

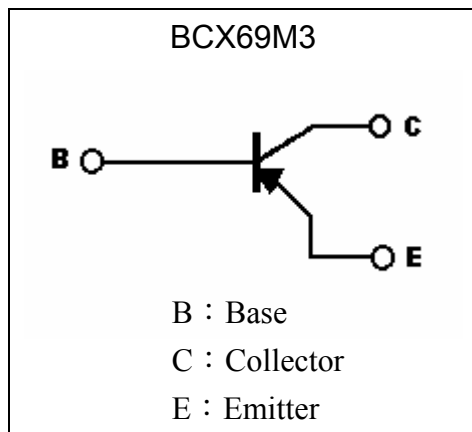
## General Purpose PNP Epitaxial Planar Transistor

# BCX69M3

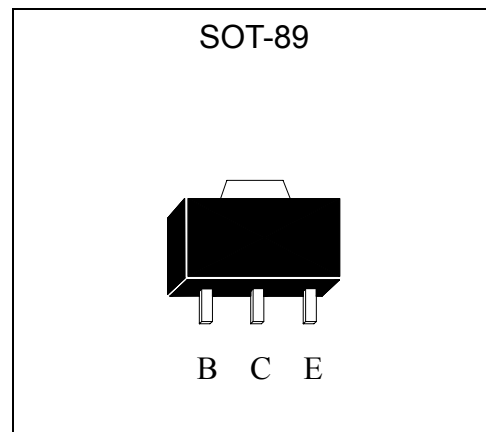
### Features

- Large continuous collector current capability
- Low collector saturation voltage
- Complementary to BCX68M3
- Pb-free package

### Symbol



### Outline



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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-40	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-30	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5	V
Collector Current(DC)	I <sub>C</sub>	-1	A
Collector Current(Pulse)	I <sub>CP</sub>	-2	A
Power Dissipation	P <sub>d</sub>	0.6	W
		1 (Note 1)	W
		2 (Note 2)	W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55~+150	°C

Note : 1. When mounted on FR-4 PCB with area measuring 10×10×1 mm  
 2 . When mounted on ceramic with area measuring 40×40×1 mm

**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV <sub>CBO</sub>	-40	-	-	V	I <sub>C</sub> =-100μA
BV <sub>CEO</sub>	-30	-	-	V	I <sub>C</sub> =-10mA
BV <sub>EBO</sub>	-5	-	-	V	I <sub>E</sub> =-100μA
I <sub>CBO</sub>	-	-	-100	nA	V <sub>CB</sub> =-30V
I <sub>EBO</sub>	-	-	-100	nA	V <sub>EB</sub> =-5V
*V <sub>CE(sat)</sub>	-	-	-0.25	V	I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA
*V <sub>CE(sat)</sub>	-	-	-0.5	V	I <sub>C</sub> =-1A, I <sub>B</sub> =-100mA
*V <sub>CE(sat)</sub>	-	-	-1.0	V	I <sub>C</sub> =-2A, I <sub>B</sub> =-200mA
*V <sub>BE(on)</sub>	-	-	-1.0	V	V <sub>CE</sub> =-1V, I <sub>C</sub> =-1A
*h <sub>FE 1</sub>	100	-	-	-	V <sub>CE</sub> =-1V, I <sub>C</sub> =-5mA
*h <sub>FE 2</sub>	100	-	400	-	V <sub>CE</sub> =-1V, I <sub>C</sub> =-500mA
*h <sub>FE 3</sub>	60	-	-	-	V <sub>CE</sub> =-1V, I <sub>C</sub> =-1A
f <sub>T</sub>	100	-	-	MHz	V <sub>CE</sub> =-5V, I <sub>C</sub> =-100mA, f=100MHz
C <sub>ob</sub>	-	-	25	pF	V <sub>CB</sub> =-10V, I <sub>E</sub> =0A, f=1MHz

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

**Classification Of hFE 2**

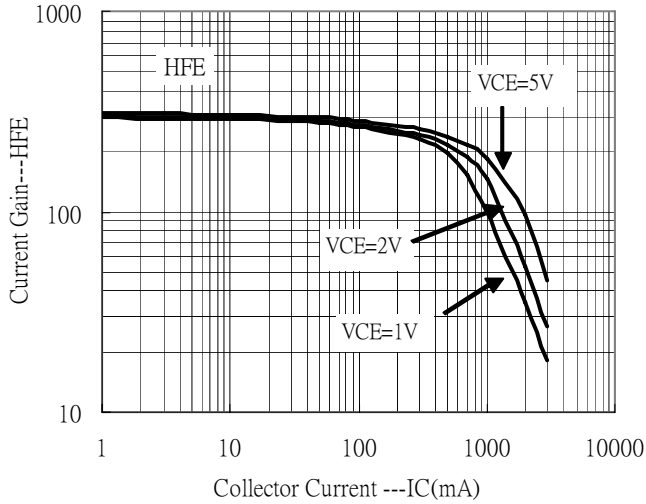
Rank	16	25
Range	100~250	160~400

**Ordering Information**

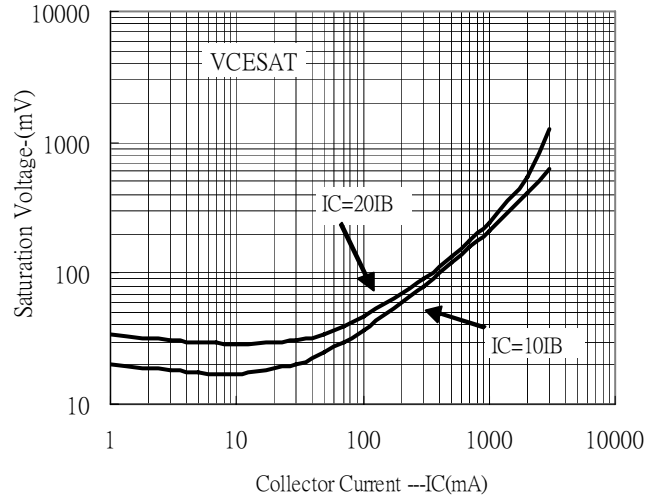
Device	Package	Shipping	Marking
BCX69M3	SOT-89 (Pb-free)	1000 pcs / Tape & Reel	AH

**Characteristic Curves**

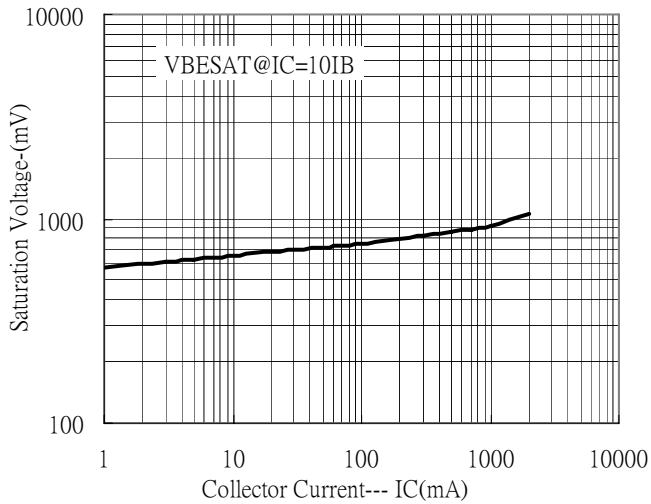
Current Gain vs Collector Current



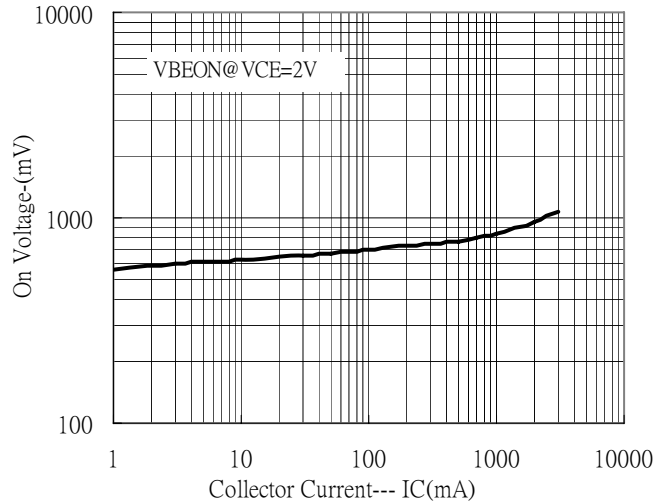
Saturation Voltage vs Collector Current



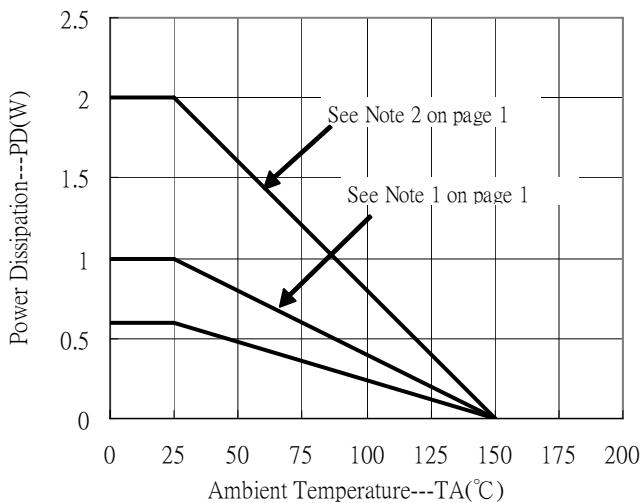
Saturation Voltage vs Collector Current



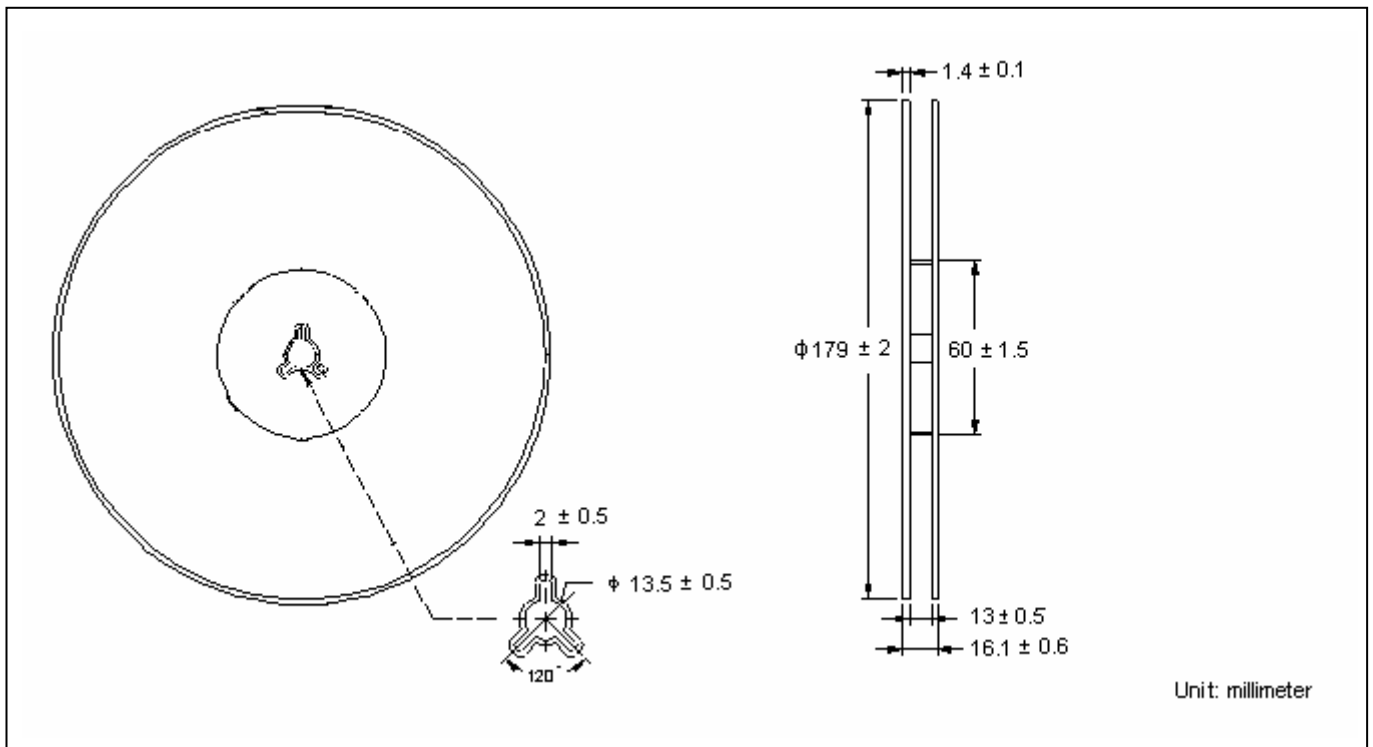
On Voltage vs Collector Current



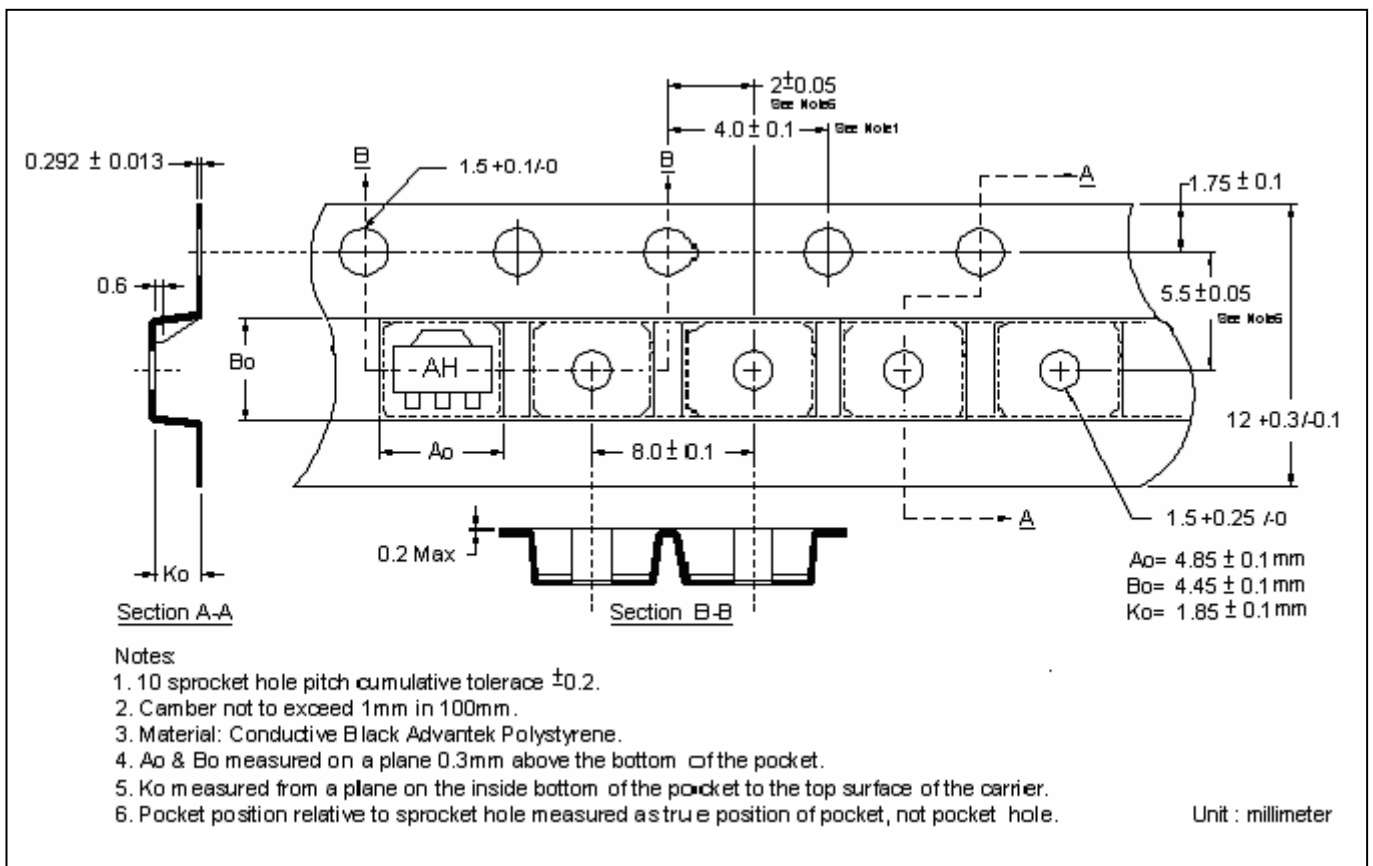
Power Derating Curves



**Reel Dimension**



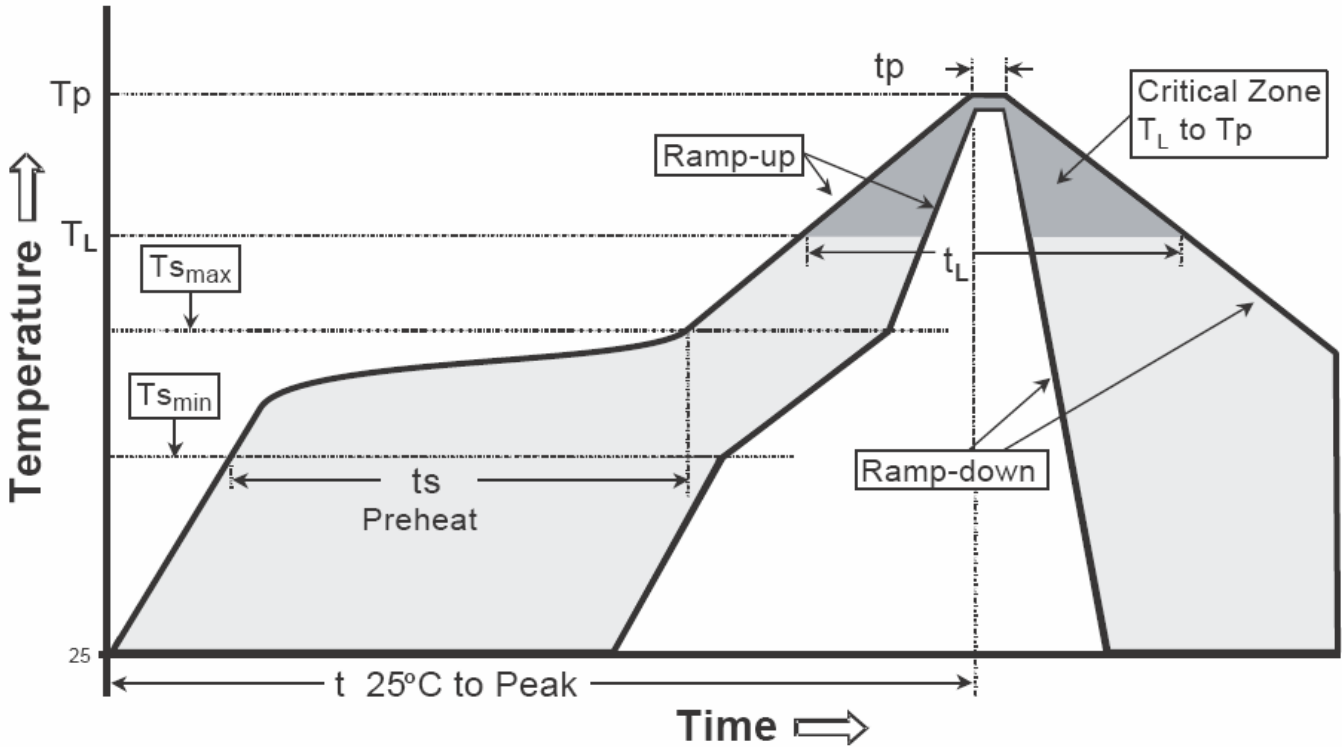
**Carrier Tape Dimension**



**Recommended wave soldering condition**

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

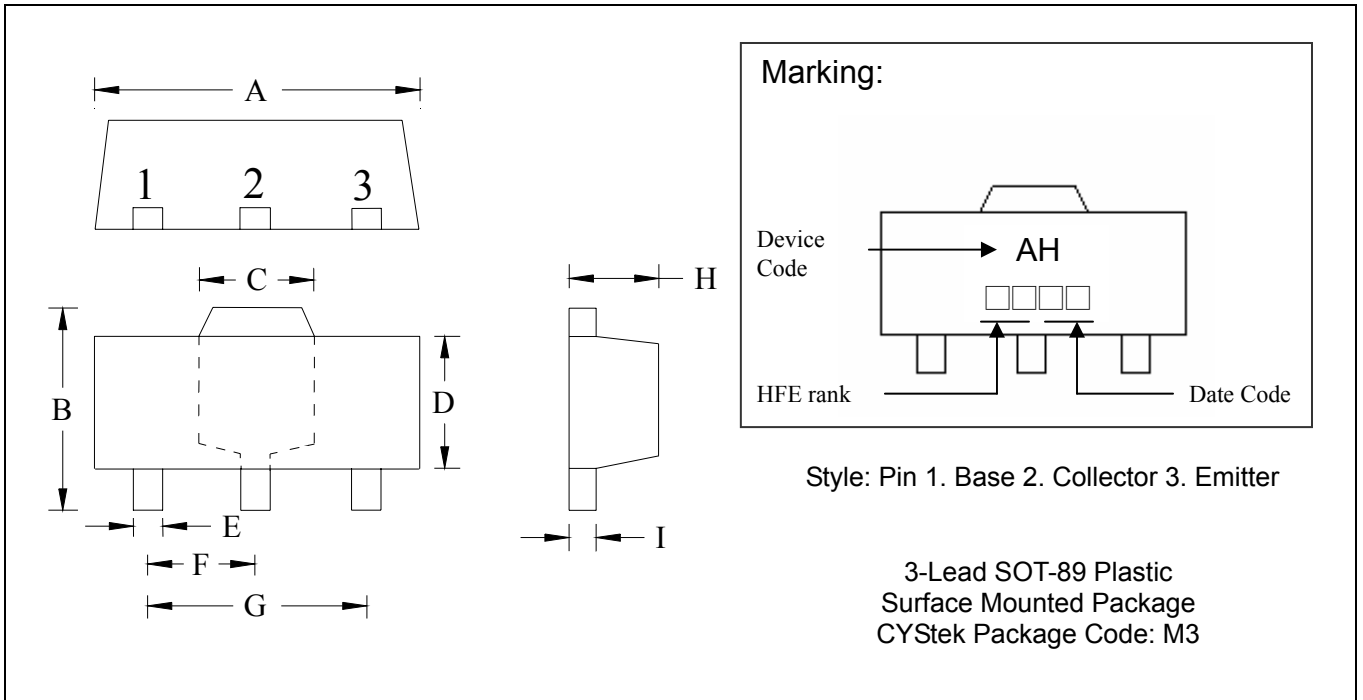
**Recommended temperature profile for IR reflow**



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(Ts min)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (TL)	183°C	217°C
- Time (tL)	60-150 seconds	60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	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-89 Dimension**



DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0591	TYP	1.50	TYP
B	0.1551	0.1673	3.94	4.25	G	0.1181	TYP	3.00	TYP
C	0.0610	REF	1.55	REF	H	0.0551	0.0630	1.40	1.60
D	0.0906	0.1024	2.30	2.60	I	0.0138	0.0173	0.35	0.44
E	0.0126	0.0205	0.32	0.52					

**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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