

General Purpose PNP Epitaxial Planar Transistor

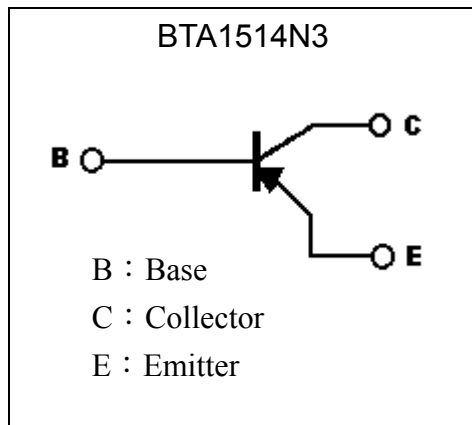
BTA1514N3

BV_{CEO}	-160V
I_C	-0.6A
$V_{CESAT(MAX)}$	-0.3V

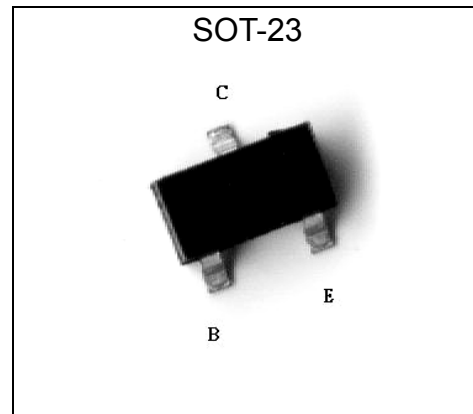
Description

- The BTA1514N3 is designed for general purpose application requiring high breakdown voltage.
- Large I_C , $I_{C(Max)} = -0.6A$
- High BV_{CEO} , $BV_{CEO} = -160V$
- Complementary to BTC3906N3.
- Pb-free lead plating and halogen-free package

Symbol

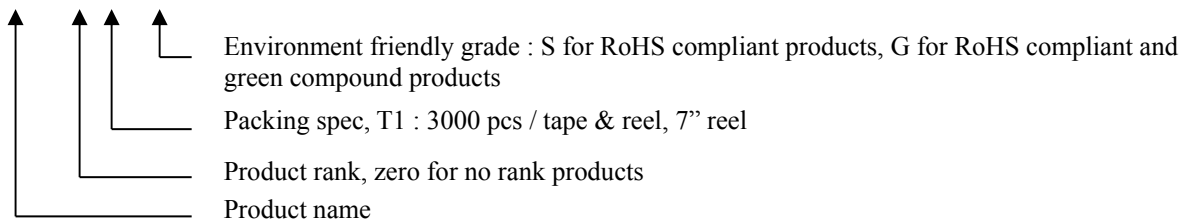


Outline



Ordering Information

Device	Package	Shipping
BTA1514N3-X-T1-G	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel



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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V _{CB0}	-180	V
Collector-Emitter Voltage	V _{CEO}	-160	V
Emitter-Base Voltage	V _{EBO}	-5	V
Collector Current	I _C	-0.6	A
Power Dissipation	P _D	225	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	556	°C/W
ESD susceptibility		8000 (Note)	V
Operating Junction and Storage Temperature Range	T _j ; T _{stg}	-55~+150	°C

Note : Human body model, 1.5kΩ in series with 100pF

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	-180	-	-	V	I _C =-50μA
BV _{CEO}	-160	-	-	V	I _C =-1mA
BV _{EBO}	-5	-	-	V	I _E =-50μA
IC _{B0}	-	-	-50	nA	V _{CB} =-120V
IE _{B0}	-	-	-50	nA	V _{EB} =-4V
*V _{CE(sat)} 1	-	0.11	-0.16	V	I _C =-10mA, I _B =-1mA
*V _{CE(sat)} 2	-	0.25	-0.3	V	I _C =-50mA, I _B =-5mA
*V _{BE(sat)} 1	-	-	-1	V	I _C =-10mA, I _B =-1mA
*V _{BE(sat)} 2	-	-	-1	V	I _C =-50mA, I _B =-5mA
h _{FE} 1	100	-	-	-	V _{CE} =-5V, I _C =-1mA
h _{FE} 2	100	-	-	-	V _{CE} =-5V, I _C =-10mA
h _{FE} 3	50	-	-	-	V _{CE} =-5V, I _C =-50mA
h _{FE} 4	120	-	390	-	V _{CE} =-6V, I _C =-2mA
f _T	100	-	-	MHz	V _{CE} =-30V, I _C =-10mA, f=100MHz
C _{ob}	-	-	6	pF	V _{CB} =-10V, f=1MHz

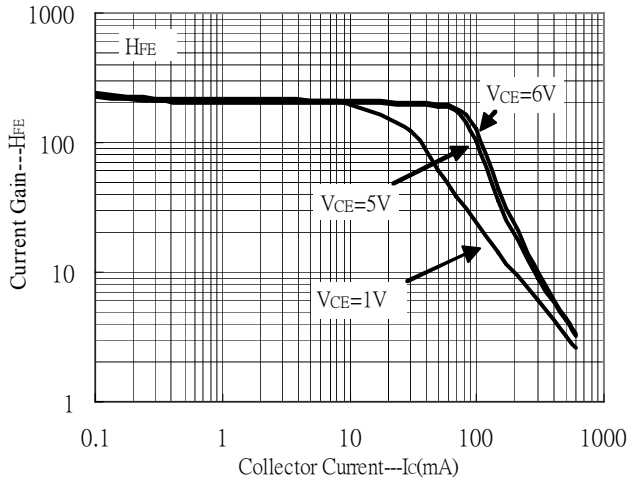
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Classification Of h_{FE} 4

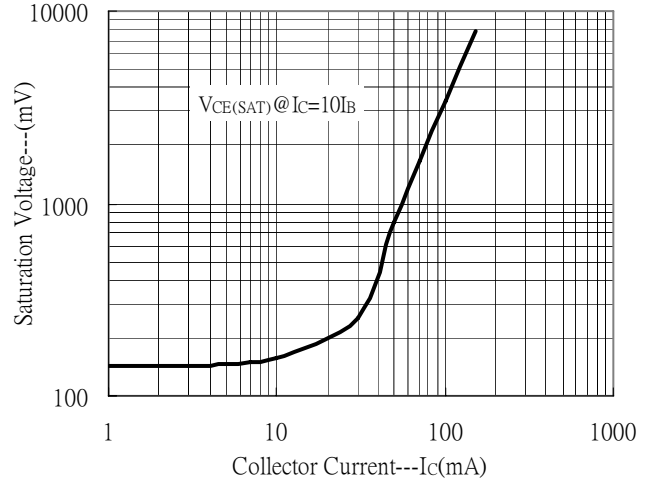
Rank	Q	R
Range	120~270	180~390

Typical Characteristics

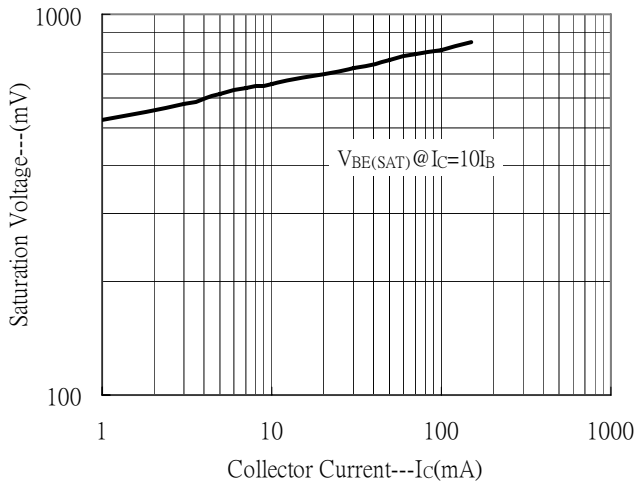
Current Gain vs Collector Current



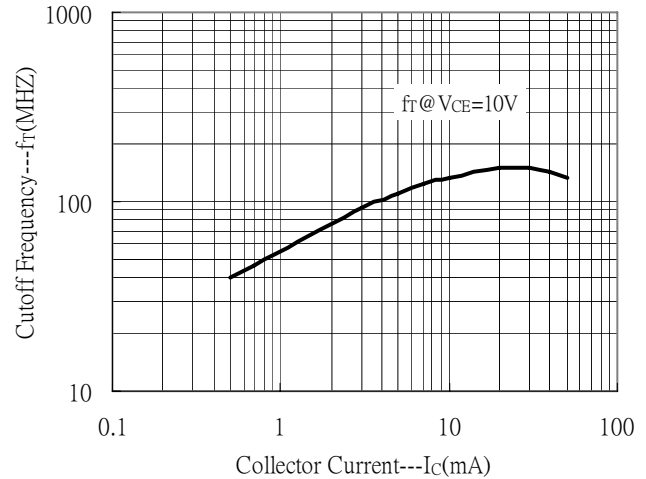
Saturation Voltage vs Collector Current



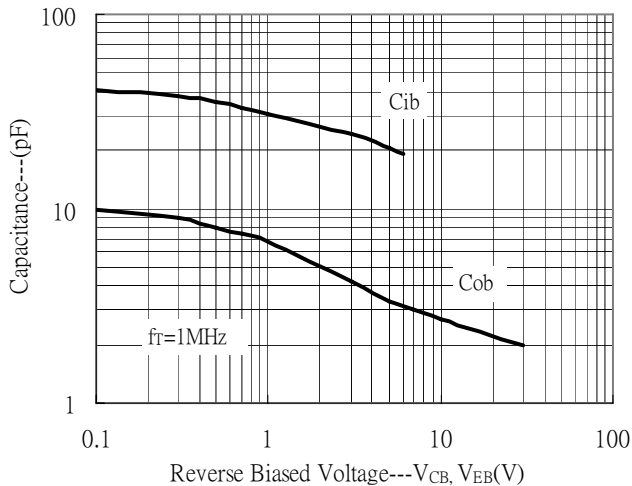
Saturation Voltage vs Collector Current



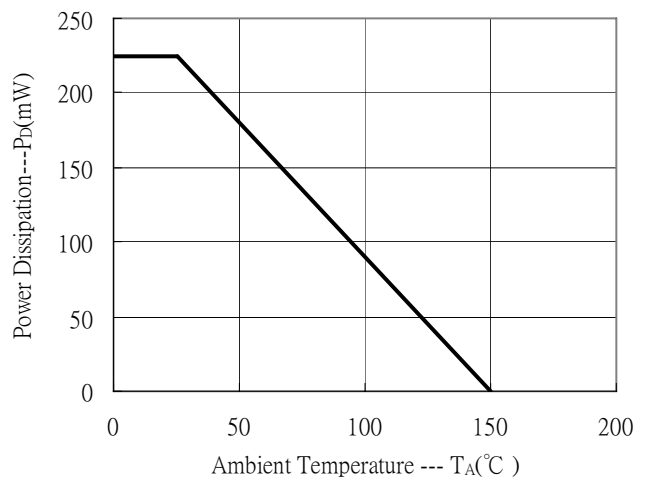
Cutoff Frequency vs Collector Current



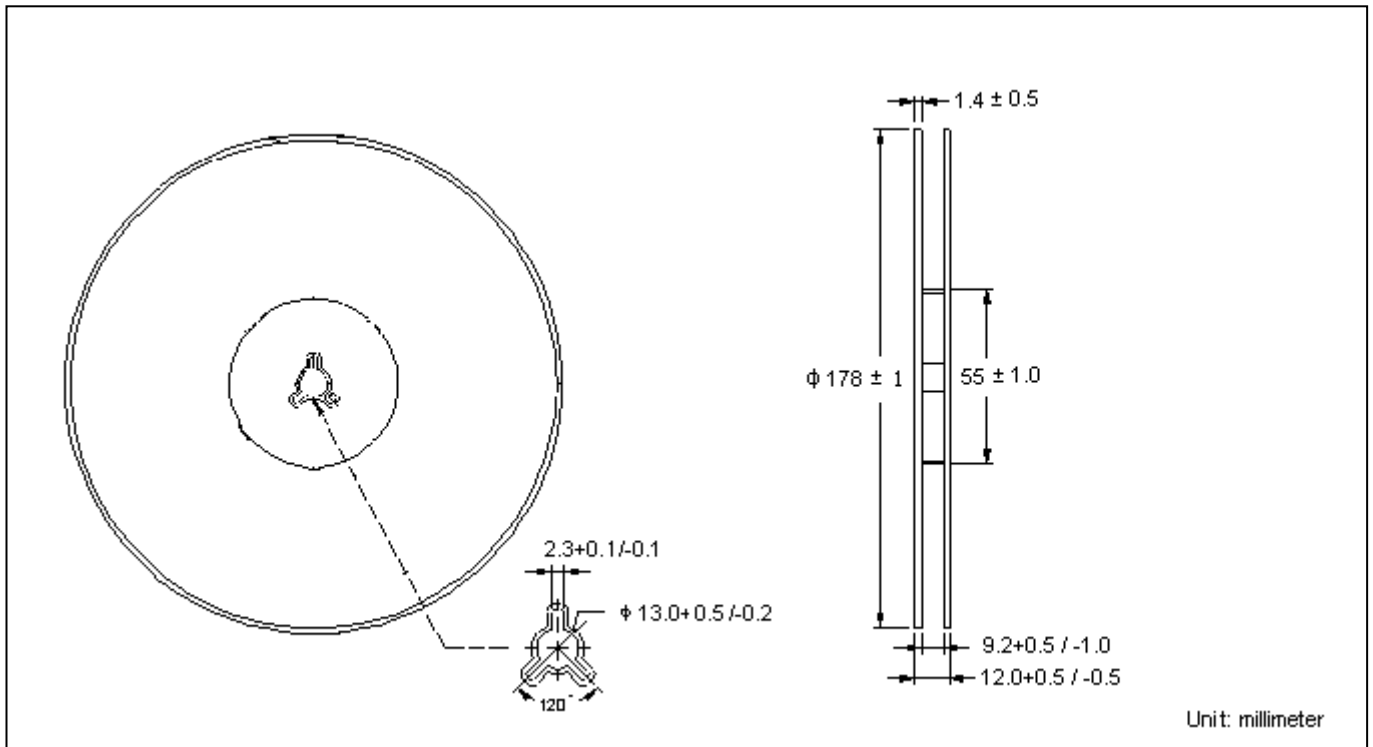
Capacitance Characteristics



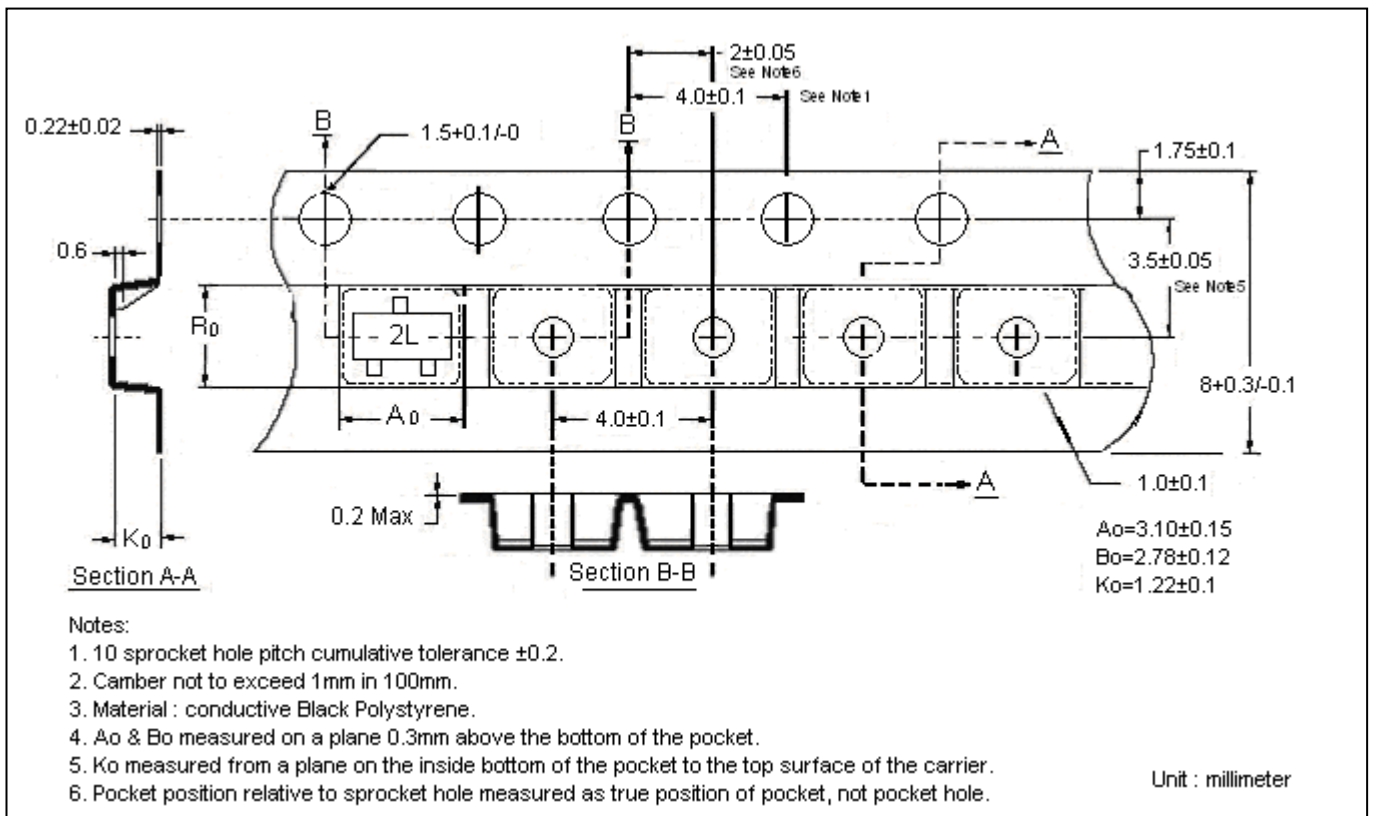
Power Derating Curve



Reel Dimension



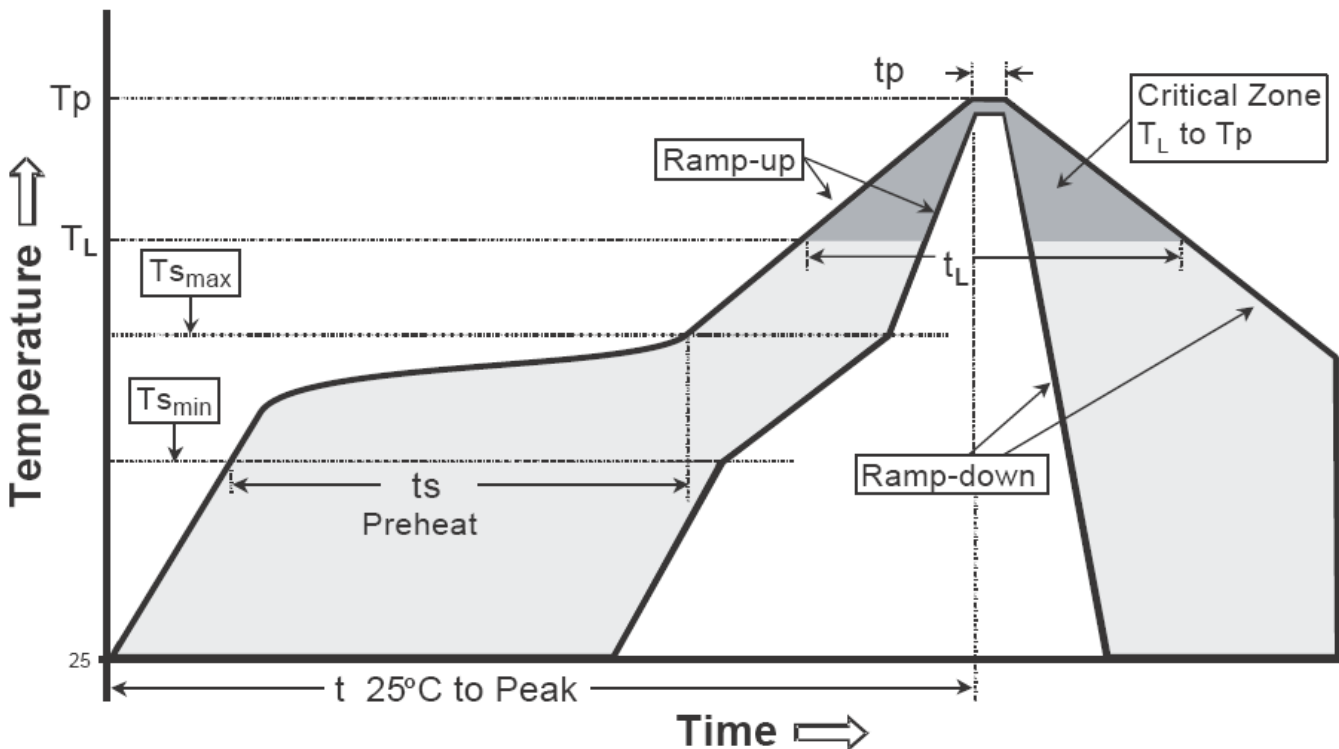
Carrier Tape Dimension



Recommended wave soldering condition

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

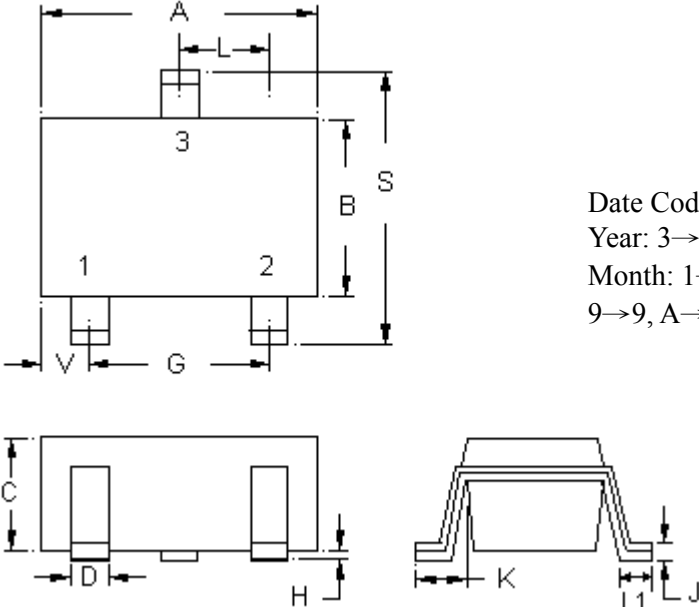
Recommended temperature profile for IR reflow



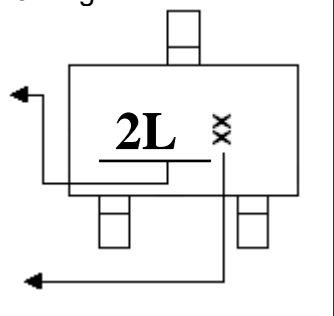
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time($t_{s min}$ to $t_{s max}$)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T_L)	183°C	217°C
- Time (t_L)	60-150 seconds	60-150 seconds
Peak Temperature(T_P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(t_p)	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-23 Dimension



Marking:



Product Code

Date Code: Year+Month
 Year: 3→2003, 4→2004
 Month: 1→1, 2→2, . . .
 9→9, A→10, B→11, C→12

3-Lead SOT-23 Plastic
 Surface Mounted Package
 CYStek Package Code: N3

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

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0032	0.0079	0.08	0.20
B	0.0472	0.0669	1.20	1.70	K	0.0118	0.0266	0.30	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1161	2.10	2.95
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0000	0.0040	0.00	0.10	L1	0.0118	0.0197	0.30	0.50

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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