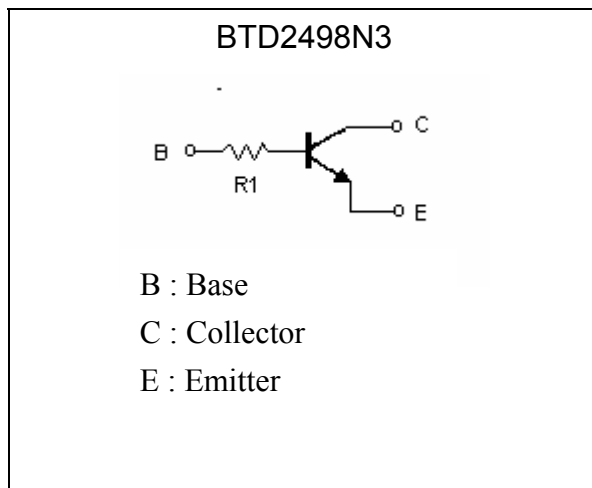
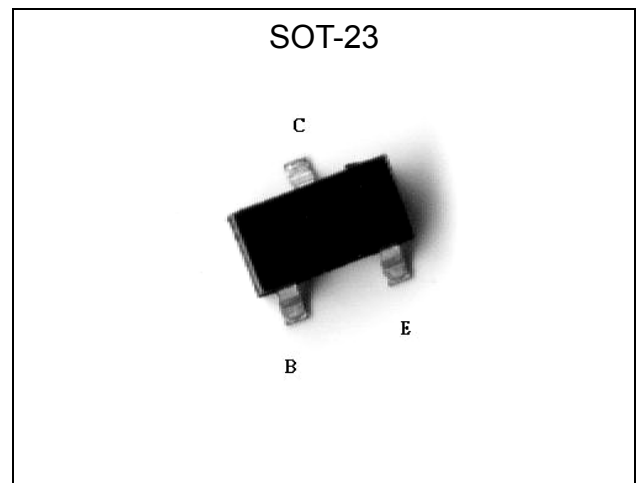


**High Voltage NPN Epitaxial Planar Transistor  
 Built-in Base Resistor**

# BTD2498N3

**Description**

- High breakdown voltage. ( $V_{CE0}=400V$ )
- Low saturation voltage, typical  $V_{CE(sat)}=0.13V$  at  $I_C/I_B=20mA/1mA$ .
- Complementary to BTB1498N3
- Pb-free package

**Equivalent Circuit**

**Outline**

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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	$V_{CBO}$	400	V
Collector-Emitter Voltage	$V_{CEO}$	400	V
Emitter-Base Voltage	$V_{EBO}$	7	V
Collector Current	$I_C$	300	mA
Total Power Dissipation	$P_d$	225	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^{\circ}C/W$
Junction Temperature	$T_j$	150	$^{\circ}C$
Storage Temperature	$T_{stg}$	-55~+150	$^{\circ}C$

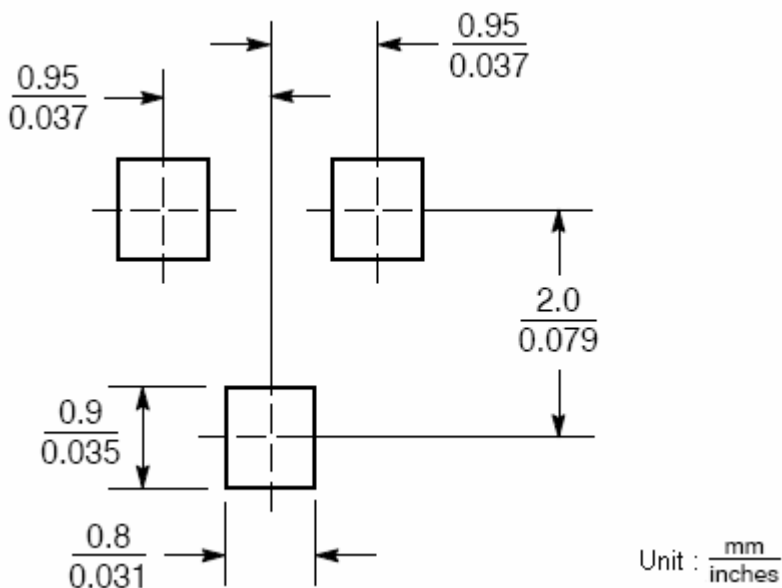
**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
$BV_{CBO}$	400	-	-	V	$I_C=50\mu A$
$BV_{CEO}$	400	-	-	V	$I_C=1mA$
$BV_{EBO}$	7	-	-	V	$I_E=50\mu A$
$I_{CBO}$	-	-	100	nA	$V_{CB}=400V$
$I_{CER}$	-	-	10	nA	$V_{CE}=300V, R_{EB}=4k\Omega$
$I_{EBO}$	-	-	100	nA	$V_{EB}=6V$
* $V_{CE(sat)}$	-	0.13	0.18	V	$I_C=20mA, I_B=1mA$
* $V_{CE(sat)}$	-	0.11	0.18	V	$I_C=50mA, I_B=5mA$
* $V_{CE(sat)}$	-	0.16	0.3	V	$I_C=100mA, I_B=10mA$
* $V_{BE(sat)}$	-	-	3.7	V	$I_C=20mA, I_B=2mA$
* $h_{FE}$	50	-	270	-	$V_{CE}=10V, I_C=10mA$
* $h_{FE}$	50	-	-	-	$V_{CE}=10V, I_C=100mA$
R	0.7	-	1.3	k $\Omega$	-
$f_T$	-	100	-	MHz	$V_{CE}=10V, I_C=10mA, f=5MHz$
Cob	-	13	-	pF	$V_{CB}=10V, I_E=0A, f=1MHz$

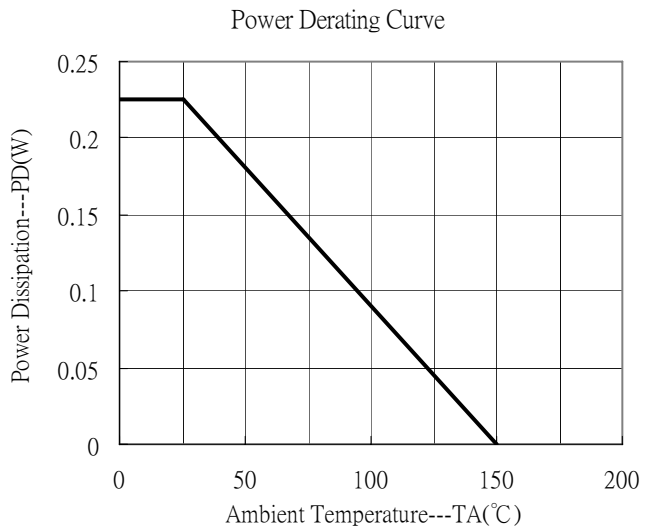
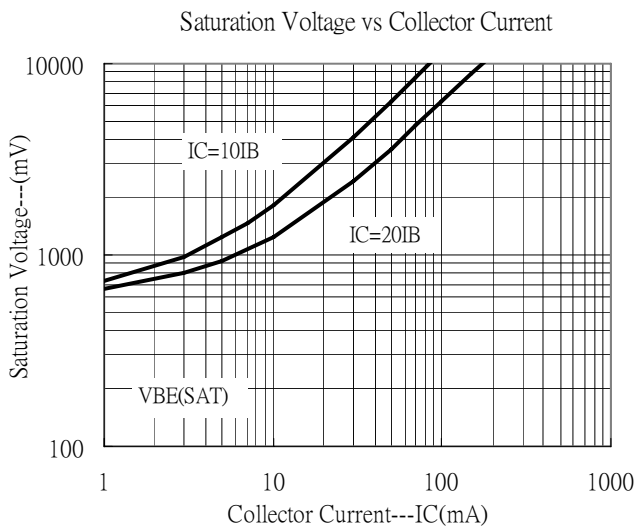
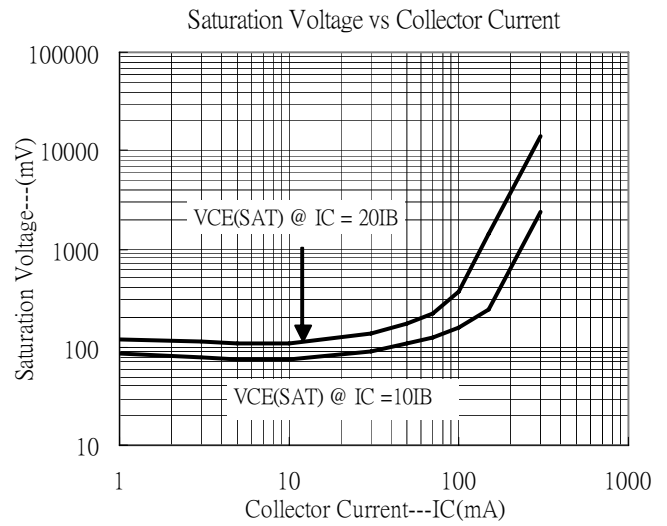
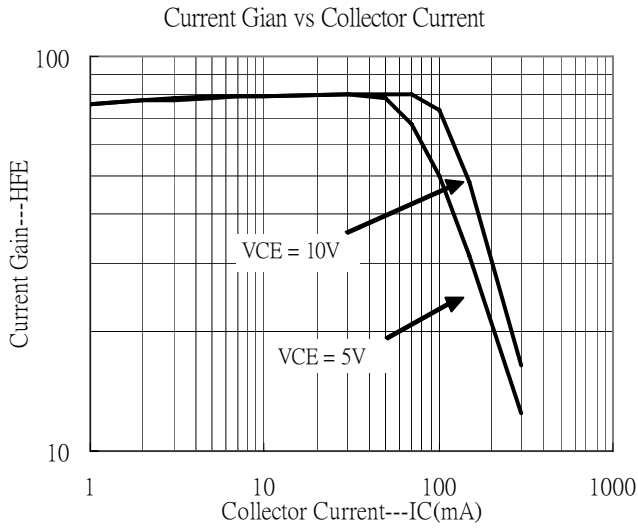
\*Pulse Test: Pulse Width  $\leq 380\mu s$ , Duty Cycle  $\leq 2\%$

**Ordering Information**

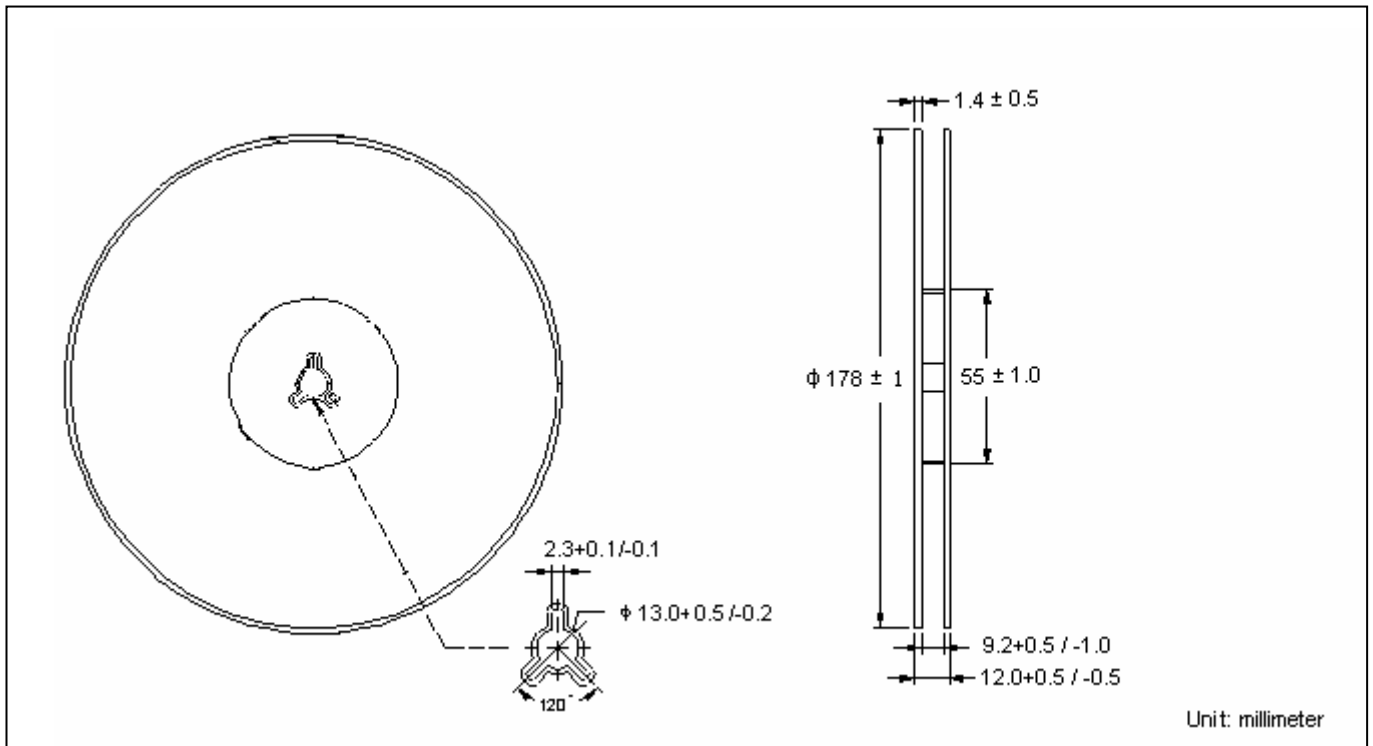
Device	Package	Shipping
BTD2498N3	SOT-23 (Pb-free)	3000 pcs / Tape & Reel

**Recommended Soldering Footprint**


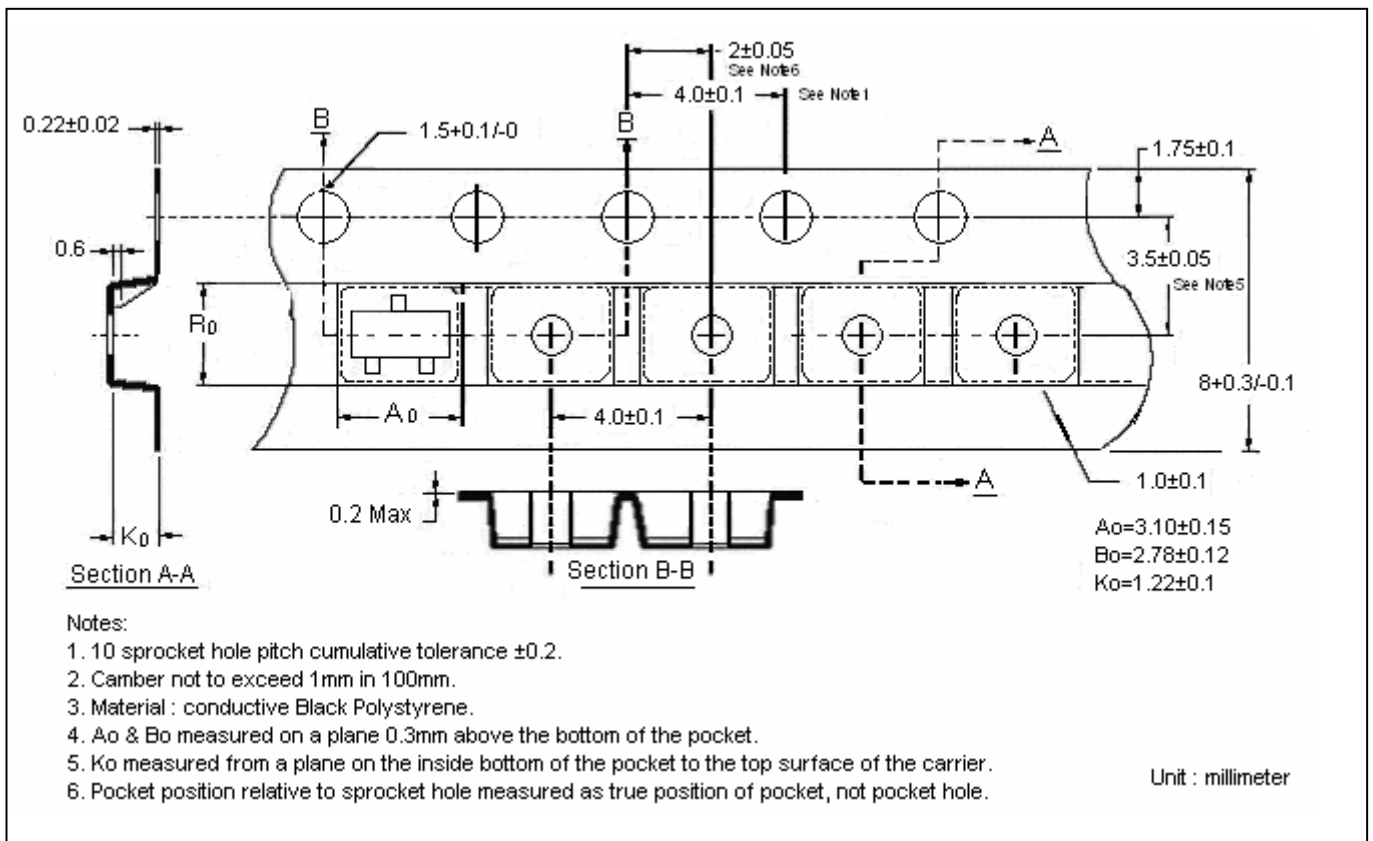
## Typical Characteristics



**Reel Dimension**



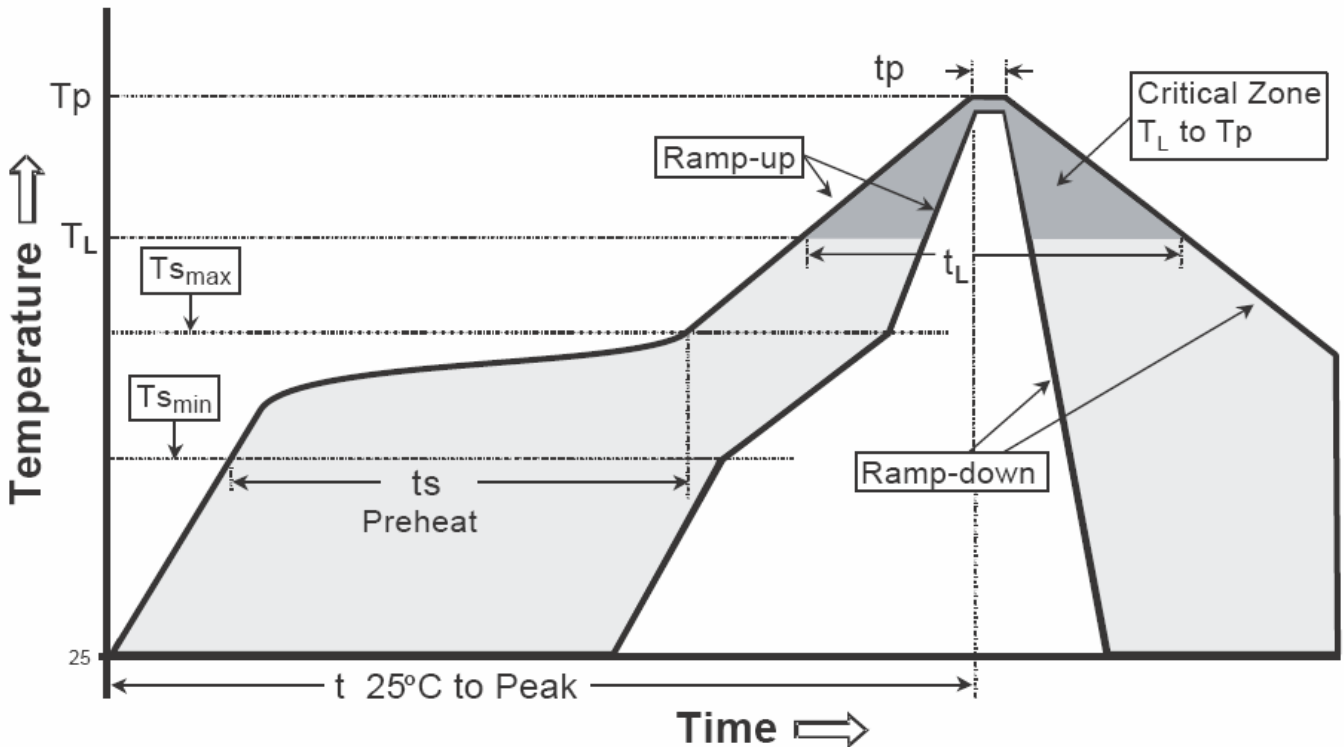
**Carrier Tape Dimension**



**Recommended wave soldering condition**

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

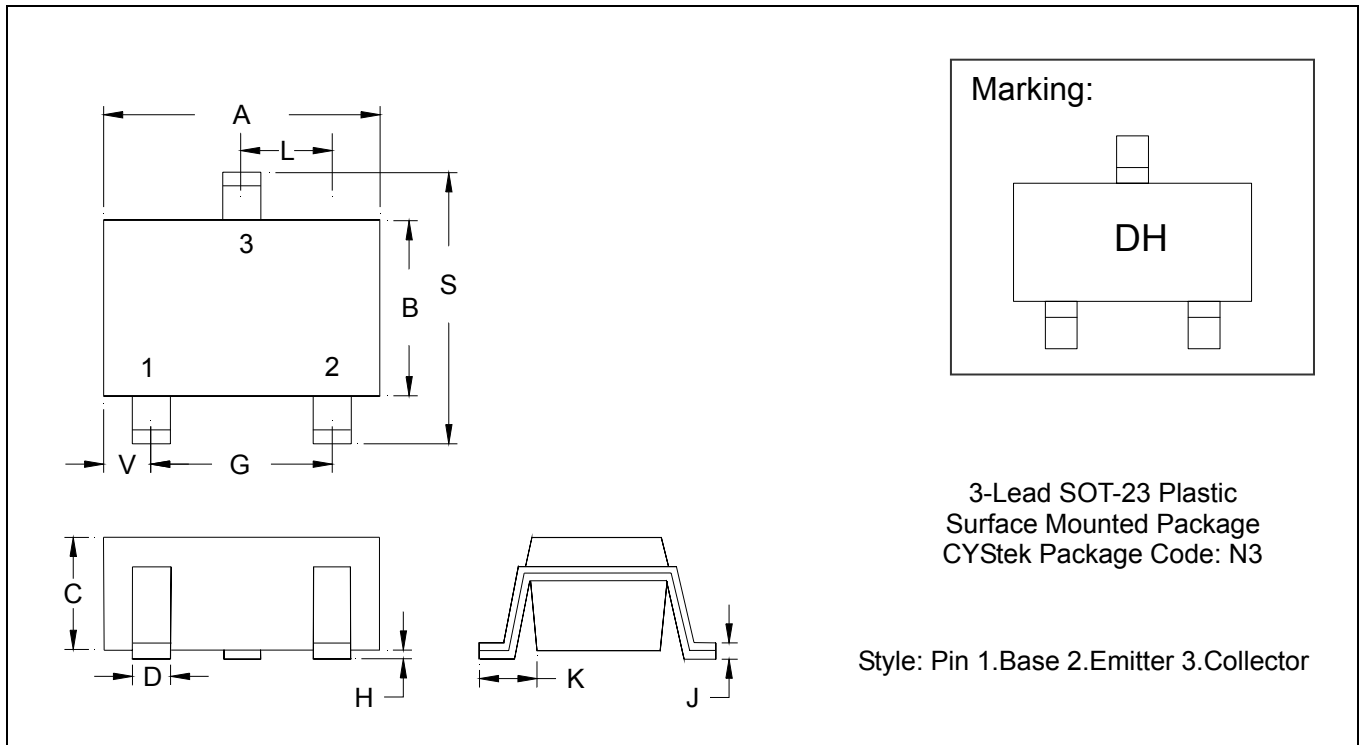
**Recommended temperature profile for IR reflow**



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T <sub>s min</sub> )	100°C	150°C
-Temperature Max(T <sub>s max</sub> )	150°C	200°C
-Time(t <sub>s min</sub> to t <sub>s max</sub> )	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T <sub>L</sub> )	183°C	217°C
- Time (t <sub>L</sub> )	60-150 seconds	60-150 seconds
Peak Temperature(T <sub>P</sub> )	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	0.0034	0.0070	0.085	0.177
B	0.0472	0.0630	1.20	1.60	K	0.0128	0.0266	0.32	0.67
C	0.0335	0.0512	0.85	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1083	2.10	2.75
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0005	0.0040	0.013	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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