

# BRIGHT LED ELECTRONICS



Device Number: BPR-105F  
 Absolute Maximum Rating (Ta=25 )

Version: 1.0

Item		Symbol	Rating	Unit
Input	Power Dissipation	Pd	75	mW
	Reverse Voltage	V <sub>R</sub>	5	V
	Forward Current	I <sub>F</sub>	50	mA
	Peak Forward Current (*1)	I <sub>FP</sub>	1	A
Output	Collector Power Dissipation	P <sub>C</sub>	100	mW
	Collector Current	I <sub>C</sub>	20	mA
	C-E Voltage	V <sub>CEO</sub>	30	V
	E-C Voltage	V <sub>ECO</sub>	5	V
Operating Temperature		Topr	-25 ~ +85	
Storage Temperature		Tstg	-40 ~ +100	
Soldering Temperature (*2)		Tsol	260	

(\*1) tw=100 uSec., T=10 mSec.

(\*2) t=5 Sec

## Electrical Optical Characteristics (Ta=25 )

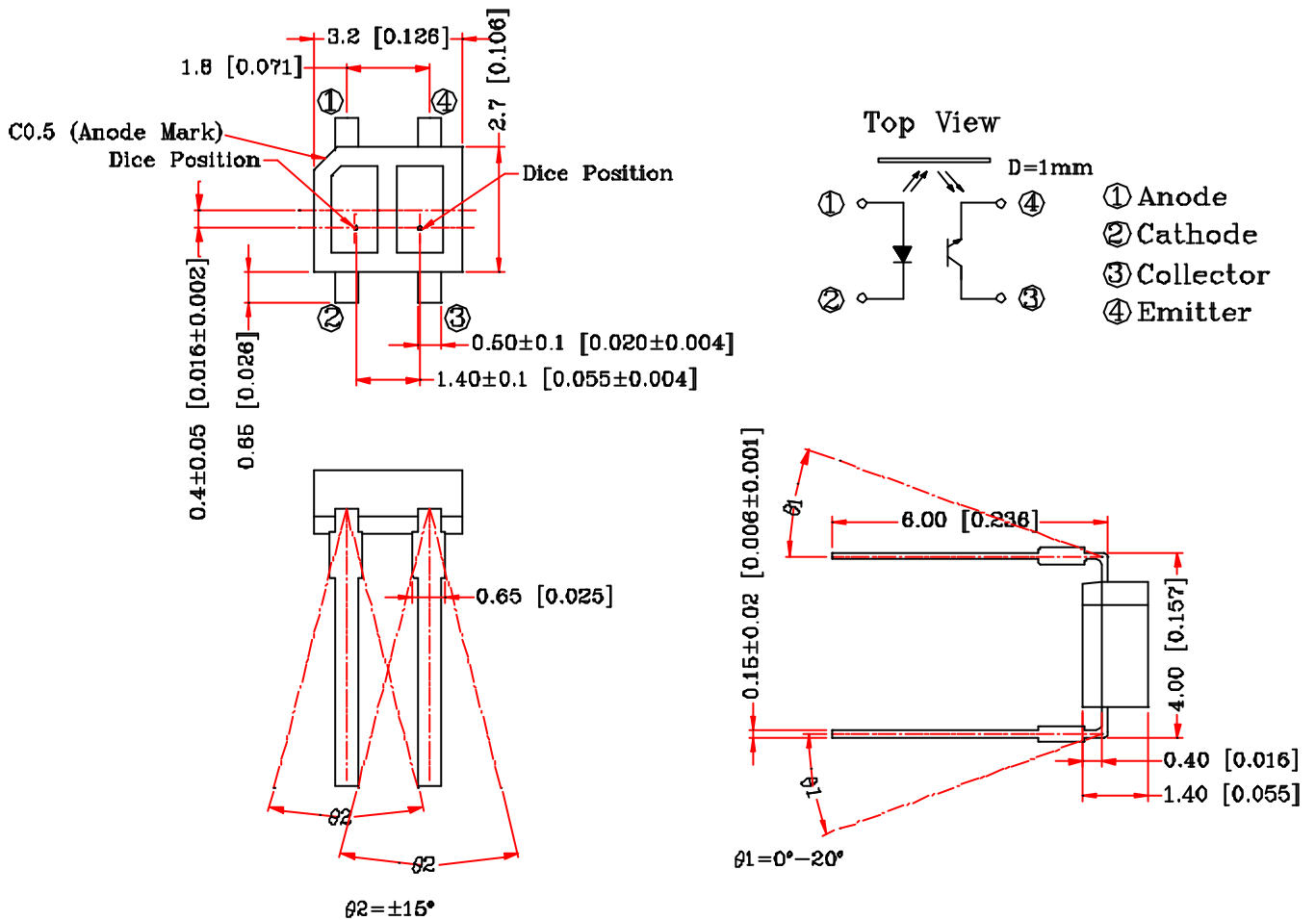
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	BIN No.
Input	Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	—	1.2	1.5	V	
	Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V	—	—	100	μ A	
	Peak Wavelength	p	I <sub>F</sub> =10mA		940		nm	
Output	Dark Current	I <sub>D</sub>	V <sub>CE</sub> =10V	—	—	200	nA	
	C-E Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =0.25mA I <sub>F</sub> =10mA	—	—	0.4	V	
Light Current		I <sub>L</sub>	V <sub>CE</sub> =5V I <sub>F</sub> =10mA D=1.0mm (90% Reflective white paper)	80	—	240	μ A	BIN A (金色點記)
				160	—	480		BIN B (橙色點記)
				320	—	960		BIN C (紫色點記)
				640	—	1920		BIN D (紅色點記)
Speed	Rise Time	Tr	I <sub>FP</sub> =20mA V <sub>CE</sub> =5V	—	20	—	μ sec	
	Fall Time	Tf	R <sub>L</sub> =1000	—	20	—	μ sec	

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Device Number: BPR-105F  
Package Dimensions

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## Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25\text{mm}$  unless otherwise specified.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.

# BRIGHT LED ELECTRONICS



Device Number: BPR-105F

Typical Electrical / Optical Characteristics Curves (Ta=25 °C)

Version: 1.0

Fig.1 Power Dissipation vs. Ambient Temperature

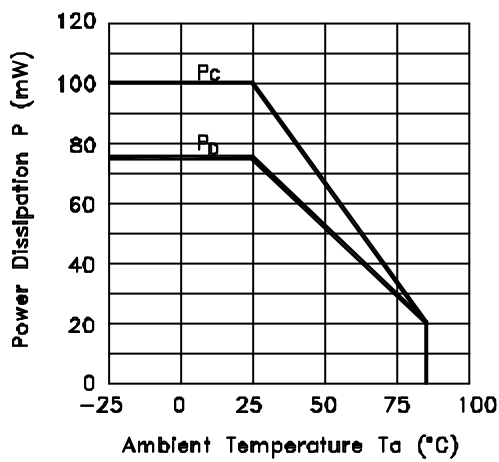


Fig.2 Forward Current vs. Forward Voltage

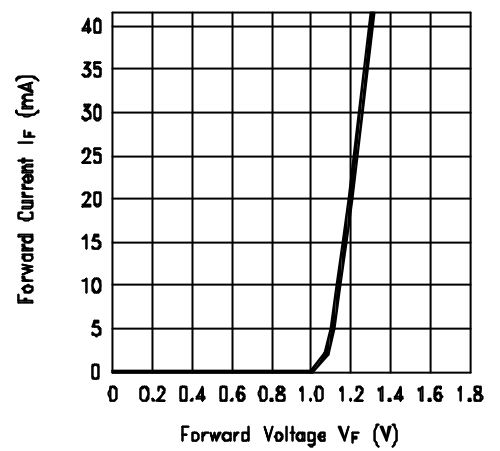


Fig.3 Collector Current vs. Collector-emitter Voltage

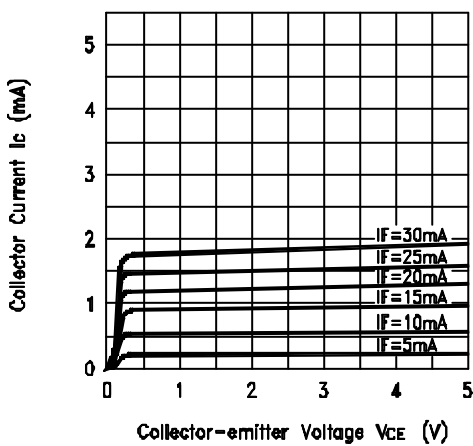
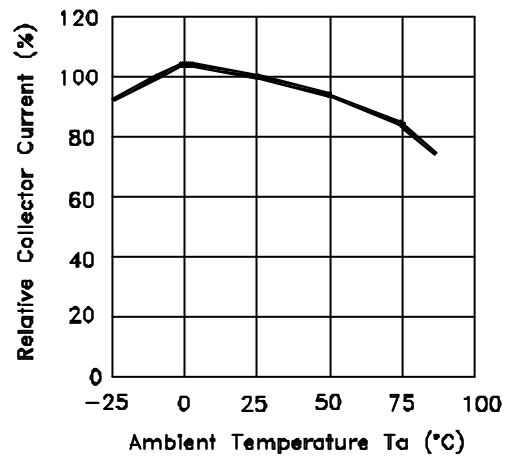


Fig.4 Collector Current vs. Ambient Temperature



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Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature

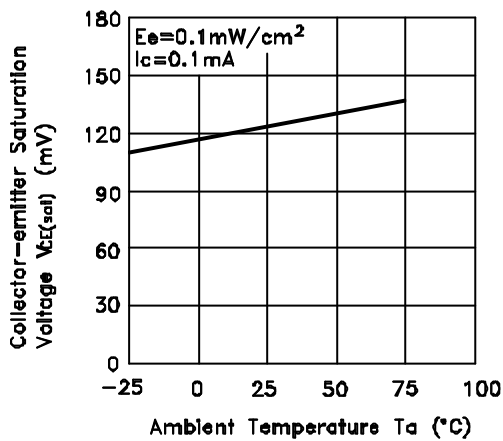


Fig.6 Response Time vs. Load Resistance

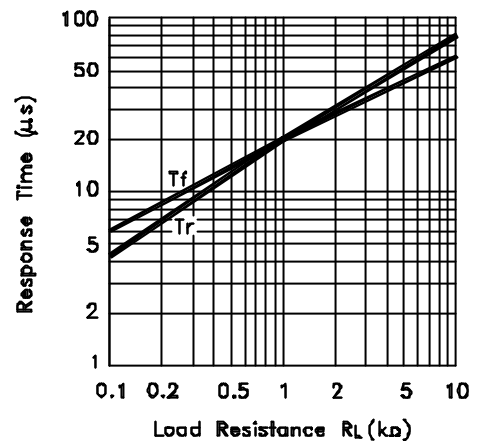
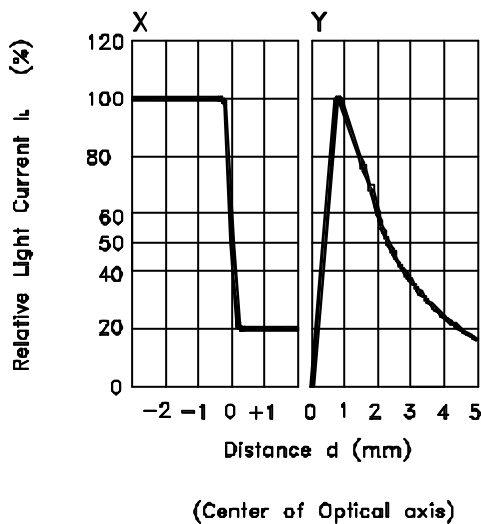


Fig.7 Sensing Position Characteristics (Typical)



Test Circuit for Response Time

