

PNP Epitaxial Planar Transistor

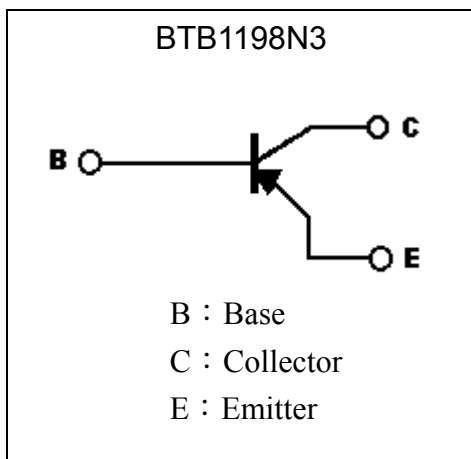
BTB1198N3

BV_{CEO}	-100V
I_C	-1A
$R_{CE(SAT)}$	320m Ω (typ.)

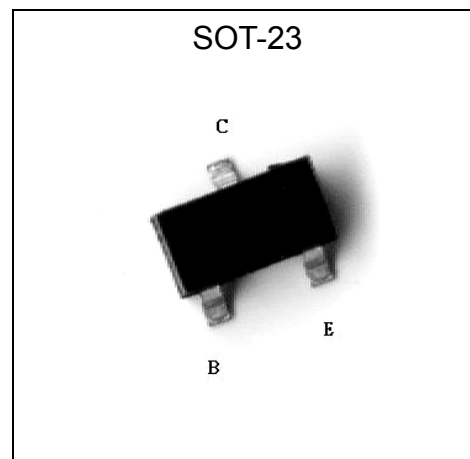
Features

- Low $V_{CE(SAT)}$, $V_{CE(SAT)} = -0.16V$ (Typ.) @ $I_C/I_B = -500mA/-50mA$
- High breakdown voltage, $BV_{CEO} = -100V$
- Complementary to BTB1782N3
- Pb-free and Halogen-free package
- AEC-Q101 qualified.

Symbol

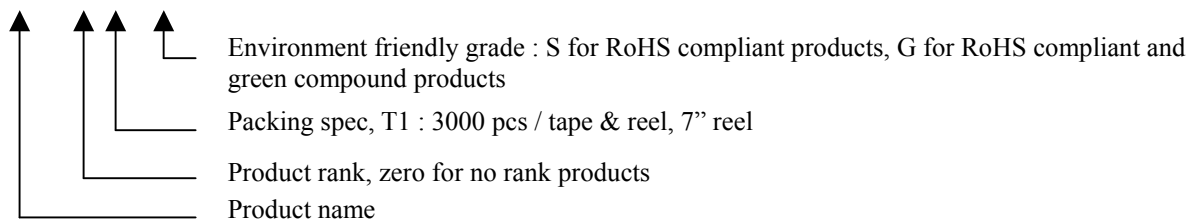


Outline



Ordering Information

Device	Package	Shipping
BTB1198N3-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 _{CB0}	-100	V
Collector-Emitter Voltage	V _{CEO}	-100	V
Emitter-Base Voltage	V _{EBO}	-8	V
Collector Current	I _C	-1	A
Power Dissipation (T _A =25°C)	P _D	225 (Note)	mW
Power Dissipation (T _C =25°C)	P _D	560	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	556 (Note)	°C/W
Thermal Resistance, Junction to Case	R _{θJC}	223	°C/W
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~+150	°C

Note : Free air condition

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	-100	-	-	V	I _C =-50μA
BV _{CEO}	-100	-	-	V	I _C =-2mA
BV _{EBO}	-8	-	-	V	I _E =-50μA
I _{CB0}	-	-	-100	nA	V _{CB} =-100V
I _{EBO}	-	-	-100	nA	V _{EB} =-7V
*V _{CE(sat)}	-	-0.16	-0.3	V	I _C =-500mA, I _B =-50mA
*R _{CE(sat)}	-	-0.32	-0.6	Ω	I _C =-500mA, I _B =-50mA
*h _{FE}	120	-	390	-	V _{CE} =-3V, I _C =-0.1A
f _T	-	200	-	MHz	V _{CE} =-10V, I _C =-50mA, f=100MHz
C _{ob}	-	11	20	pF	V _{CB} =-10V, f=1MHz

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

Classification Of h_{FE}

Rank	Q	R
Range	120~270	180~390

Moisture Sensitivity Level : conform to JEDEC level 1

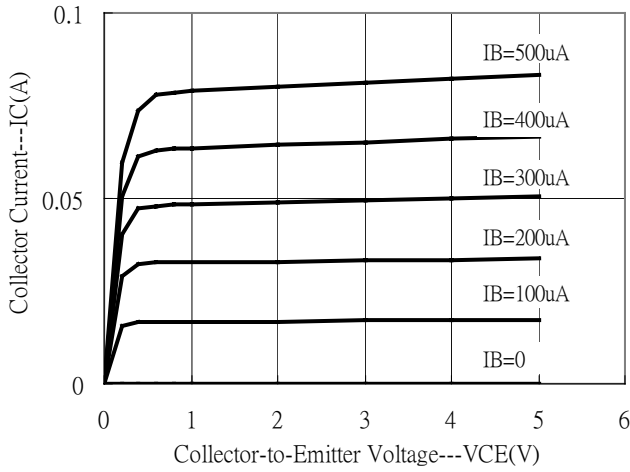
Recommended Storage Condition:

Temperature : ≤ 30 °C

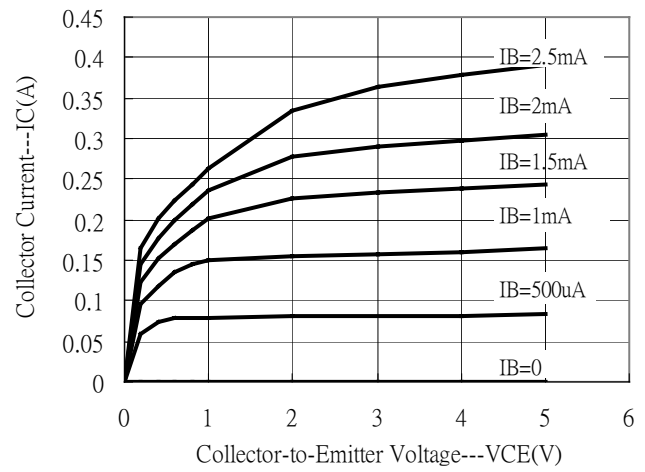
Humidity : ≤ 60% RH

Typical Characteristics

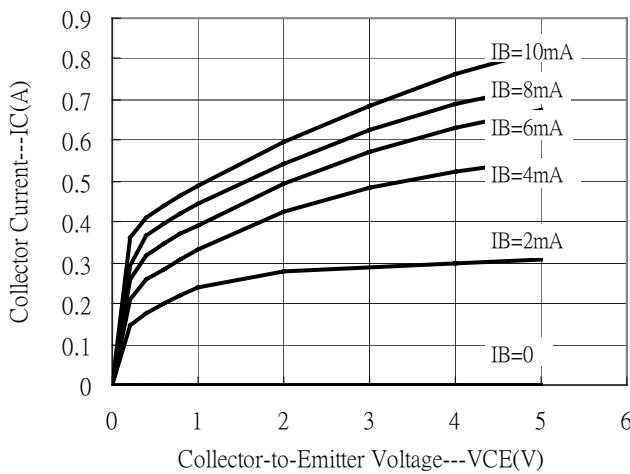
Output Characteristics



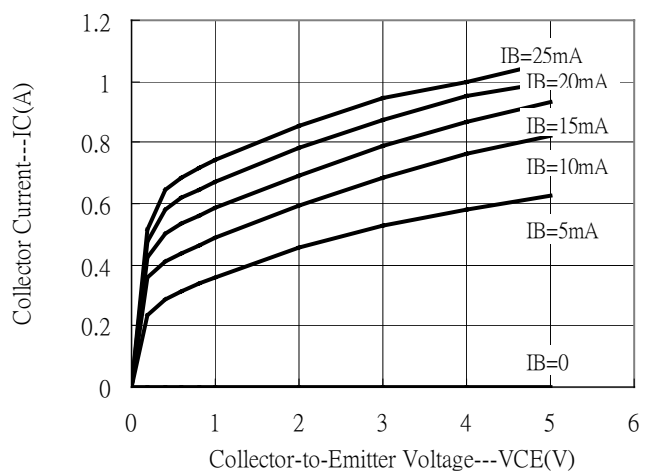
Output Characteristics



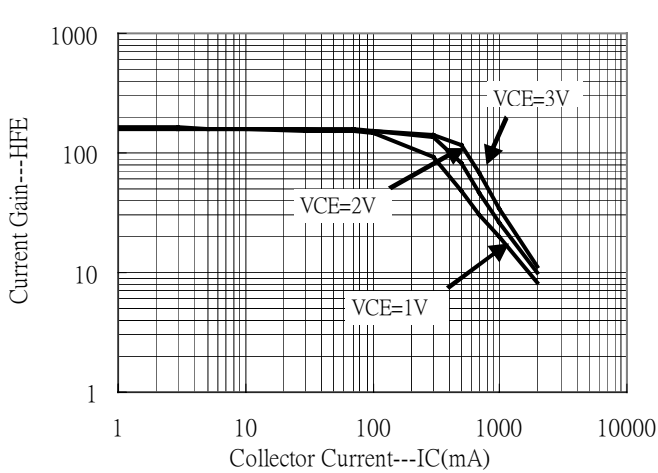
Output Characteristics



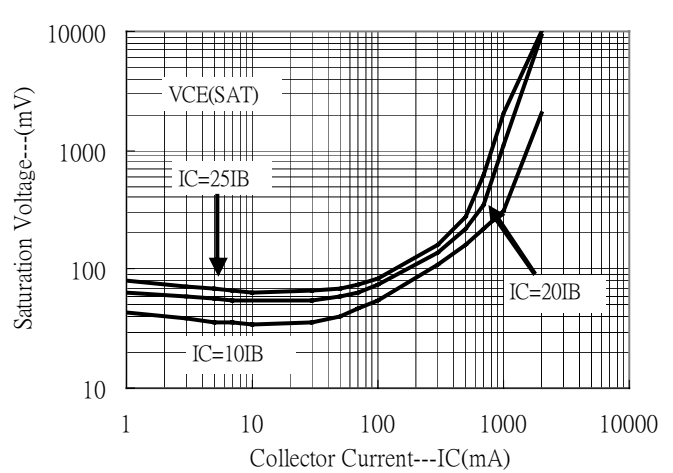
Output Characteristics



Current Gain vs. Collector Current

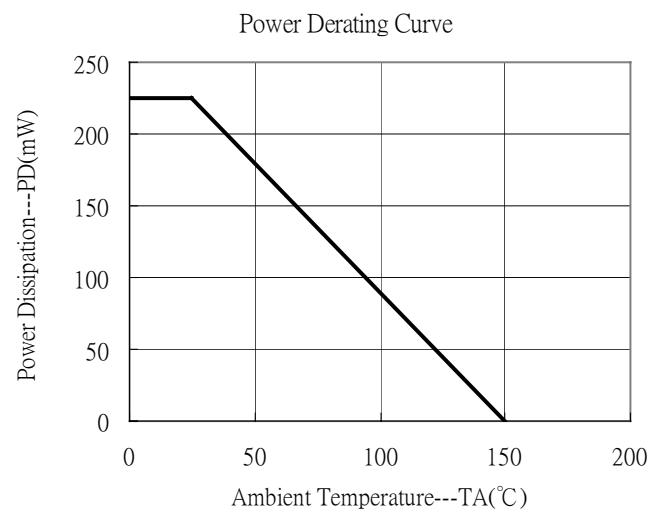
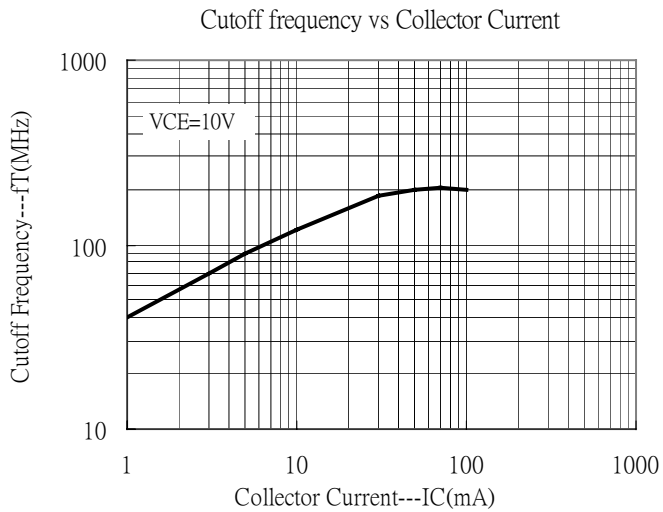
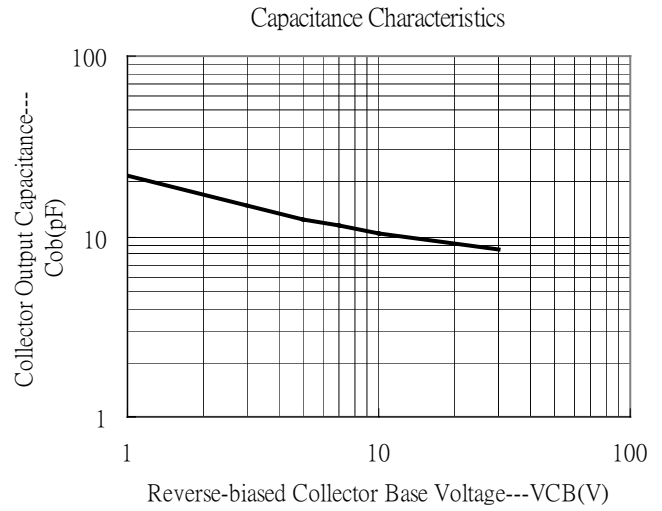
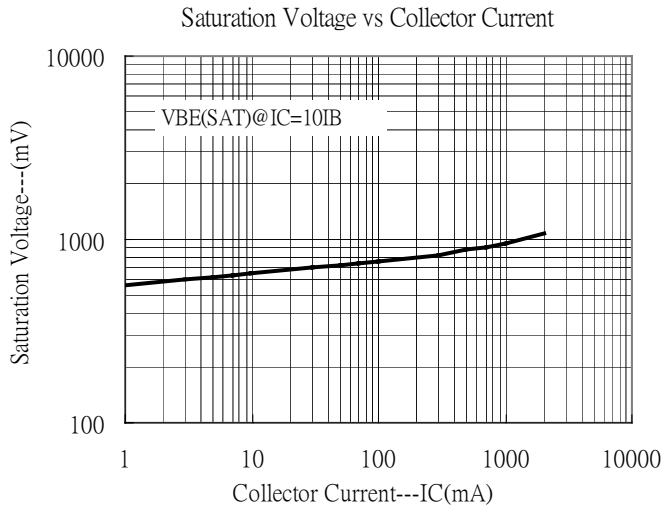


Saturation Voltage vs. Collector Current

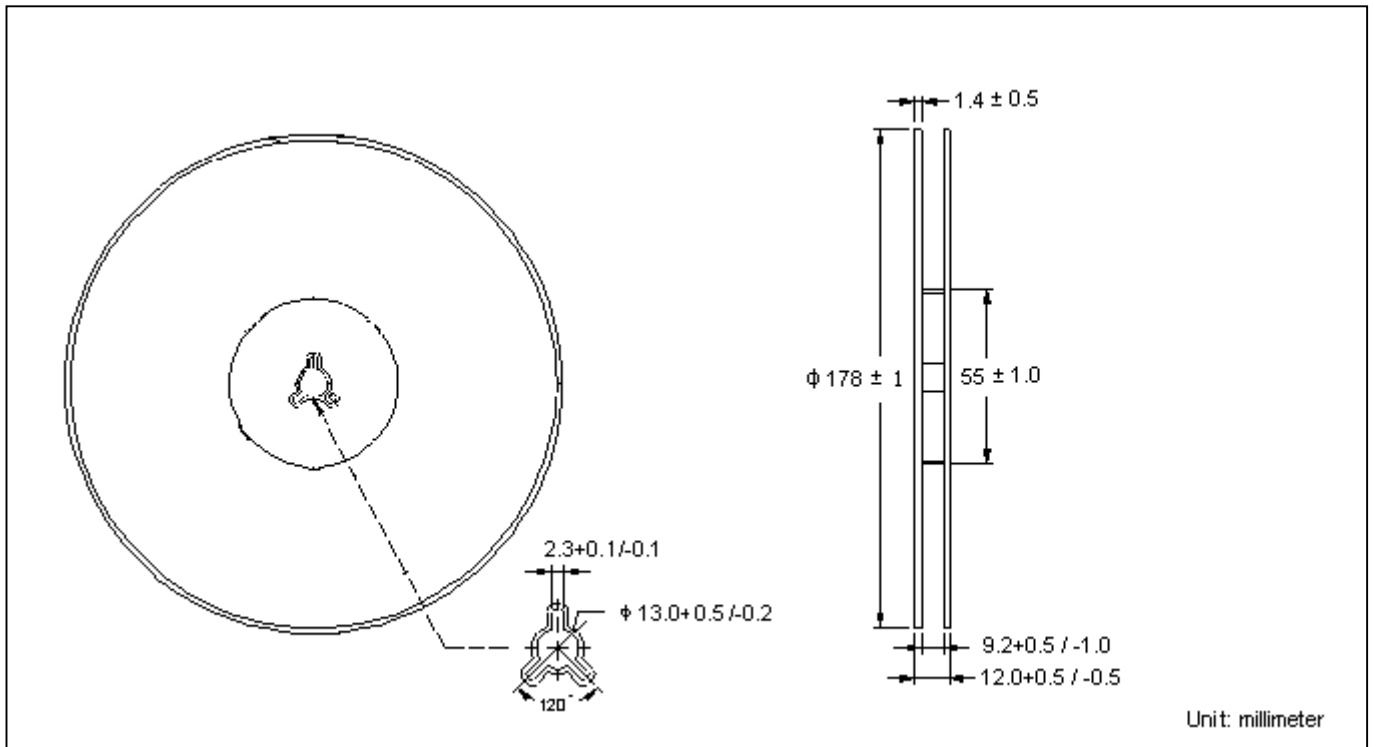




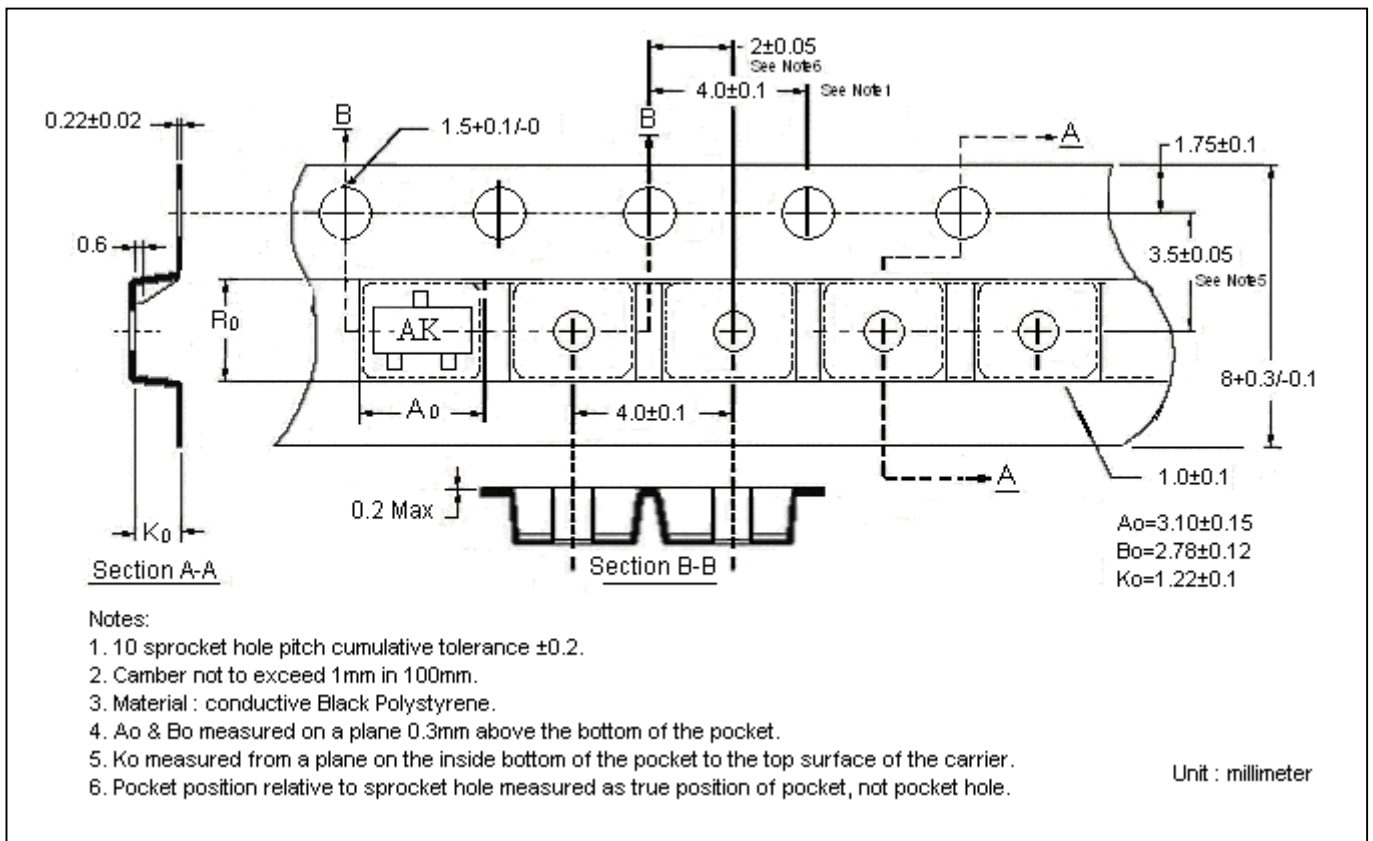
Typical Characteristics(Cont.)



Reel Dimension



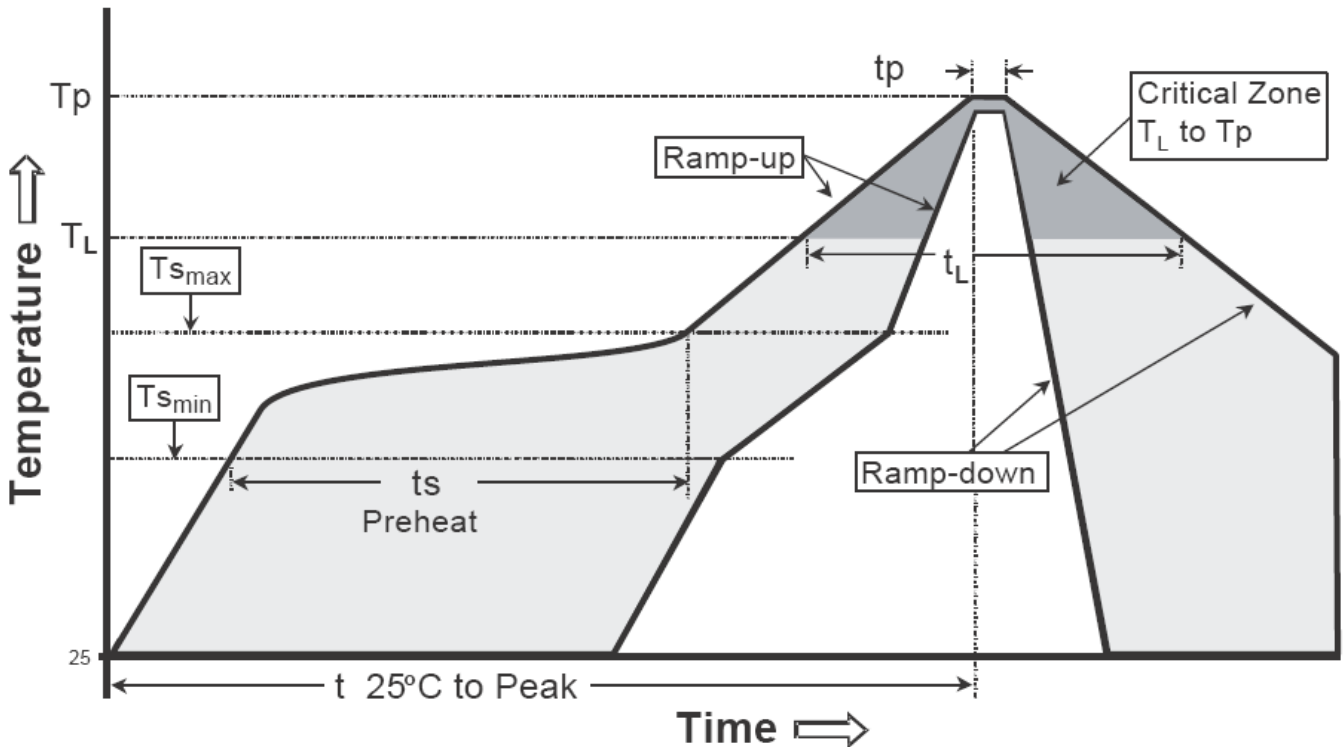
Carrier Tape Dimension



Recommended wave soldering condition

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

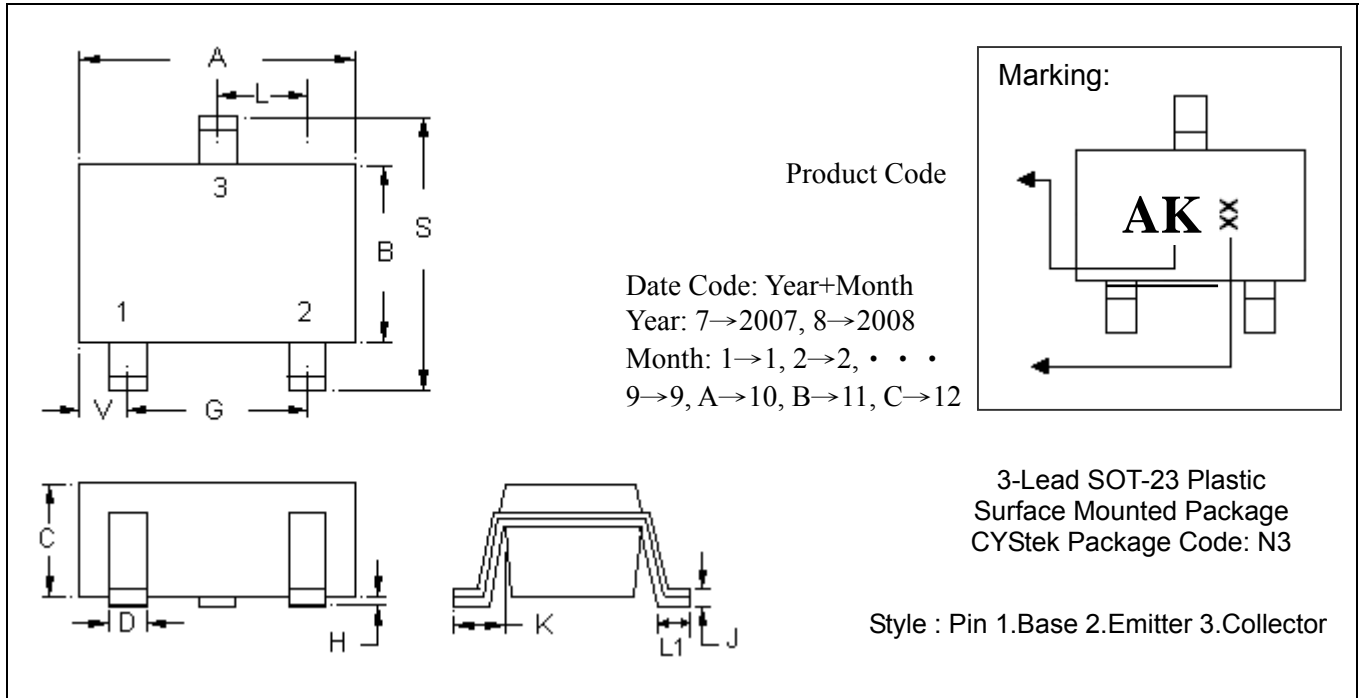
Recommended temperature profile for IR reflow



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-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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