



DATA SHEET

● DEVICE NUMBER : BPT-HPG33-TRB

SHEET DATE	1	2	3	4	5	6					CONTENTS
2003.12.02	1.0	1.0	1.0	1.0	1.0	1.0					Original Released
2005.07.12	-	1.1	-	-	-	-					Add ROHS
2011.7.22	1.2	-	-	-	-	-					Polarity mark change : from circle to rectangle

佰鴻工業股份有限公司
 BRIGHT LED ELECTRONICS CORP.
 台北縣板橋市和平路 19 號 3 樓
 3F., No. 19, Ho Ping Road, Pan Chiao City,
 Taipei, Taiwan, R. O. C.
 Tel: 886-2-29591090
 Fax: 886-2-29547006/29558809
www.brtled.com

APPROVED	DRAWER
 占旭 2011.07.22	 李慧清 2011.07.22

Description

The BPT-HPG33-TRB is a silicon NPN phototransistor detector in a 1206 SMD type package.

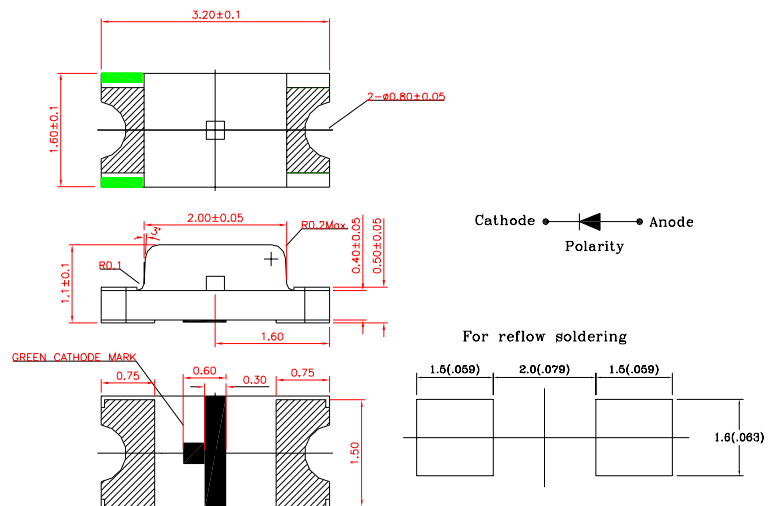
Features:

1. Wide range of collector current.
2. Lend for high sensitivity.
3. Low cost plastic package
4. Lens Appearance: Water Clear
5. This product doesn't contain restriction Substance, comply ROHS standard.

Applications:

1. Smoke Detector
2. Automatic Control System
3. Any design requiring sensitivity and stable characteristics.

Package Dimensions:



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.10mm (0.004") unless otherwise specified.
3. Specifications are subject to change without notice.

Absolute Maximum Ratings(Ta=25°C)

Parameter	Rating	Unit
Power Dissipation	75	mW
Collector-Emitter Voltage(Max.)	50	V
Emitter-Collector Voltage(Min.)	5	V
Operating Temperature Range	-40°C~85°C	-
Storage Temperature Range	-40°C~85°C	-
Soldering Temperature	See Page5	-

● Electrical and optical characteristics(Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectrum Sensitivity	λ_d	$I_F=50\text{mA}$	500	-	1000	nm
Short Circuit Current	λ_p	$I_F=50\text{mA}$	-	940	-	nm
Collector Light Current	$I_{C(ON)}$	$V_{CE}=5\text{V}$, $\lambda_p=940\text{nm}$, $H=1.0\text{mw/cm}^2$	1.156	3.0	-	mA
Collector Dark Current	I_{CEO}	$V_{CE}=20\text{V}$	-	-	100	nA
Rise/Fall Time	T_r/T_f	$V_{CE}=5\text{V}$, $I_c=1\text{mA}$, $R_L=1\text{K}\Omega$	-	15/15	-	us
Viewing Angle	$2\theta_{1/2}$	$I_F=50\text{mA}$ -	-	120	-	deg

● Typical Electro-Optical Characteristics Curves

Fig.1 Collector current vs Collector emitter voltage

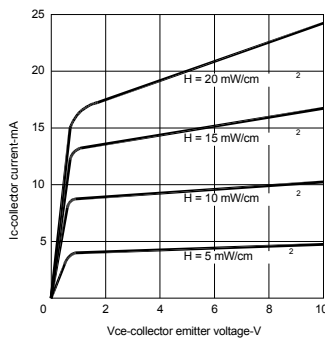


Fig.2 Collector current vs Irradiance

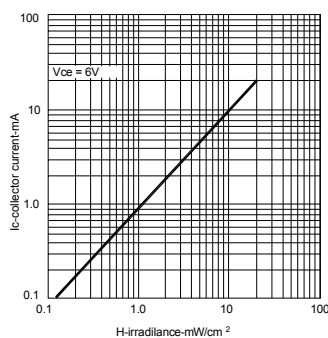


Fig.3 Dark current vs Free-air temperature

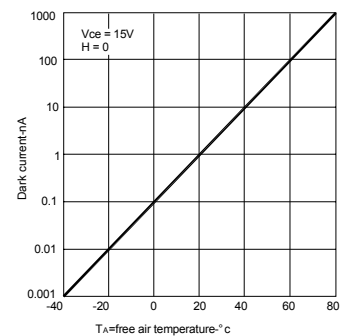


Fig.6 Coupling characteristics

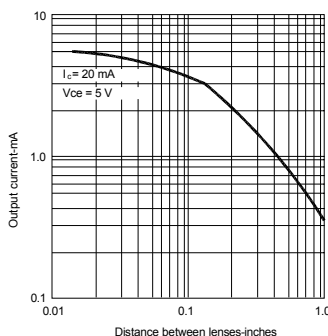
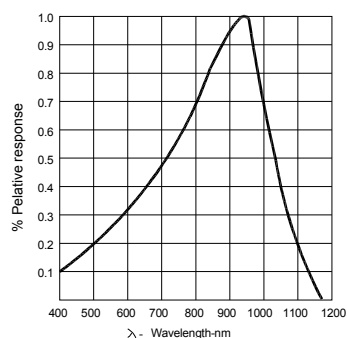
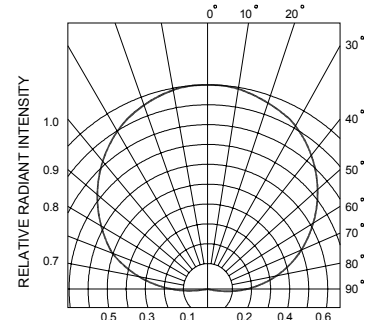


Fig.5 Relative spectral response

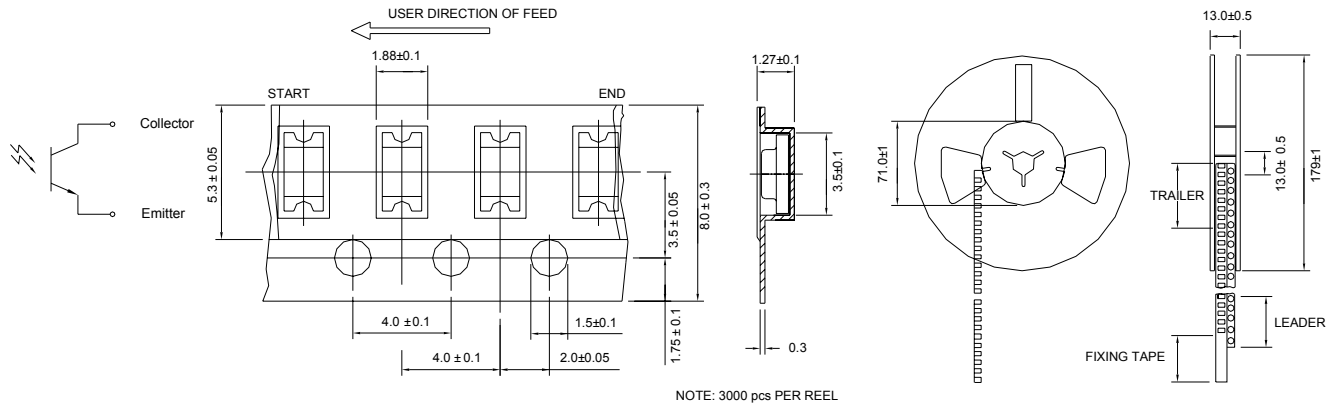


RADIATION DIAGRAM

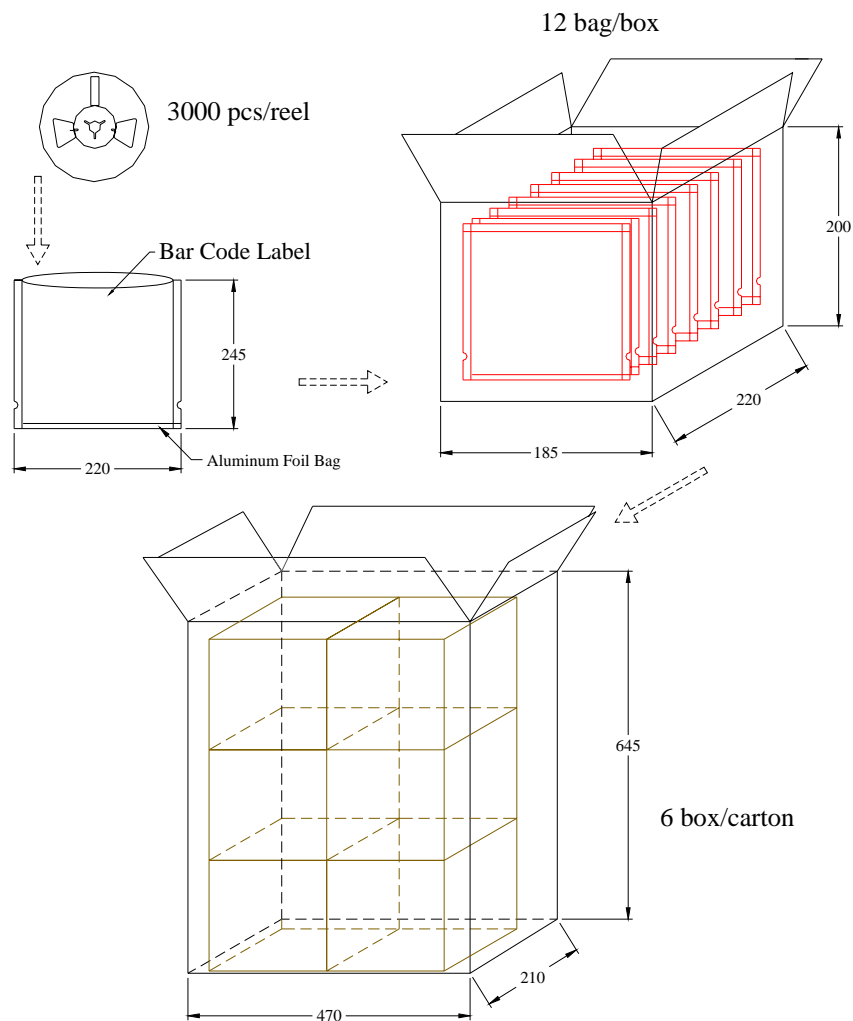


● Tapping and packaging specifications(Units: mm)

Quantity:1000-3000PCS



● Package Method:(unit:mm) Vacuum



● Bin Limits:

Collector Light Current Bin Limits($V_{CE}=5V$, $H=1.0\text{mw/cm}^2$, $\lambda_p=940\text{nm}$)

BIN CODE	$I_{C(ON)}$ (mA)	
	Min	Max
K	1.156	1.665
L	1.665	2.398
M	2.398	3.455
N	3.455	4.976

Tolerance for each Bin limit is $\pm 15\%$

● BIN : x



Collector Light Current Bin Code

● Soldering :

1. Manual Of Soldering

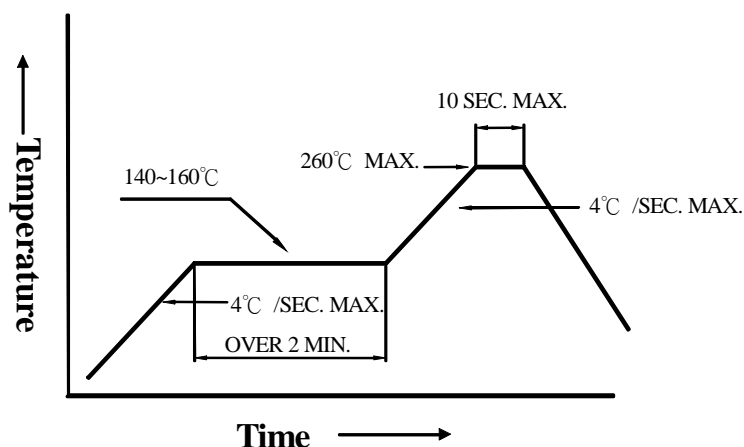
The temperature of the iron tip should not be higher than 300°C (572°F) and Soldering within 3 seconds per solder-land is to be observed.

2. Reflow Soldering

Preheating : 140°C ~ 160°C ± 5°C, within 2 minutes.

Operation heating : 260°C (Max.) within 10 seconds. (Max)

Gradual Cooling (Avoid quenching).

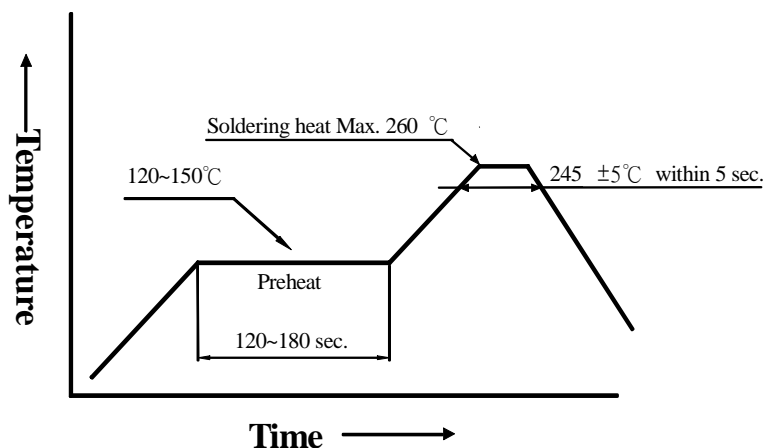


3. DIP soldering (Wave Soldering) :

Preheating : 120°C ~ 150°C, within 120~180 sec.

Operation heating : 245°C ± 5°C within 5 sec. 260°C (Max)

Gradual Cooling (Avoid quenching).



● Handling :

Care must be taken not to cause to the epoxy resin portion of BRIGHT LEDs while it is exposed to high temperature.

Care must be taken not rub the epoxy resin portion of BRIGHT LEDs with hard or sharp article such as the sand blast and the metal hook.

● Notes for designing:

Care must be taken to provide the current limiting resistor in the circuit so as to drive the BRIGHT LEDs within the rated figures. Also, caution should be taken not to overload BRIGHT LEDs with instantaneous voltage at the turning ON and OFF of the circuit.

When using the pulse drive care must be taken to keep the average current within the rated figures. Also, the circuit should be designed so as to be subjected to reverse voltage when turning off the BRIGHT LEDs.

● Storage:

In order to avoid the absorption of moisture, it is recommended to solder BRIGHT LEDs as soon as possible after unpacking the sealed envelope.

If the envelope is still packed, to store it in the environment as following:

- (1) Temperature : 5°C -30°C (41°F) Humidity : RH 60% Max.
- (2) After this bag is opened, devices that will be applied to infrared reflow, vapor-phase reflow, or equivalent soldering process must be:
 - a. Completed within 168 hours.
 - b. Stored at less than 30% RH.
- (3) Devices require baking before mounting, if:
 - (2) a or (2) b is not met.
- (4) If baking is required, devices must be baked under below conditions:
 - 48 hours at 60°C±3°C.

● Package and Label of Products:

- (1) Package: Products are packed in one bag of 3000 pcs (one taping reel) and a label is attached on each bag.
- (2) Label:

