

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

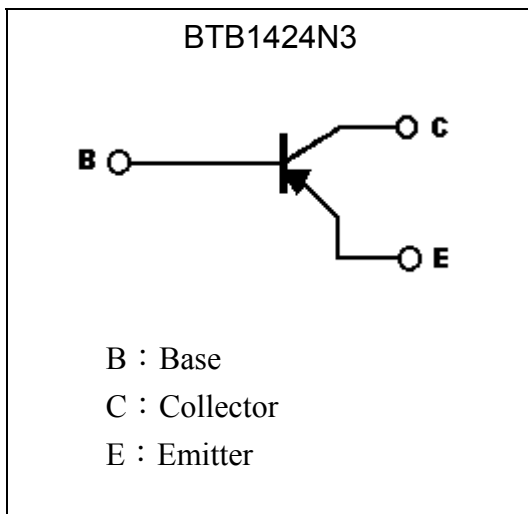
BTB1424N3

BV_{CEO}	-50V
I_C	-3A
$R_{CESAT}(typ.)$	0.125 Ω

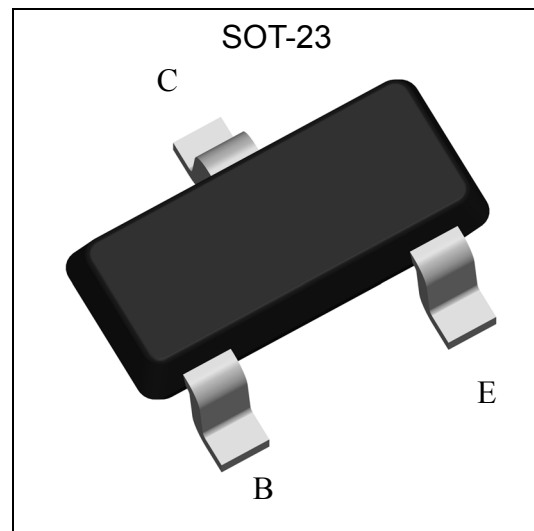
Features

- Excellent DC current gain characteristics
- Low Saturation Voltage
 $V_{CE(sat)} = -0.25V (typ.) (I_C = -2A, I_B = -100mA)$.
- Complementary to BTD2150N3
- Pb-free lead plating and halogen-free package

Symbol

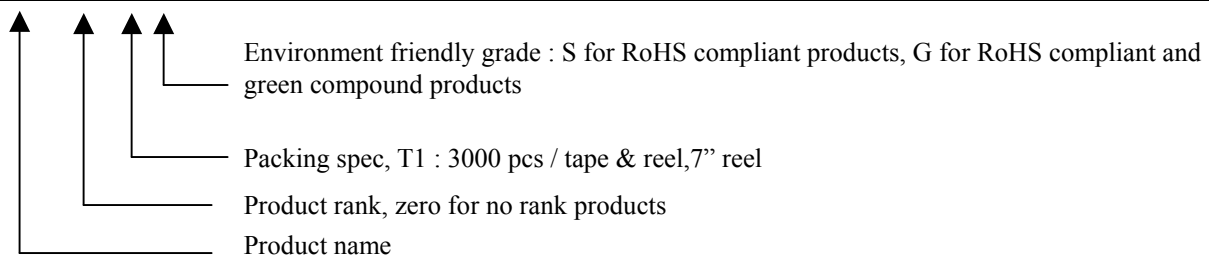


Outline



Ordering Information

Device	Package	Shipping
BTB1424N3-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 _{CBO}	-50	V
Collector-Emitter Voltage	V _{CEO}	-50	
Emitter-Base Voltage	V _{EBO}	-5	
Collector Current(DC)	I _C	-3	A
Collector Current(Pulsed)(Note 1)	I _{CP}	-7	
Power Dissipation	P _D	0.225	W
		0.66 (Note 2)	
		0.9 (Note 3)	
Thermal Resistance, Junction to Ambient	R _{θJA}	556	°C/W
		190 (Note 2)	
		138.9 (Note 3)	
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~+150	°C

Note : 1. Single pulse, Pw≤10ms, Duty Cycle≤30%.

2. Device mounted on an FR-4 PCB, single sided copper, tin plated, mounting pad for collector 1cm².

3. Device mounted on a ceramic board (600mm²×0.8mm)

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	-50	-	-	V	I _C =-50μA
BV _{CEO}	-50	-	-	V	I _C =-1mA
BV _{EBO}	-5	-	-	V	I _E =-50μA
I _{CBO}	-	-	-1	μA	V _{CB} =-40V
I _{EBO}	-	-	-1	μA	V _{EB} =-5V
*V _{CE(sat)}	-	-0.25	-0.5	V	I _C =-2A, I _B =-100mA
*R _{CESAT}	-	0.125	0.25	Ω	I _C =-2A, I _B =-100mA
*h _{FE}	180	-	560	-	V _{CE} =-2V, I _C =-100mA
f _T	-	240	-	MHz	V _{CE} =-2V, I _C =-500mA, f=100MHz
C _{ob}	-	25	-	pF	V _{CB} =-10V, I _E =0A, f=1MHz

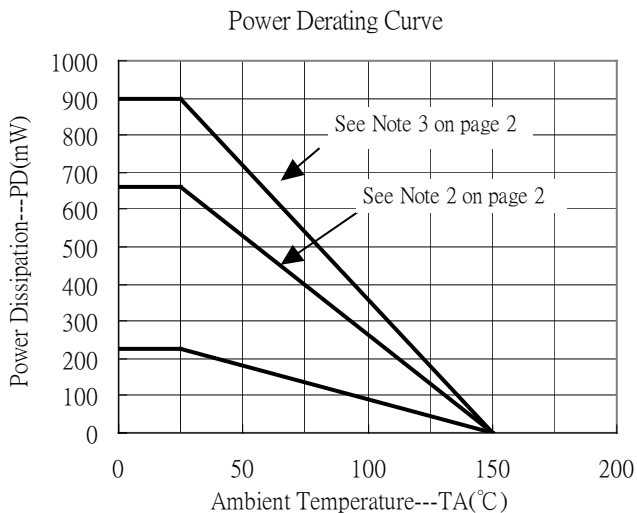
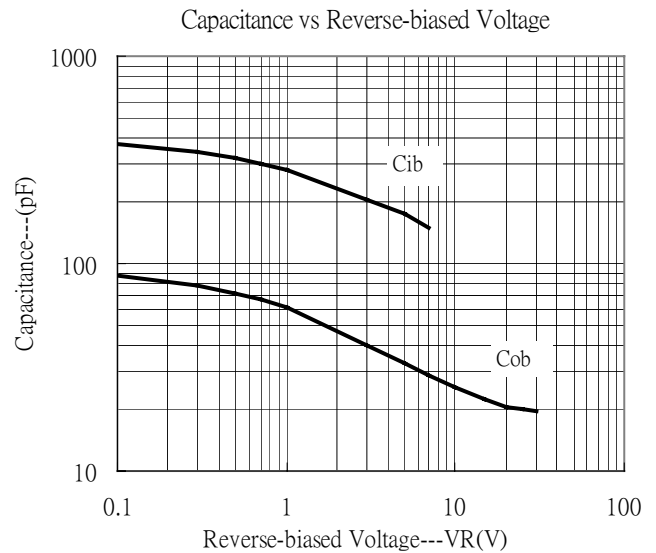
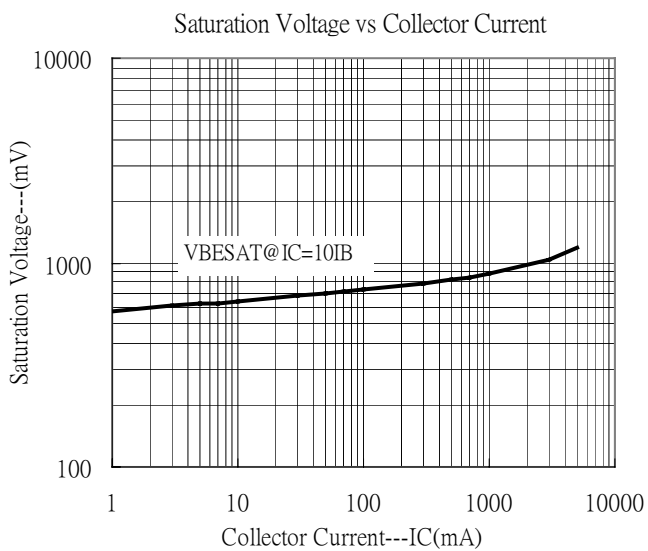
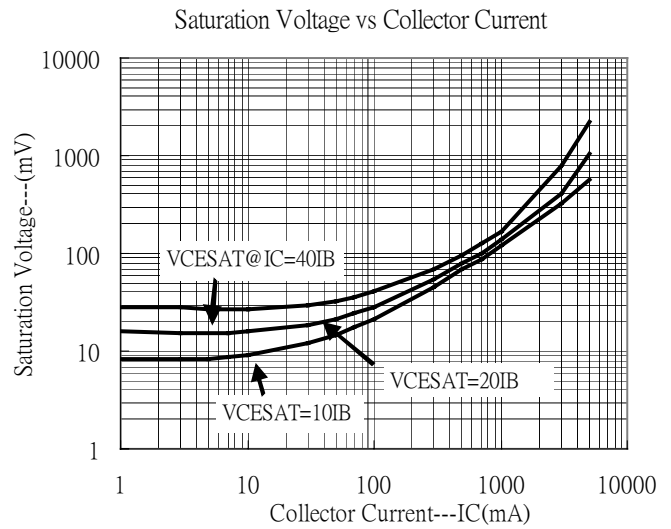
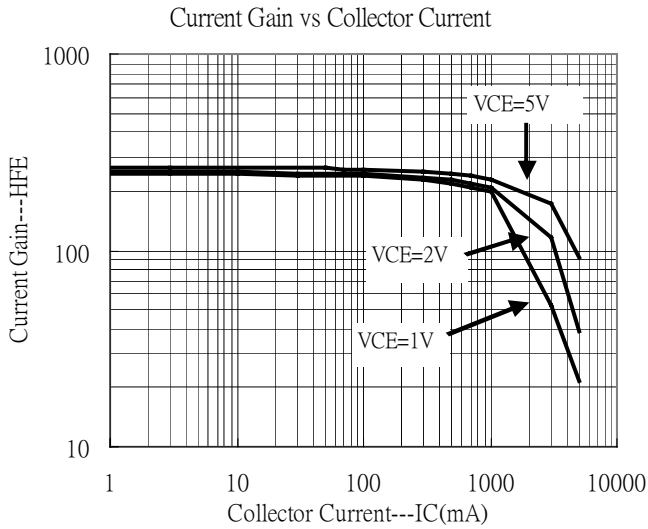
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Classification Of h_{FE}

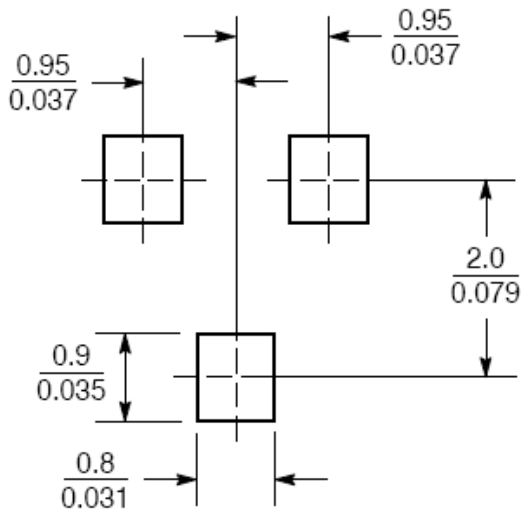
Rank	R	S
Range	180~390	270~560



Typical Characteristics

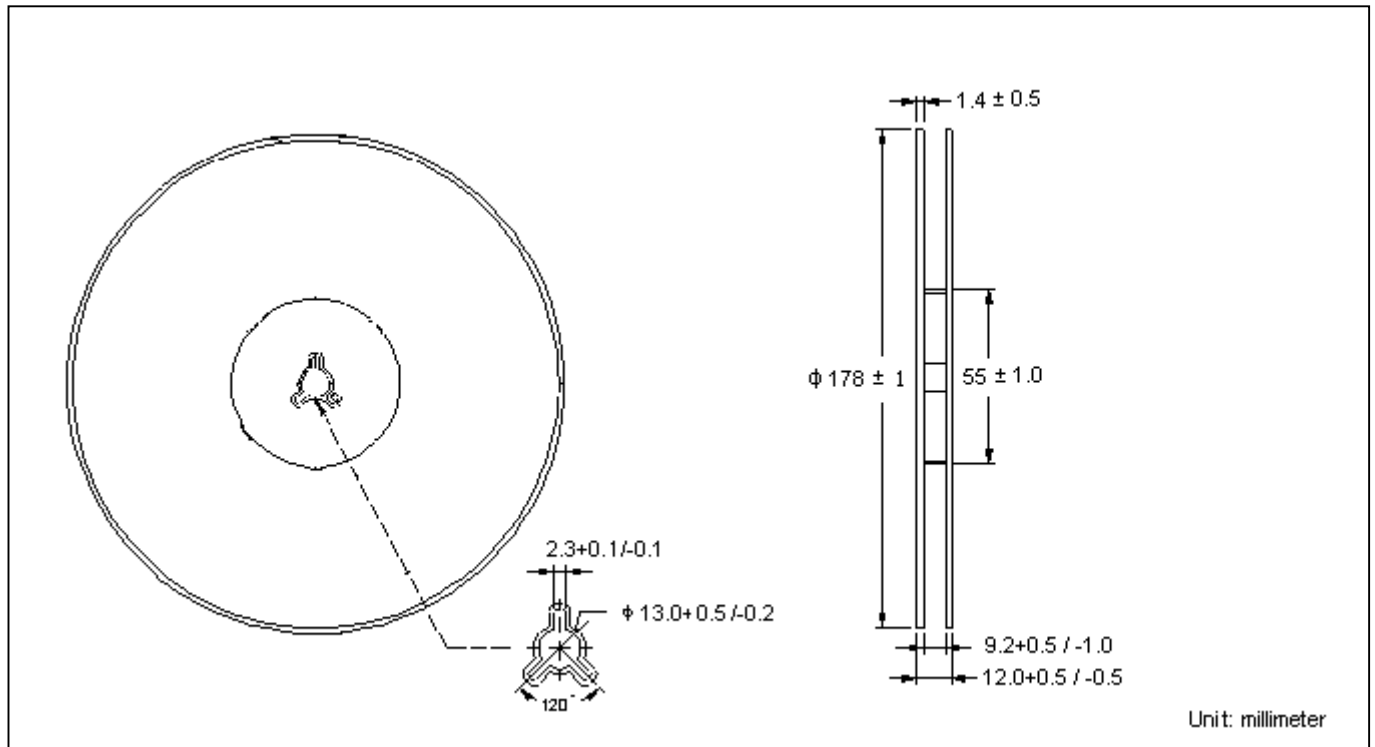


Recommended Soldering Footprint

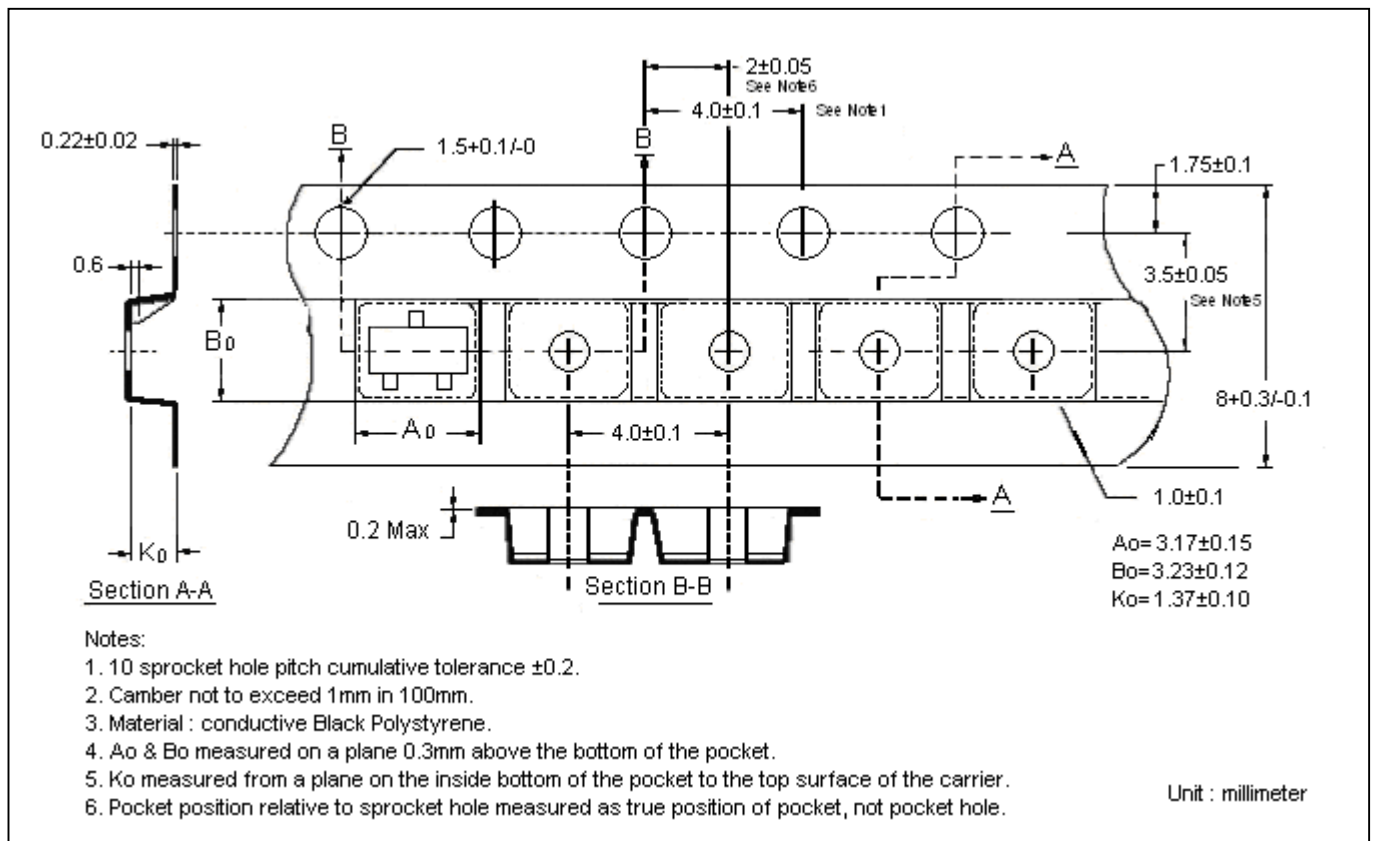


Unit : $\frac{\text{mm}}{\text{inches}}$

Reel Dimension



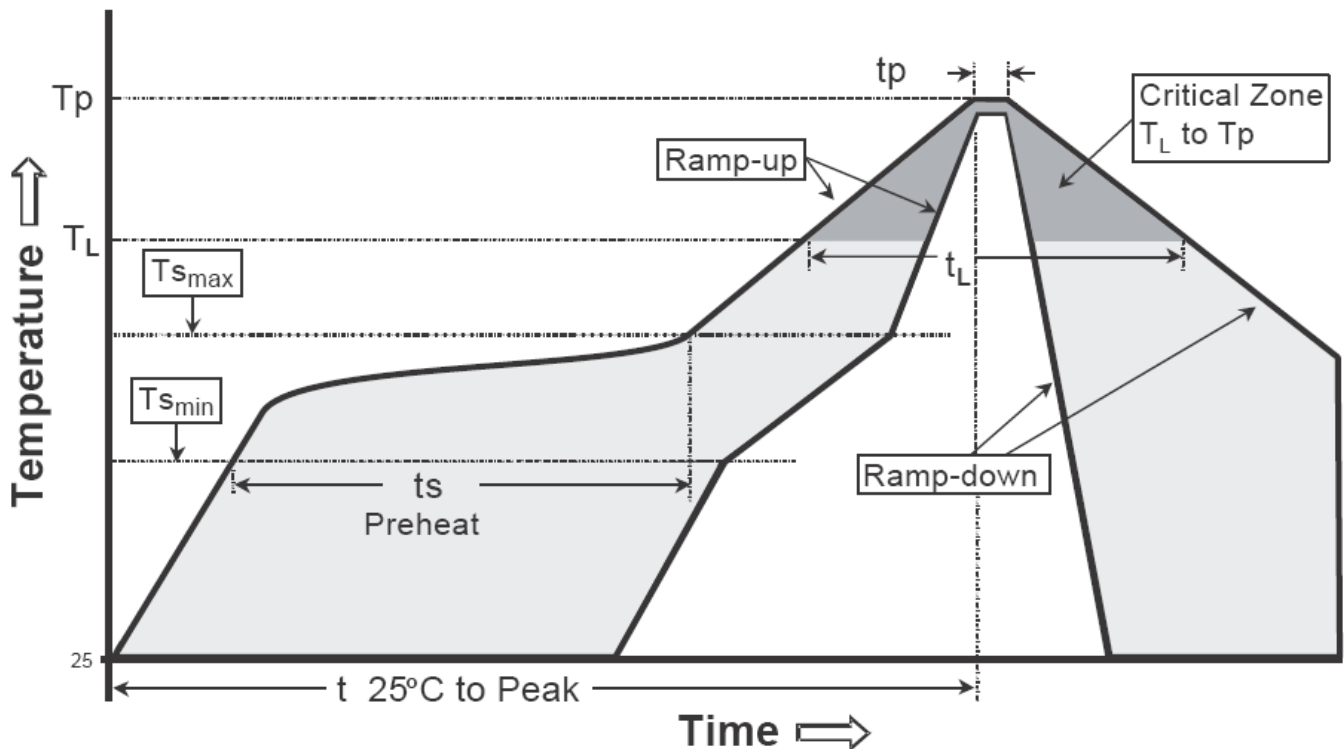
Carrier Tape Dimension



Recommended wave soldering condition

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

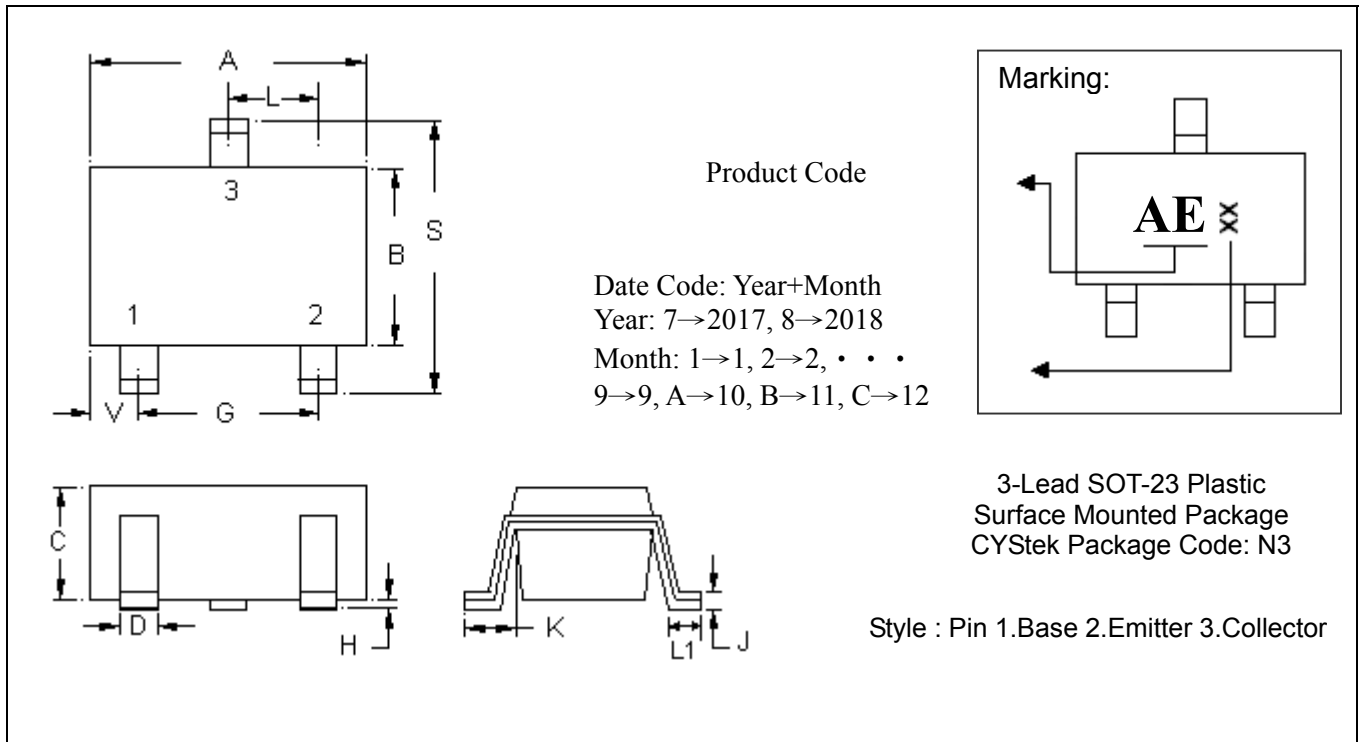
Recommended temperature profile for IR reflow



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-23 Dimension



*: Typical

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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