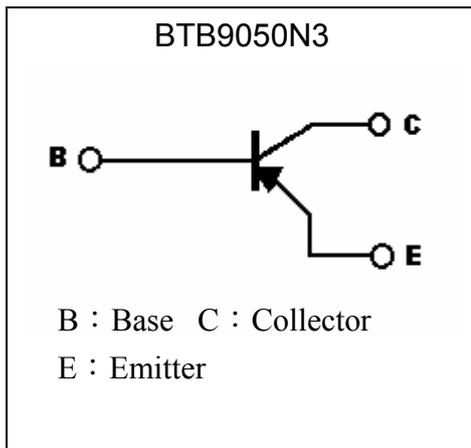
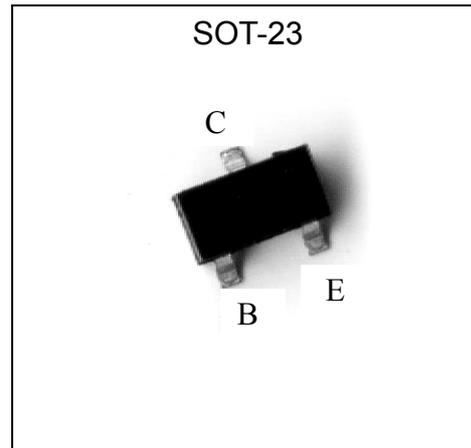


High Voltage PNP Epitaxial Planar Transistor

BTB9050N3

Description

- High breakdown voltage. ($BV_{CEO} = -500V$)
- Low saturation voltage, typical $V_{CE(sat)} = -0.13V$ at $I_C/I_B = -20mA/-2mA$.
- Complementary to BTNA45N3
- Pb-free package

Symbol

Outline

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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-500	V
Collector-Emitter Voltage	V_{CEO}	-500	V
Emitter-Base Voltage	V_{EBO}	-7	V
Collector Current	I_C	-150	mA
Power Dissipation	P_D	300 (Note)	mW
Thermal Resistance, Junction-to-Ambient	$R_{th,ja}$	417 (Note)	$^\circ C/W$
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	-55~+150	$^\circ C$

Note : Device mounted on a FR-4 board with minimum pad size.

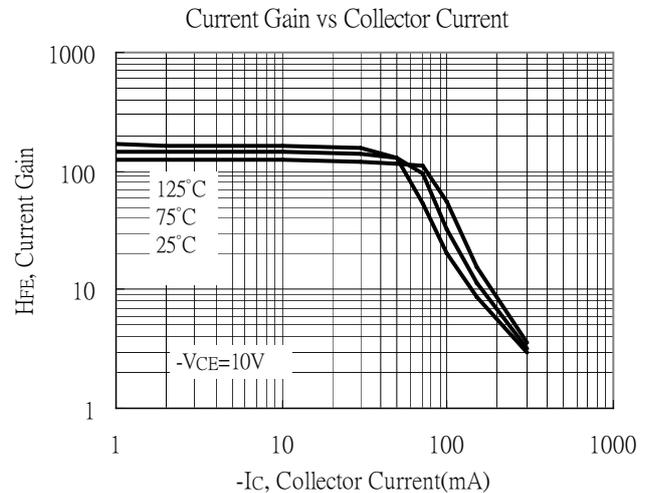
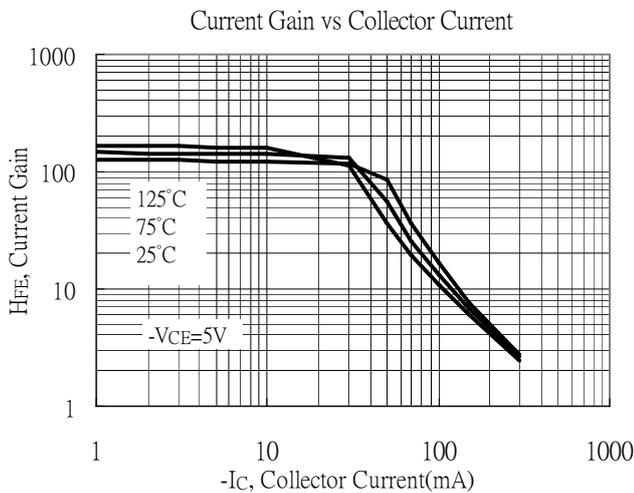
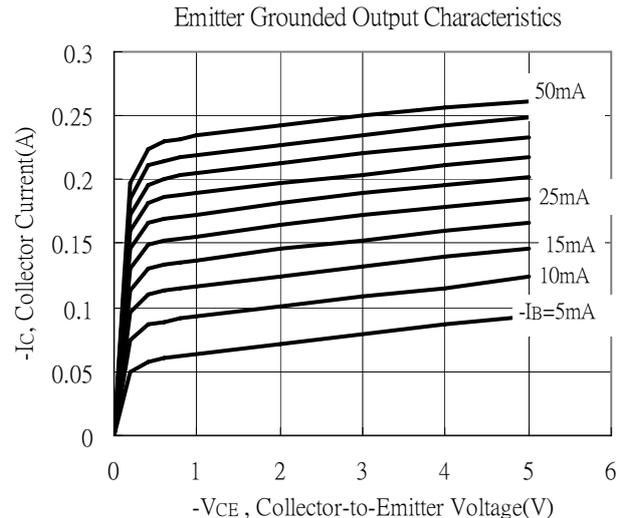
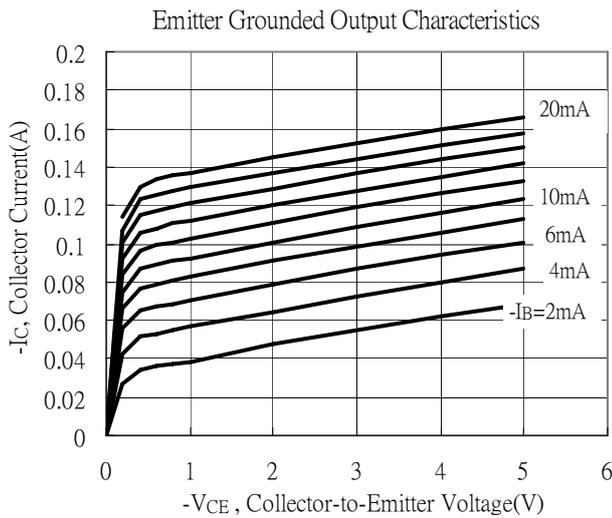
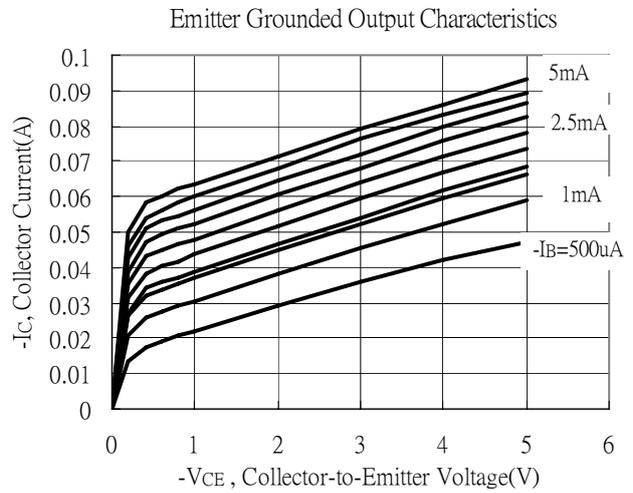
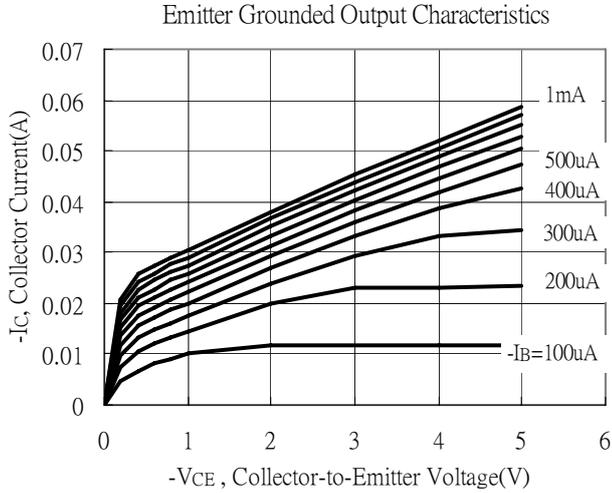
**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	-500	-	-	V	$I_C=-100\mu A$
BV_{CEO}	-500	-	-	V	$I_C=-1mA$
BV_{EBO}	-7	-	-	V	$I_E=-50\mu A$
I_{CBO}	-	-	-100	nA	$V_{CB}=-480V$
I_{CES}	-	-	-10	nA	$V_{CE}=-480V, V_{BE}=0V$
I_{EBO}	-	-	-100	nA	$V_{EB}=-7V$
* $V_{CE(sat)}$	-	-0.13	-0.2	V	$I_C=-20mA, I_B=-2mA$
* $V_{CE(sat)}$	-	-0.11	-0.2	V	$I_C=-50mA, I_B=-10mA$
* $V_{BE(sat)}$	-	-0.8	-1.2	V	$I_C=-50mA, I_B=-10mA$
* h_{FE1}	100	-	300	-	$V_{CE}=-10V, I_C=-10mA$
* h_{FE2}	80	-	-	-	$V_{CE}=-10V, I_C=-50mA$
* h_{FE3}	50	-	-	-	$V_{CE}=-10V, I_C=-100mA$
f_T	50	-	-	MHz	$V_{CE}=-10V, I_C=-10mA, f=10MHz$
Cob	-	12	-	pF	$V_{CB}=-10V, I_E=0A, f=1MHz$

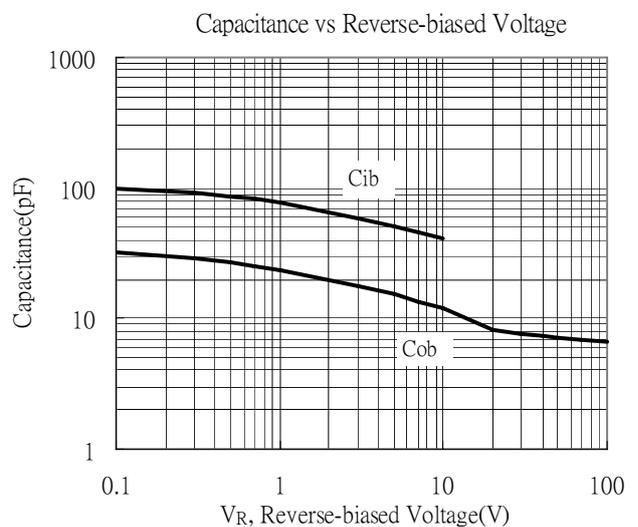
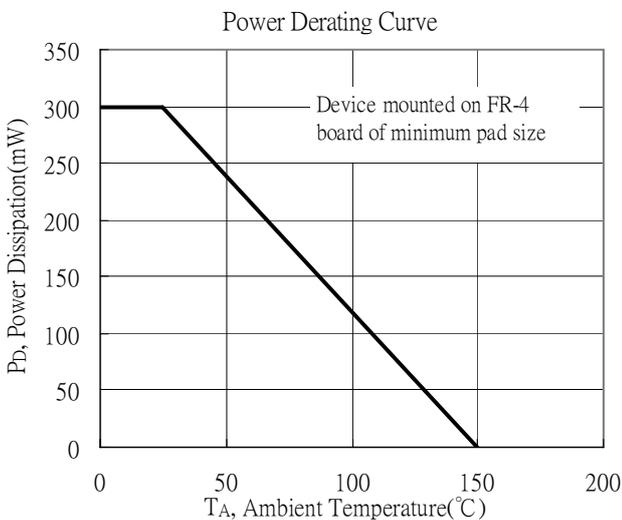
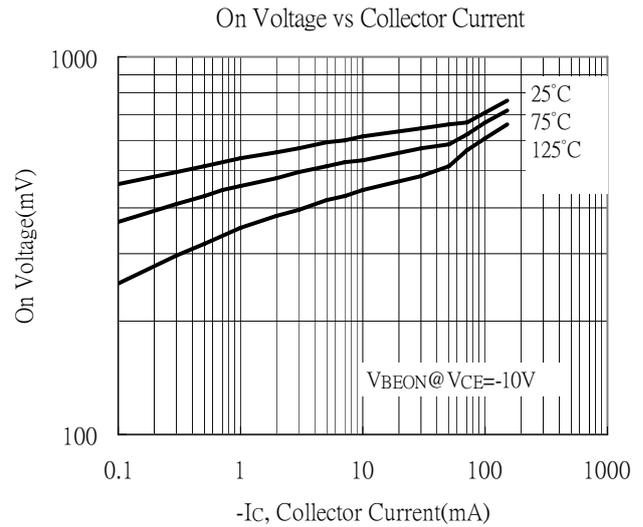
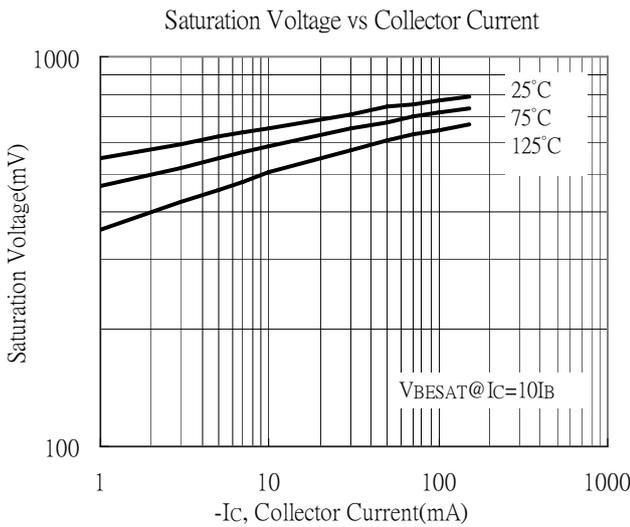
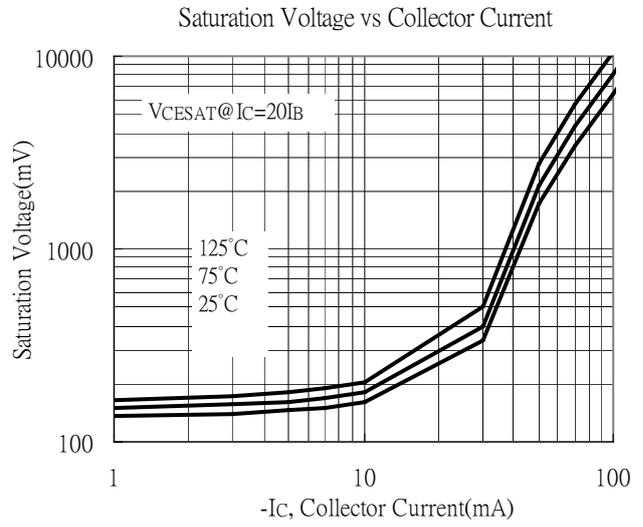
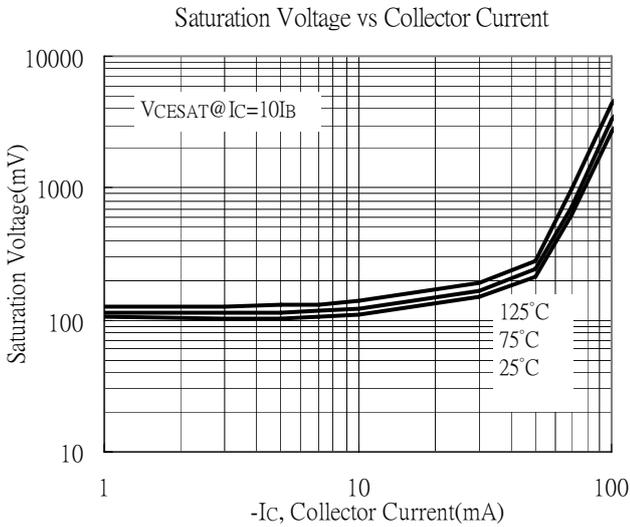
*Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$ **Ordering Information**

Device	Package	Shipping
BTB9050N3-0-T1-G	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel

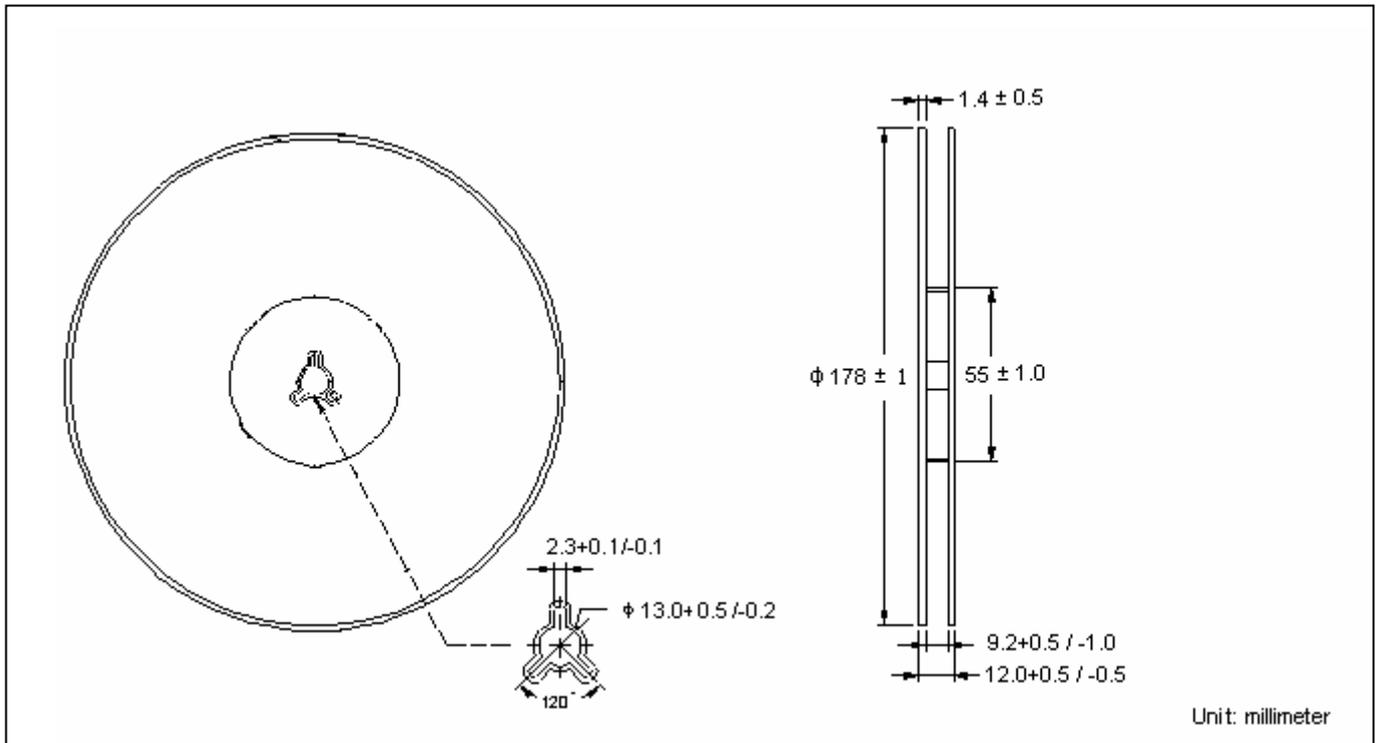
Typical Characteristics



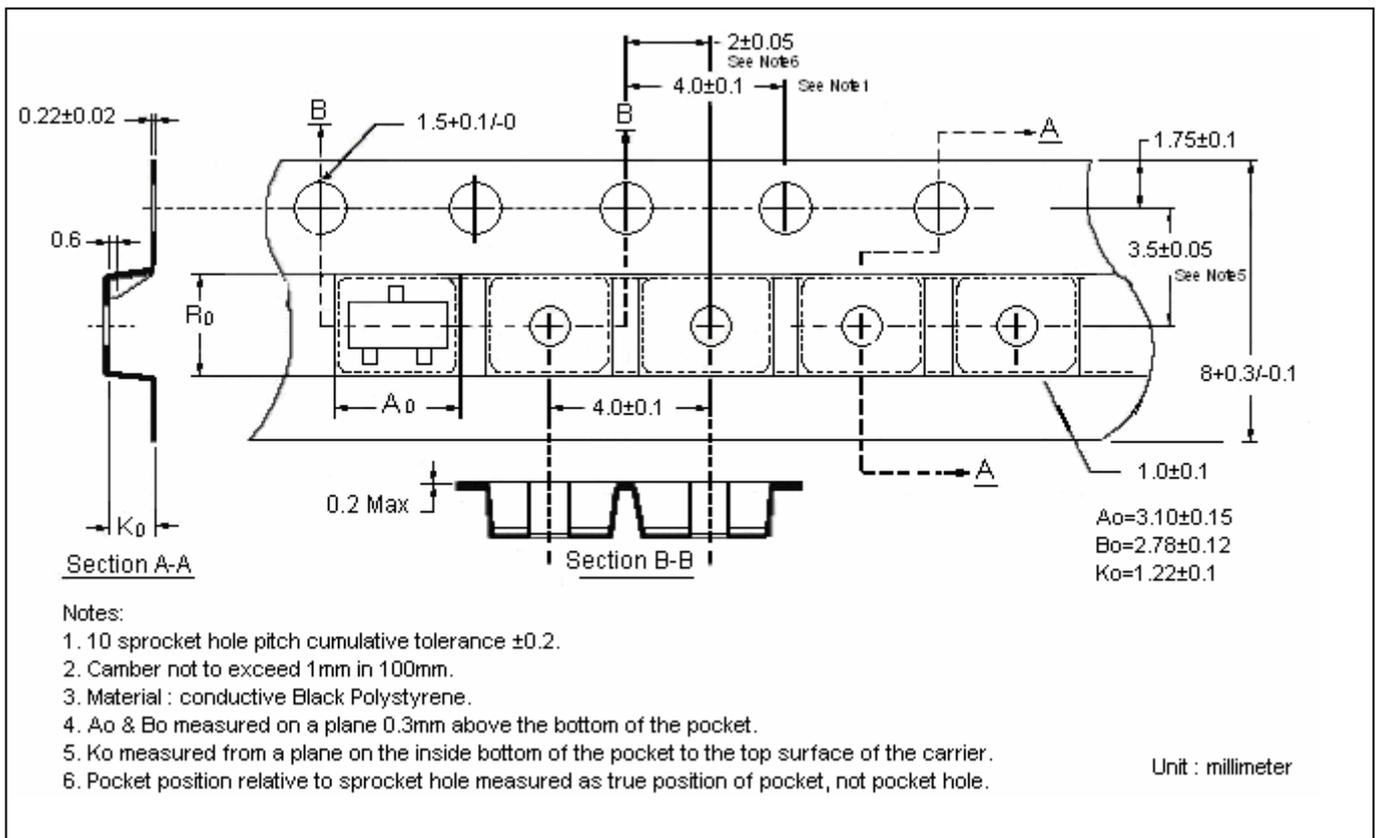
Typical Characteristics



Reel Dimension



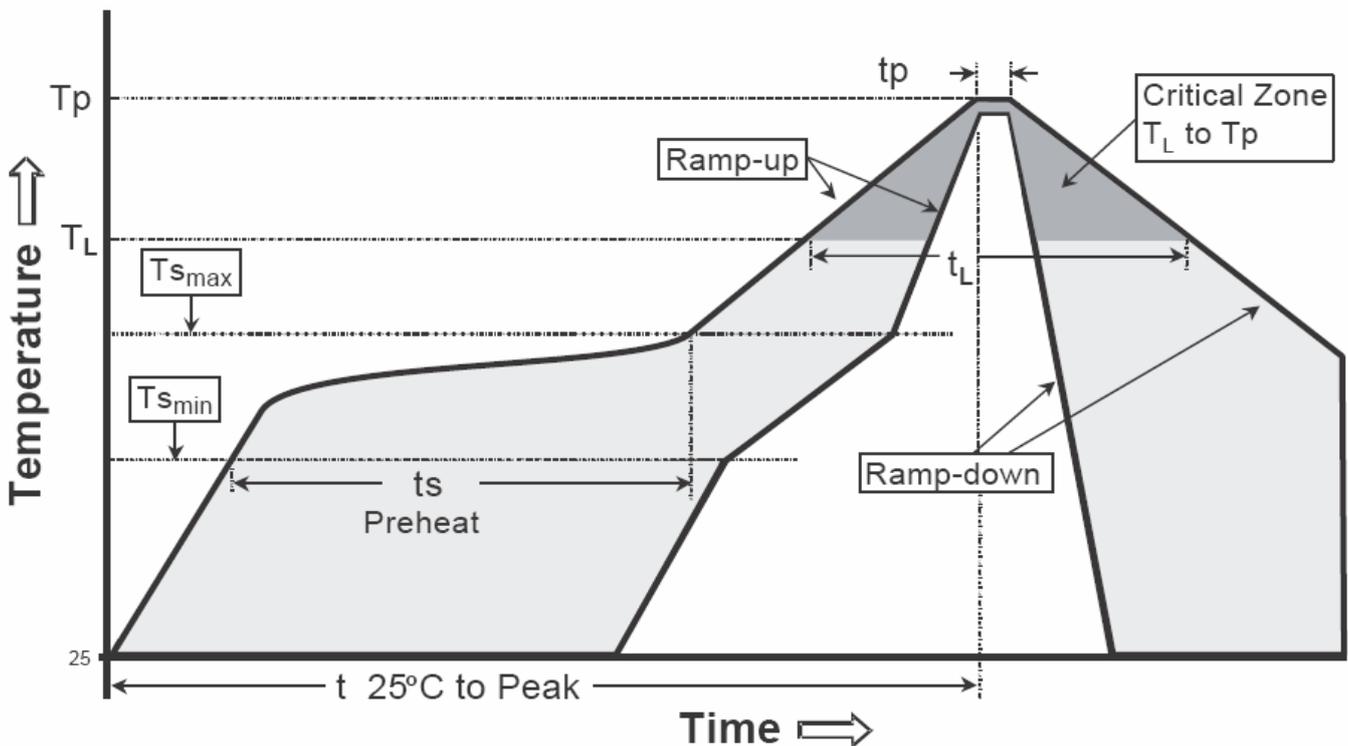
Carrier Tape Dimension



Recommended wave soldering condition

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

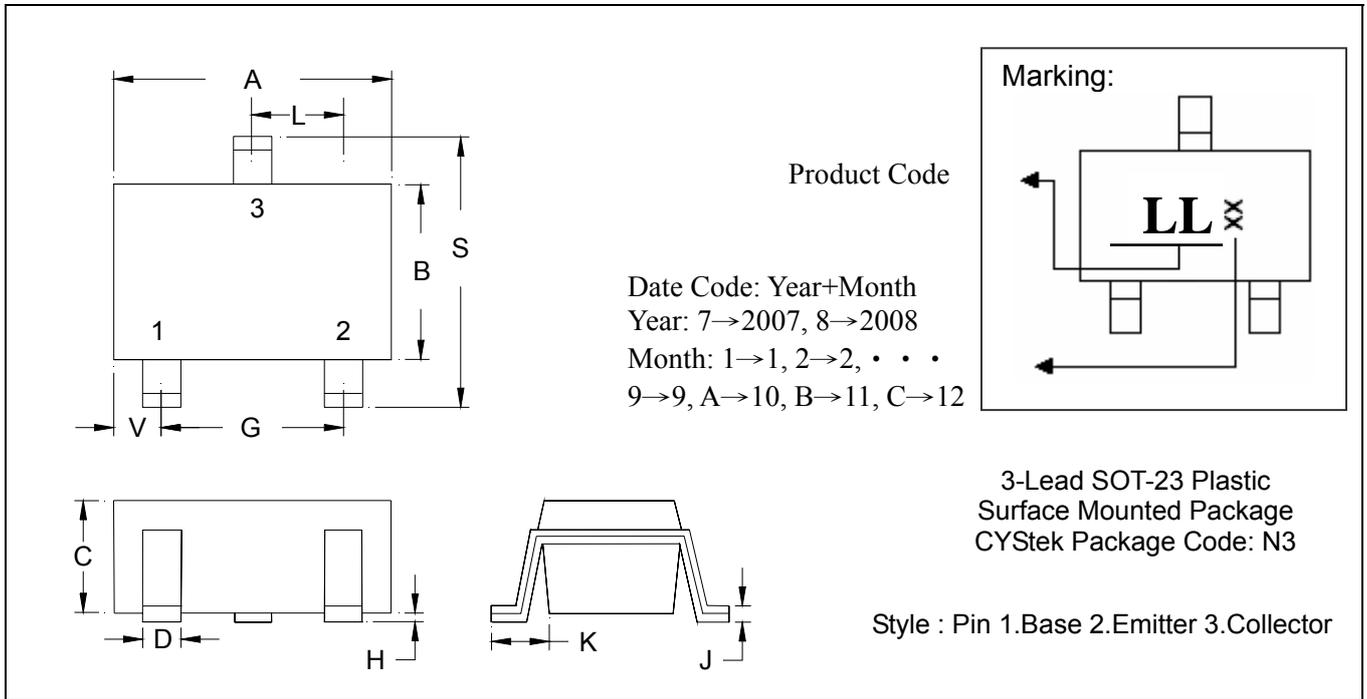
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{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	0.0031	0.0071	0.08	0.18
B	0.0472	0.0630	1.20	1.60	K	0.0128	0.0266	0.32	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	0.0005	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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