

General Purpose NPN Epitaxial Planar Transistor

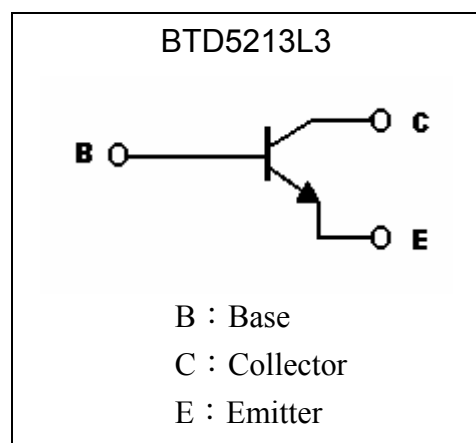
BTD5213L3

Description

General purpose mainly intended for use in medium power industrial application and for audio amplifier output stage.

Features

- High collector current and low $V_{CE(SAT)}$.
- Complement to BTB5213L3.
- Pb-free lead plating package.

Symbol

Outline

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CB0}	180	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EB0}	5	V
Collector Current(DC)	I_C	1	A
Collector Current(Pulse)	I_{CP}	1.5	A
Power Dissipation @ $T_c=25^\circ\text{C}$	P_d	2	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^\circ\text{C}$

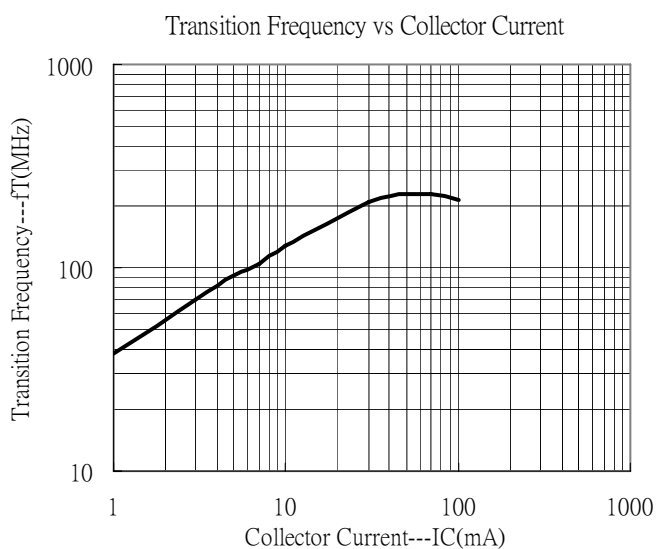
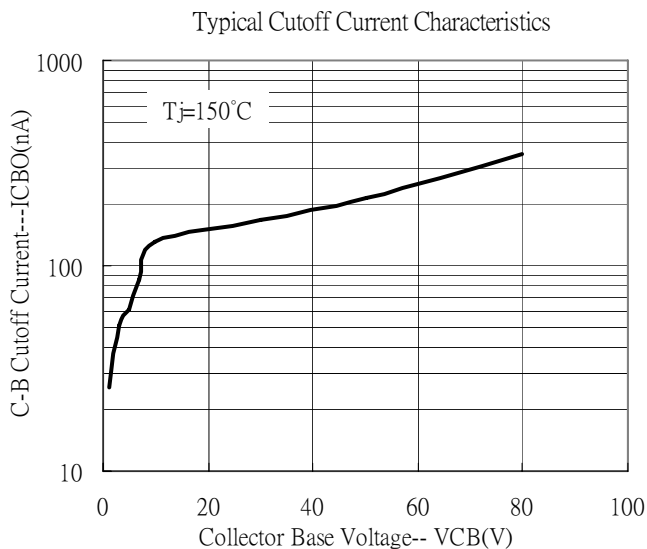
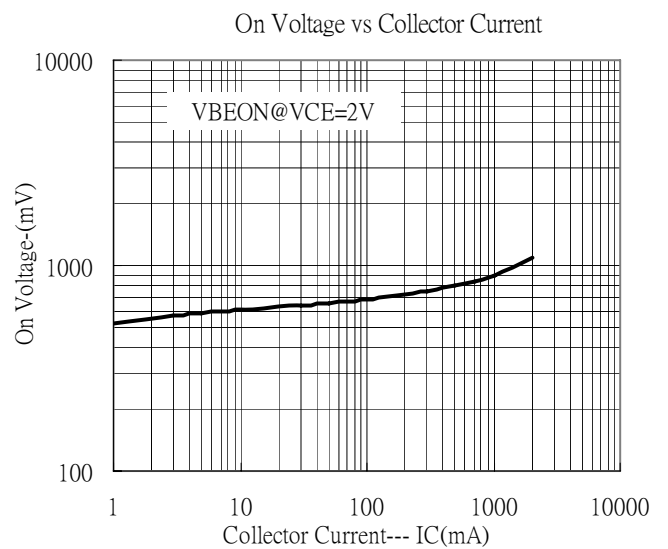
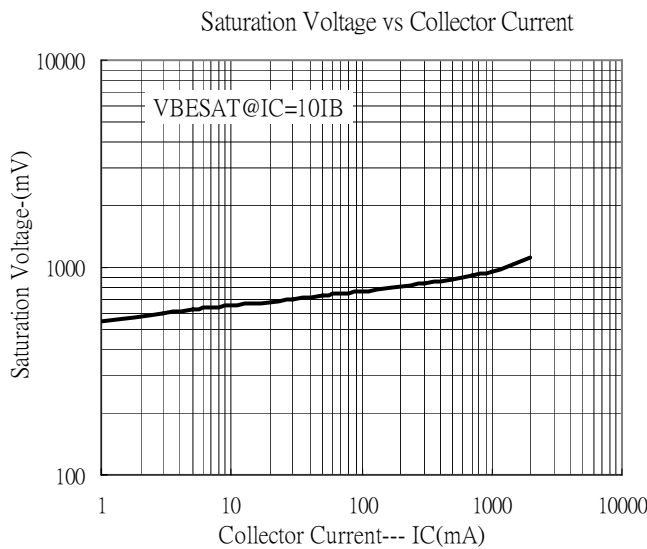
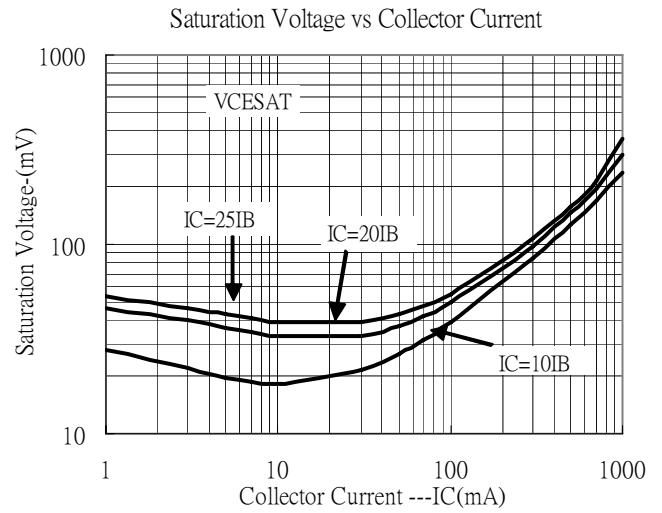
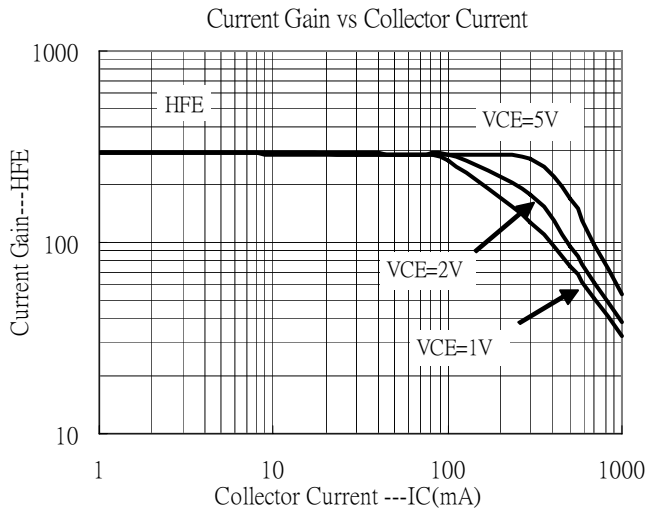
**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	180	-	-	V	$I_C=100\mu A$
BV_{CEO}	100	-	-	V	$I_C=10mA$
BV_{EBO}	5	-	-	V	$I_E=10\mu A$
I_{CBO}	-	-	100	nA	$V_{CB}=80V$
I_{EBO}	-	-	100	nA	$V_{EB}=5V$
$*V_{CE(sat)1}$	-	0.15	0.3	V	$I_C=500mA, I_B=50mA$
$*V_{CE(sat)2}$	-	-	0.6	V	$I_C=1A, I_B=50mA$
$*V_{BE(sat)}$	-	-	1.2	V	$I_C=1A, I_B=50mA$
$*V_{BE(on)}$	-	-	1.0	V	$V_{CE}=2V, I_C=500mA$
$*h_{FE1}$	200	-	-	-	$V_{CE}=2V, I_C=5mA$
$*h_{FE2}$	200	-	400	-	$V_{CE}=2V, I_C=150mA$
$*h_{FE3}$	60	-	-	-	$V_{CE}=2V, I_C=500mA$
f_T	-	125	-	MHz	$V_{CE}=10V, I_C=50mA, f=100MHz$
Cob	-	-	10	pF	$V_{CB}=10V, I_E=0A, f=1MHz$

*Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$ **Ordering Information**

Device	Package	Shipping	Marking
BT5213L3	SOT-223 (Pb-free lead plating package)	2500 pcs / Tape & Reel	AJ

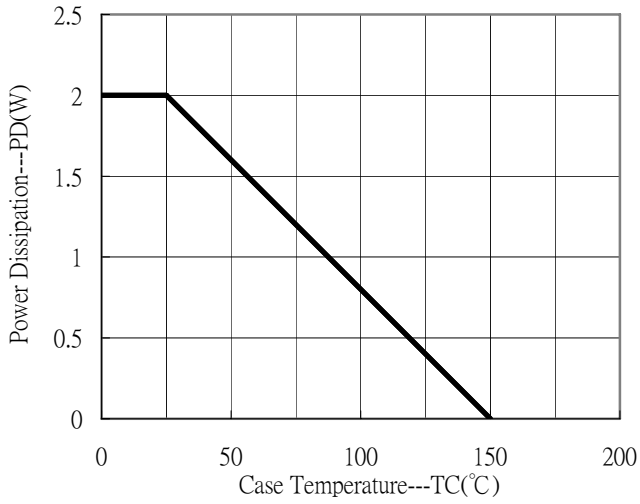
Typical Characteristics



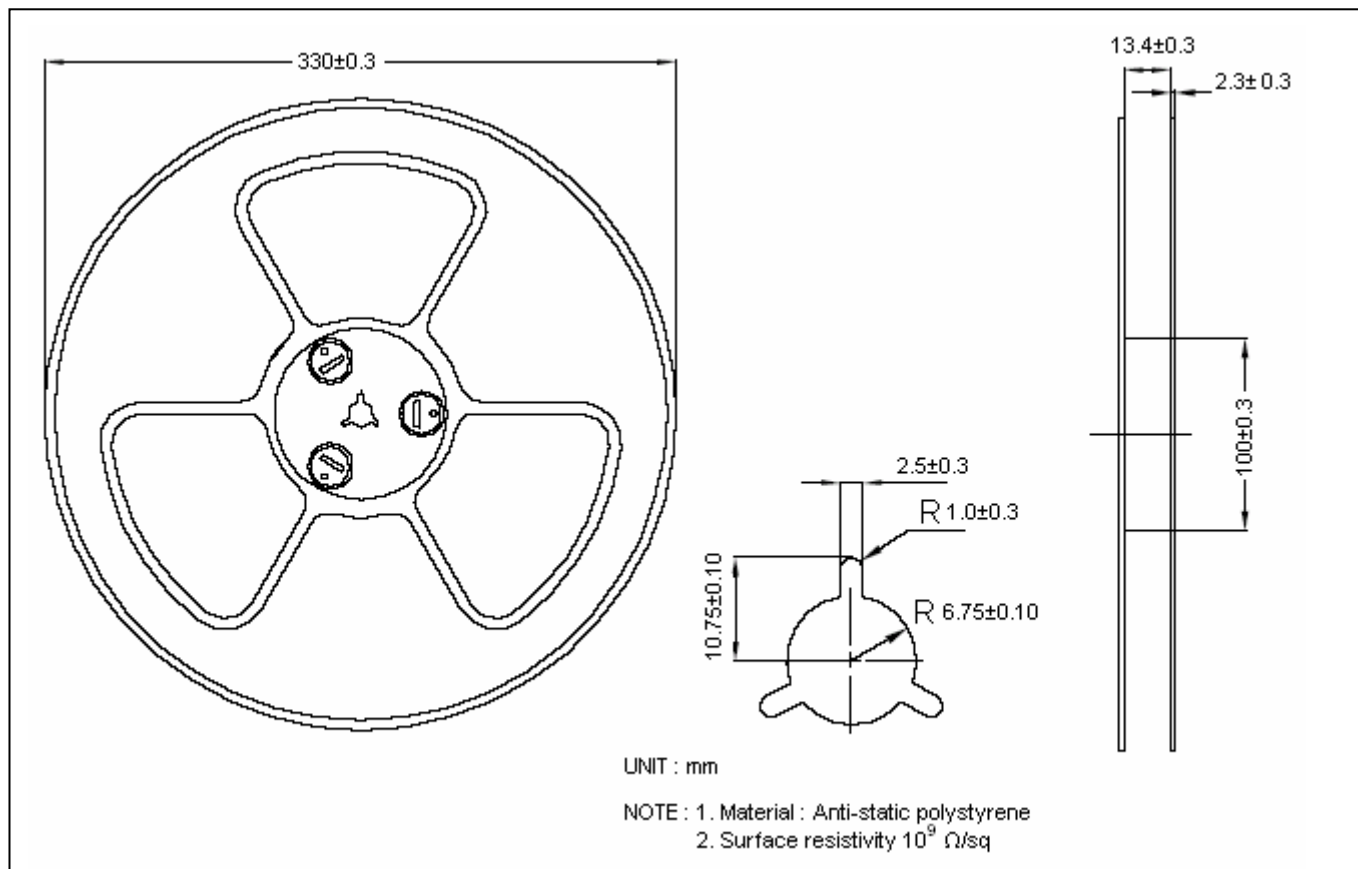


Typical Characteristics(Cont.)

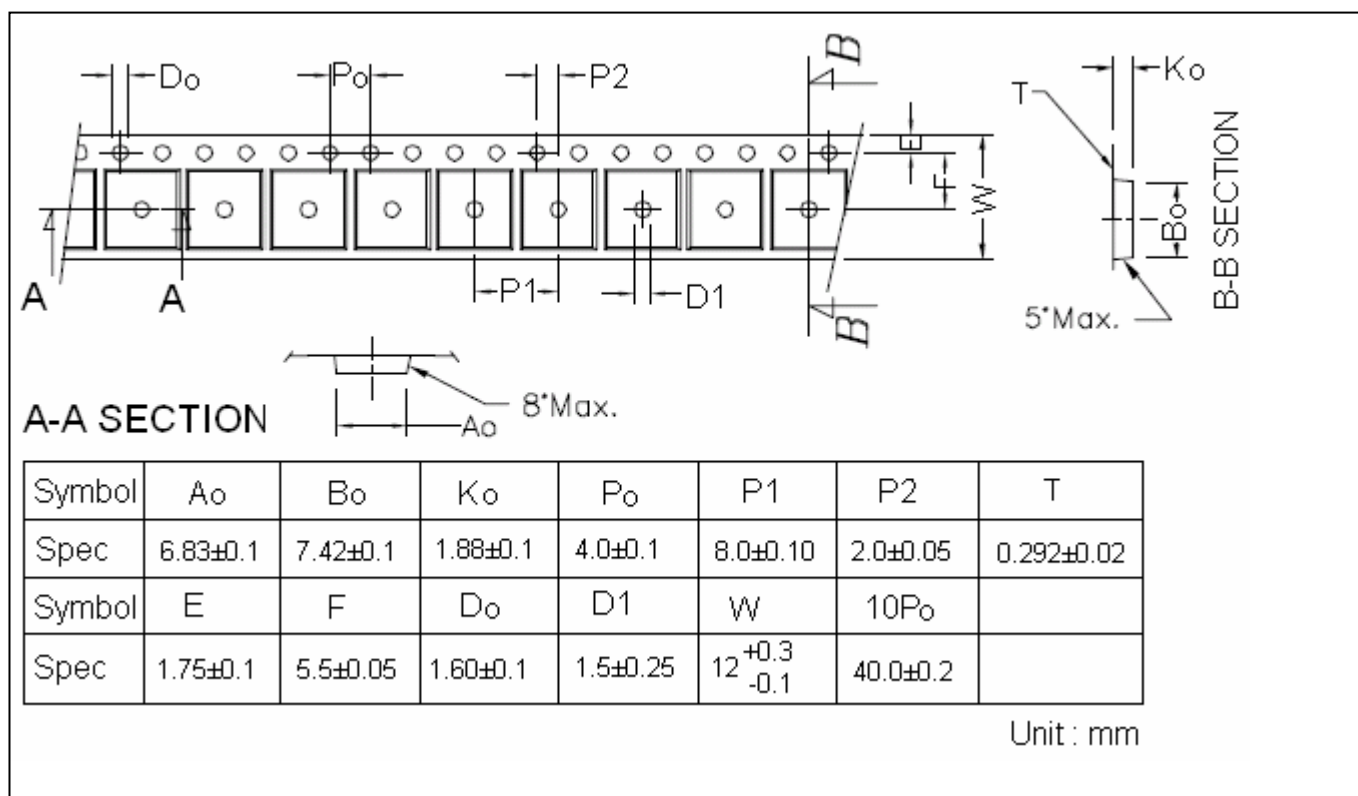
Power Derating Curve



Reel Dimension



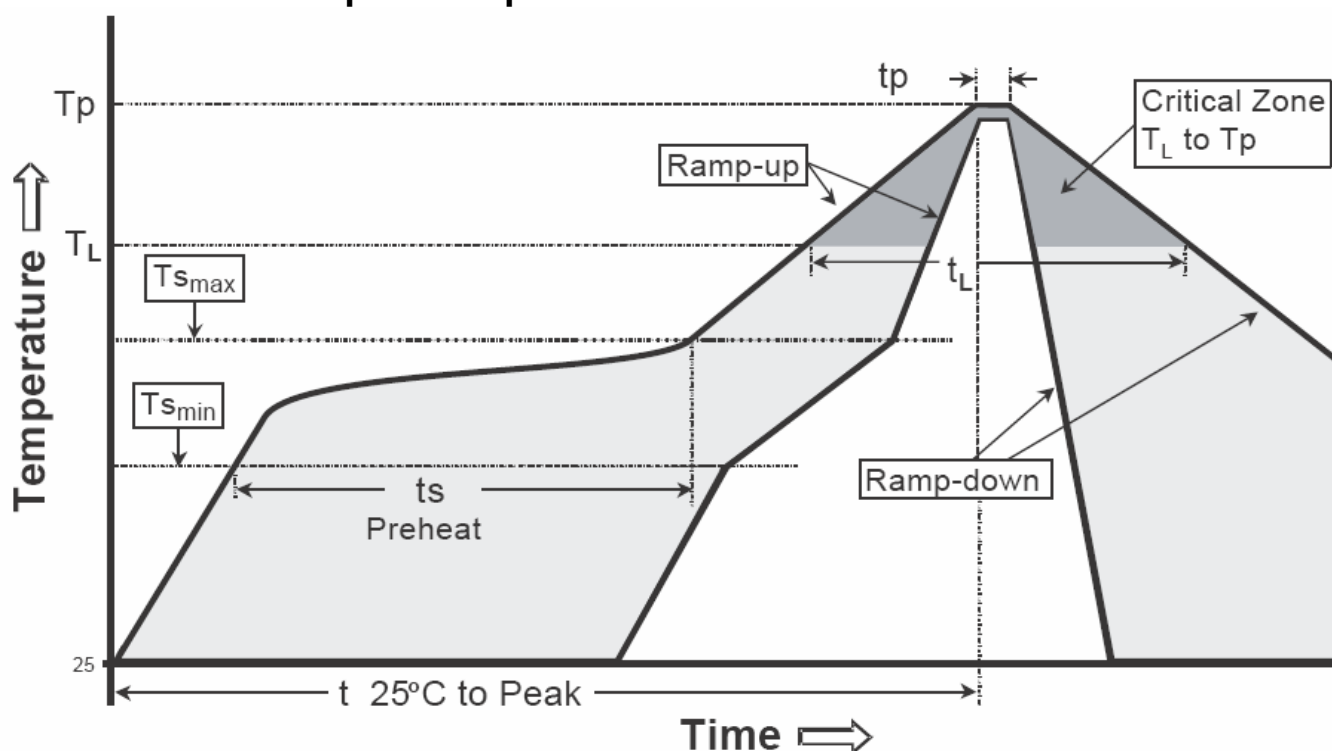
Carrier Tape Dimension



Recommended wave soldering condition

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

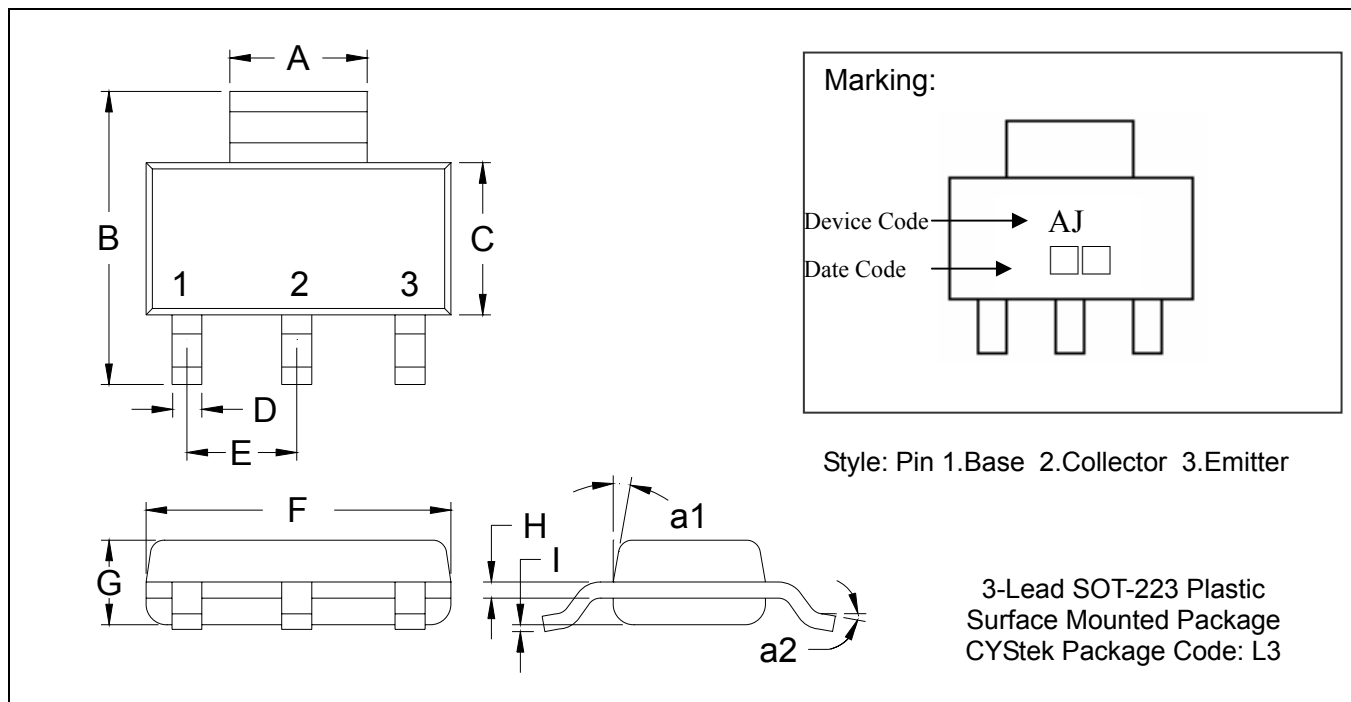
Recommended temperature profile for IR reflow



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.

SOT-223 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1142	0.1220	2.90	3.10	G	0.0551	0.0709	1.40	1.80
B	0.2638	0.2874	6.70	7.30	H	0.0098	0.0138	0.25	0.35
C	0.1299	0.1457	3.30	3.70	I	0.0008	0.0039	0.02	0.10
D	0.0236	0.0315	0.60	0.80	a1	*13°	-	*13°	-
E	*0.0906	-	*2.30	-	a2	0°	10°	0°	10°
F	0.2480	0.2638	6.30	6.70					

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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