

Low Vcesat NPN Epitaxial Planar Transistor

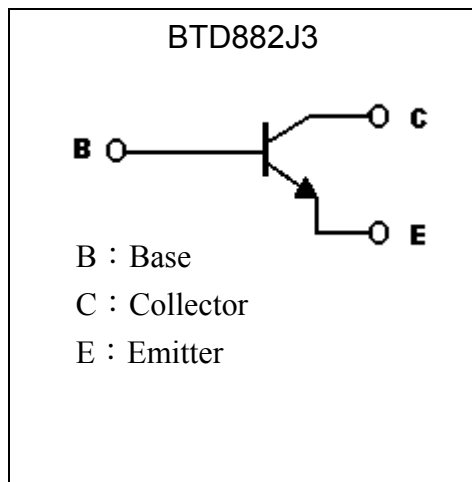
BTD882J3

BV_{CEO}	50V
I_C	3A
$R_{CESAT} (Typ)$	125m Ω

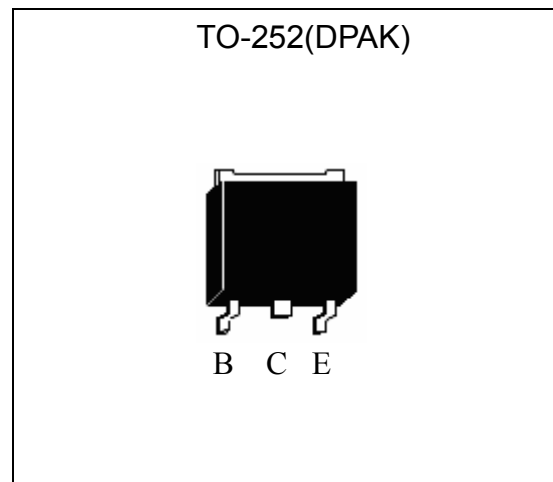
Features

- Low $V_{CE(sat)}$, typically 0.25V at $I_C / I_B = 2A / 0.2A$
- Excellent current gain characteristics
- Complementary to BTB772J3
- Pb-free package

Symbol



Outline



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}	5	V
Collector Current	$I_C(DC)$	3	A
	$I_C(Pulse)$	7 *1	A
Power Dissipation	$P_d(T_a=25^\circ C)$	1	W
	$P_d(T_c=25^\circ C)$	10	
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55~+150	°C

Note : *1. Single Pulse $P_w \leq 350\mu s, Duty \leq 2\%$.

**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CB0}	40	-	-	V	$I_C=50\mu A, I_E=0$
BV_{CE0}	30	-	-	V	$I_C=1mA, I_B=0$
BV_{EB0}	5	-	-	V	$I_E=50\mu A, I_C=0$
I_{C0}	-	-	1	μA	$V_{CB}=30V, I_E=0$
I_{E0}	-	-	1	μA	$V_{EB}=3V, I_C=0$
* $V_{CE(sat)}$	-	0.25	0.5	V	$I_C=2A, I_B=0.2A$
* $V_{BE(sat)}$	-	-	2	V	$I_C=2A, I_B=0.2A$
* h_{FE1}	150	-	-	-	$V_{CE}=2V, I_C=20mA$
* h_{FE2}	180	-	560	-	$V_{CE}=2V, I_C=1A$
fT	-	90	-	MHz	$V_{CE}=5V, I_C=0.1A, f=100MHz$
Cob	-	13	-	pF	$V_{CB}=10V, f=1MHz$

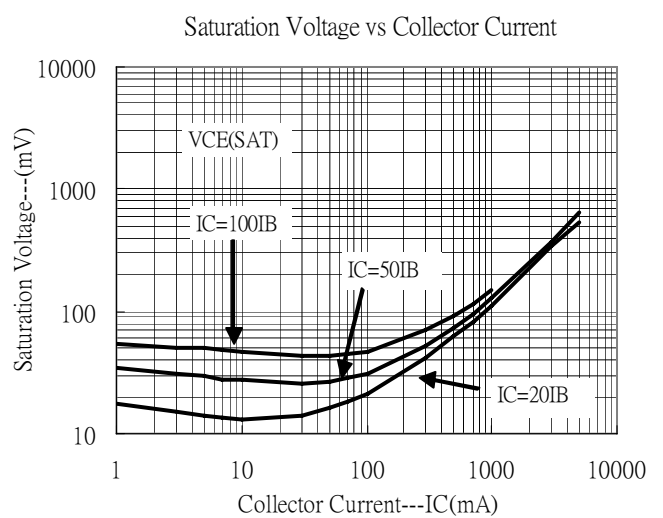
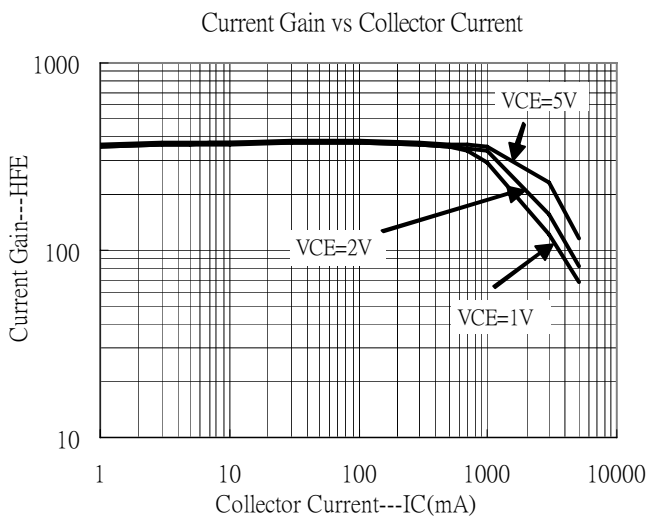
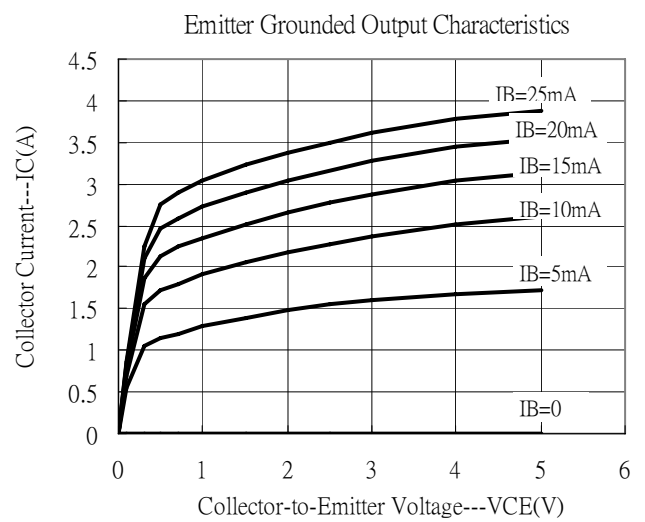
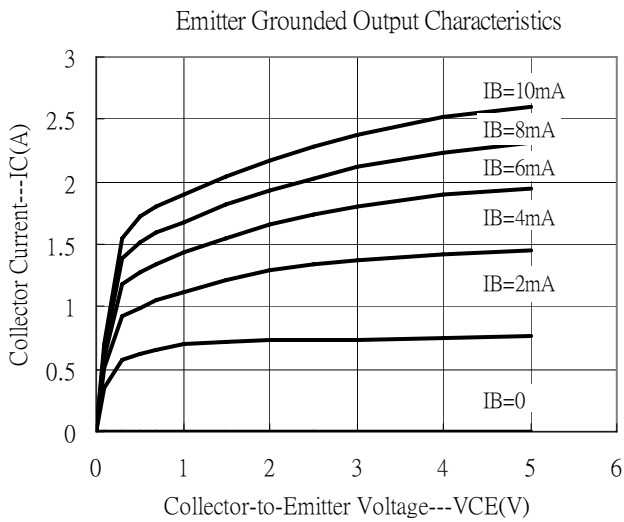
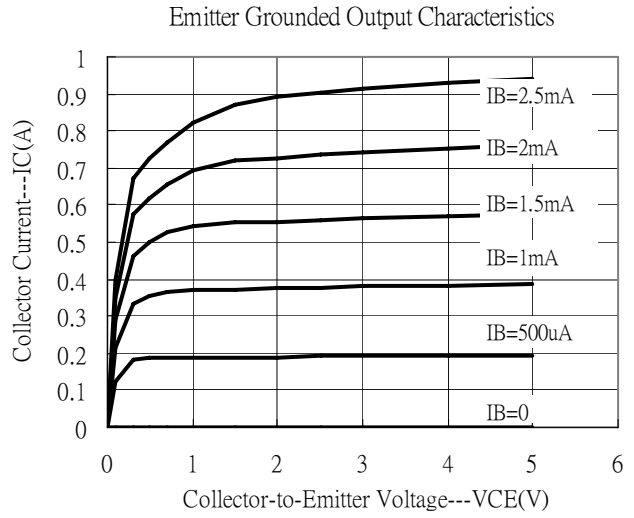
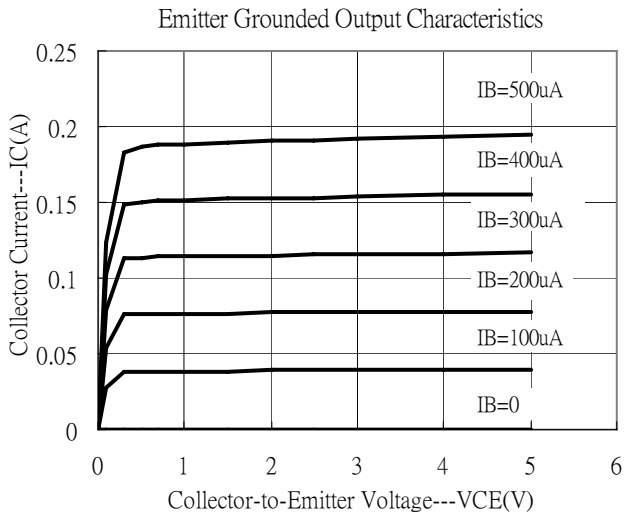
*Pulse Test : Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$ **Classification Of h_{FE2}**

Rank	P	E
Range	180~390	270~560

Ordering Information

Device	H_{FE} rank	Package	Shipping
BTD882J3-P-T3-G	P	TO-252 (Pb-free lead plating and halogen-free package)	2500 pcs/Tape & Reel
BTD882J3-Q-T3-G	Q	TO-252 (Pb-free lead plating and halogen-free package)	2500 pcs/Tape & Reel

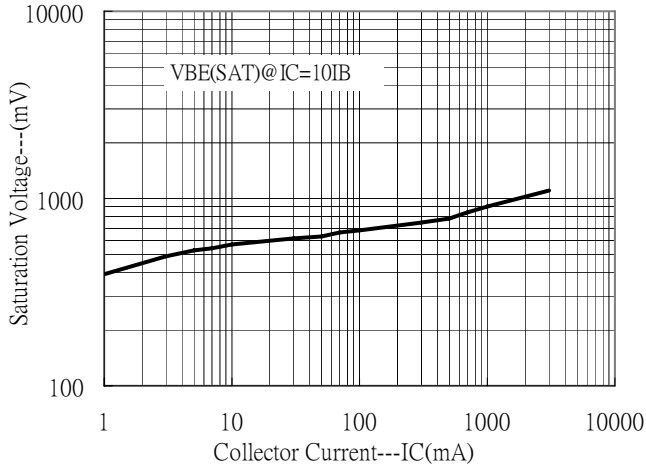
Typical Characteristics



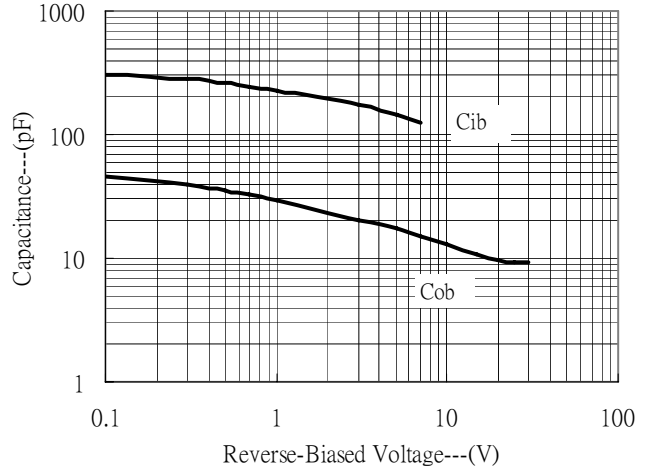


Typical Characteristics(Cont.)

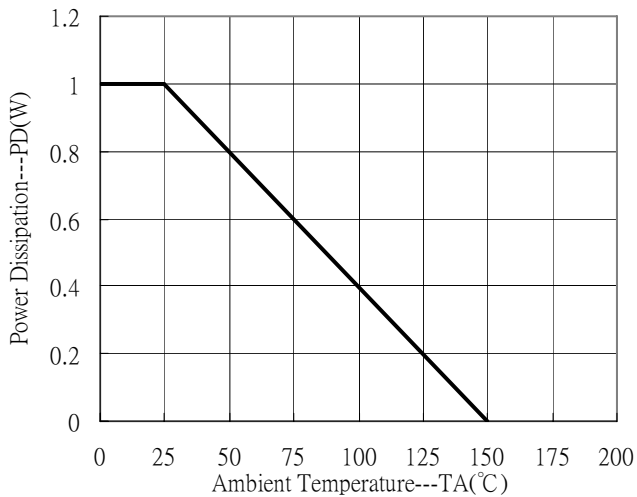
Saturation Voltage vs Collector Current



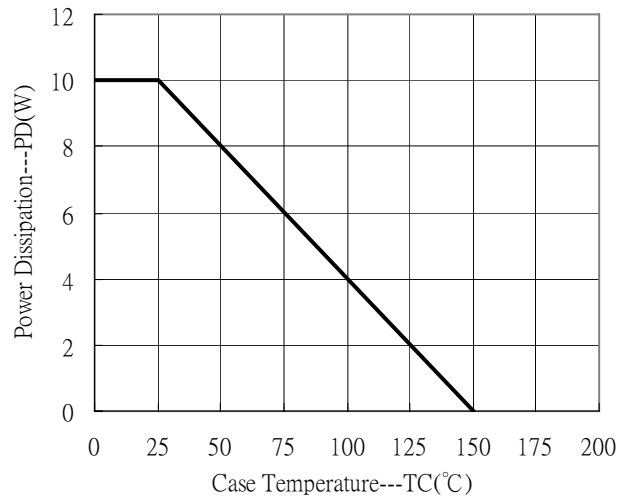
Capacitance vs Reverse-Biased Voltage



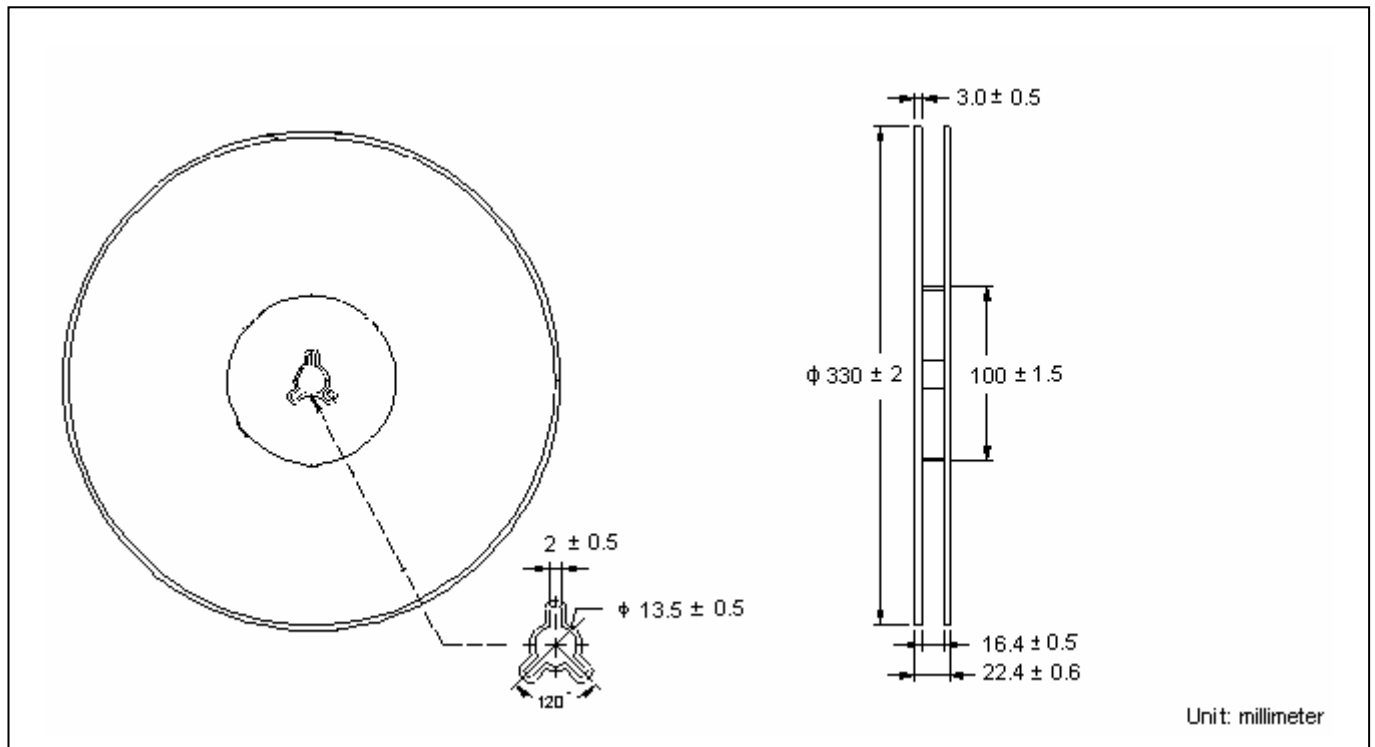
Power Derating Curve



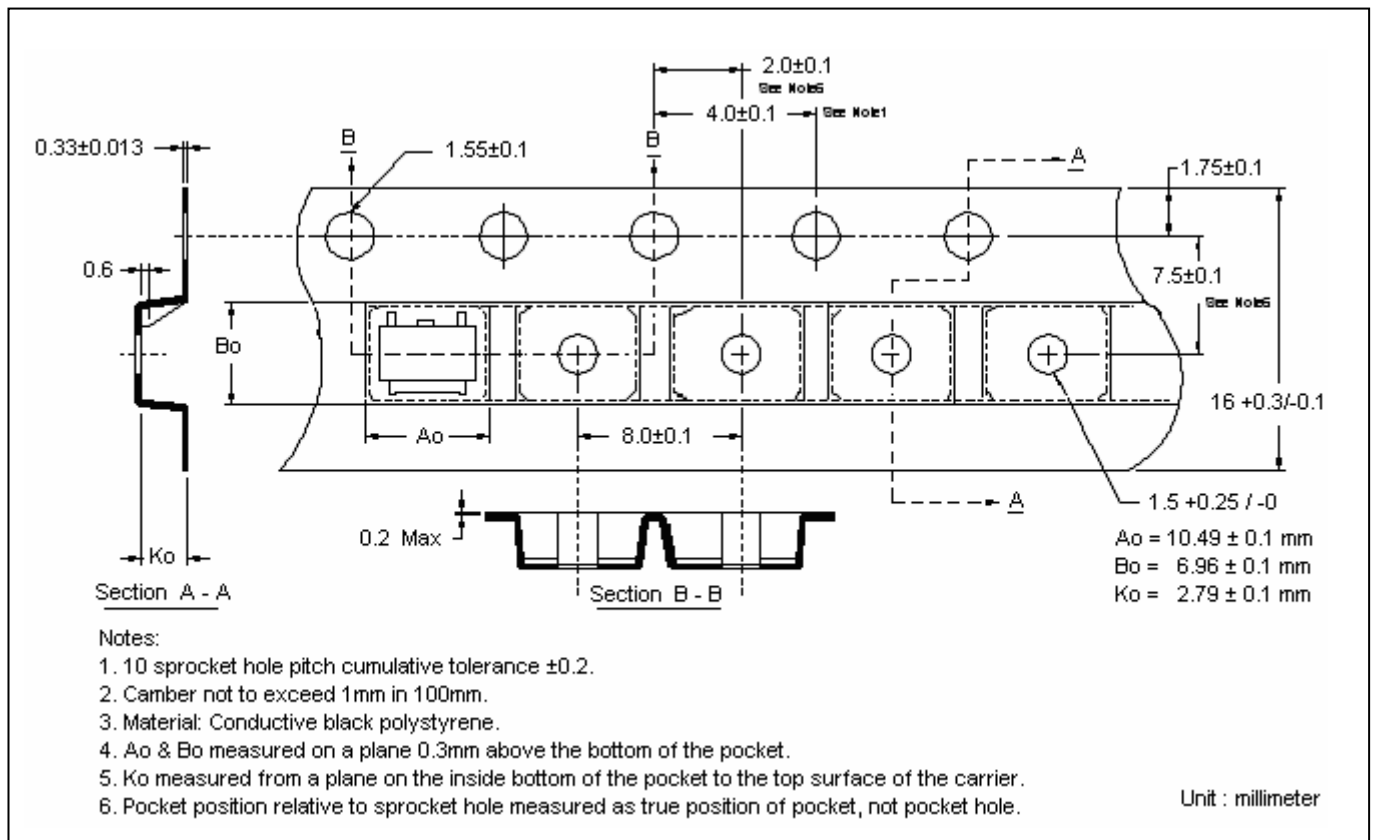
Power Derating Curve



Reel Dimension



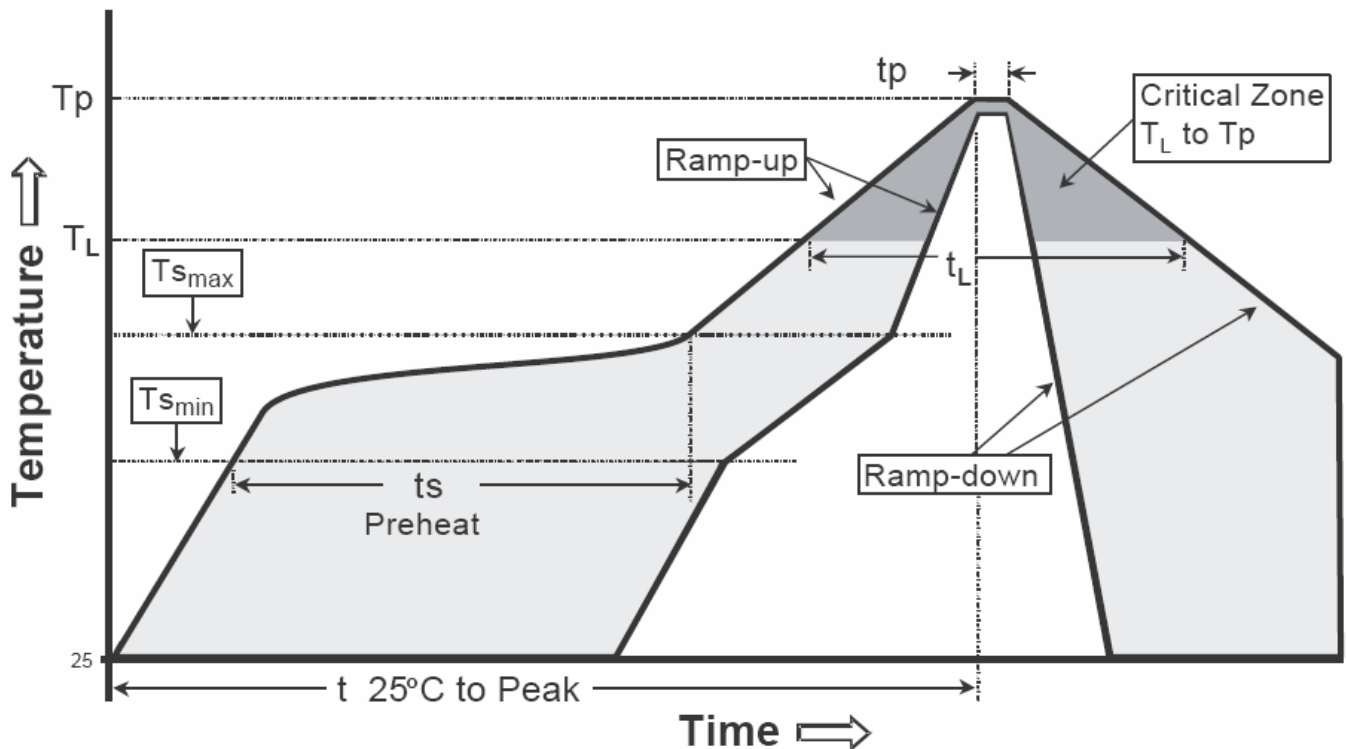
Carrier Tape Dimension



Recommended wave soldering condition

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

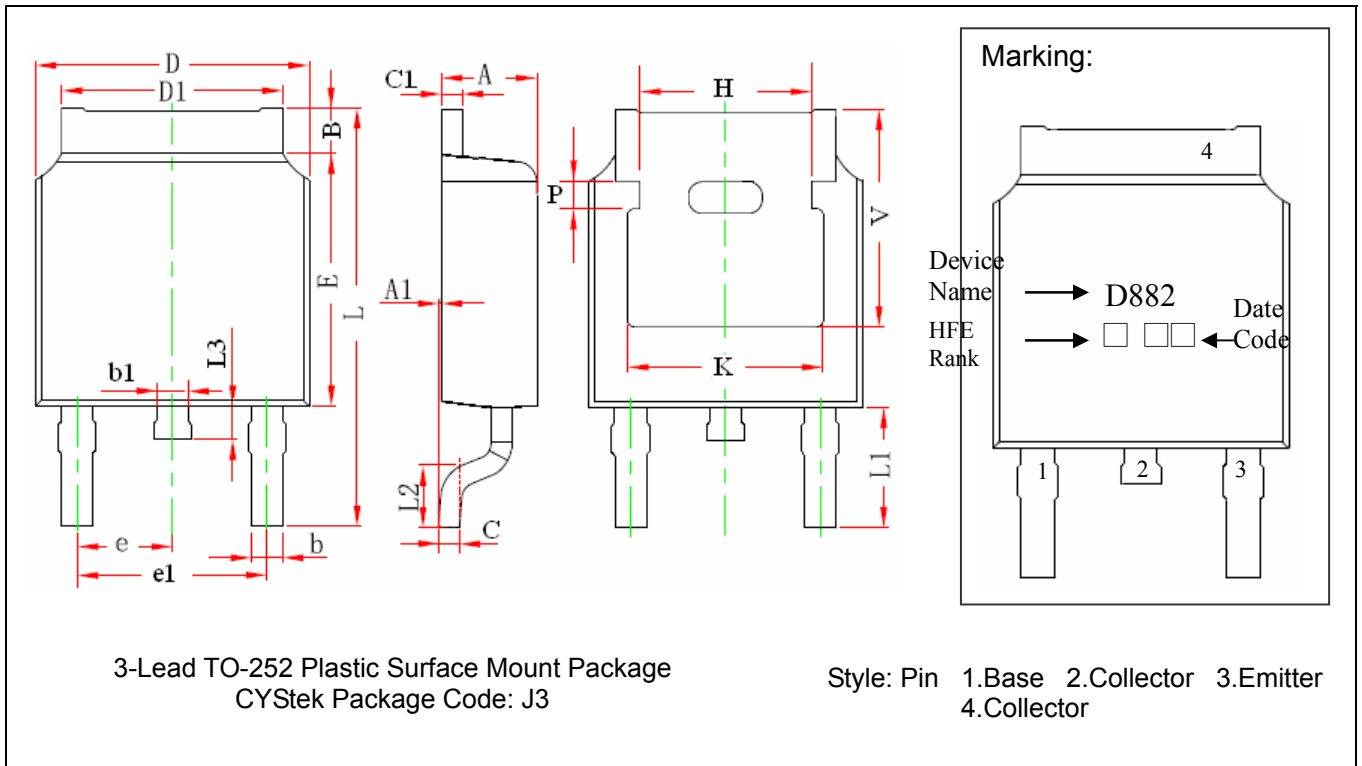
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (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.

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	0.026	REF	0.650	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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