

Low $V_{CE(sat)}$ PNP Epitaxial Planar Transistor

BTB1424L3

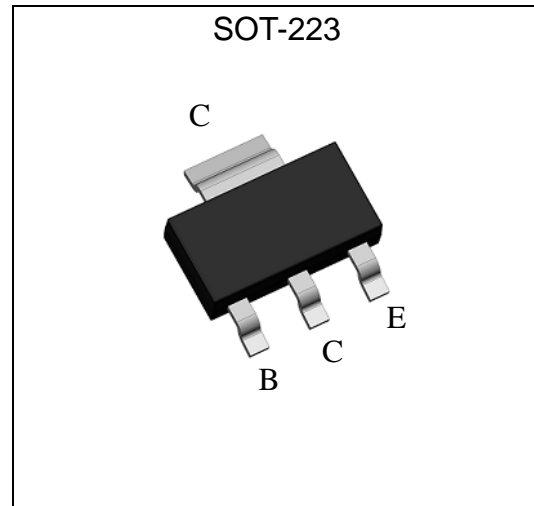
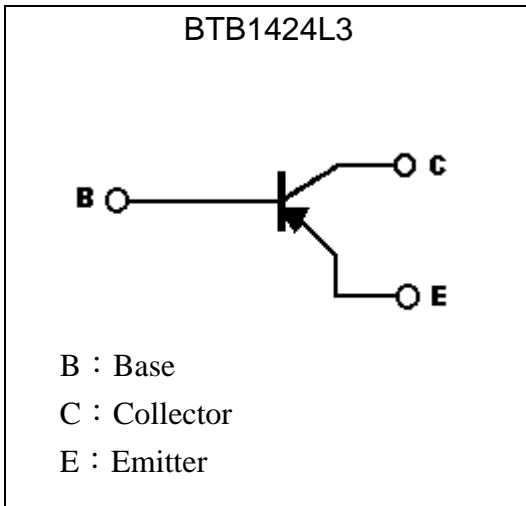
BV_{CEO}	-50V
I_C	-3A
$R_{CESAT}(typ)$	0.12 Ω

Features

- Excellent DC current gain characteristics
- Low Saturation Voltage
 $V_{CE(sat)} = -0.24V (typ)$ ($I_C = -2A, I_B = -100mA$).
- Complementary to BTD2150L3
- Pb-free lead plating and halogen-free package

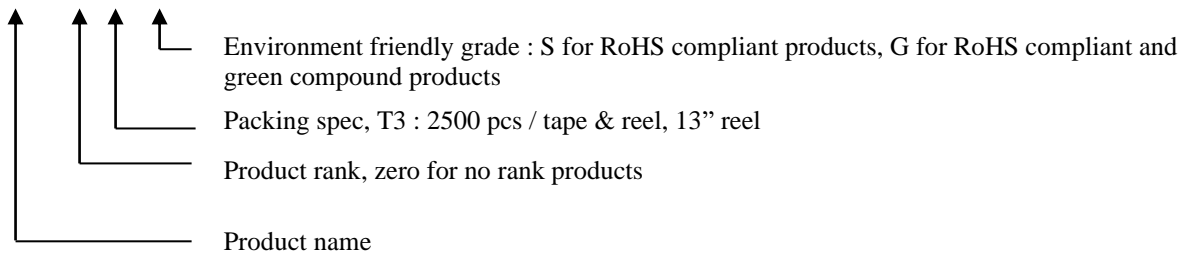
Symbol

Outline



Ordering Information

Device	Package	Shipping
BTB1424L3-0-T3-G	SOT-223 (Pb-free lead plating and halogen-free package)	2500 pcs / tape & 13" reel





Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V _{CB0}	-50	V
Collector-Emitter Voltage	V _{CEO}	-50	V
Emitter-Base Voltage	V _{EBO}	-6	V
Collector Current(DC)	I _C	-3	A
Collector Current(Pulsed) (Note 1)	I _{CP}	-5 (Note)	
Power Dissipation @ T _C =25°C	P _d	5	W
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~+150	°C

Note : Single pulse, Pw≤10ms, Duty Cycle≤30%.

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	-50	-	-	V	I _C =-50μA
BV _{CEO}	-50	-	-	V	I _C =-1mA
BV _{EBO}	-6	-	-	V	I _E =-50μA
I _{CB0}	-	-	-0.1	μA	V _{CB} =-40V
I _{EBO}	-	-	-0.1	μA	V _{EB} =-5V
*V _{CE(sat)}	-	-0.24	-0.5	V	I _C =-2A, I _B =-100mA
*R _{CE(sat)}	-	-0.12	-0.25	Ω	I _C =-2A, I _B =-100mA
*h _{FE}	180	-	560	-	V _{CE} =-2V, I _C =-500mA
f _T	-	240	-	MHz	V _{CE} =-2V, I _C =-500mA, f=100MHz
C _{ob}	-	25	-	pF	V _{CB} =-10V, I _E =0A, f=1MHz

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

Classification Of hFE

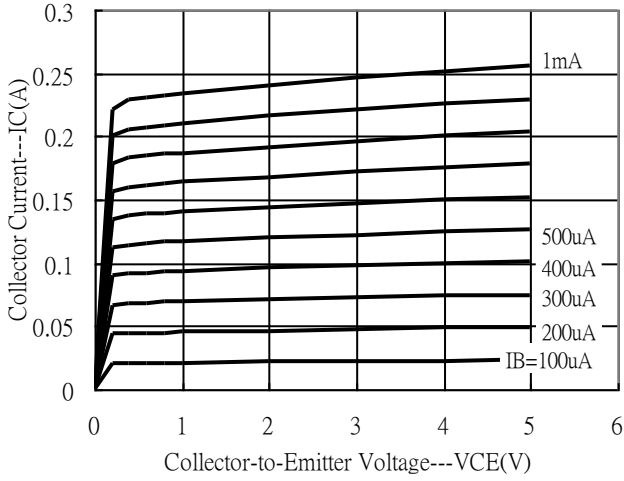
Rank	R	S
H _{FE} range	180~390	270~560

Thermal Data

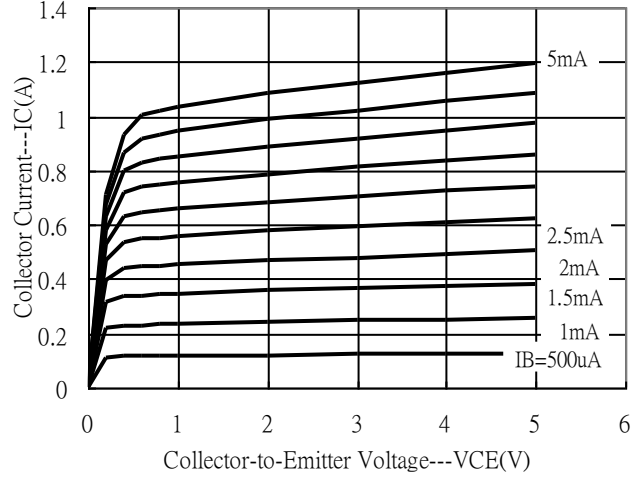
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to- ambient, max	R _{th,j-a}	125	°C/W
Thermal Resistance, Junction-to- case, max	R _{th,j-c}	25	°C/W

Characteristic Curves

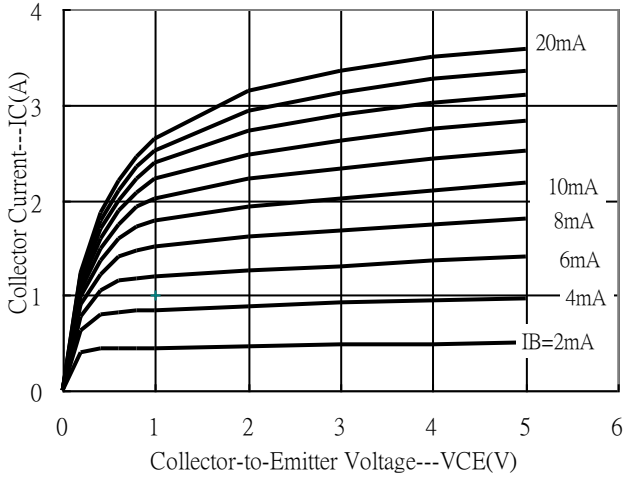
Emitter Grounded Output Characteristics



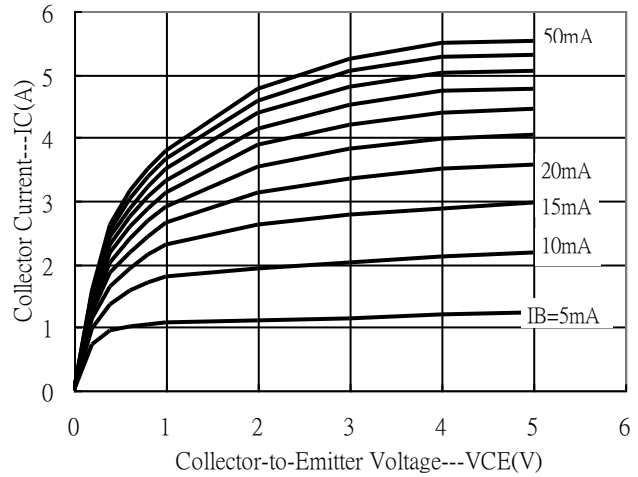
Emitter Grounded Output Characteristics



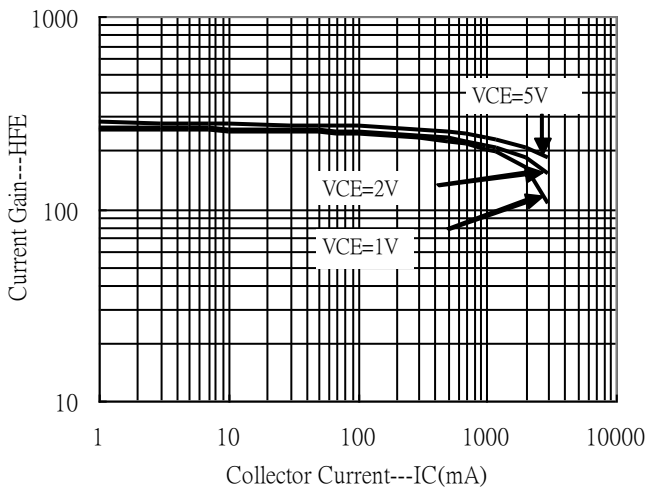
Emitter Grounded Output Characteristics



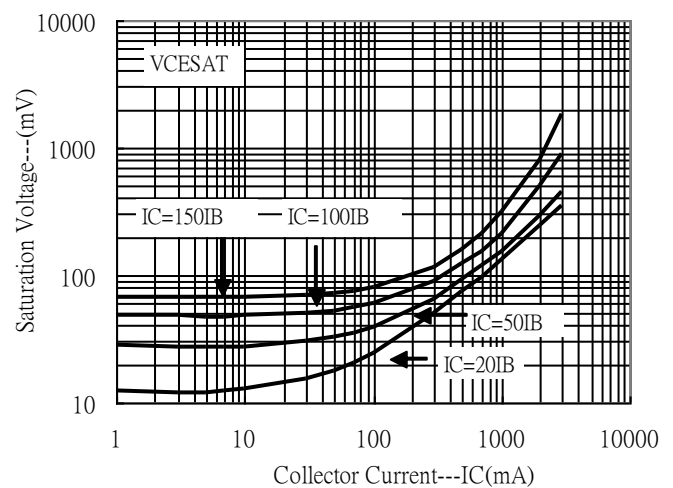
Emitter Grounded Output Characteristics



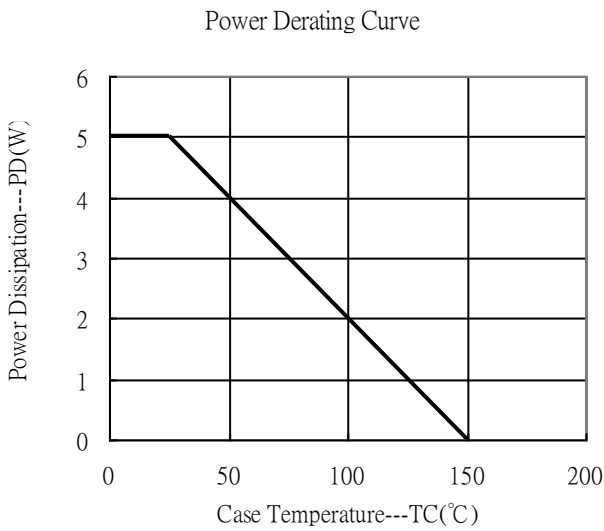
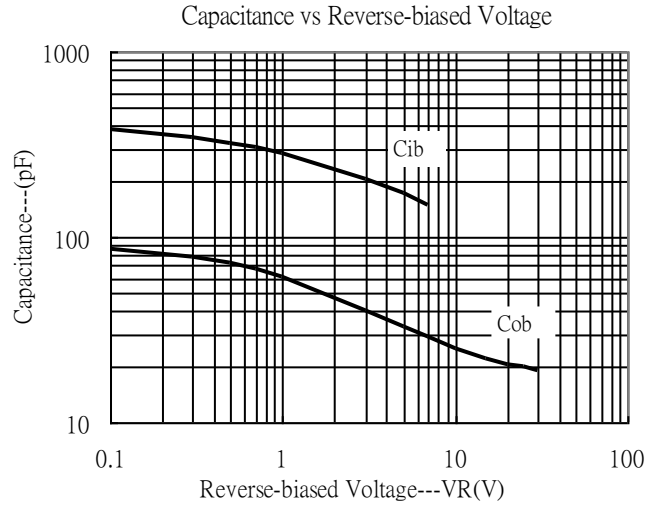
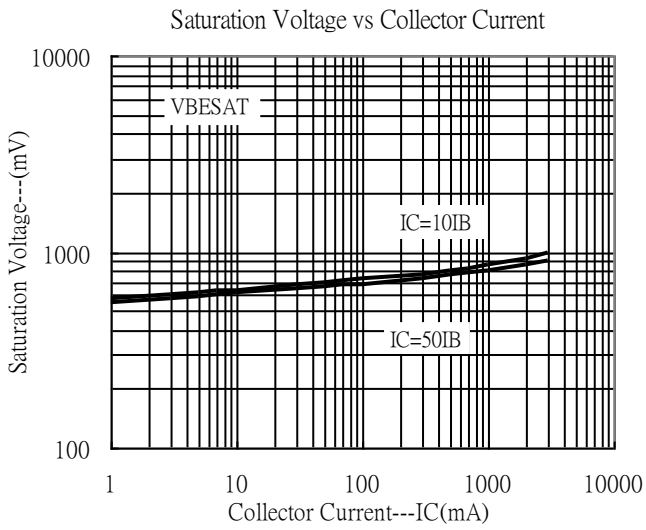
Current Gain vs Collector Current



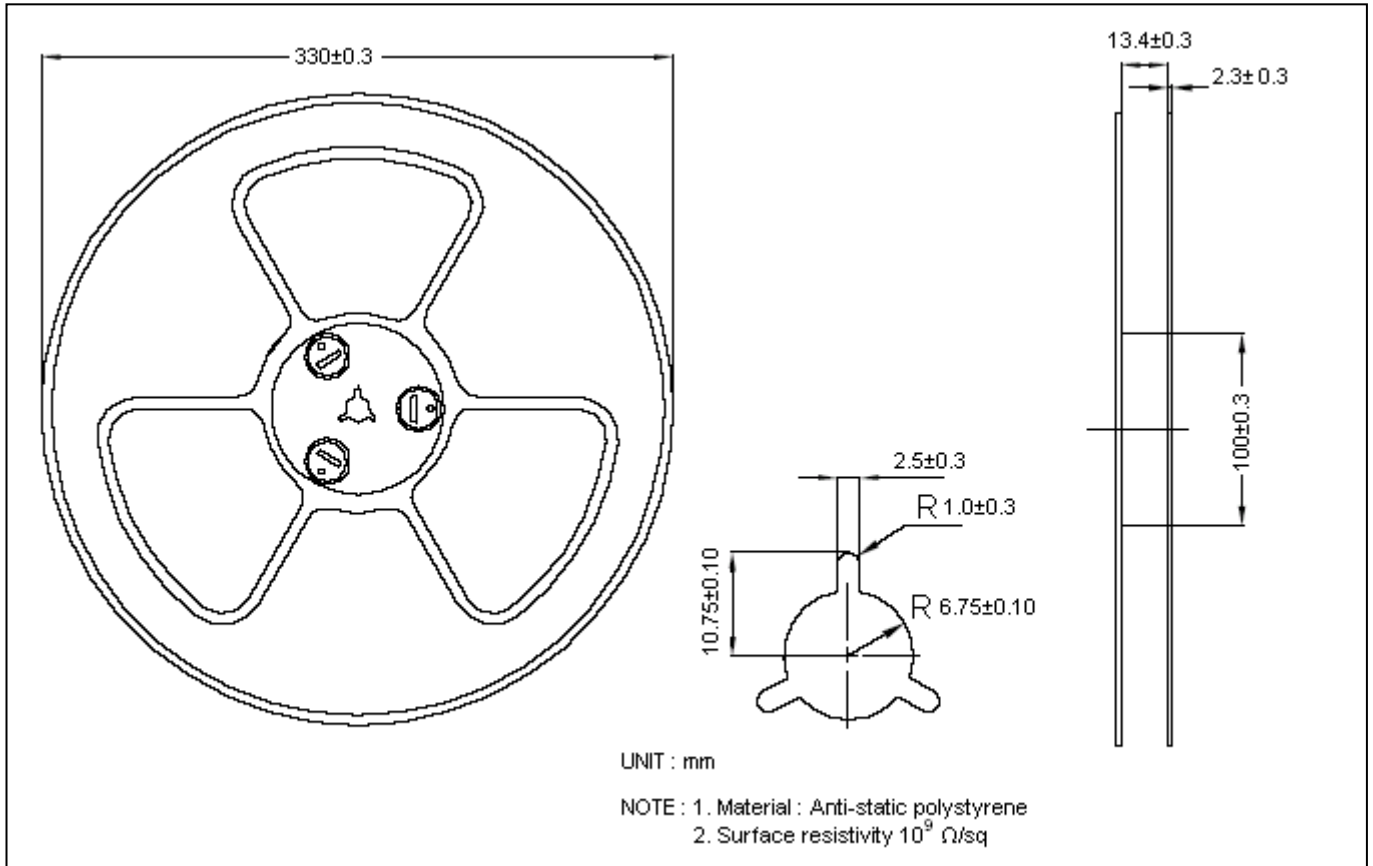
Saturation Voltage vs Collector Current



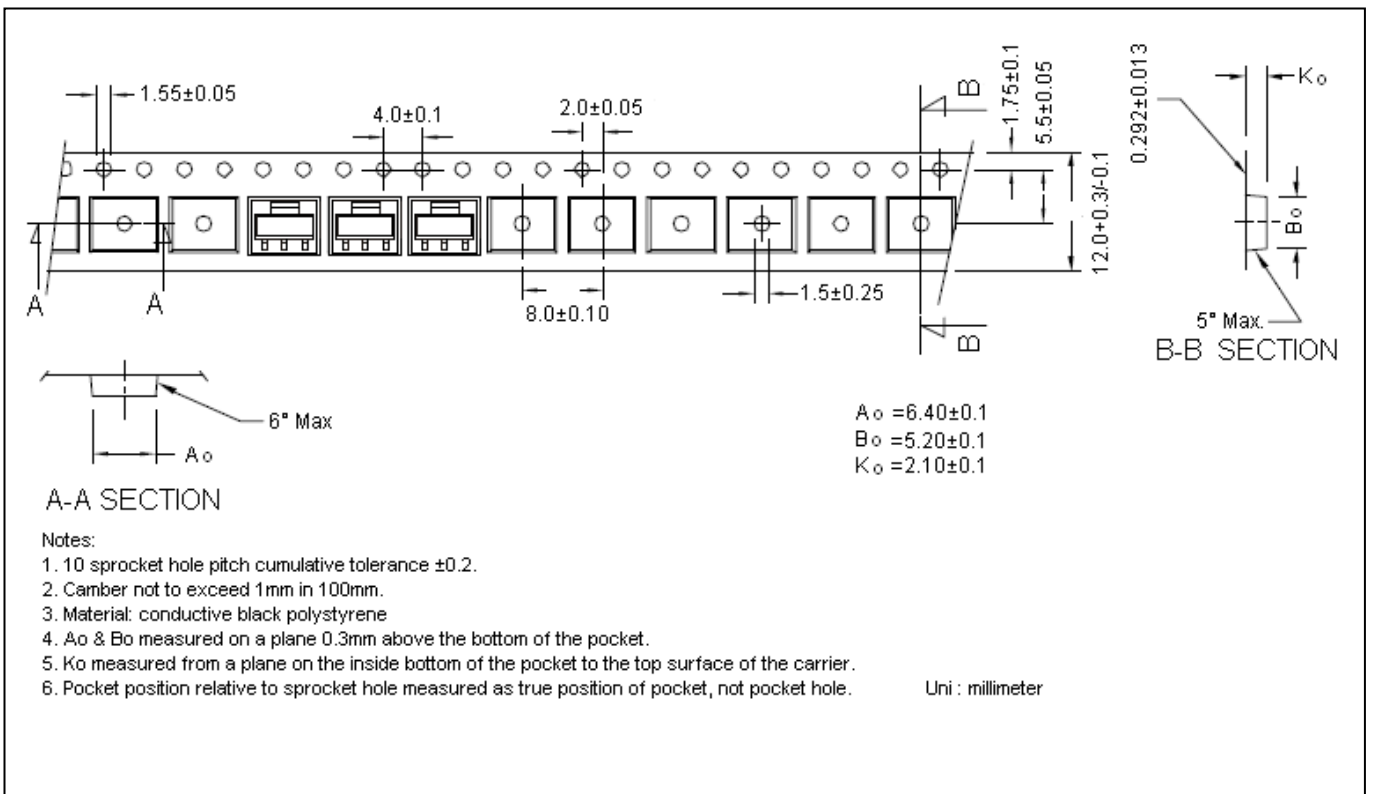
Characteristic Curves(Cont.)



Reel Dimension



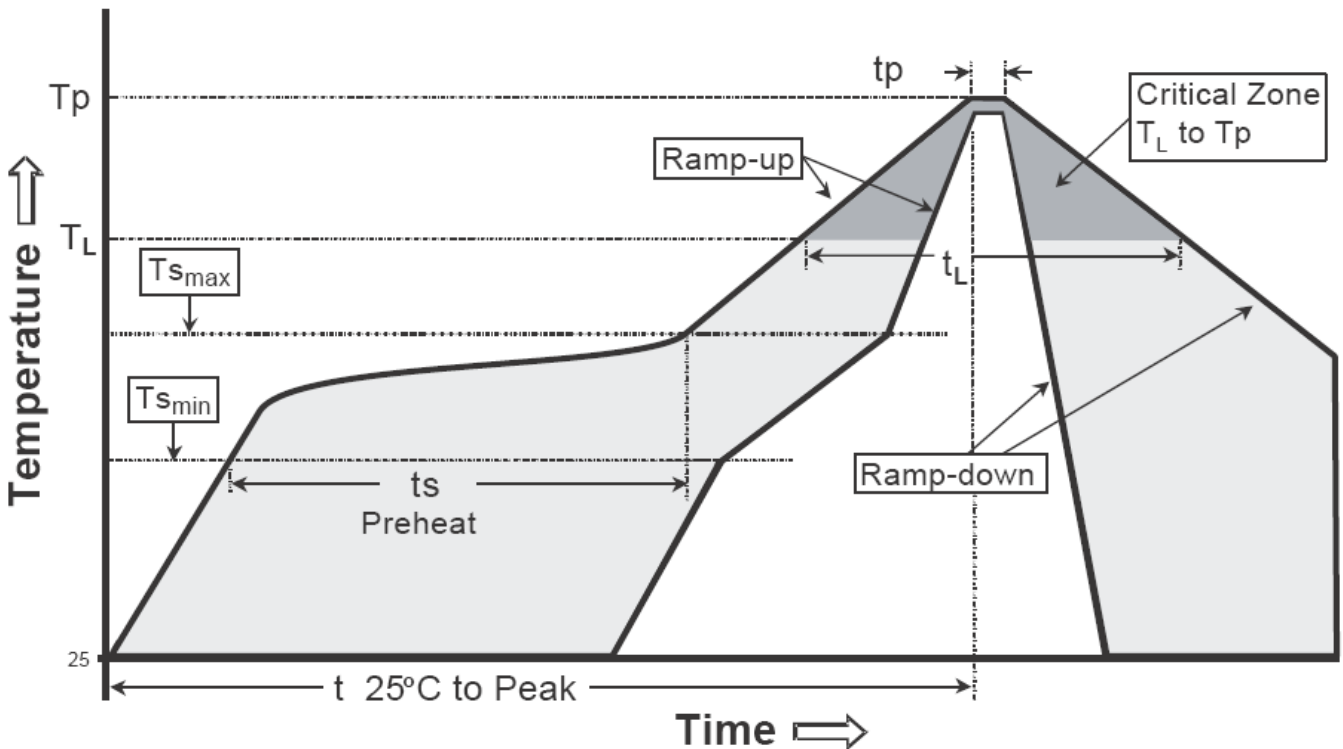
Carrier Tape Dimension



Recommended wave soldering condition

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

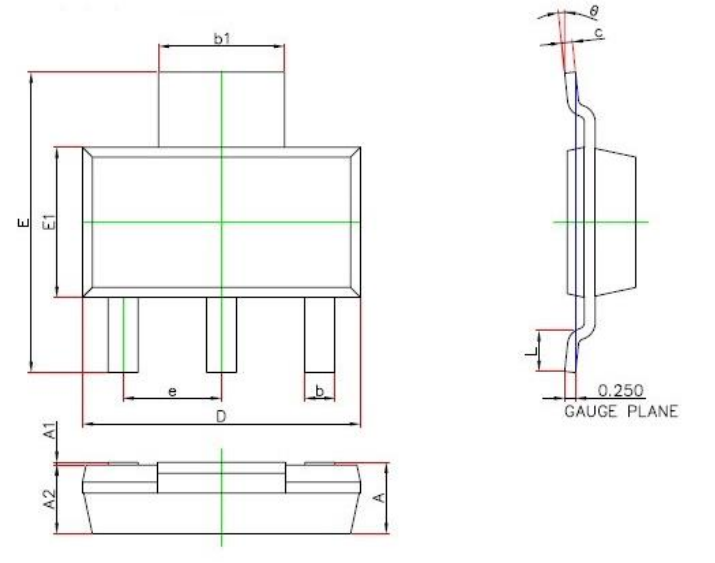
Recommended temperature profile for IR reflow



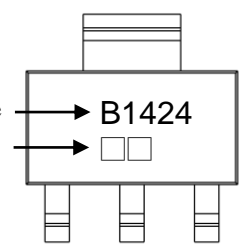
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above:		
-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(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



Marking:



Device Name → **B1424**
 Date Code → □ □

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

3-Lead SOT-223 Plastic
 Surface Mounted Package
 CYS Package Code: L3

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

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	-	0.071	-	1.800	D	0.248	0.264	6.300	6.700
A1	0.001	0.004	0.020	0.100	E	0.264	0.287	6.700	7.300
A2	0.059	0.067	1.500	1.700	E1	0.130	0.146	3.300	3.700
b	0.026	0.033	0.660	0.840	e	0.091 BSC		2.300 BSC	
b1	0.114	0.122	2.900	3.100	L	0.030	-	0.750	-
c	0.009	0.014	0.230	0.350	θ	0°	10°	0°	10°

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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