General Purpose NPN Epitaxial Planar Transistor

BTC2883J3

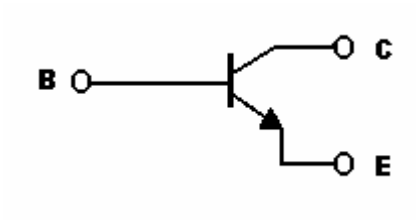
BV_{CEO}	240V
I_C	1.2A
$R_{CESAT(MAX)}$	0.6Ω

Features

- High breakdown voltage, $BV_{CEO} \geq$ 240V
- Large continuous collector current capability
- Low collector saturation voltage
- Pb-free lead plating and halogen-free package

Symbol

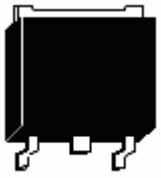
BTC2883J3



B：Base
C：Collector
E：Emitter

Outline

TO-252(DPAK)



B C E

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	300	V
Collector-Emitter Voltage	V_{CEO}	240	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current	I_C	1.2	A
Base Current	I_B	200	mA
Power Dissipation @T_A=25℃	P_D	1	W
Power Dissipation @T_C=25℃		10	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	$R_{th,j-c}$	12.5	°C/W
Thermal Resistance, Junction-to-ambient, max	$R_{th,j-a}$	125	°C/W

Characteristics (Ta=25°C)

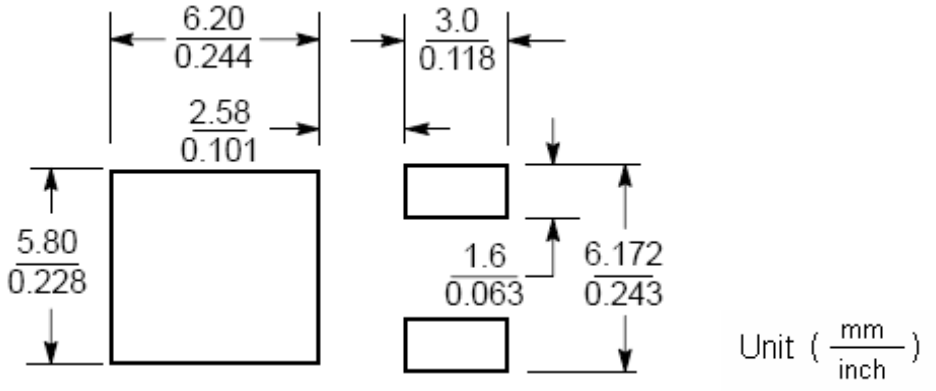
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	300	-	-	V	I_C=10μA
BV_{CEO}	240	-	-	V	I_C=10mA
BV_{EBO}	7	-	-	V	I_E=10μA
I_{CBO}	-	-	100	nA	V_{CB}=300V
I_{EBO}	-	-	100	nA	V_{EB}=6V
*$V_{CE(sat)}$	-	0.2	0.3	V	I_C=500mA, I_B=50mA
*$V_{CE(sat)}$	-	0.3	0.5	V	I_C=700mA, I_B=35mA
*$V_{BE(sat)}$	-	0.93	1	V	I_C=500mA, I_B=50mA
*$V_{BE(on)}$	-	0.67	0.8	V	V_{CE}=2V, I_C=100mA
*h_{FE} 1	160	-	-	-	V_{CE}=2V, I_C=50mA
*h_{FE} 2	160	-	320	-	V_{CE}=2V, I_C=100mA
*h_{FE} 3	120	-	-	-	V_{CE}=2V, I_C=200mA
*h_{FE} 4	50	-	-	-	V_{CE}=5V, I_C=700mA
f_T	-	120	-	MHz	V_{CE}=5V, I_C=100mA
Cob	-	-	30	pF	V_{CB}=10V, I_E=0A,f=1MHz

*Pulse Test: Pulse Width ≤300μs, Duty Cycle≤2%

Ordering Information

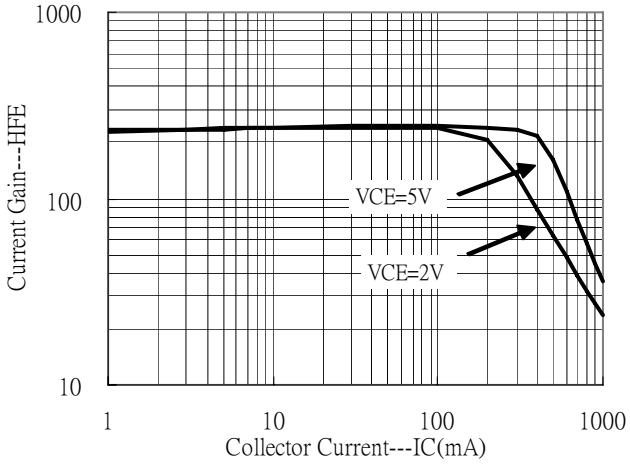
Device	Package	Shipping
BTC2883J3-0-T3-G	TO-252 (Pb-free lead plating and halogen-free package)	2500 pcs / Tape & Reel

Recommended soldering footprint

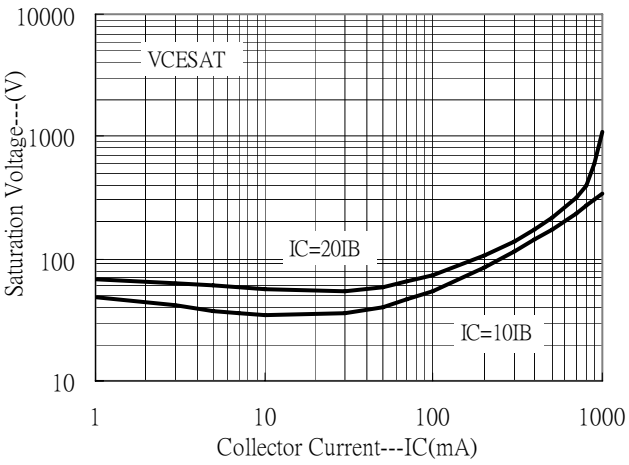


Typical Characteristics

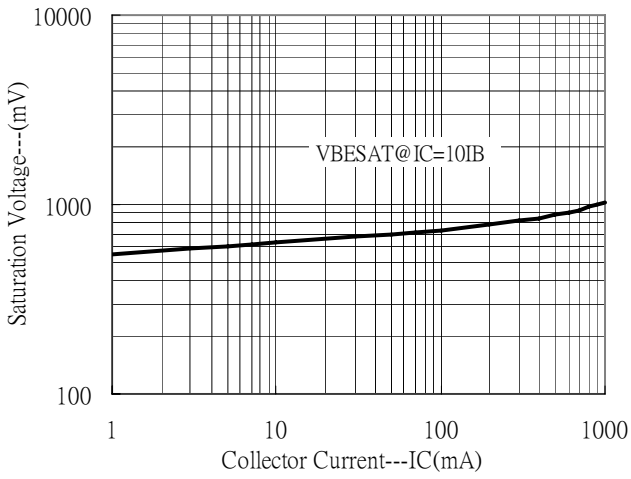
Current Gain vs Collector Current



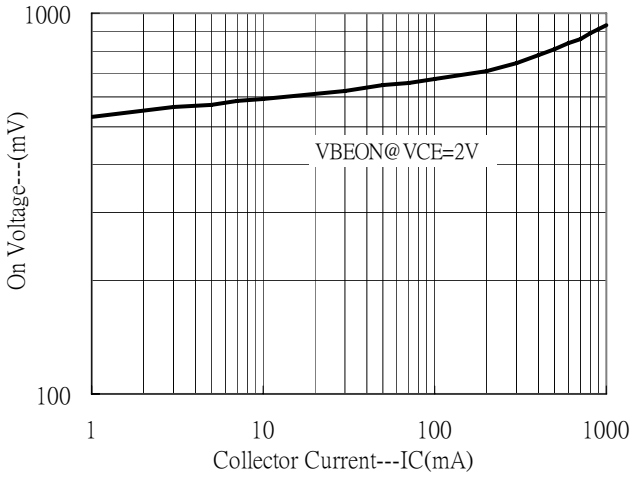
Saturation Voltage vs Collector Current



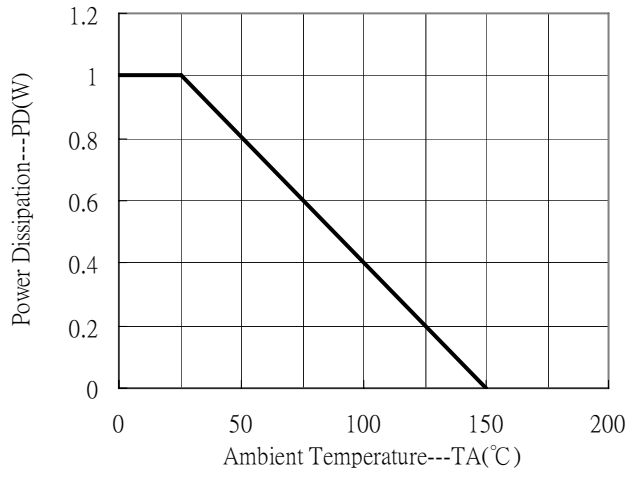
Saturation Voltage vs Collector Current



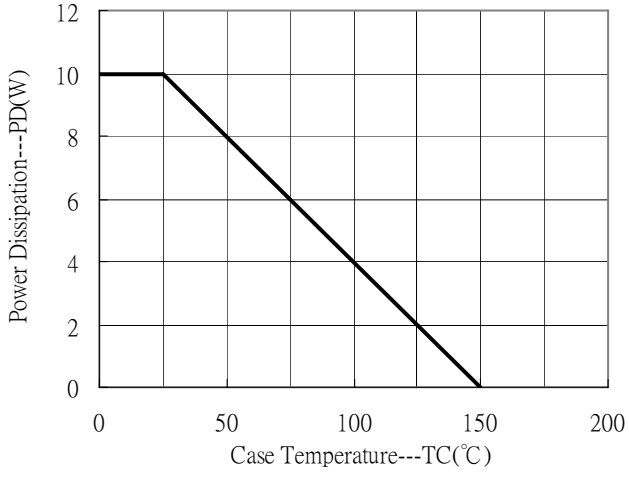
On Voltage vs Collector Current



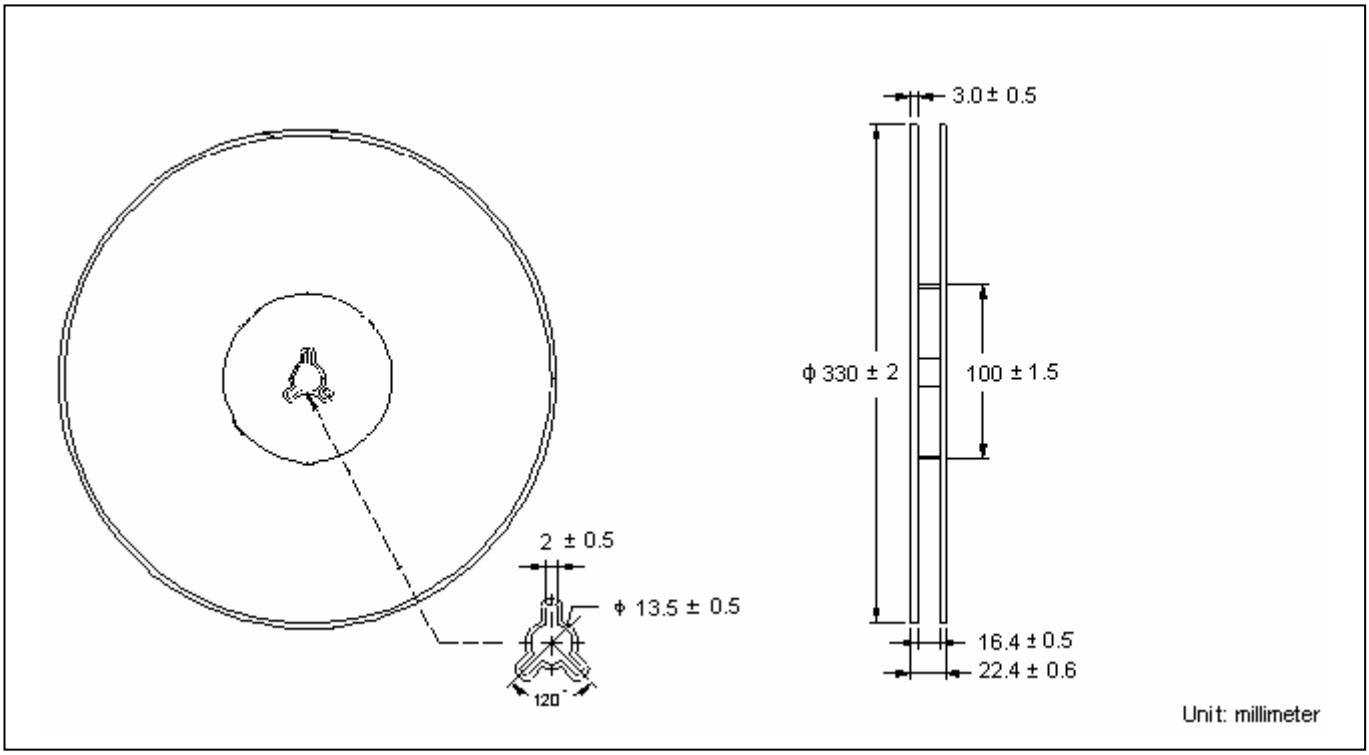
Power Derating Curve



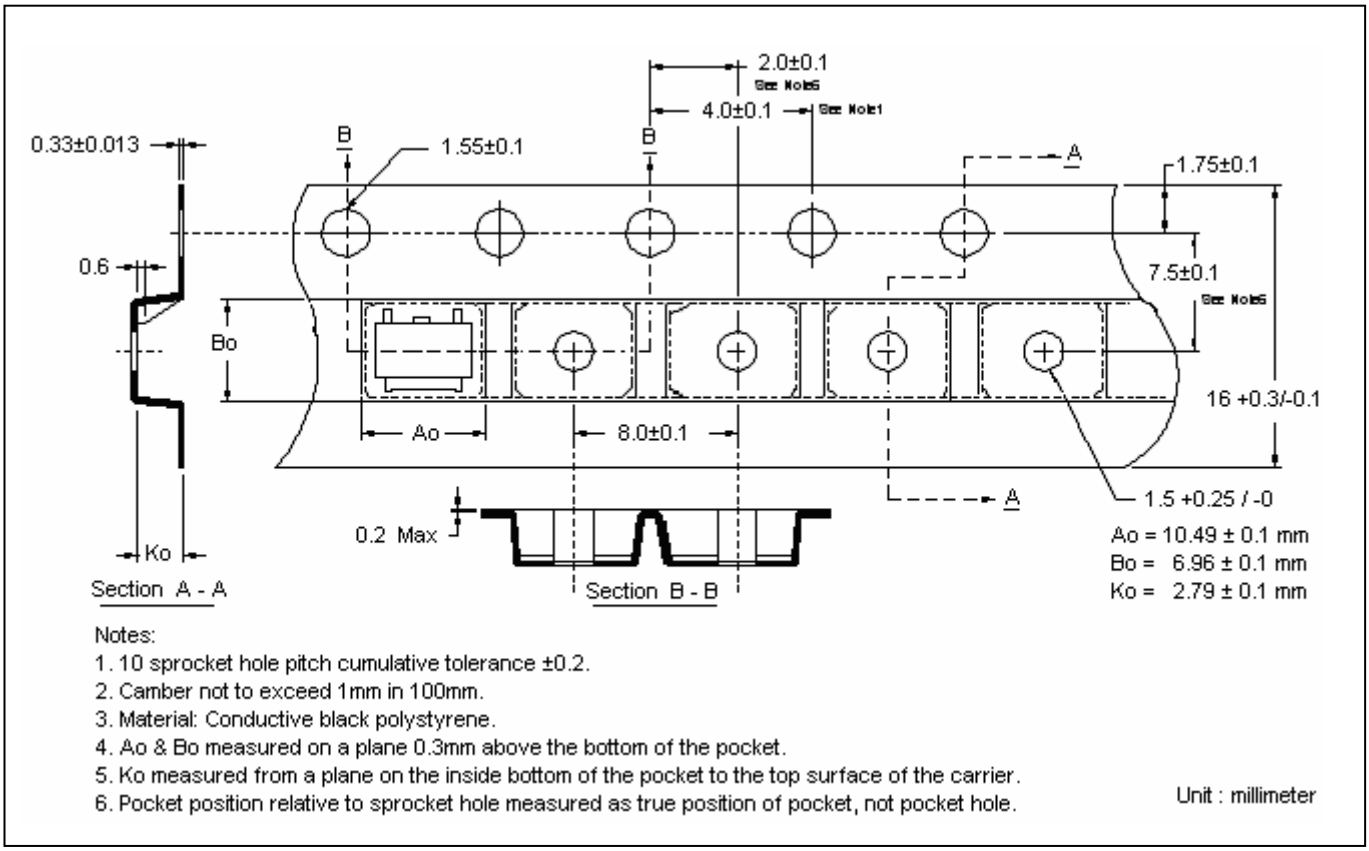
Power Derating Curve



Reel Dimension



Carrier Tape Dimension



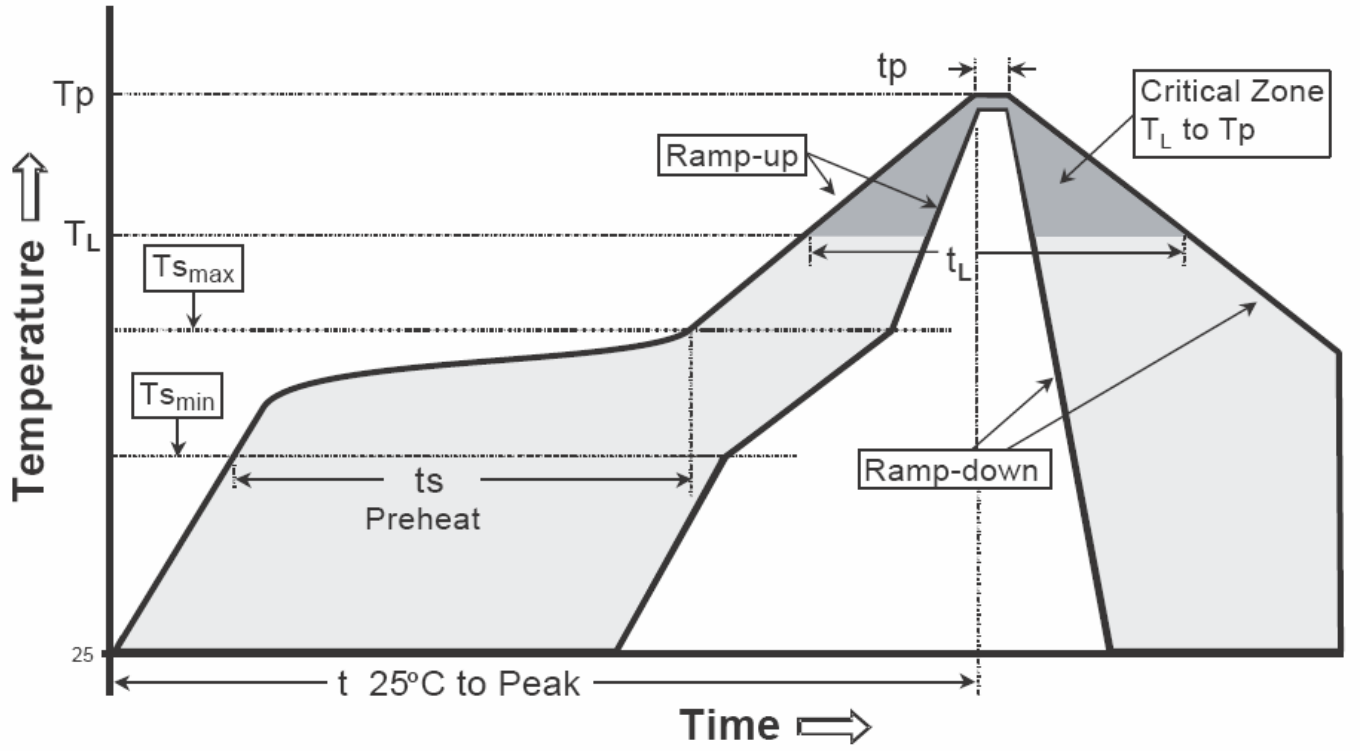
Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive black polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

Recommended wave soldering condition

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

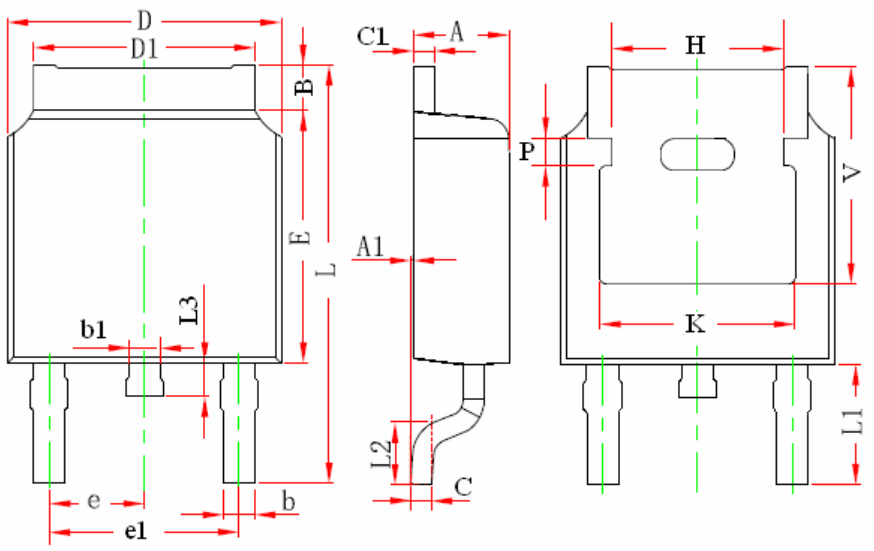
Recommended temperature profile for IR reflow

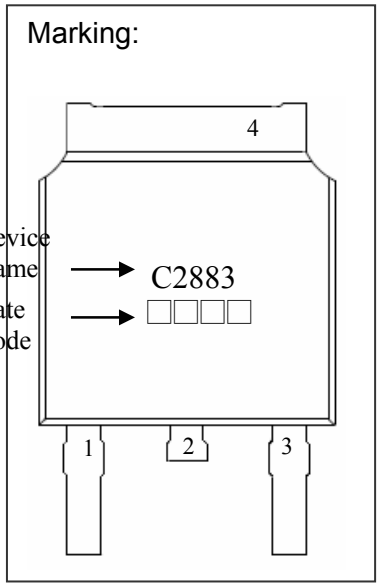


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL) − Time (tL)	 183°C 60-150 seconds	 217°C 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.

TO-252 Dimension





3-Lead TO-252 Plastic Surface Mount Package
CYStek Package Code: J3

Style: Pin 1.Base 2.Collector 3.Emitter 4.Collector

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.087	0.094	2.200	2.400	e	0.086	0.094	2.186	2.386
A1	0.000	0.005	0.000	0.127	e1	0.172	0.188	4.372	4.772
B	0.039	0.048	0.990	1.210	H	0.163 REF		4.140 REF	
b	0.026	0.034	0.660	0.860	K	0.190 REF		4.830 REF	
b1	0.026	0.034	0.660	0.860	L	0.386	0.409	9.800	10.400
C	0.018	0.023	0.460	0.580	L1	0.114 REF		2.900 REF	
C1	0.018	0.023	0.460	0.580	L2	0.055	0.067	1.400	1.700
D	0.256	0.264	6.500	6.700	L3	0.024	0.039	0.600	1.000
D1	0.201	0.215	5.100	5.460	P	0.030 REF		0.750 REF	
E	0.236	0.244	6.000	6.200	V	0.211 REF		5.350 REF	

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.