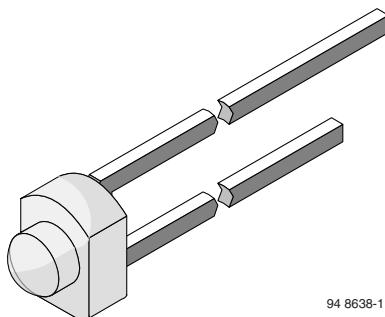


Silicon NPN Phototransistor



94 8638-1

FEATURES

- Package type: leaded
- Package form: T-3/4
- Dimensions (in mm): Ø 1.8
- High photo sensitivity
- High radiant sensitivity
- Suitable for visible and near infrared radiation
- Fast response times
- Angle of half sensitivity: $\phi = \pm 12^\circ$
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT
GREEN
(5-2008)**

Note

** Please see document "Vishay Material Category Policy":
www.vishay.com/doc?99902

APPLICATIONS

- Detector in electronic control and drive circuits

DESCRIPTION

BPW17N is a silicon NPN phototransistor with high radiant sensitivity in clear, T-3/4 plastic package with lens. It is sensitive to visible and near infrared radiation. On PCB this package size enables assembly of arrays with 2.54 mm pitch.

PRODUCT SUMMARY

COMPONENT	I _{ca} (mA)	φ (deg)	λ _{0.1} (nm)
BPW17N	1.0	± 12	450 to 1040

Note

- Test condition see table "Basic Characteristics"

ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
BPW17N	Bulk	MOQ: 5000 pcs, 5000 pcs/bulk	T-3/4

Note

- MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Collector emitter voltage		V _{CEO}	32	V
Emitter collector voltage		V _{ECO}	5	V
Collector current		I _C	50	mA
Collector peak current	t _p /T = 0.5, t _p ≤ 10 ms	I _{CM}	100	mA
Power dissipation	T _{amb} ≤ 55 °C	P _V	100	mW
Junction temperature		T _j	100	°C
Operating temperature range		T _{amb}	- 40 to + 100	°C
Storage temperature range		T _{stg}	- 40 to + 100	°C
Soldering temperature	t ≤ 3 s	T _{sd}	260	°C
Thermal resistance junction/ambient	Connected with Cu wire, 0.14 mm ²	R _{thJA}	450	K/W

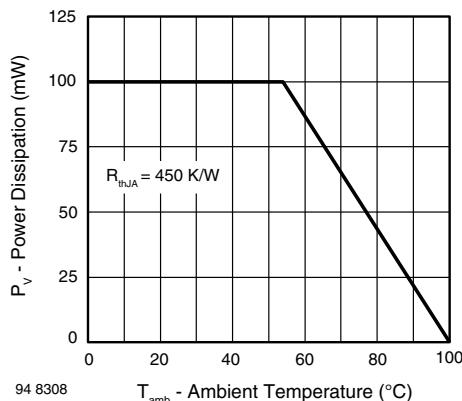


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

BASIC CHARACTERISTICS ($T_{amb} = 25 \text{ }^{\circ}\text{C}$, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector emitter breakdown voltage	$I_C = 1 \text{ mA}$	$V_{(BR)CEO}$	32			V
Collector emitter dark current	$V_{CE} = 20 \text{ V}$, $E = 0$	I_{CEO}		1	200	nA
Collector emitter capacitance	$V_{CE} = 5 \text{ V}$, $f = 1 \text{ MHz}$, $E = 0$	C_{CEO}		8		pF
Collector light current	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 950 \text{ nm}$, $V_{CE} = 5 \text{ V}$	I_{ca}	0.5	1.0		mA
Angle of half sensitivity		φ		± 12		deg
Wavelength of peak sensitivity		λ_p		825		nm
Range of spectral bandwidth		$\lambda_{0.1}$		450 to 1040		nm
Collector emitter saturation voltage	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 950 \text{ nm}$, $I_C = 0.1 \text{ mA}$	V_{CEsat}			0.3	V
Turn-on time	$V_S = 5 \text{ V}$, $I_C = 5 \text{ mA}$, $R_L = 100 \Omega$	t_{on}		4.8		μs
Turn-off time	$V_S = 5 \text{ V}$, $I_C = 5 \text{ mA}$, $R_L = 100 \Omega$	t_{off}		5.0		μs
Cut-off frequency	$V_S = 5 \text{ V}$, $I_C = 5 \text{ mA}$, $R_L = 100 \Omega$	f_c		120		kHz

BASIC CHARACTERISTICS ($T_{amb} = 25 \text{ }^{\circ}\text{C}$, unless otherwise specified)

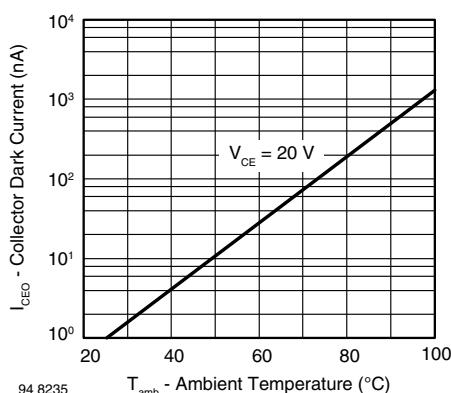


Fig. 1 - Collector Dark Current vs. Ambient Temperature

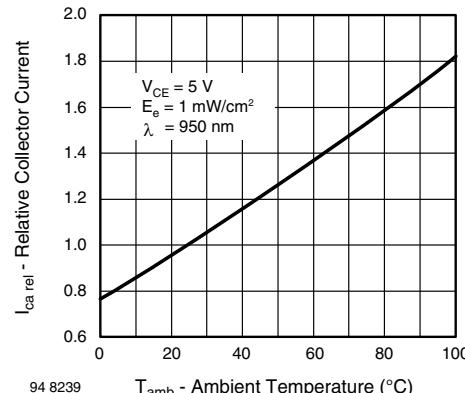


Fig. 2 - Relative Collector Current vs. Ambient Temperature

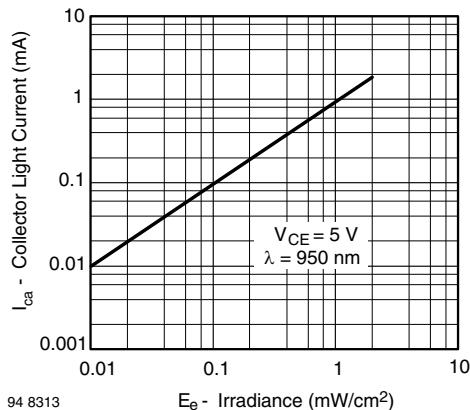


Fig. 3 - Collector Light Current vs. Irradiance

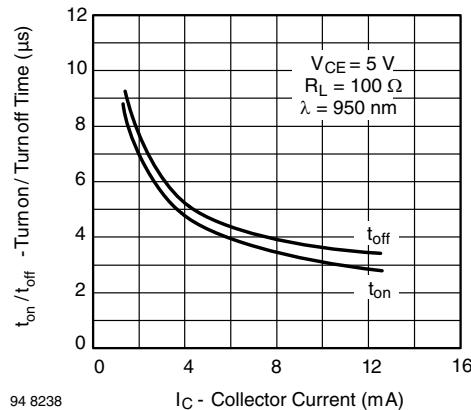


Fig. 6 - Turn-on/Turn-off Time vs. Collector Current

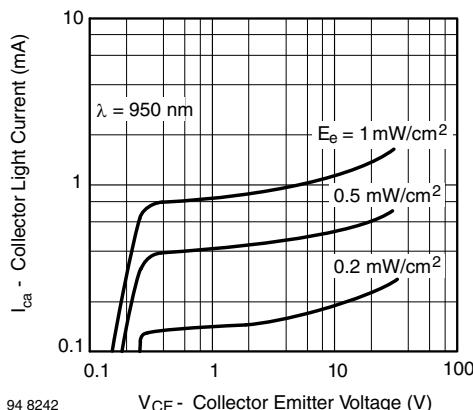


Fig. 4 - Collector Light Current vs. Collector Emitter Voltage

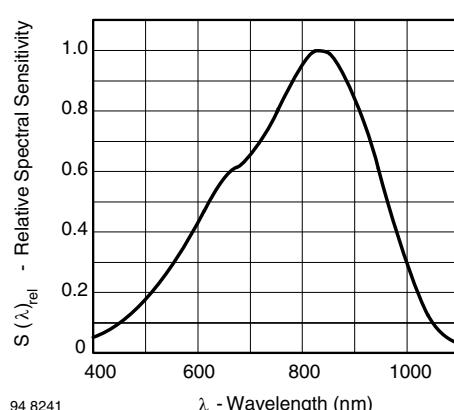


Fig. 7 - Relative Spectral Sensitivity vs. Wavelength

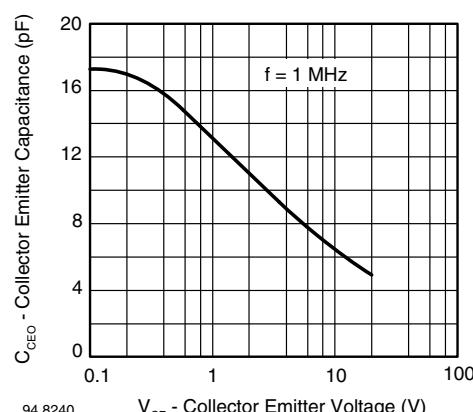


Fig. 5 - Collector Emitter Capacitance vs. Collector Emitter Voltage

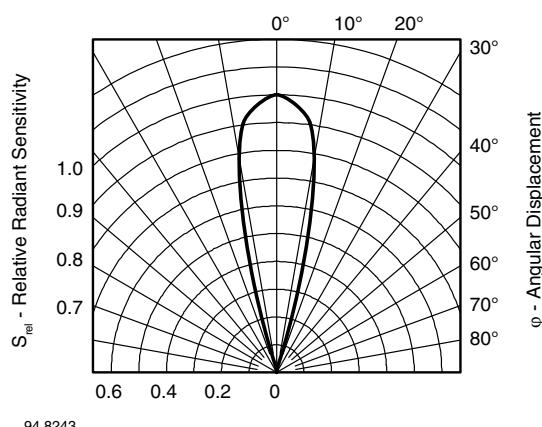
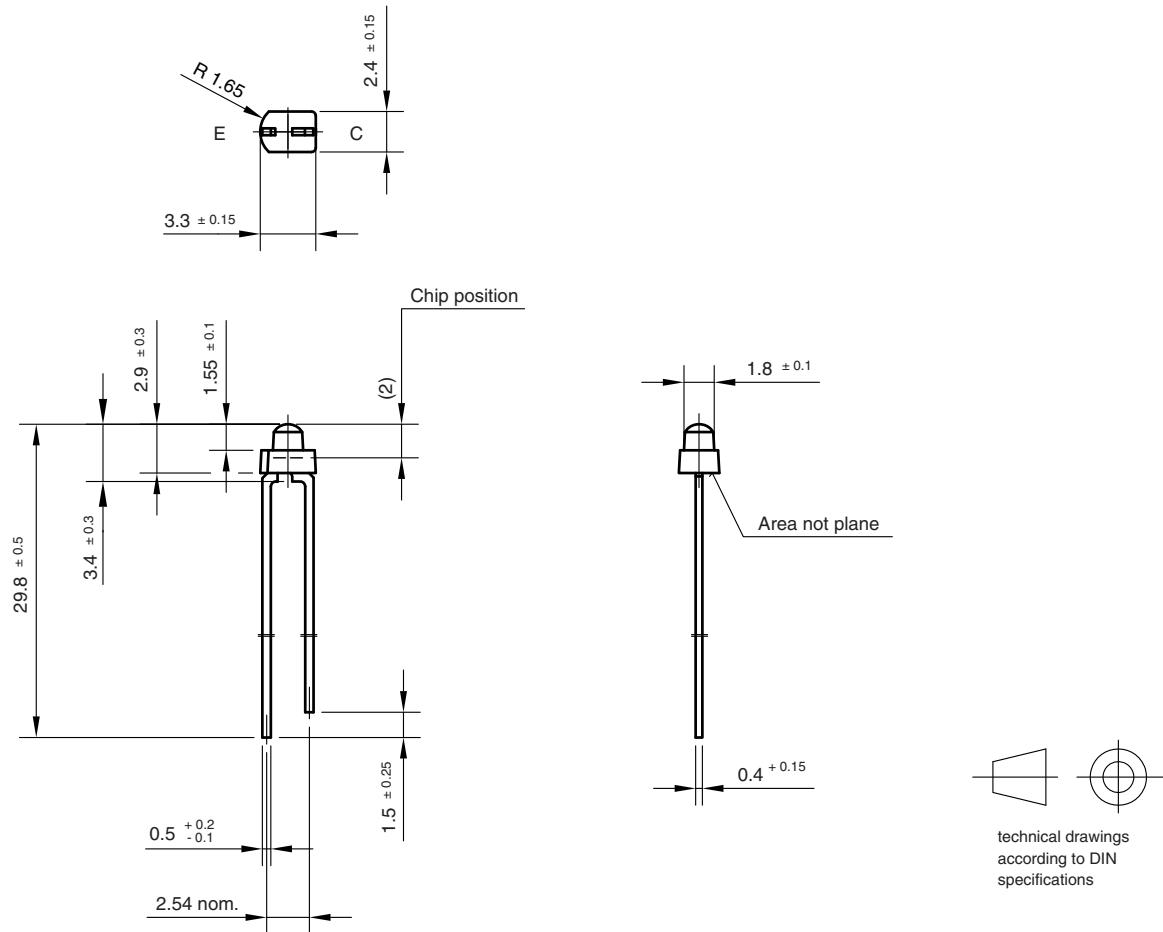


Fig. 8 - Relative Radiant Sensitivity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters


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