

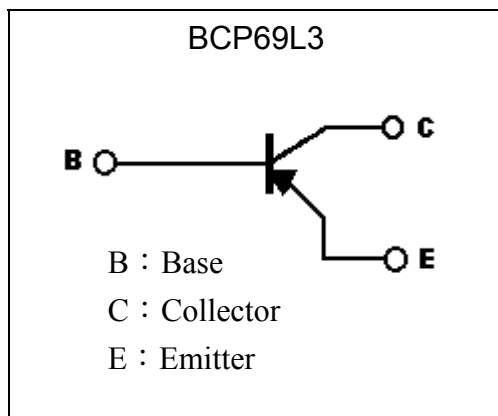
# Medium Power PNP Epitaxial Planar Transistor

## BCP69L3

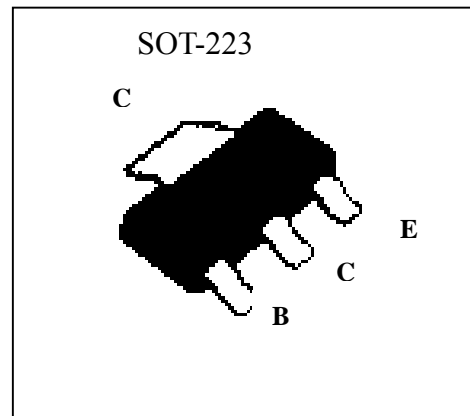
### Features

- For AF driver and output stage
- Low saturation voltage
- High collector current.
- Complementary to BCP68L3
- Pb-free lead plating and halogen-free package

### Symbol

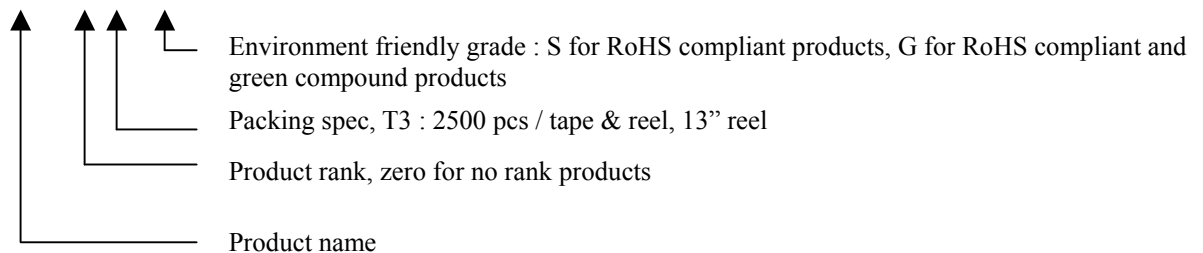


### Outline



### Ordering Information

Device	Package	Shipping
BCP69L3-XX-T3-G	SOT-223 (Pb-free lead plating and halogen-free package)	2500 pcs / tape & reel





**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-25	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-20	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5	V
Collector Current(DC)	I <sub>C</sub>	-1	A
Peak Collector Current	I <sub>CM</sub>	-2	A
Peak Base Current	I <sub>BM</sub>	-200	mA
Power Dissipation @T <sub>A</sub> =25°C	P <sub>d</sub>	0.625 (Note 1&2)	W
		1 (Note 1&3)	
		1.4 (Note 1&4)	
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55~+150	°C

Note : 1. SOT-223(SC-73) standard mounting conditions.

2. Device mounted on a FR-4 PCB, single side copper, tin plated, standard footprint for SOT-223
3. Device mounted on a FR-4 PCB, single side copper, tin plated, 1 cm<sup>2</sup> collector mounting pad.
4. Device mounted on a FR-4 PCB, single side copper, tin plated, 6 cm<sup>2</sup> collector mounting pad.

**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV <sub>CBO</sub>	-25	-	-	V	I <sub>C</sub> =-10μA, I <sub>E</sub> =0
BV <sub>CEO</sub>	-20	-	-	V	I <sub>C</sub> =-30mA, I <sub>B</sub> =0
BV <sub>EBO</sub>	-5	-	-	V	I <sub>E</sub> =-10μA, I <sub>C</sub> =0
I <sub>CBO</sub>	-	-	-100	nA	V <sub>CB</sub> =-25V, I <sub>E</sub> =0
I <sub>EBO</sub>	-	-	-10	μA	V <sub>EB</sub> =-5V, I <sub>C</sub> =0
*V <sub>CE(sat)</sub>	-	-	-0.5	V	I <sub>C</sub> =-1A, I <sub>B</sub> =-100mA
*V <sub>BE(on)1</sub>	-	-0.6	-	V	V <sub>CE</sub> =-10V, I <sub>C</sub> =-5mA
*V <sub>BE(on)2</sub>	-	-	-1.0	V	V <sub>CE</sub> =-1V, I <sub>C</sub> =-1A
*h <sub>FE1</sub>	50	-	-	-	V <sub>CE</sub> =-10V, I <sub>C</sub> =-5mA
*h <sub>FE2</sub>	100	-	400	-	V <sub>CE</sub> =-1V, I <sub>C</sub> =-500mA
f <sub>T</sub>	-	100	-	MHz	V <sub>CE</sub> =-5V, I <sub>C</sub> =-100mA, f=100MHz

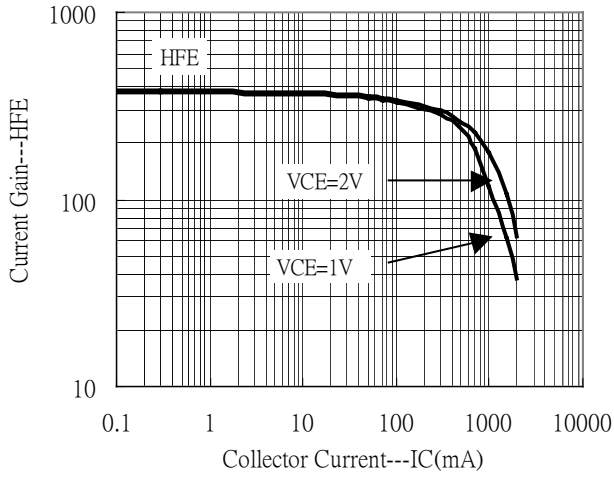
\*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

**Classification Of hFE 2**

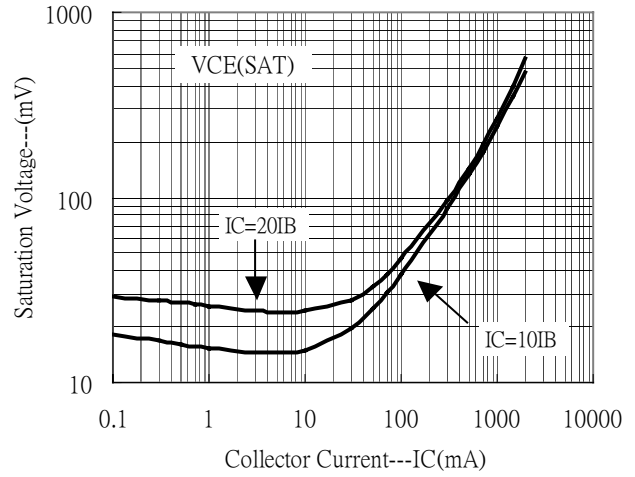
Rank	16	25
Range	100~250	160~400

## Typical Characteristics

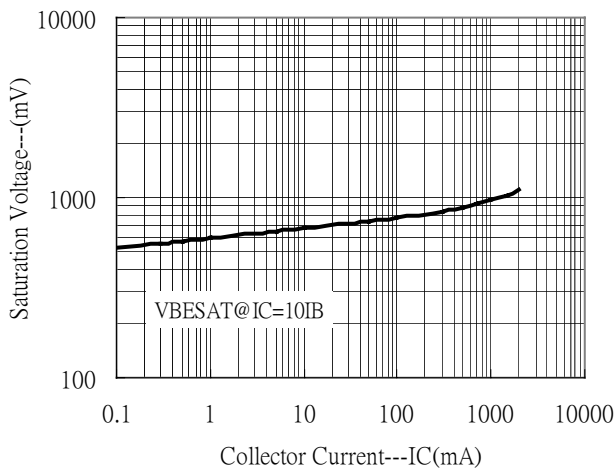
Current Gain vs Collector Current



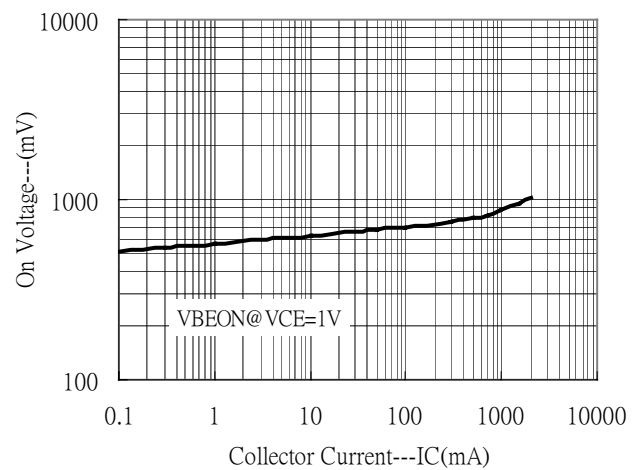
Saturation Voltage vs Collector Current



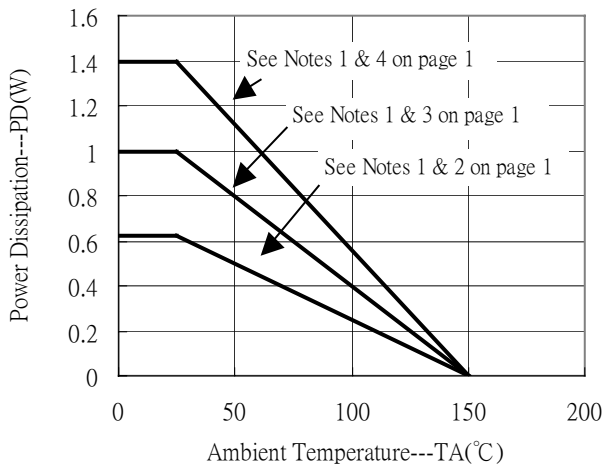
Saturation Voltage vs Collector Current



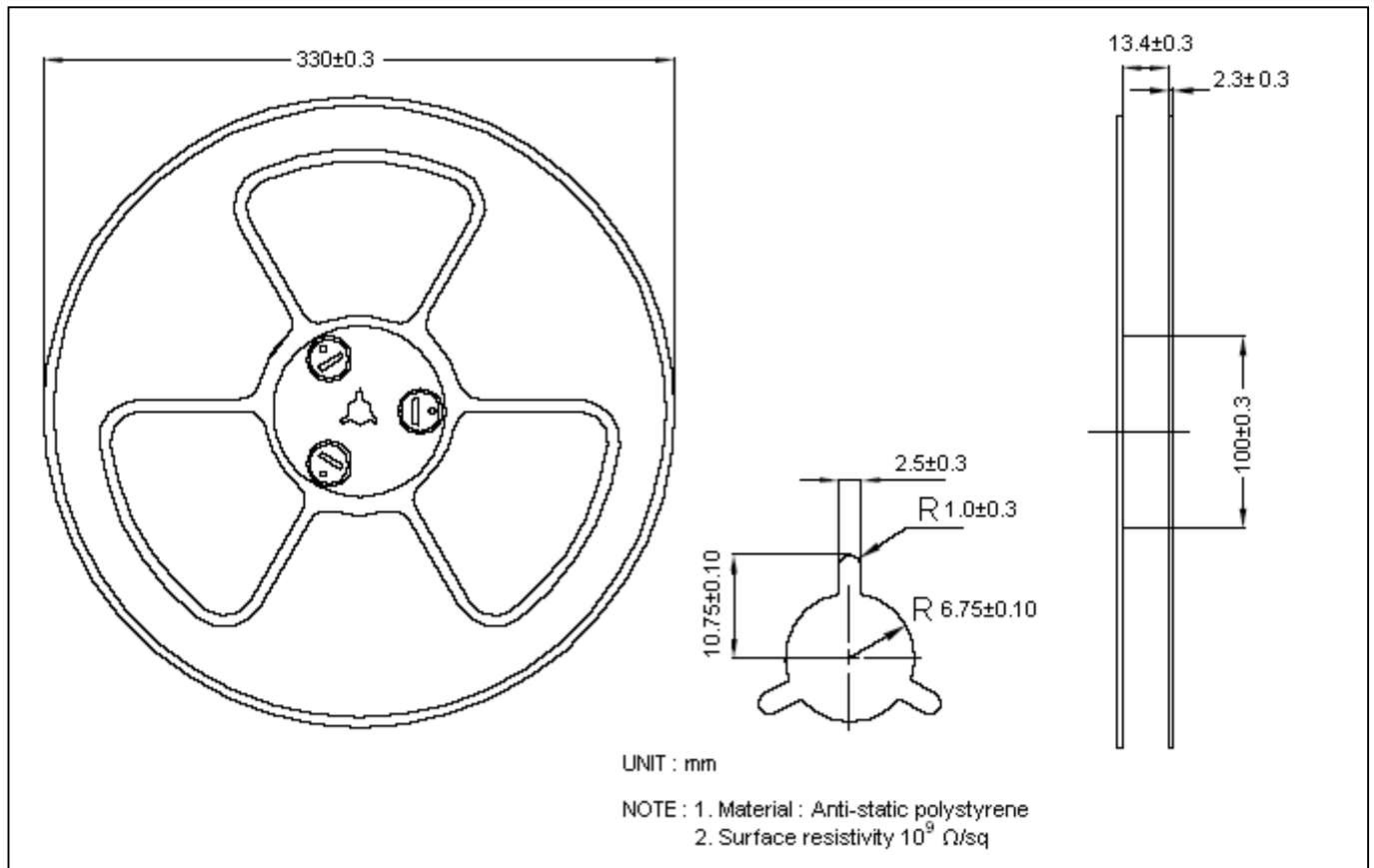
On Voltage vs Collector Current



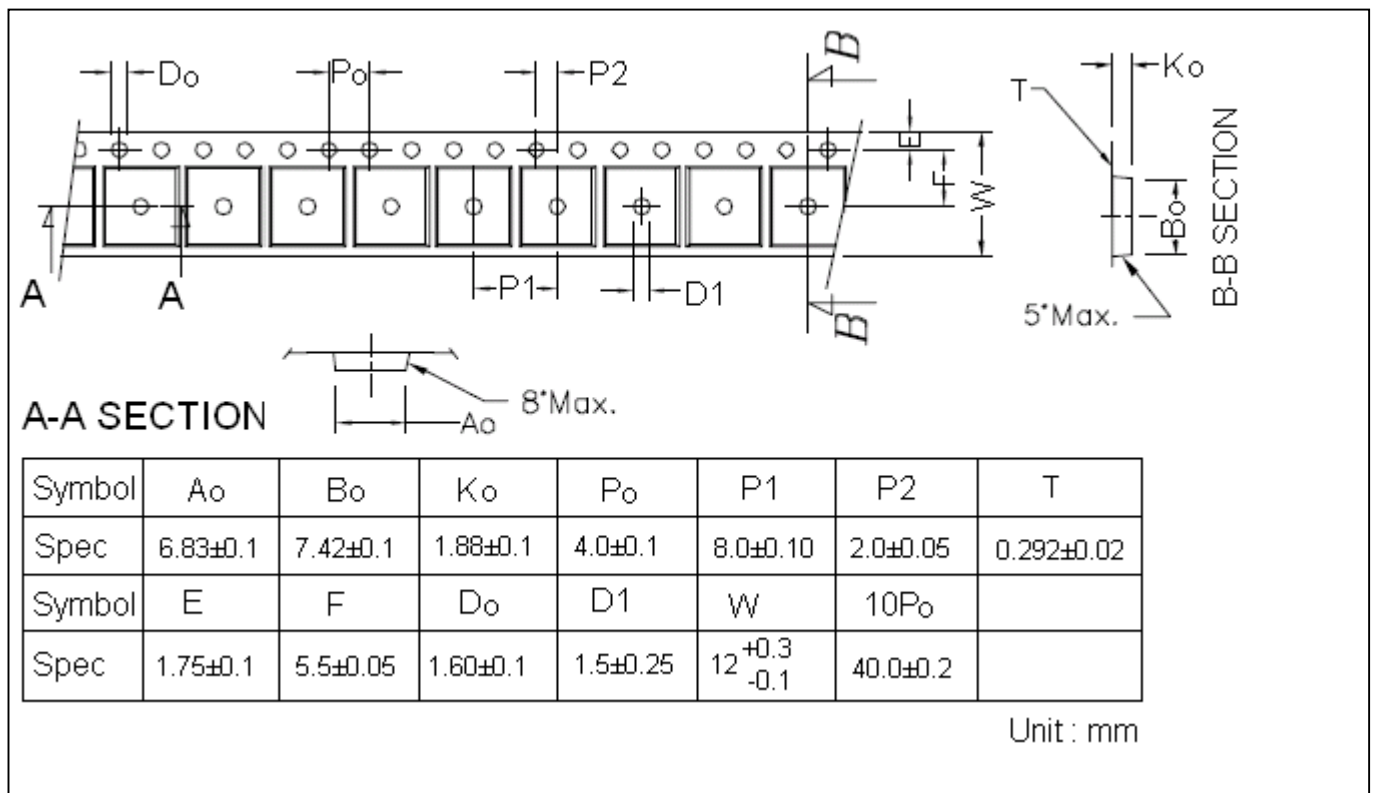
Power Derating Curves



**Reel Dimension**



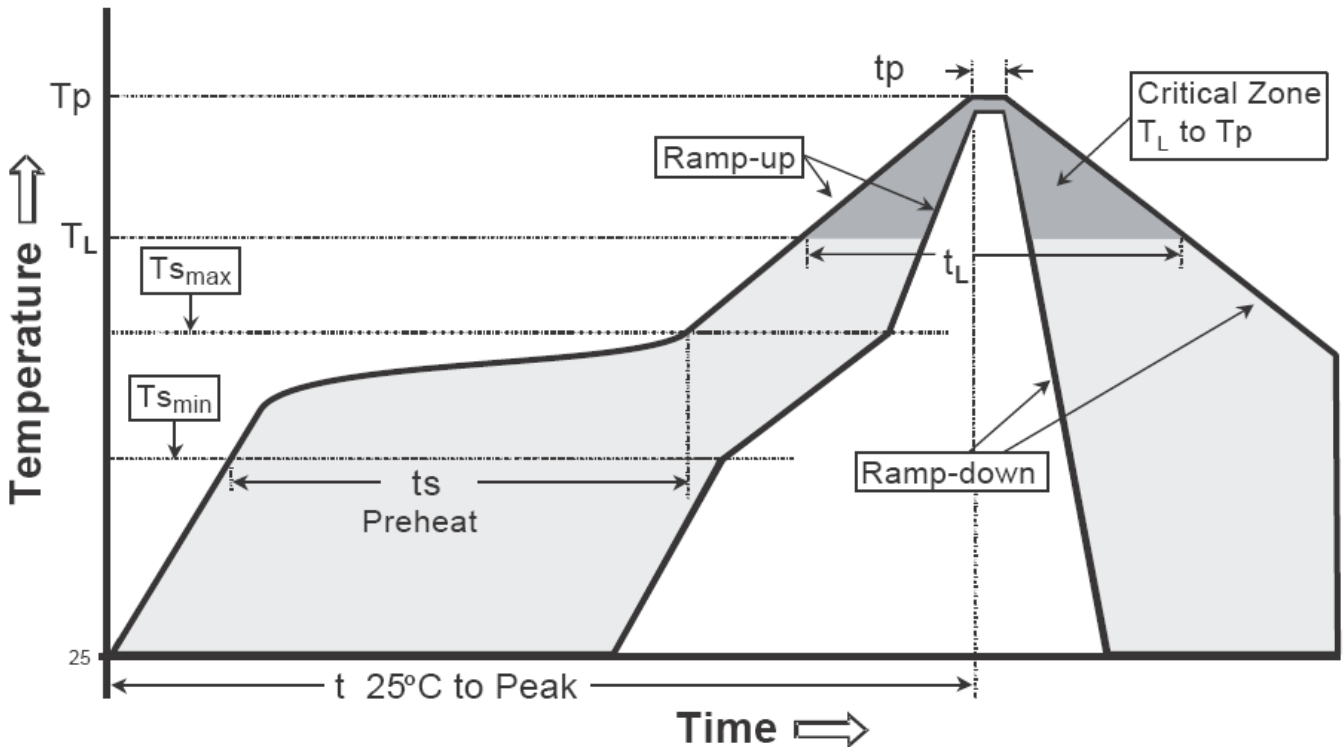
**Carrier Tape Dimension**



**Recommended wave soldering condition**

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

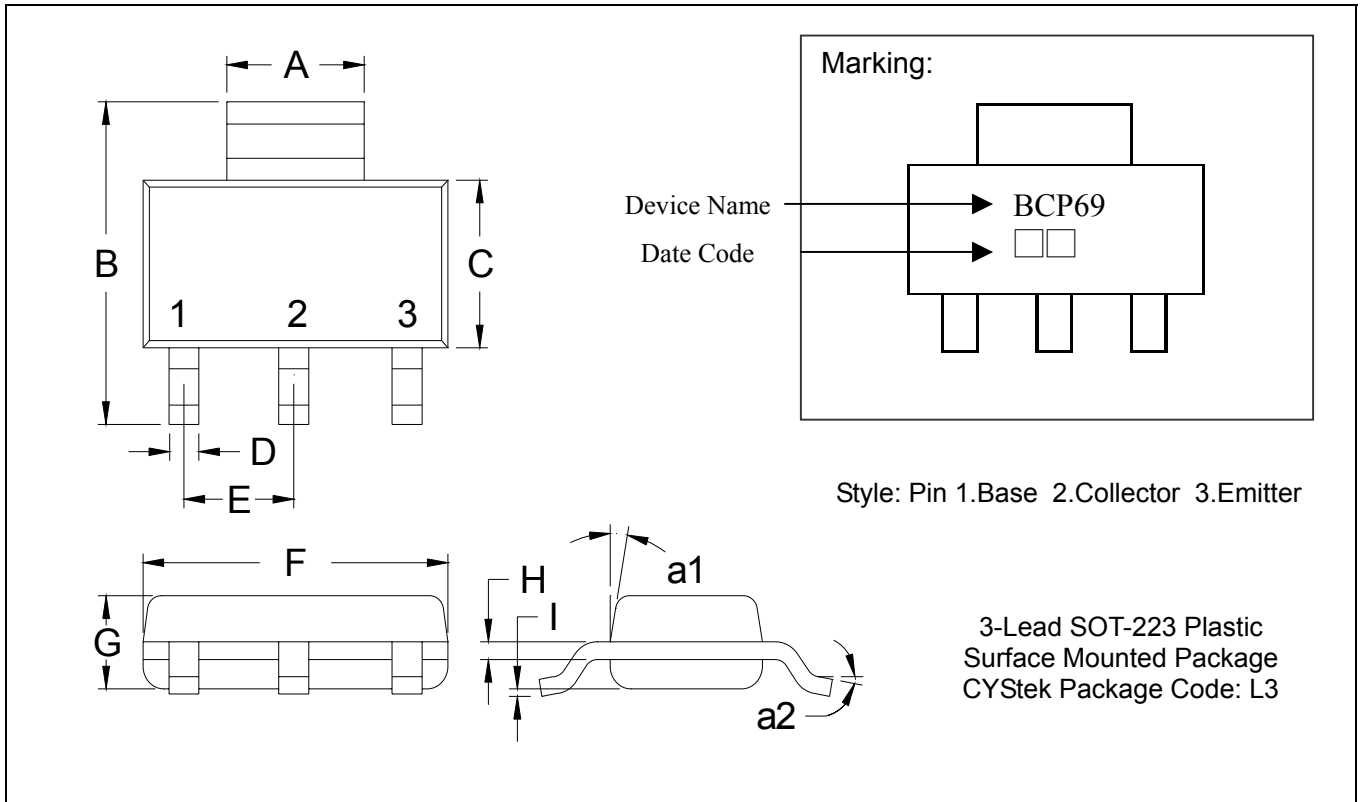
**Recommended temperature profile for IR reflow**



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T <sub>s min</sub> )	100°C	150°C
-Temperature Max(T <sub>s max</sub> )	150°C	200°C
-Time(t <sub>s min</sub> to t <sub>s max</sub> )	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T <sub>L</sub> )	183°C	217°C
- Time (t <sub>L</sub> )	60-150 seconds	60-150 seconds
Peak Temperature(T <sub>P</sub> )	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(t <sub>p</sub> )	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

**SOT-223 Dimension**



\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1142	0.1220	2.90	3.10	G	0.0551	0.0709	1.40	1.80
B	0.2638	0.2874	6.70	7.30	H	0.0098	0.0138	0.25	0.35
C	0.1299	0.1457	3.30	3.70	I	0.0008	0.0039	0.02	0.10
D	0.0236	0.0315	0.60	0.80	a1	*13°	-	*13°	-
E	*0.0906	-	*2.30	-	a2	0°	10°	0°	10°
F	0.2480	0.2638	6.30	6.70					

Notes: 1.Controlling dimension: millimeters.  
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material:**

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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