

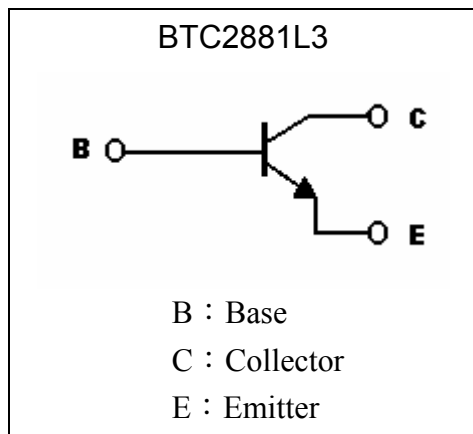
General Purpose NPN Epitaxial Planar Transistor

BTC2881L3

BV_{CEO}	200V
I_C	1A
$R_{CESAT(MAX)}$	0.86 Ω

Features

- High breakdown voltage, $BV_{CEO} \geq 200V$
- Large continuous collector current capability
- Low collector saturation voltage
- Pb-free lead plating and halogen-free package

Symbol

Outline

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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	300	V
Collector-Emitter Voltage	V_{CEO}	200	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	1	A
Base Current	I_B	0.2	A
Power Dissipation @ $T_A=25^\circ C$	P_D	1	W
Power Dissipation @ $T_C=25^\circ C$		6	W
Operating Junction and Storage Temperature Range	$T_j ; T_{stg}$	150	$^\circ C$

Ordering Information

Device	Package	Shipping
BTC2881L3	SOT-223 (Pb-free lead plating and halogen-free package)	2500 pcs / Tape & Reel

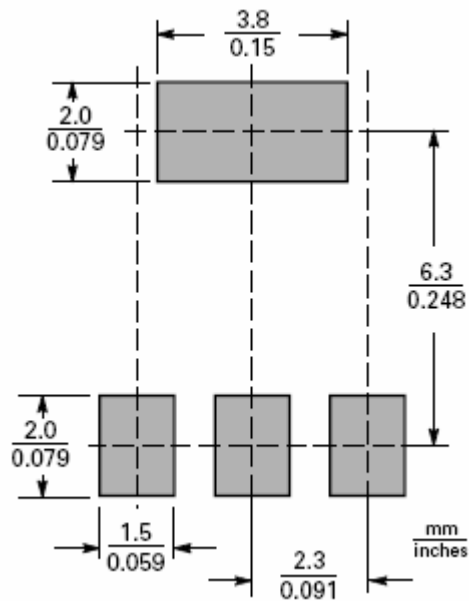
Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-ambient, max	$R_{th,j-a}$	125	$^{\circ}C/W$
Thermal Resistance, Junction-to-case, max	$R_{th,j-c}$	20.8	$^{\circ}C/W$

Characteristics (Ta=25°C)

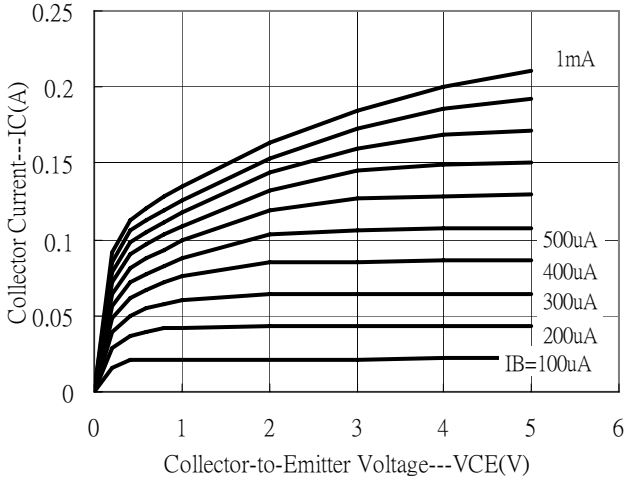
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	300	-	-	V	$I_C=100\mu A$
BV_{CEO}	200	-	-	V	$I_C=1mA$
BV_{EBO}	6	-	-	V	$I_E=10\mu A$
I_{CBO}	-	-	100	nA	$V_{CB}=300V$
I_{EBO}	-	-	100	nA	$V_{EB}=6V$
* $V_{CE(sat)}$	-	0.17	0.4	V	$I_C=500mA, I_B=50mA$
* $V_{CE(sat)}$	-	0.37	0.6	V	$I_C=700mA, I_B=35mA$
* $V_{BE(sat)}$	-	0.85	1	V	$I_C=500mA, I_B=50mA$
* $V_{BE(on)}$	-	0.81	1	V	$V_{CE}=5V, I_C=500mA$
* $h_{FE 1}$	120	-	-	-	$V_{CE}=5V, I_C=50mA$
* $h_{FE 2}$	120	-	320	-	$V_{CE}=5V, I_C=100mA$
* $h_{FE 3}$	30	-	-	-	$V_{CE}=5V, I_C=700mA$
f_T	-	120	-	MHz	$V_{CE}=5V, I_C=100mA$
Cob	-	8	15	pF	$V_{CB}=10V, I_E=0A, f=1MHz$

*Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

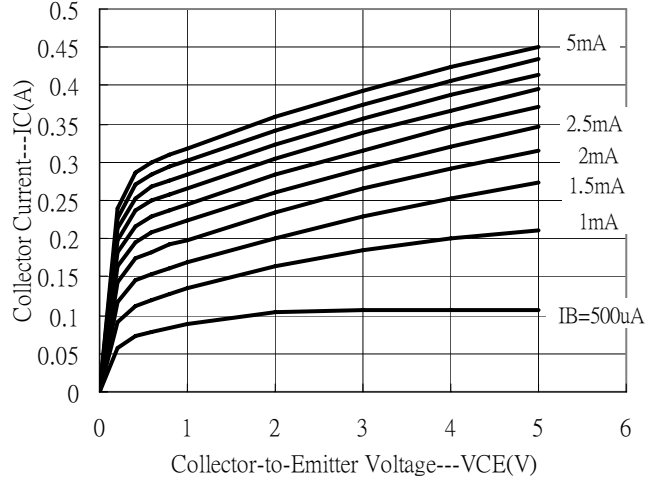
Recommended soldering footprint


Typical Characteristics

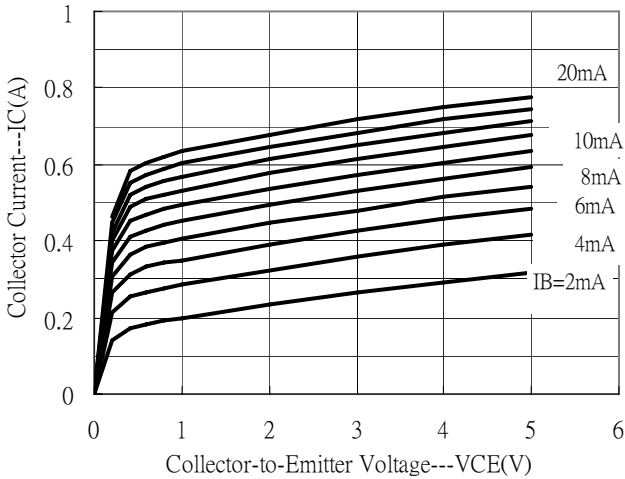
Emitter Grounded Output Characteristics



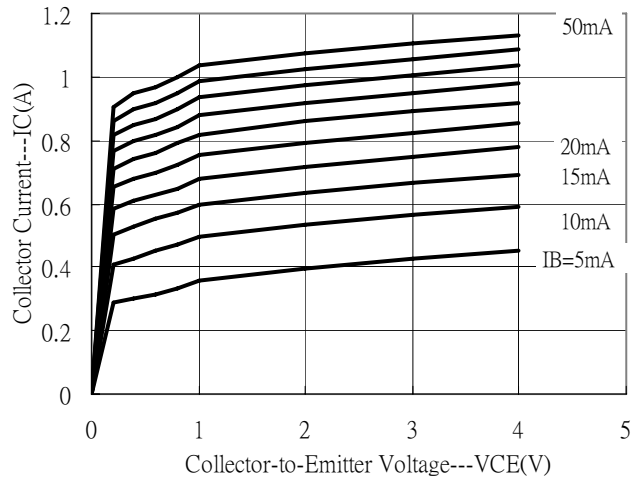
Emitter Grounded Output Characteristics



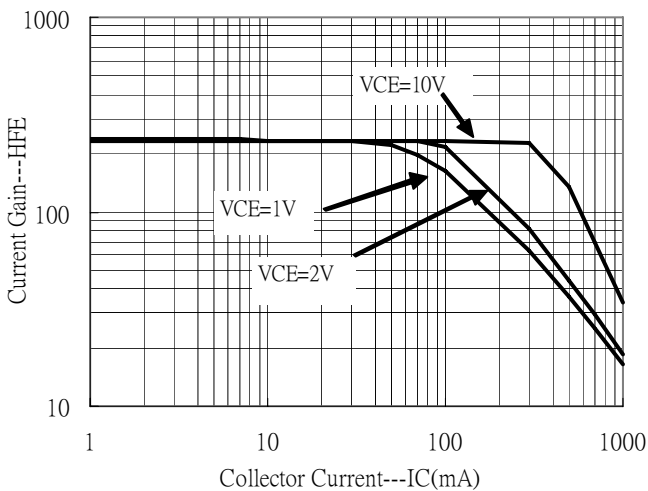
Emitter Grounded Output Characteristics



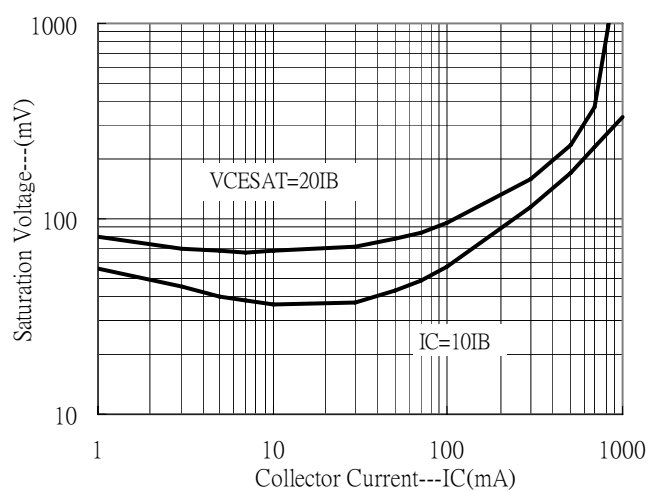
Emitter Grounded Output Characteristics



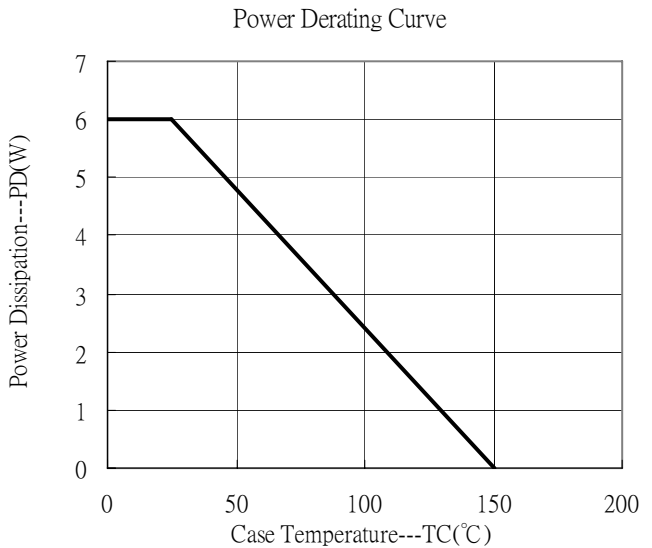
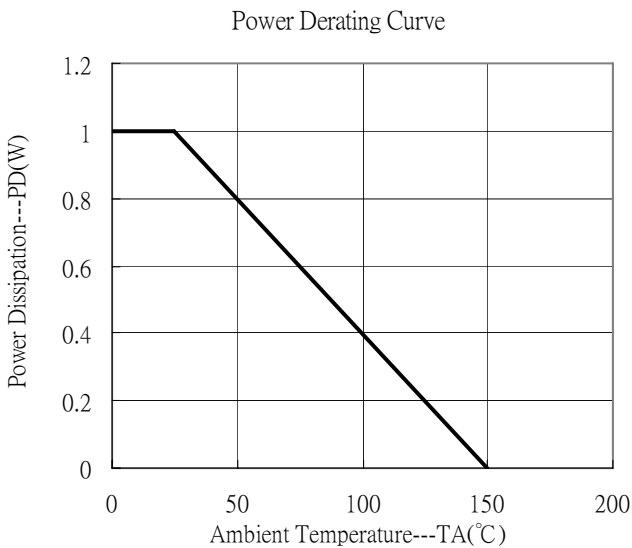
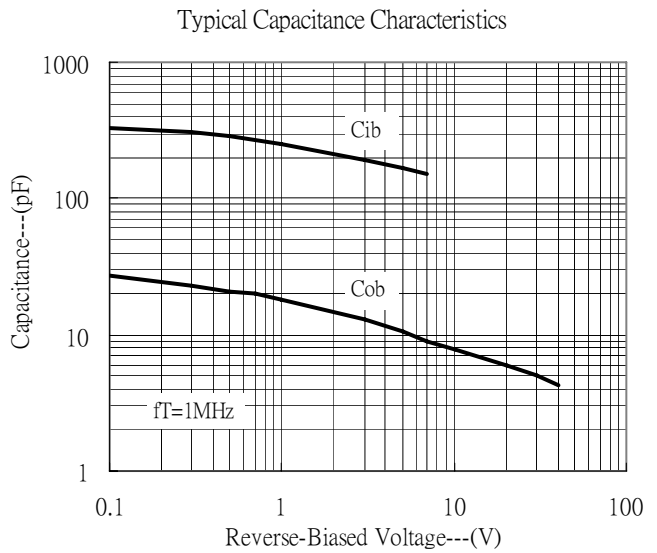
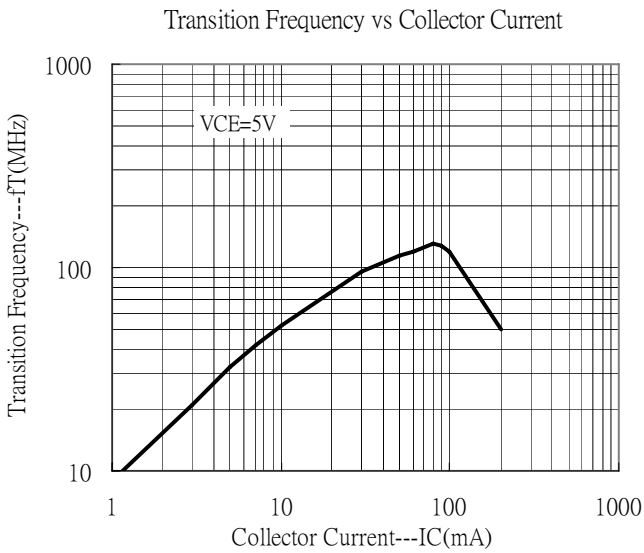
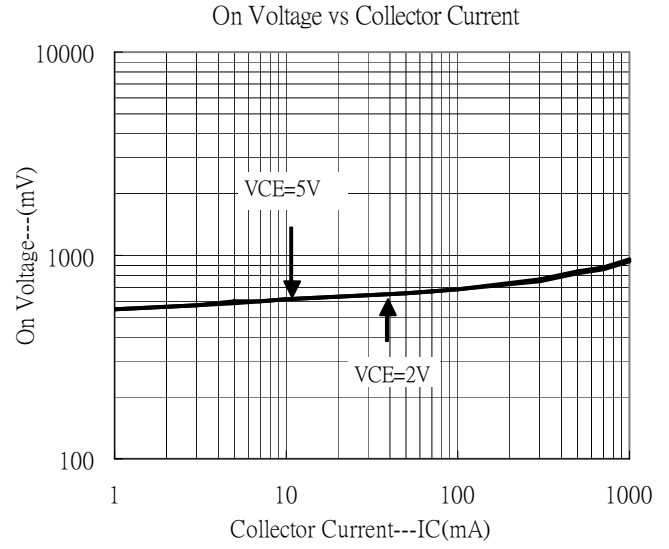
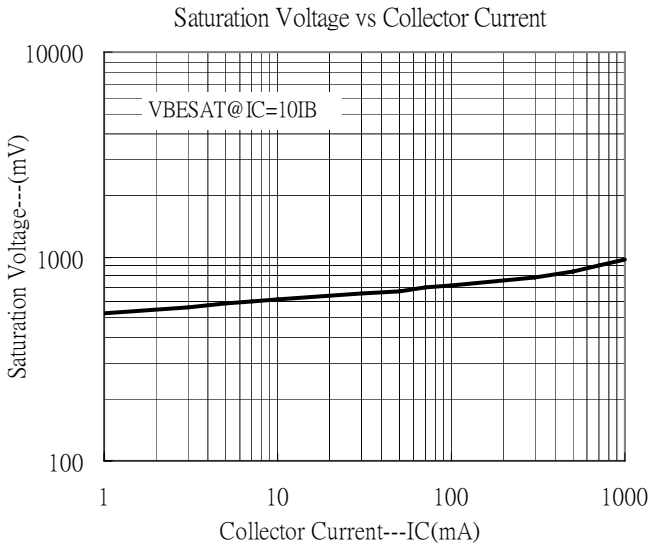
Current Gain vs Collector Current



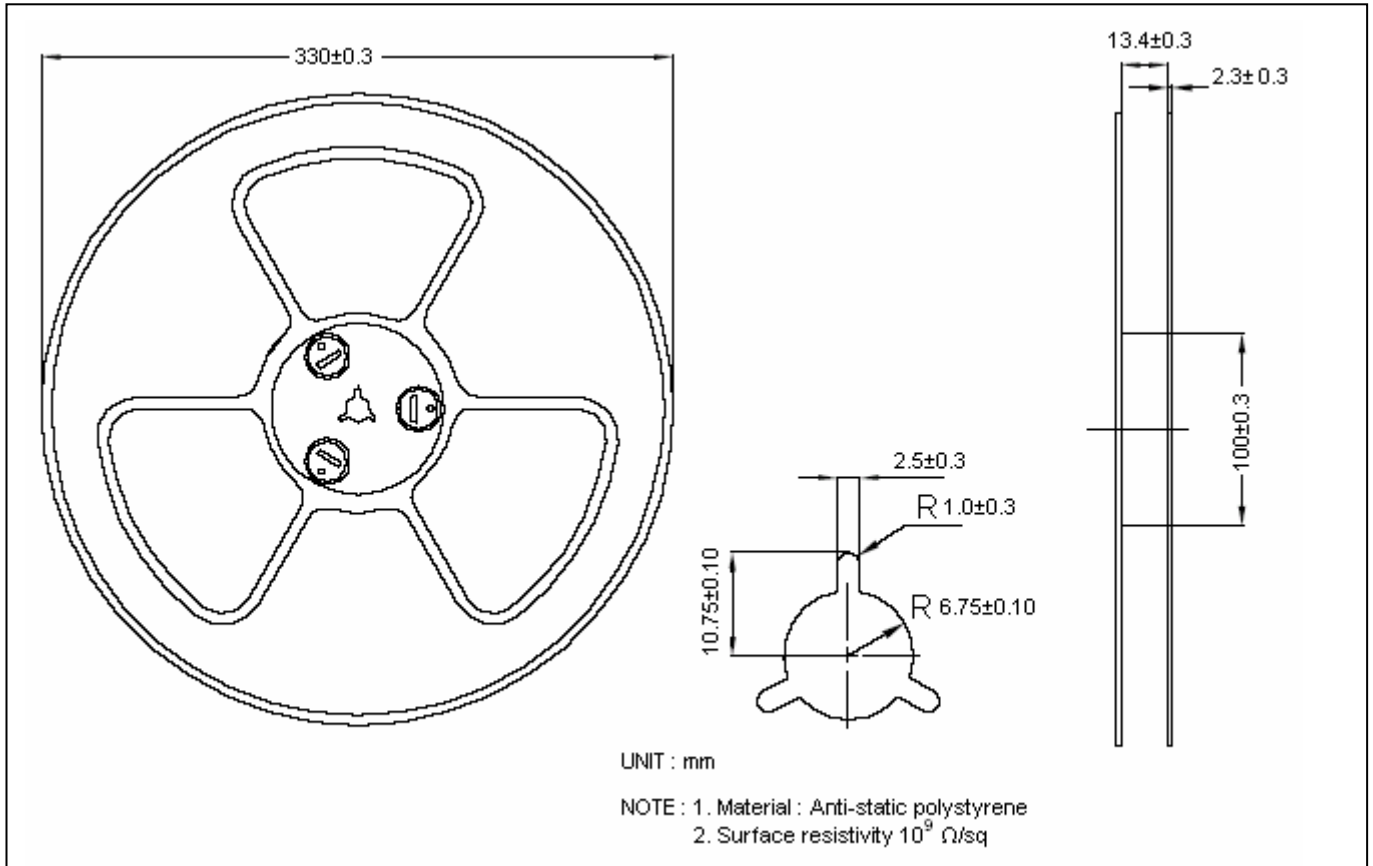
Saturation Voltage vs Collector Current



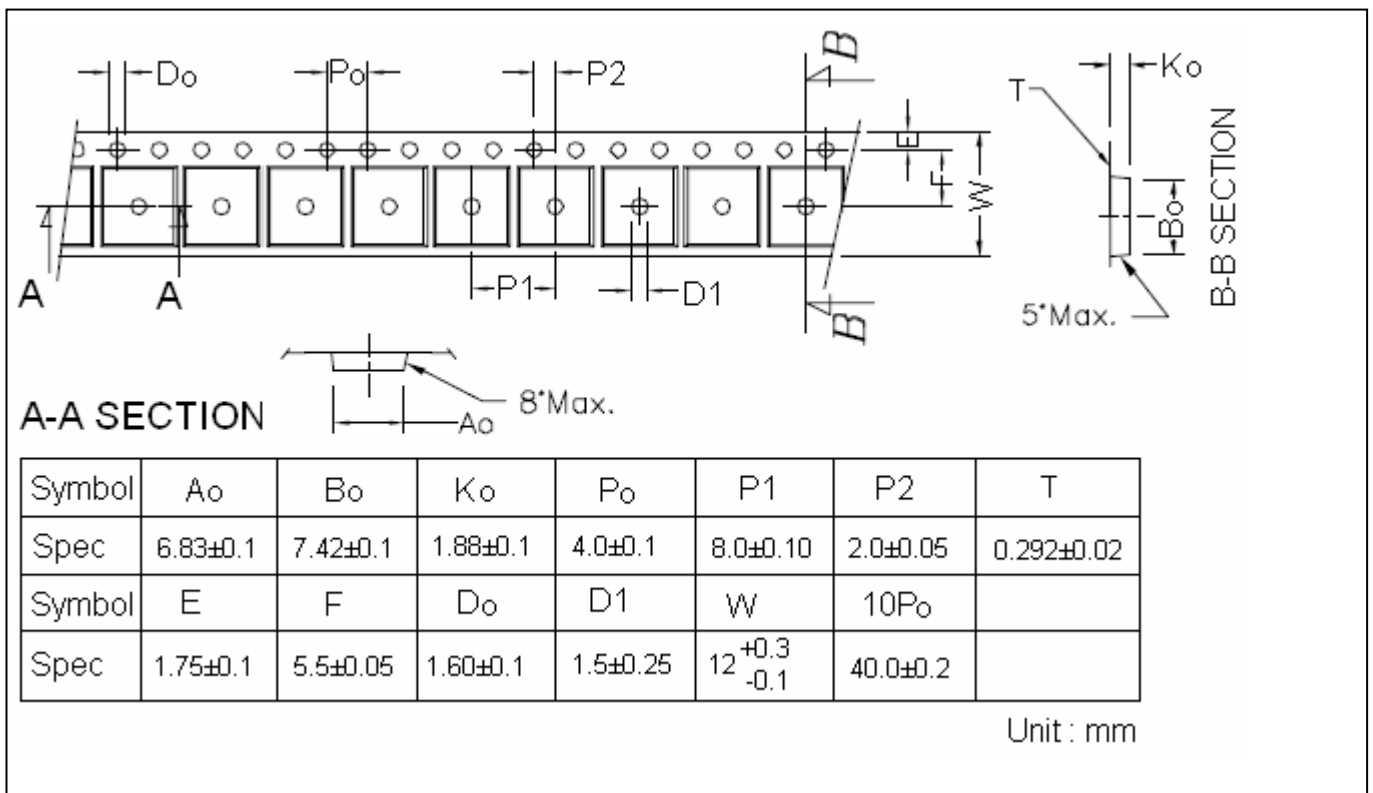
Typical Characteristics(Cont.)



Reel Dimension



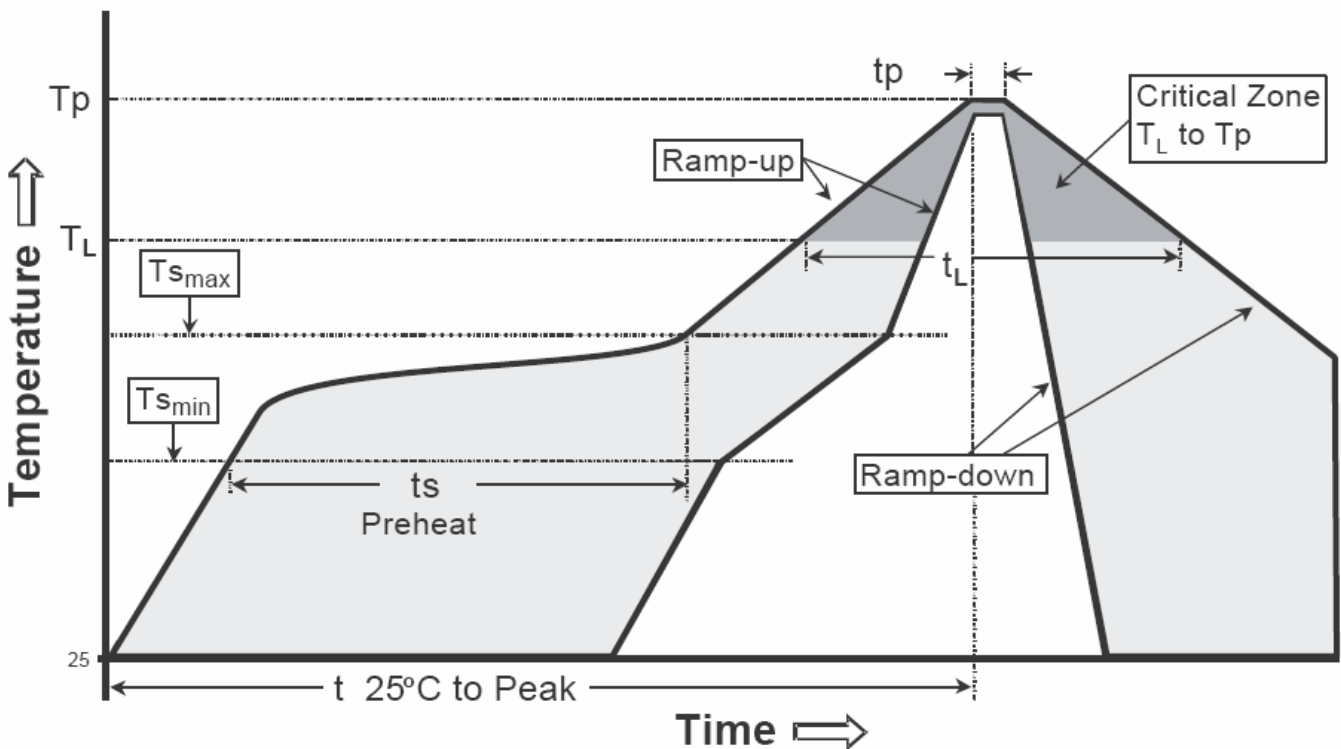
Carrier Tape Dimension



Recommended wave soldering condition

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

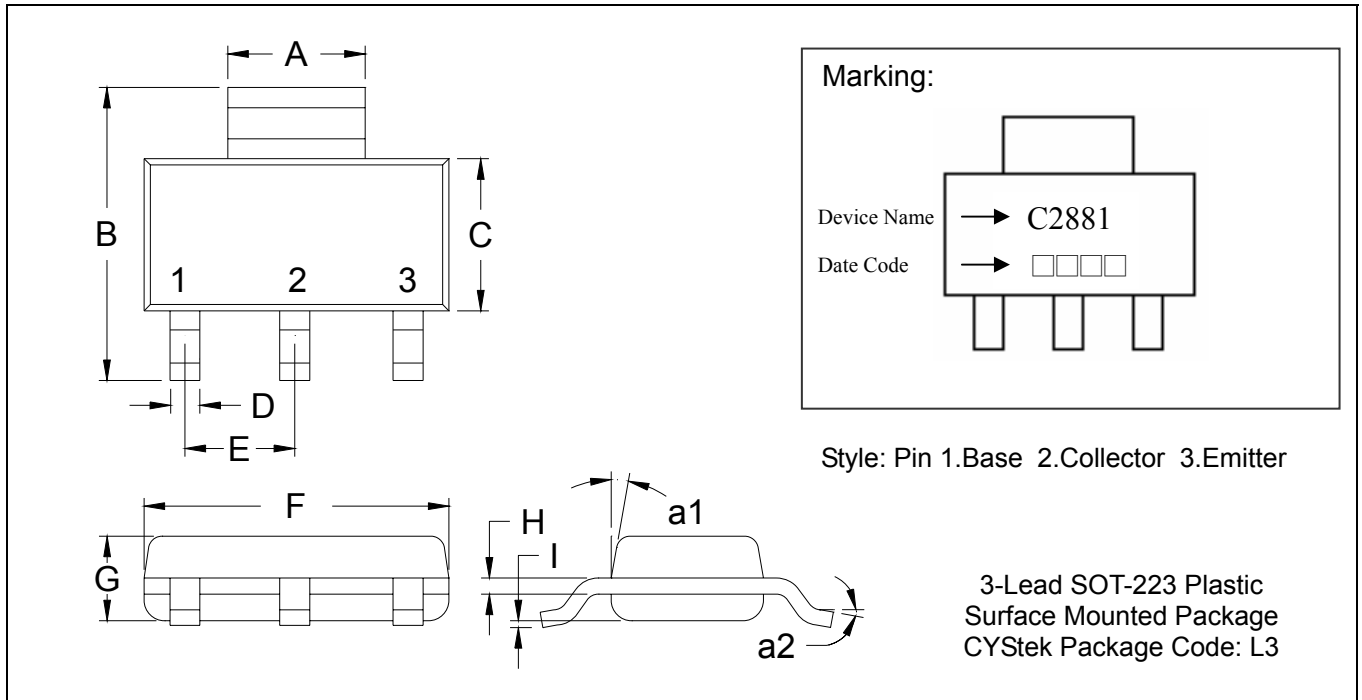
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(Ts min)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (Tl)	183°C	217°C
- Time (tL)	60-150 seconds	60-150 seconds
Peak Temperature(Tp)	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



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1142	0.1220	2.90	3.10	G	0.0551	0.0709	1.40	1.80
B	0.2638	0.2874	6.70	7.30	H	0.0098	0.0138	0.25	0.35
C	0.1299	0.1457	3.30	3.70	I	0.0008	0.0039	0.02	0.10
D	0.0236	0.0315	0.60	0.80	a1	*13P ^o	-	*13 ^o	-
E	*0.0906	-	*2.30	-	a2	0 ^o	10 ^o	0 ^o	10 ^o
F	0.2480	0.2638	6.30	6.70					

- 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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