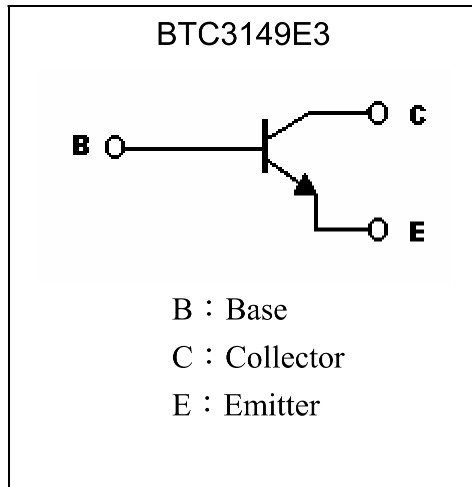
High Voltage NPN Triple Diffused Planar Transistor

BTC3149E3

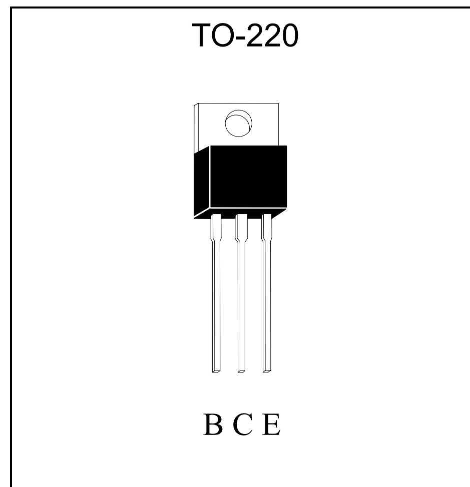
Features

- High voltage, BV_{CBO}=1600V min., BV_{CEO}=800V min.
- Pb-free lead plating package

Symbol



Outline



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	1600	V
Collector-Emitter Voltage	V_{CEO}	800	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C(DC)	1.2	A
	I_C(Pulse)	3 *1	A
Power Dissipation	Pd(Ta=25℃)	2	W
	Pd(Tc=25℃)	40	
Operating Junction and Storage Temperature Range	Tj ; Tstg	-55~+150	°C

Note : *1. Single Pulse Pw≦300μs,Duty≦2%.

Characteristics (Ta=25°C)

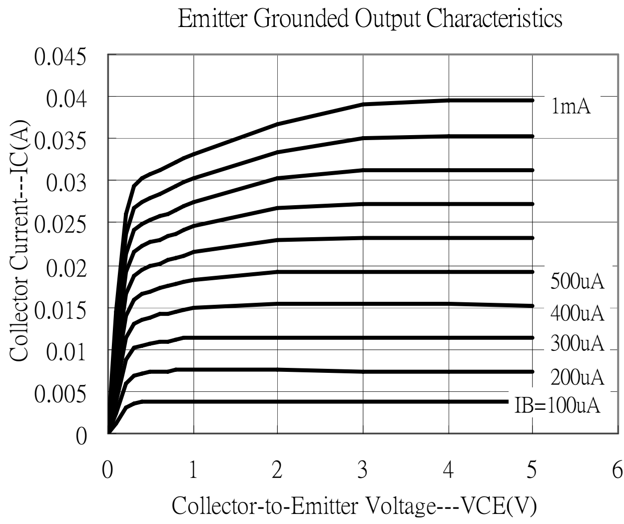
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	1600	-	-	V	I_C=100μA, I_E=0
BV_{CEO}	800	-	-	V	I_C=1mA, I_B=0
BV_{EBO}	6	-	-	V	I_E=100μA, I_C=0
I_{CBO}	-	-	10	μA	V_{CB}=1600V, I_E=0
I_{CEO}	-	-	10	μA	V_{CB}=800V, I_B=0
I_{EBO}	-	-	100	nA	V_{EB}=6V, I_C=0
*$V_{CE(sat)}$	-	-	0.2	V	I_C=200mA, I_B=40mA
*$V_{CE(sat)}$	-	-	0.35	V	I_C=500mA, I_B=100mA
*$V_{BE(sat)}$	-	-	1.2	V	I_C=500mA, I_B=100mA
*$h_{FE}1$	20	-	-	-	V_{CE}=5V, I_C=10mA
*$h_{FE}2$	24	-	35	-	V_{CE}=5V, I_C=100mA
*$h_{FE}3$	5	-	-	-	V_{CE}=5V, I_C=500mA
Cob	-	10	-	pF	V_{CB}=10V, f=1MHz
tr	-	-	0.8	μs	V_{CC}=400V, I_C=0.5A, I_B1=0.1A I_B2=-0.2A
tstg	-	-	3		
tf	-	-	0.4		

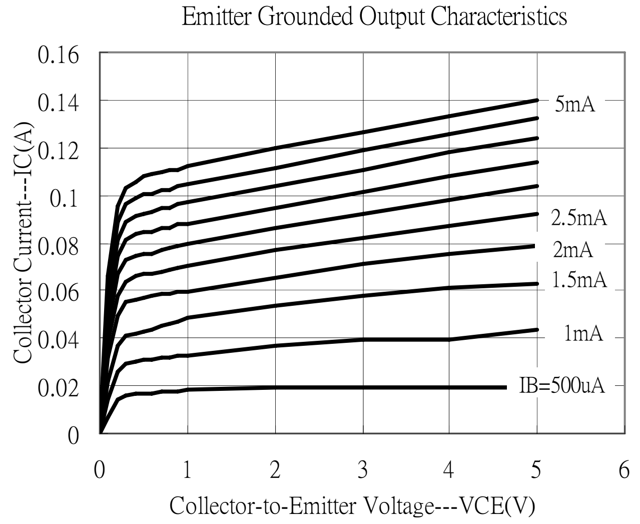
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

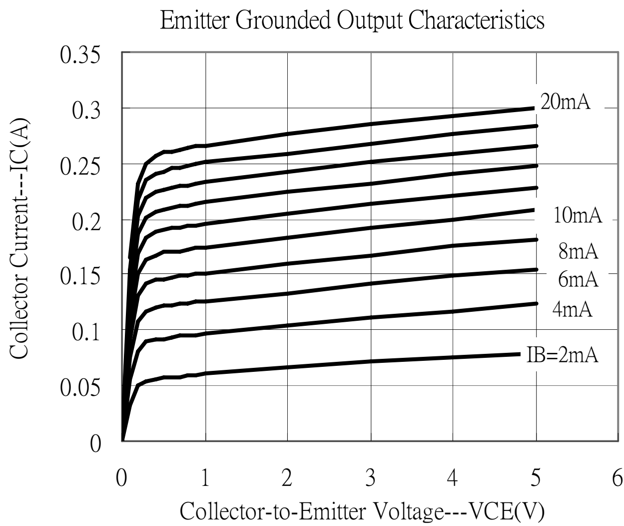
Ordering Information

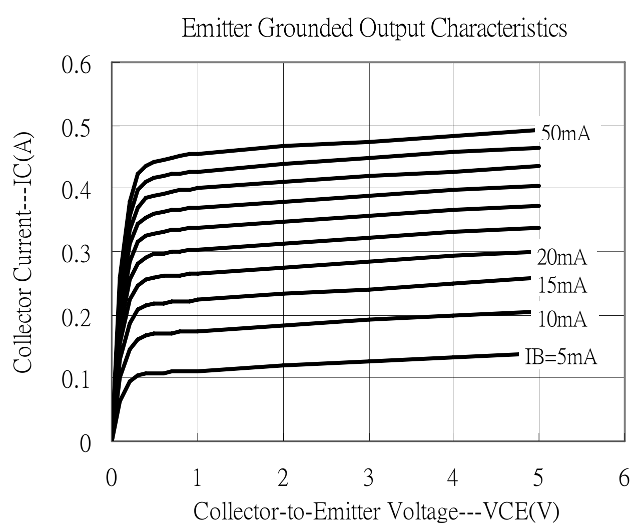
Device	Package	Shipping
BTC3149E3	TO-220 (RoHS compliant package)	50 pcs / tube , 40 tubes/box

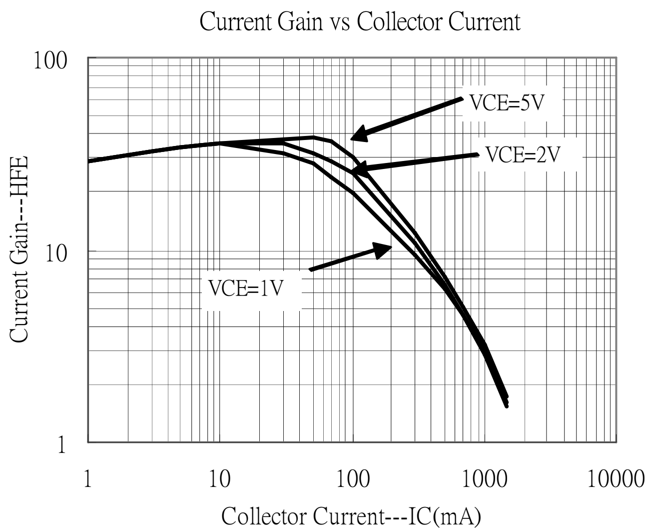
Typical Characteristics

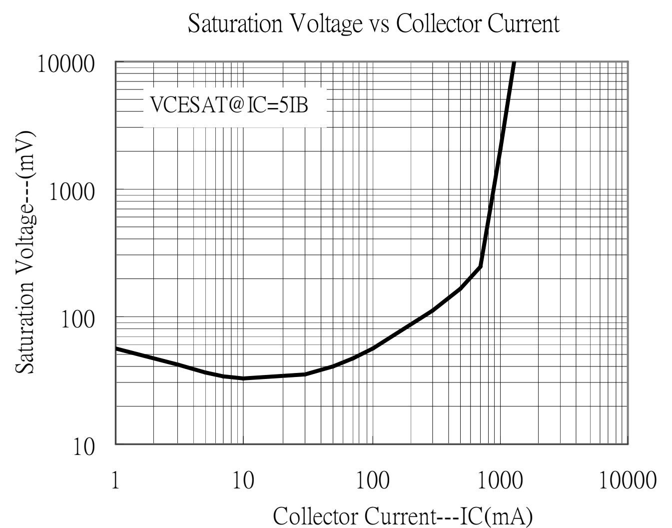




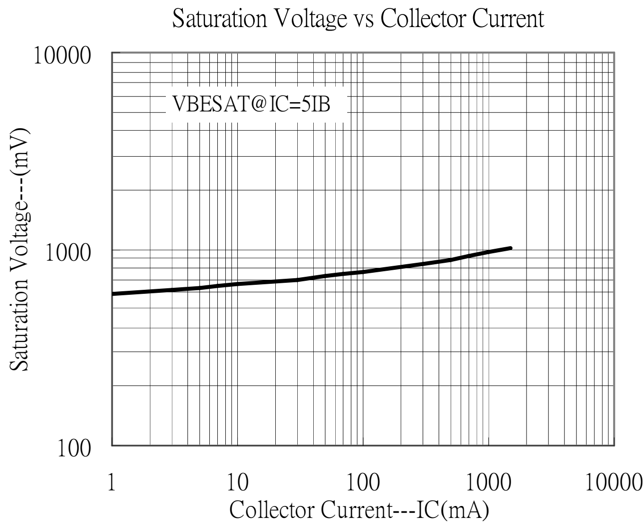


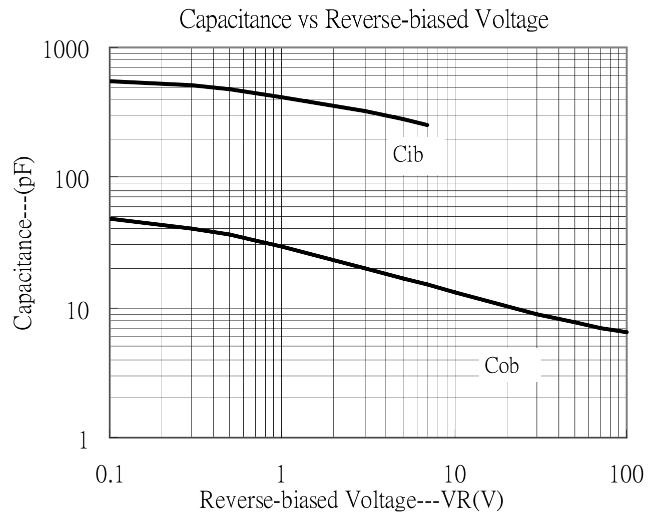


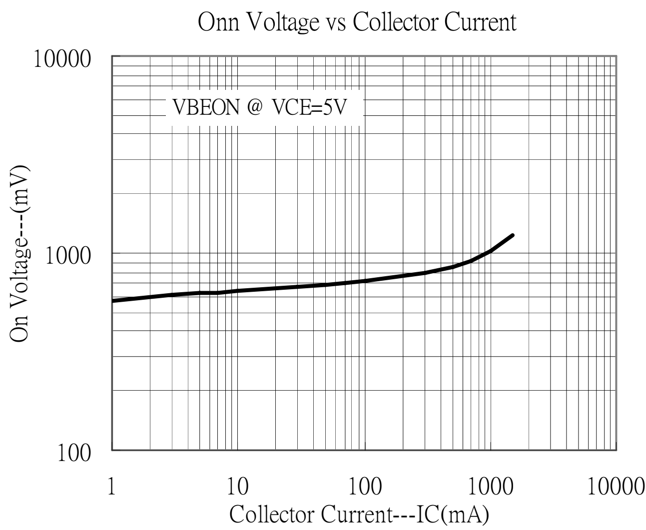


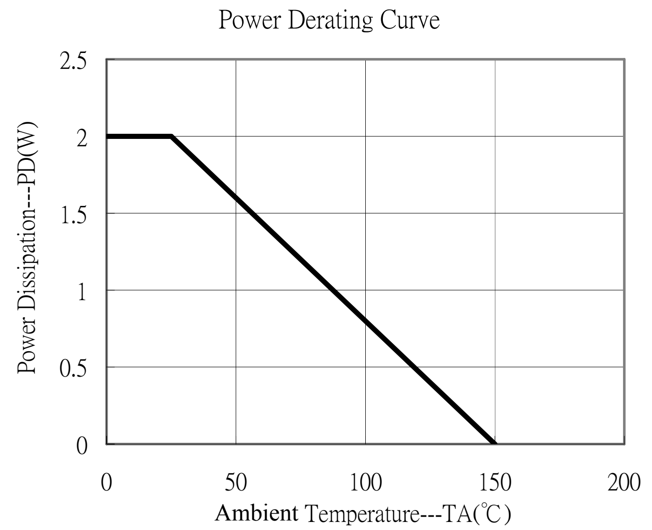


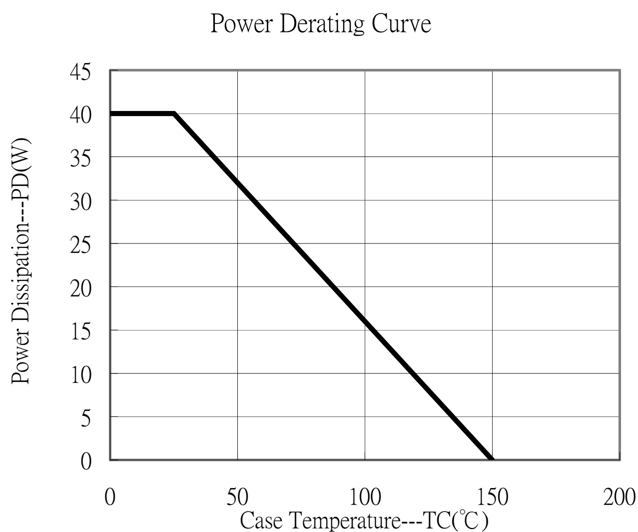
Typical Characteristics(Cont.)







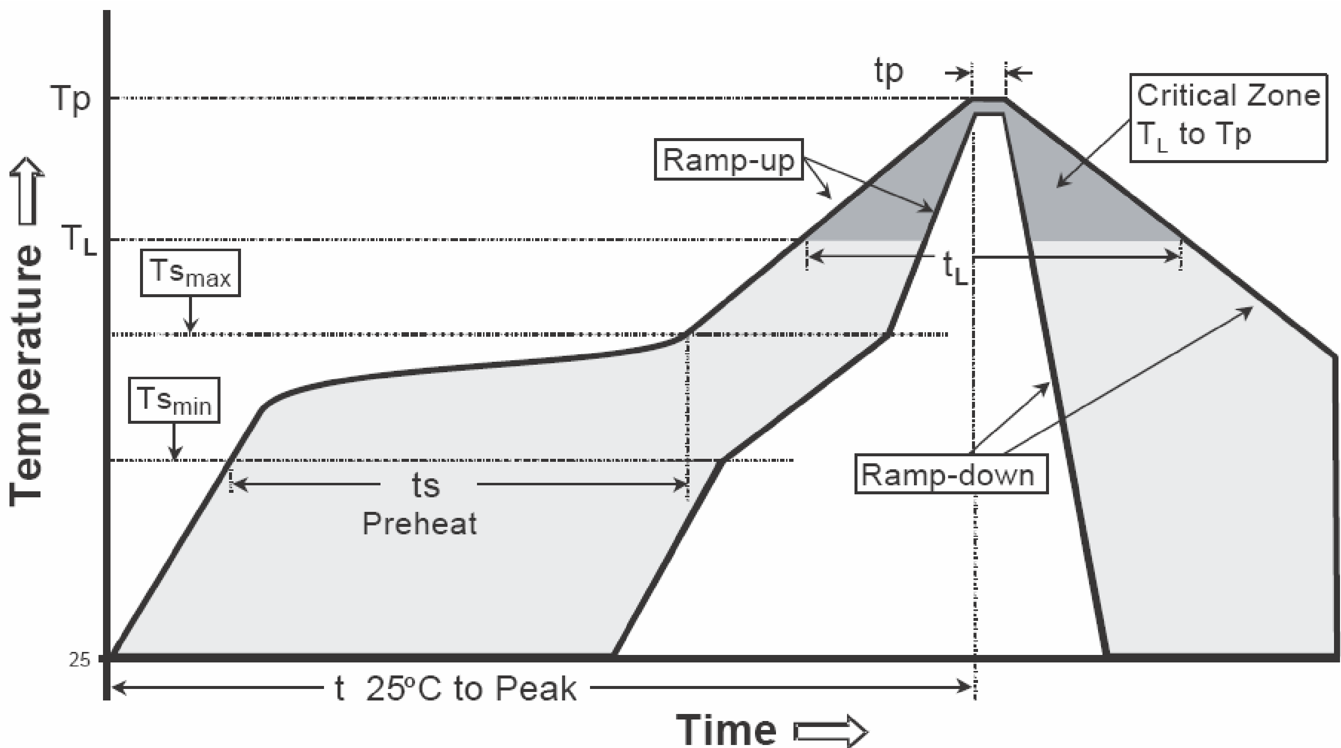




Recommended wave soldering condition

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

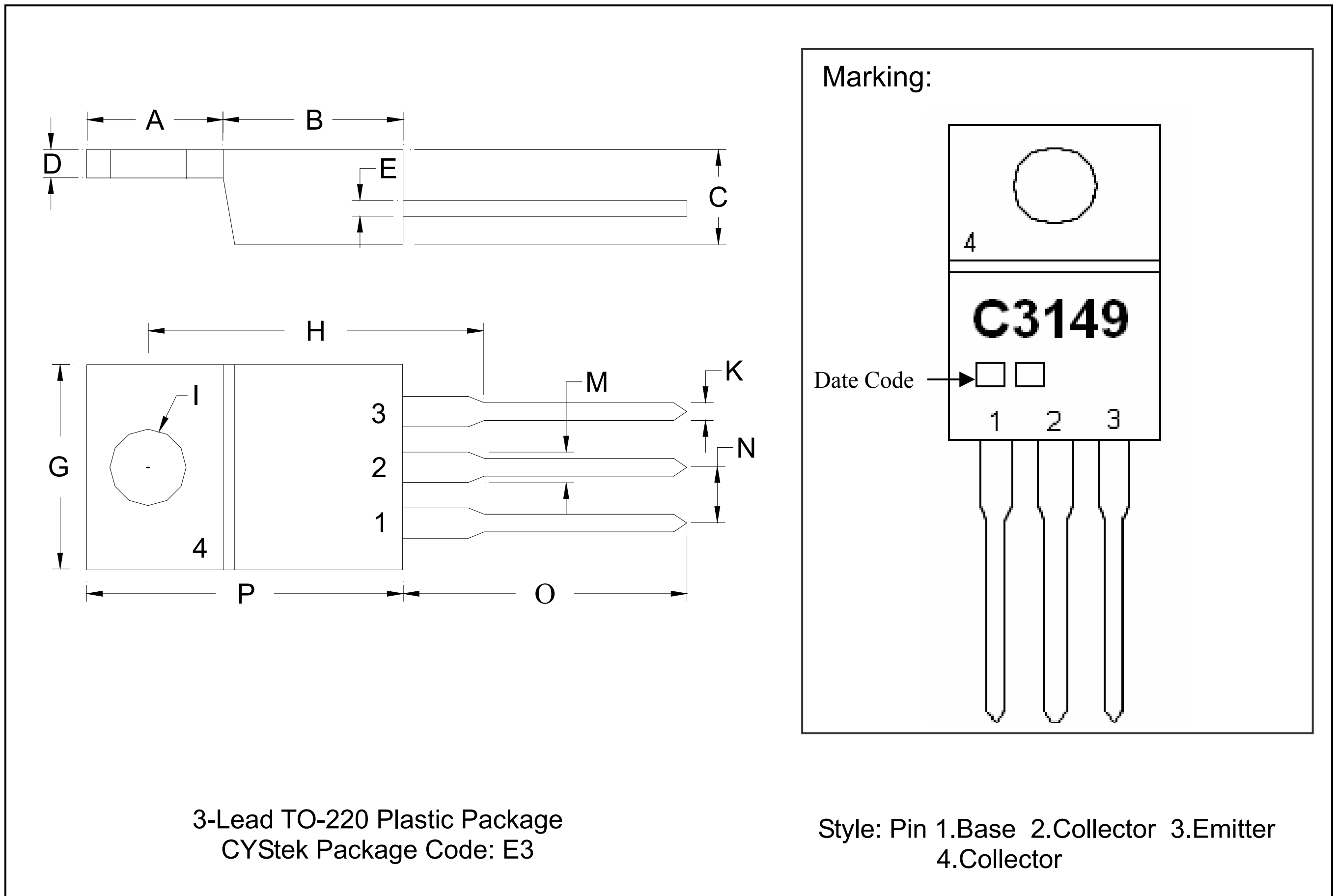
Recommended temperature profile for IR reflow



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(T_S min) −Temperature Max(T_S 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 (T_L) − Time (t_L)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(T_P)	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-220 Dimension



3-Lead TO-220 Plastic Package
CYStek Package Code: E3

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

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.2197	0.2949	5.58	7.49	I	-	*0.1508	-	*3.83
B	0.3299	0.3504	8.38	8.90	K	0.0295	0.0374	0.75	0.95
C	0.1732	0.185	4.40	4.70	M	0.0449	0.0551	1.14	1.40
D	0.0453	0.0547	1.15	1.39	N	-	*0.1000	-	*2.54
E	0.0138	0.0236	0.35	0.60	O	0.5000	0.5618	12.70	14.27
G	0.3803	0.4047	9.66	10.28	P	0.5701	0.6248	14.48	15.87
H	-	*0.6398	-	*16.25					

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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