD$_1$	.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 (137 + .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.

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

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ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Specified)

Storage Temperature ..... −65°C to +150°C
Operating Temperature ..... −65°C to +125°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°C) ..... 300 mW[1]
Power Dissipation (T_C = 25°C) ..... 600 mW[2]

ELECTRICAL CHARACTERISTICS (T_A = 25°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 mA, Ee = 0
Emitter-Base Breakdown	BV_{EBO}	12		—	V	I_E = 100 μA, Ee = 0
Collector-Base Breakdown	BV_{CBO}	25		—	V	I_C = 100 μA, Ee = 0
Collector-Emitter Leakage	I_{CEO}	—		100	nA	V_{CE} = 12 V, Ee = 0
Reception Angle at ½ Sensitivity	θ		±8		Degrees	
On-State Collector Current	$I_{C(ON)}$	3.0		—	mA	Ee = .05 mW/cm², V_{CE} = 5 V[7,8]
Rise Time	t_r		300		μS	I_C = 10 mA, V_{CC} = 10 V, R_L = 100Ω
Fall Time	t_f		250		μS	I_C = 10 mA, V_{CC} = 10 V, R_L = 100Ω

NOTES

1. *Derate power dissipation linearly 3.00mW/°C above 25°C ambient.*
2. *Derate power dissipation linearly 6.00mW/°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/cm² is approximately equivalent to a tungsten source, at 2870°K, of 0.2 mW/cm².*

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TYPICAL CHARACTERISTICS

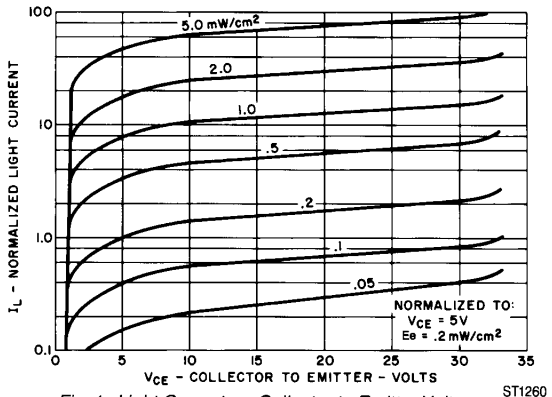

Fig. 1. Light Current vs. Collector to Emitter Voltage

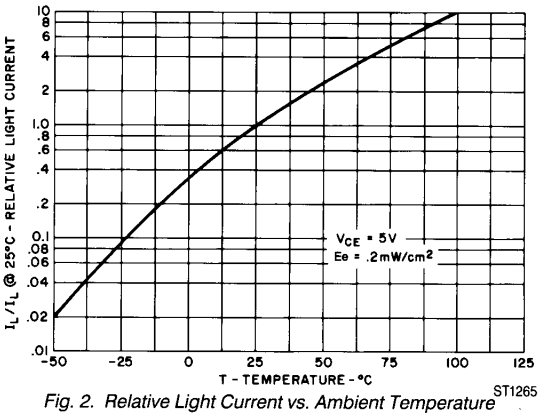

Fig. 2. Relative Light Current vs. Ambient Temperature

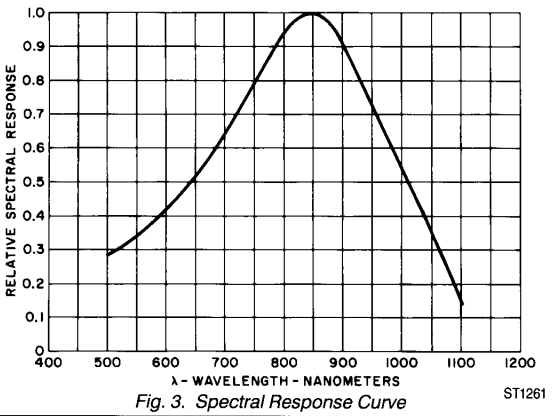

Fig. 3. Spectral Response Curve

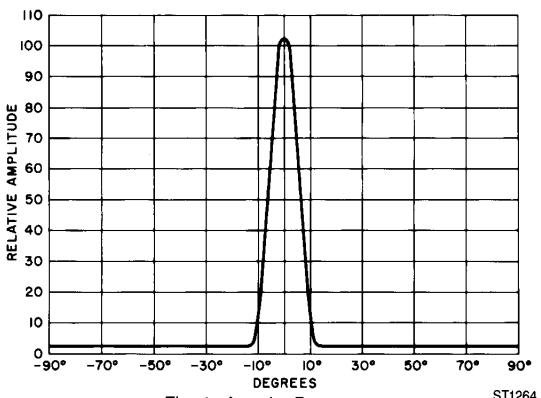

Fig. 4. Angular Response

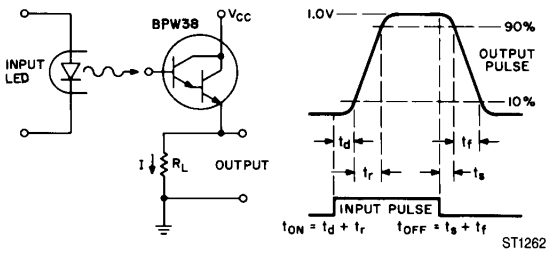

Fig. 5. Test Circuit and Voltage Waveforms

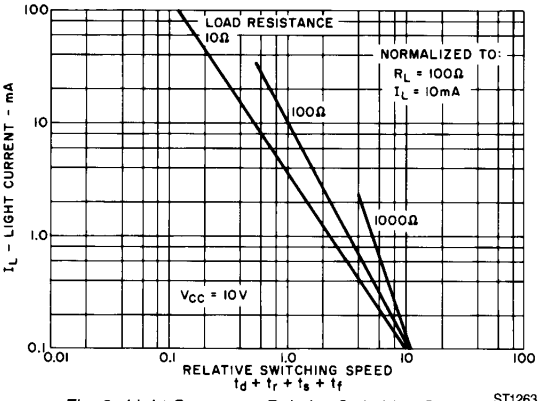

Fig. 6. Light Current vs. Relative Switching Speed