Low Vcesat PNP Epitaxial Planar Transistor

BTB772NUJ3

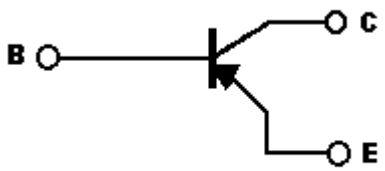
BV_{CEO}	-30V
I_C	-3A

Features

- Low V_{CE}(sat), typically -0.2 V at I_C / I_B = -2A / -0.2A
- Excellent current gain characteristics
- Complementary to BTD882NUJ3
- Pb-free lead plating and halogen-free package

Symbol

BTB772NUJ3



B：Base
C：Collector
E：Emitter

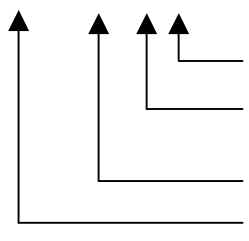
Outline

TO-252(DPAK)

B C E

Ordering Information

Device	Package	Shipping
BTB772NUJ3-P-T3-G	TO-252 (Pb-free lead plating package)	2500 pcs / tape & reel



Environment friendly grade : S for RoHS compliant products, G for RoHS compliant and green compound products

Packing spec, T3: 2500 pcs/tape & reel, 13” reel

Product rank, zero for no rank products

Product name

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Limit	Unit
Collector-Base Voltage		V_{CBO}	-40	V
Collector-Emitter Voltage		V_{CEO}	-30	V
Emitter-Base Voltage		V_{EBO}	-12	V
Collector Current	DC	I_C	-3	A
	Pulse		-7 *1	A
Power Dissipation	Ta=25℃	P_D	1	W
	Tc=25℃		10	
Operating Junction and Storage Temperature Range		Tj ; Tstg	-55~+150	°C

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

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient, max	$R_{\theta JA}$	125	°C/W
Thermal Resistance, Junction-to-Case, max	$R_{\theta JC}$	12.5	

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	-40	-	-	V	I_C=-50μA, I_E=0
BV_{CEO}	-30	-	-	V	I_C=-1mA, I_B=0
BV_{EBO}	-12	-	-	V	I_E=-50μA, I_C=0
I_{CBO}	-	-	-100	nA	V_{CB}=-30V, I_E=0
I_{EBO}	-	-	-100	nA	V_{EB}=-12V, I_C=0
*$V_{CE(sat)}$	-	-0.2	-0.5	V	I_C=-2A, I_B=-0.2A
*$V_{BE(sat)}$	-	-1	-1.5	V	I_C=-2A, I_B=-0.2A
*h_{FE} 1	120	-	-	-	V_{CE}=-2V, I_C=-20mA
*h_{FE} 2	160	-	320	-	V_{CE}=-2V, I_C=-500mA
f_T	-	80	-	MHz	V_{CE}=-5V, I_E=-0.1A, f=100MHz
Cob	-	26	-	pF	V_{CB}=-10V, f=1MHz

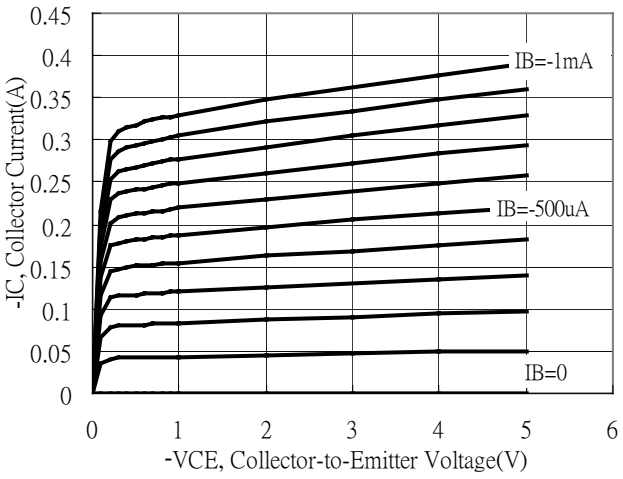
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

Classification Of h_{FE} 2

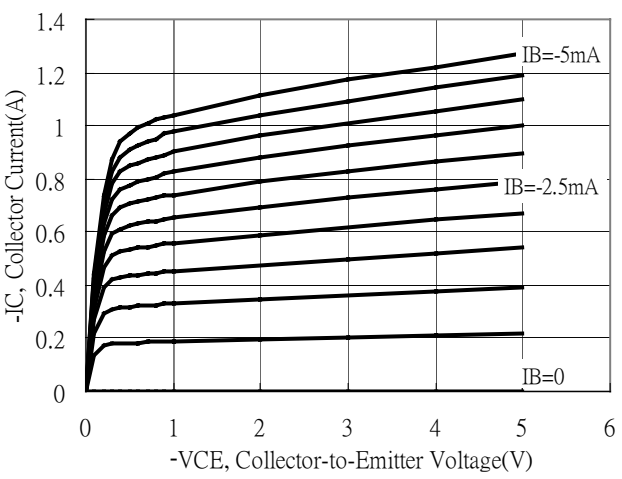
Rank	P
Range	180~320

Typical Characteristics

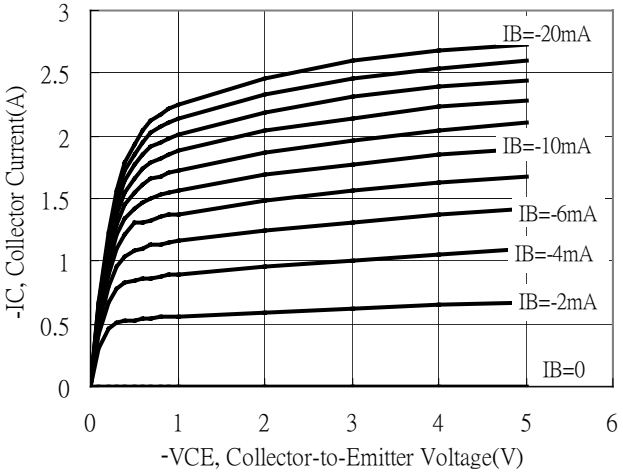
Emitter Grounded Output Characteristics



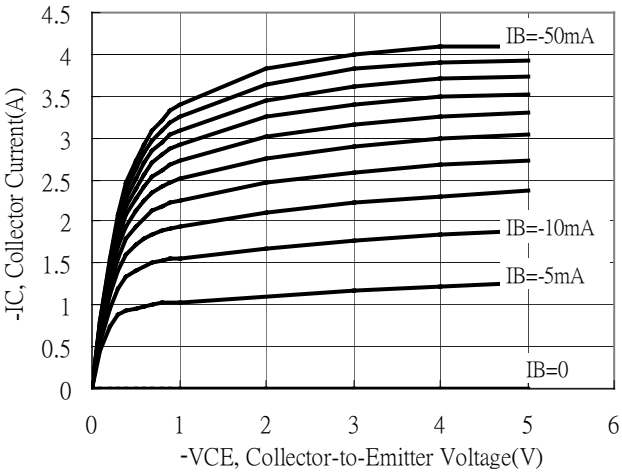
Emitter Grounded Output Characteristics



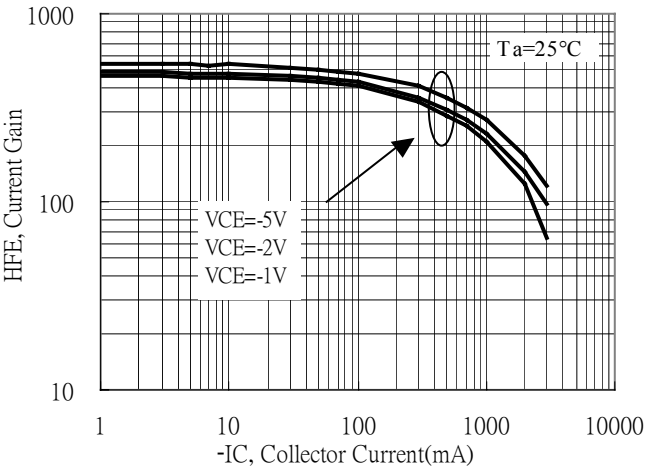
Emitter Grounded Output Characteristics



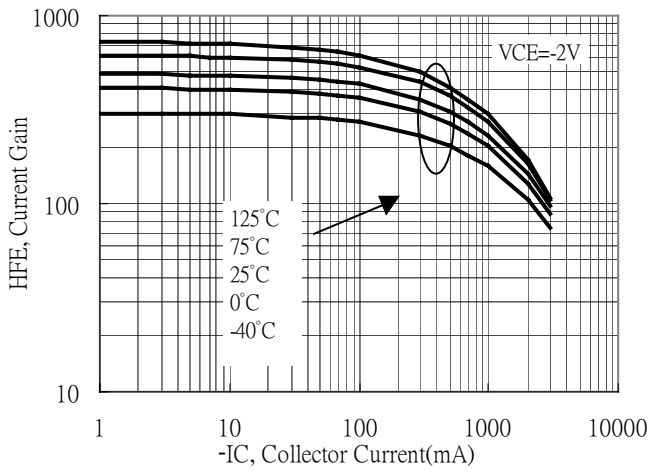
Emitter Grounded Output Characteristics



Current Gain vs Collector Current

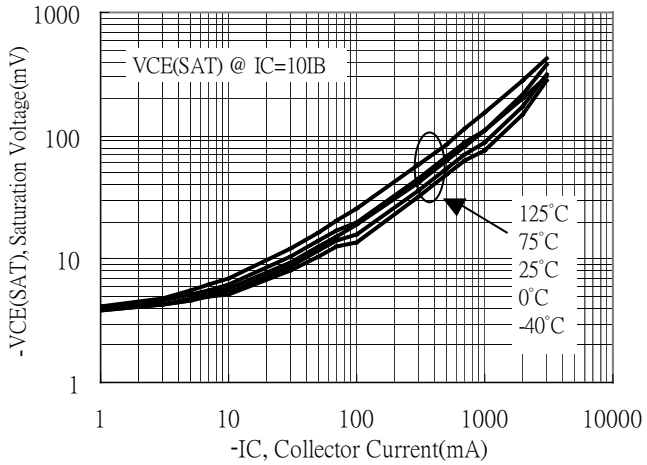


Current Gain vs Collector Current

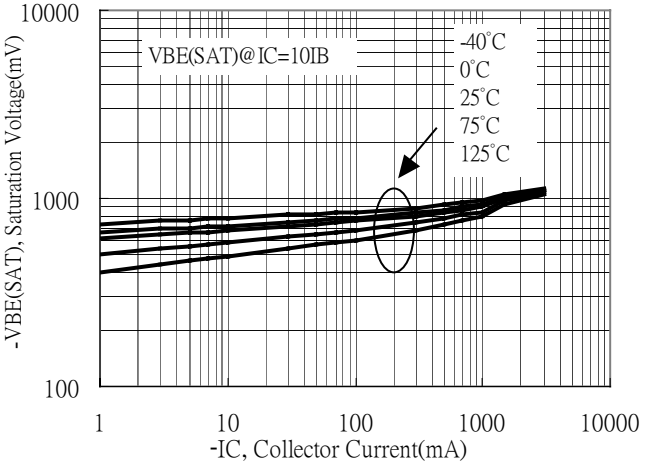


Typical Characteristics(Cont.)

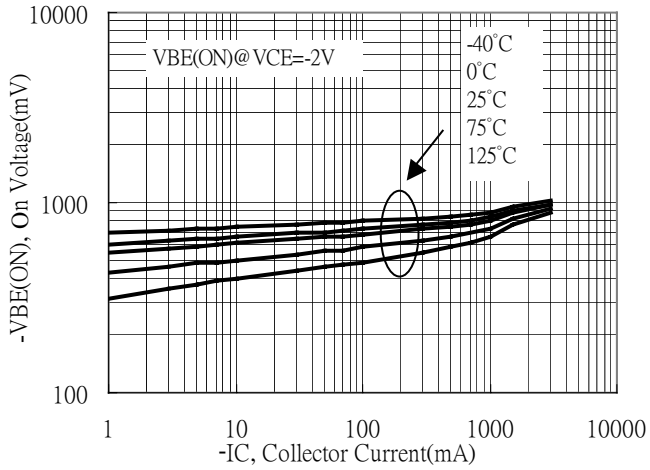
Saturation Voltage vs Collector Current



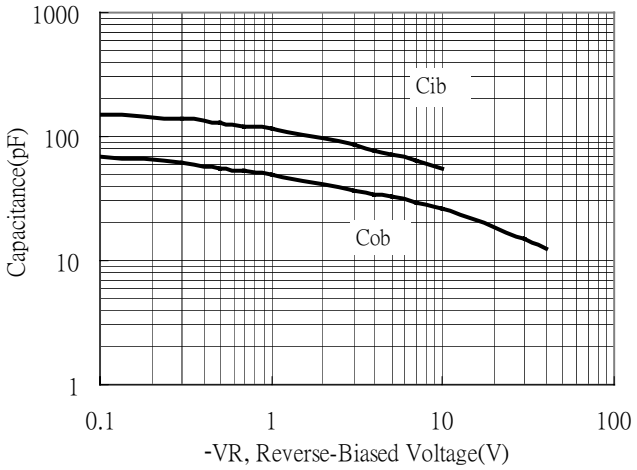
Saturation Voltage vs Collector Current



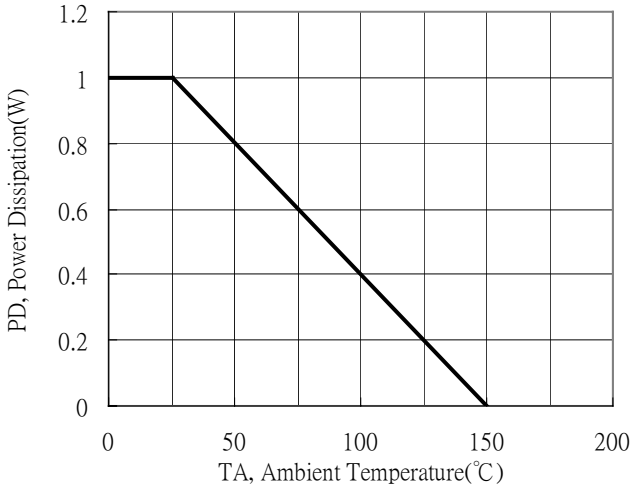
Saturation Voltage vs Collector Current



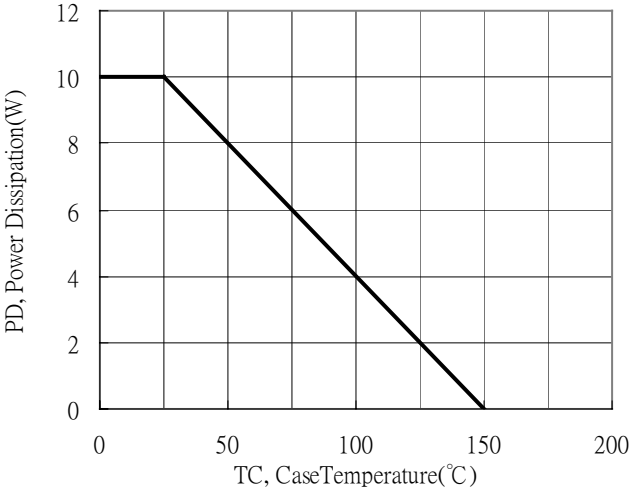
Capacitance vs Reverse-Biased Voltage



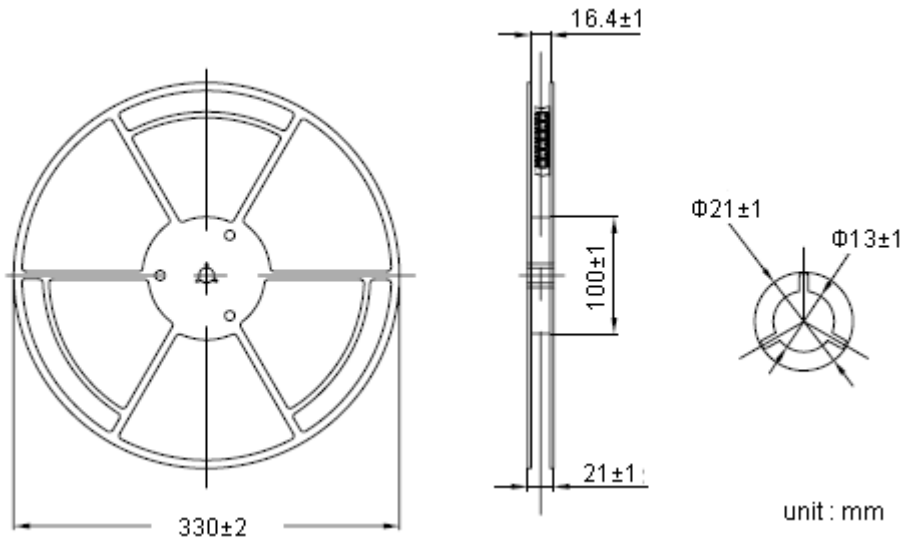
Power Derating Curve



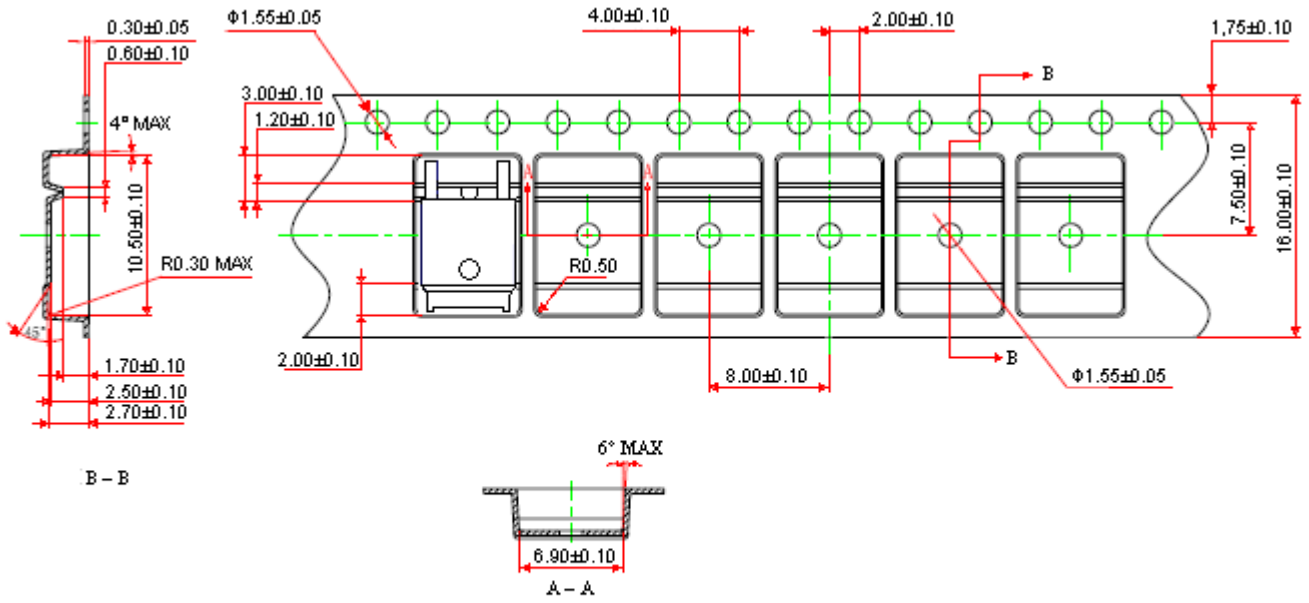
Power Derating Curve



Reel Dimension



Carrier Tape Dimension

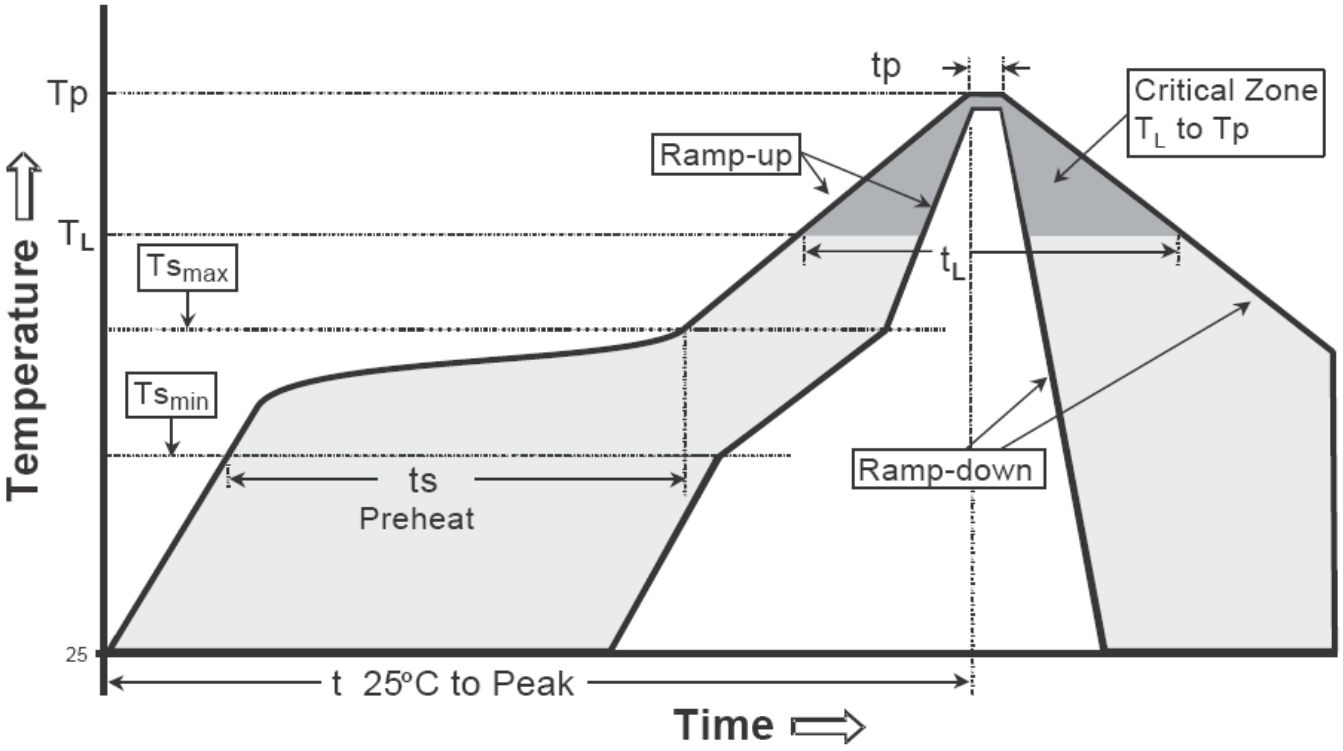


Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: conductive black polystyrene, antistatic coated : 10^{5} Ω/□~ 10^{11} Ω/□ unit : mm

Recommended wave soldering condition

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

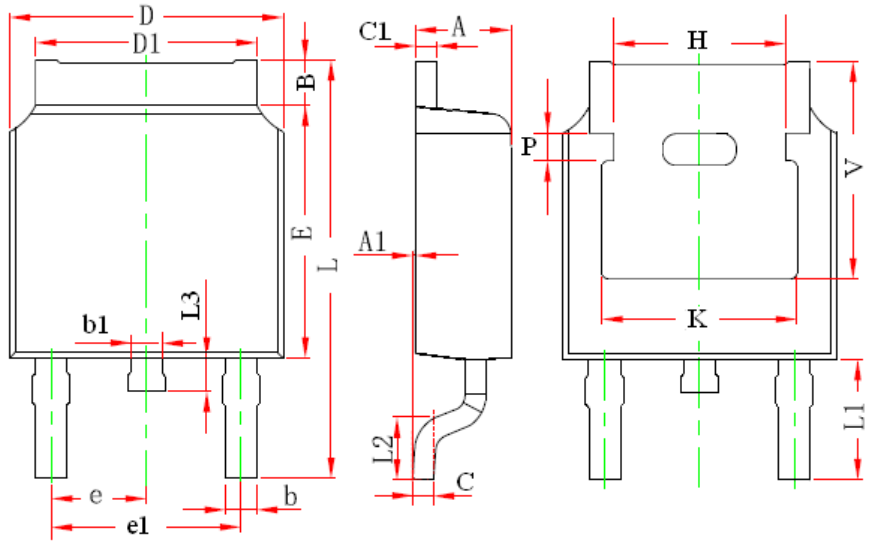
Recommended temperature profile for IR reflow

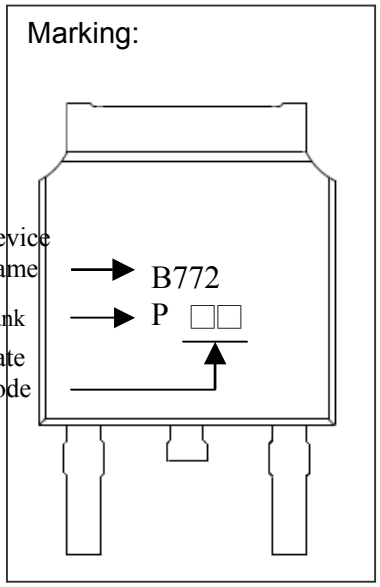


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (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-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.

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