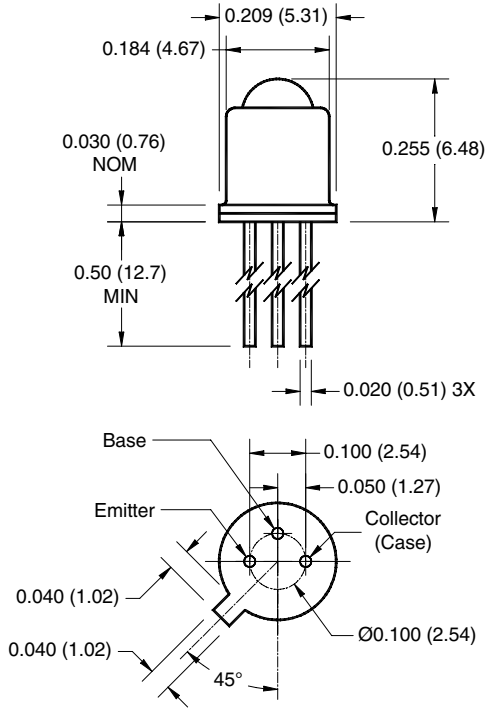


**PACKAGE DIMENSIONS**

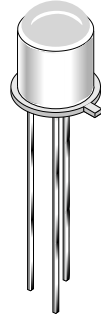


**NOTES:**

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of  $\pm .010$  (.25) on all non-nominal dimensions unless otherwise specified.

**FEATURES**

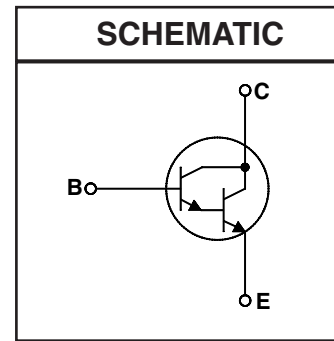
- Hermetically sealed package
- Narrow reception angle
- European "Pro Electron" registered



**DESCRIPTION**

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

**SCHEMATIC**



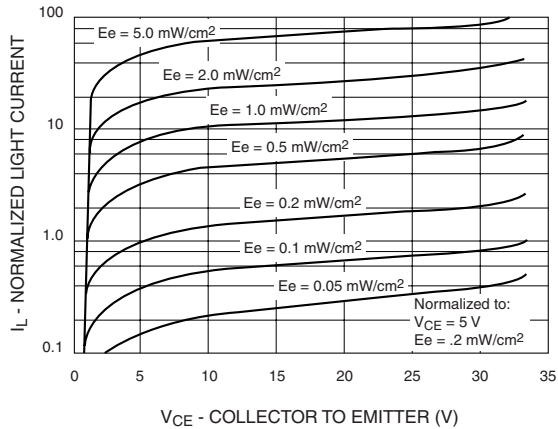
1. Derate power dissipation linearly 3.00 mW/°C above 25°C ambient.
2. Derate power dissipation linearly 6.00 mW/°C above 25°C case.
3. RMA flux is recommended.
4. Methanol or isopropyl alcohols are recommended as cleaning agents.
5. Soldering iron tip 1/16" (1.6mm) minimum from housing.
6. As long as 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.

**ABSOLUTE MAXIMUM RATINGS** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

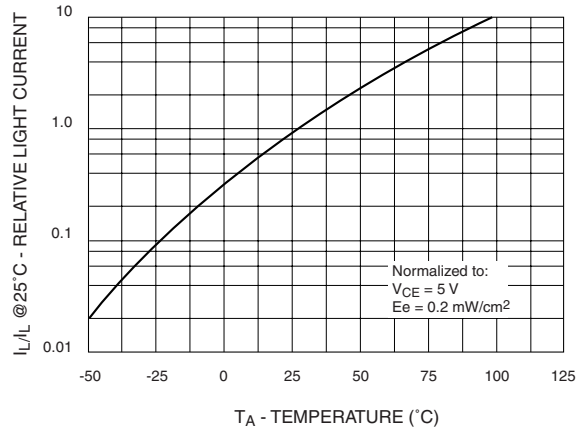
Parameter	Symbol	Rating	Unit
Operating Temperature	$T_{OPR}$	-65 to +125	°C
Storage Temperature	$T_{STG}$	-65 to +150	°C
Soldering Temperature (Iron) <sup>(3,4,5 and 6)</sup>	$T_{SOL-I}$	240 for 5 sec	°C
Soldering Temperature (Flow) <sup>(3,4 and 6)</sup>	$T_{SOL-F}$	260 for 10 sec	°C
Collector-Emitter Voltage	$V_{CEO}$	25	V
Collector-Base Voltage	$V_{CBO}$	25	V
Emitter-Base Voltage	$V_{EBO}$	12	V
Power Dissipation ( $T_A = 25^\circ\text{C}$ ) <sup>(1)</sup>	$P_D$	300	mW
Power Dissipation ( $T_C = 25^\circ\text{C}$ ) <sup>(2)</sup>	$P_D$	600	mW

<b>ELECTRICAL / OPTICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ ) (All measurements made under pulse conditions)						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Collector-Emitter Breakdown	$I_C = 10\text{ mA}$ , $E_e = 0$	$BV_{CEO}$	25	—	—	V
Emitter-Base Breakdown	$I_E = 100\ \mu\text{A}$ , $E_e = 0$	$BV_{EBO}$	12	—	—	V
Collector-Base Breakdown	$I_C = 100\ \mu\text{A}$ , $E_e = 0$	$BV_{CBO}$	25	—	—	V
Collector-Emitter Leakage	$V_{CE} = 12\text{ V}$ , $E_e = 0$	$I_{CEO}$	—	—	100	nA
Reception Angle at 1/2 Sensitivity		$\Theta$	—	$\pm 8$	—	Deg.
On-State Collector Current	$E_e = 0.125\text{ mW/cm}^2$ $V_{CE} = 5\text{ V}^{(7)}$	$I_{C(ON)}$	7.5	—	—	mA
Rise Time	$I_C = 10\text{ mA}$ , $V_{CC} = 10\text{ V}$ $R_L = 100\ \Omega$	$t_r$	—	300	—	$\mu\text{s}$
Fall Time	$I_C = 10\text{ mA}$ , $V_{CC} = 10\text{ V}$ $R_L = 100\ \Omega$	$t_f$	—	250	—	$\mu\text{s}$

**TYPICAL PERFORMANCE CURVES**

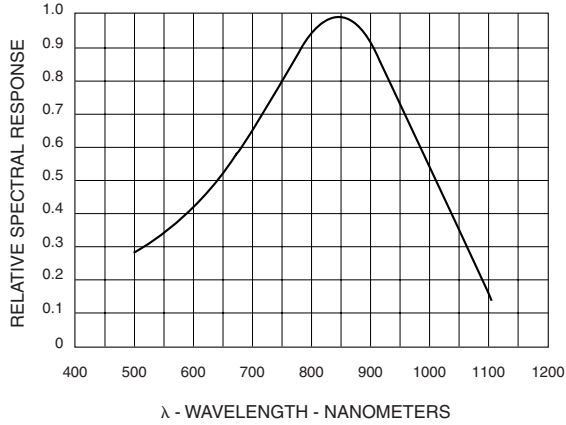


**Fig. 1** Light Current vs. Collector to Emitter Voltage

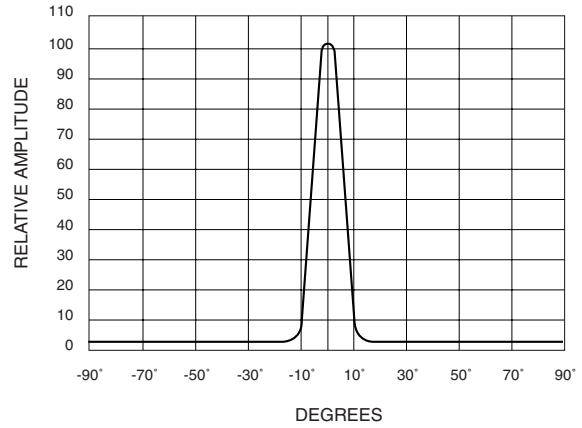


**Fig. 2** Relative Light Current vs. Ambient Temperature

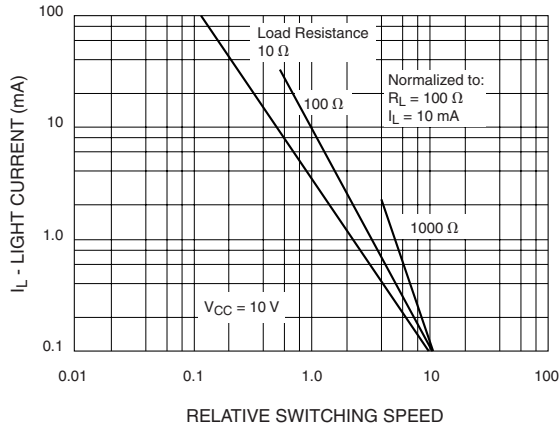
**TYPICAL PERFORMANCE CURVES**



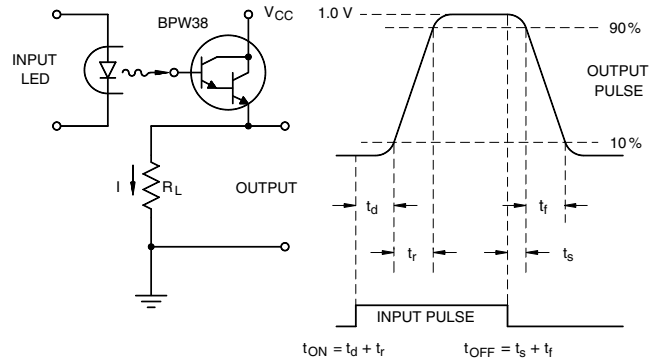
**Fig. 3 Spectral Response Curve**



**Fig. 4 Angular Response**



**Fig. 5 Light Current vs. Relative Switching Speed**



**Fig. 6 Test Circuit and Voltage Waveforms**

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