Microwave Low Noise Amplifier
NPN Silicon Epitaxial Planar Transistor

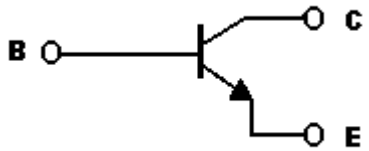
BTC4226S3

Description

- The BTC4226S3 is a NPN silicon epitaxial transistor designed for low noise amplifier at VHF, UHF and CATV band.
- Low Cre. Typ. Cob=0.7pF
- Pb-free and halogen-free package

Symbol

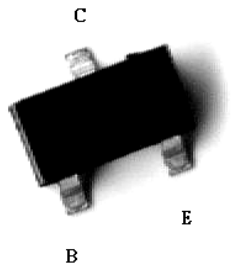
BTC4226S3



B：Base
C：Collector
E：Emitter

Outline

SOT-323



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	20	V
Collector-Emitter Voltage	V_{CEO}	10	V
Emitter-Base Voltage	V_{EBO}	3	V
Collector Current	I_C	100	mA
Power Dissipation	Pd	150	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	°C/W
Operating Junction Temperature Range	Tj	-55~+150	°C
Storage Temperature Range	Tstg	-65~+150	°C

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	20	-	-	V	I_C=100μA
BV_{CEO}	10	-	-	V	I_C=1mA
BV_{EBO}	3	-	-	V	I_E=10μA
I_{CBO}	-	-	100	nA	V_{CB}=20V
I_{EBO}	-	-	100	nA	V_{EB}=2V
*$V_{CE(sat)}$	-	-	150	mV	I_C=10mA, I_B=1mA
*$V_{BE(sat)}$	-	-	1.2	V	I_C=10mA, I_B=1mA
*$V_{BE(ON)}$	0.7	0.82	0.95	V	V_{CE}=3V, I_C=10mA
*h_{FE}	70	-	250		V_{CE}=3V, I_C=7mA
$\|S_{21e}\|^2$	7	9	-	dB	V_{CE}=3V, I_C=7mA, f=1GHz
f_T	3	4.5	-	GHz	V_{CE}=3V, I_C=7mA, f=1GHz
Cre	-	0.7	1.5	pF	V_{CE}=3V, I_E=0mA, f=1MHz

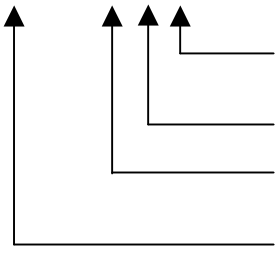
*Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%

Classification Of h_{FE}

Rank	R24	R25
Range	70~140	125~250

Ordering Information

Device	H_{FE} Rank	Package	Shipping
BTC4226S3-4-T1-G	R24	SOT-323 (Pb-free and halogen-free package)	3000 pcs / Tape & Reel
BTC4226S3-5-T1-G	R25	SOT-323 (Pb-free and halogen-free package)	3000 pcs / Tape & Reel



Environment friendly grade : S for RoHS compliant products, G for RoHS compliant and green compound products

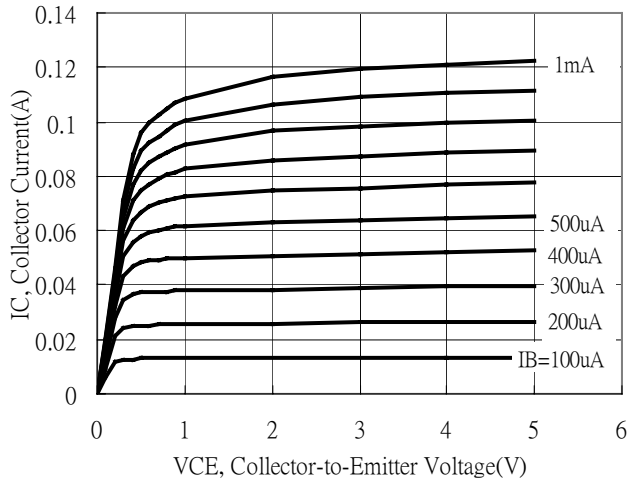
Packing spec, T1 : 3000 pcs / tape & reel, 7” reel

Product rank, zero for no rank products

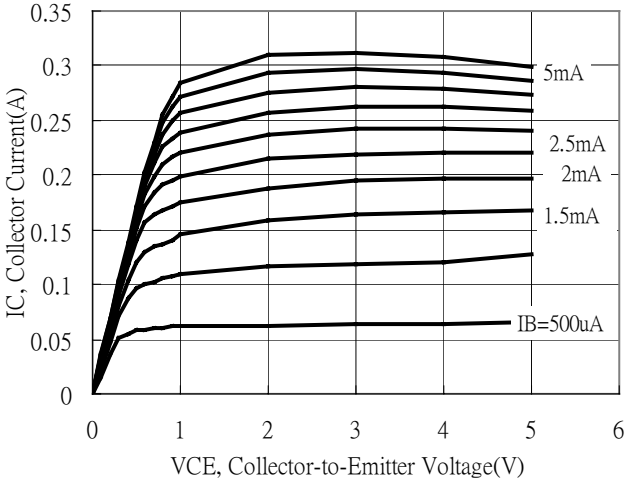
Product name

Typical Characteristics

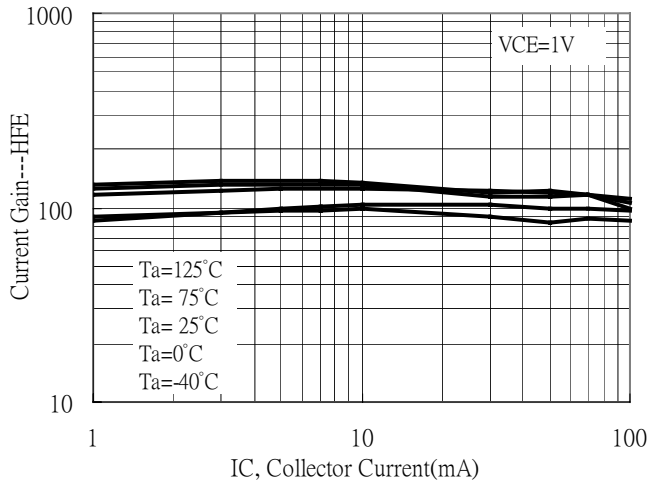
Emitter Grounded Output Characteristics



Emitter Grounded Output Characteristics



Current Gain vs Collector Current



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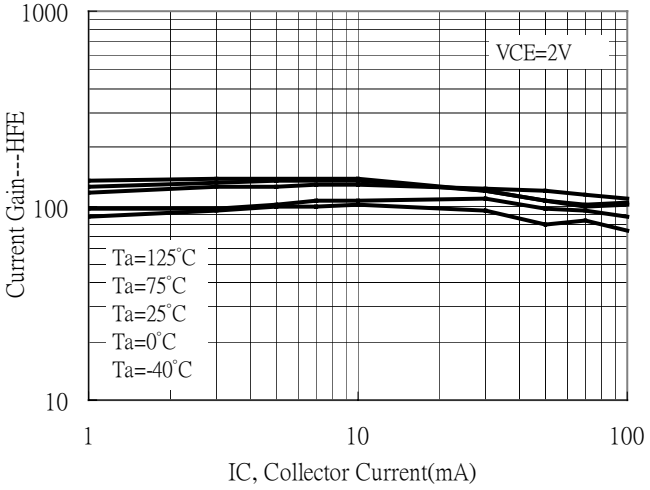

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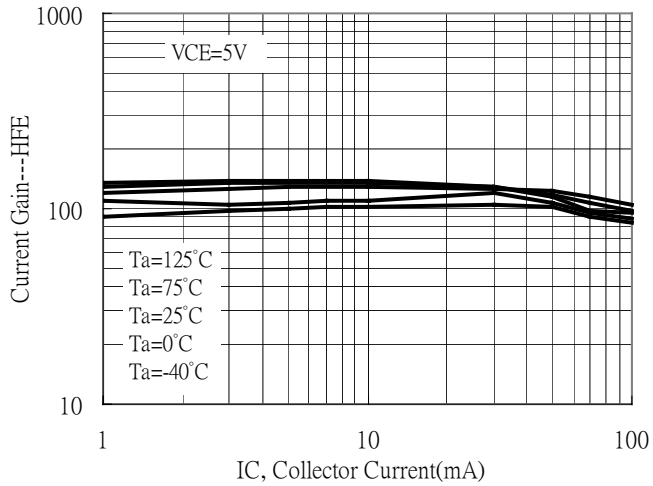

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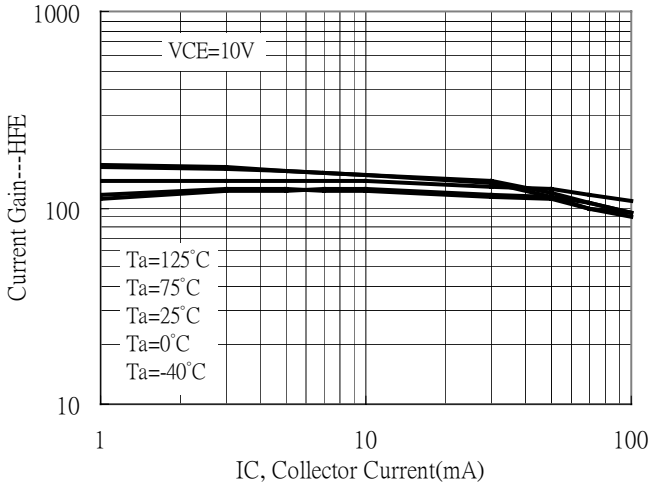
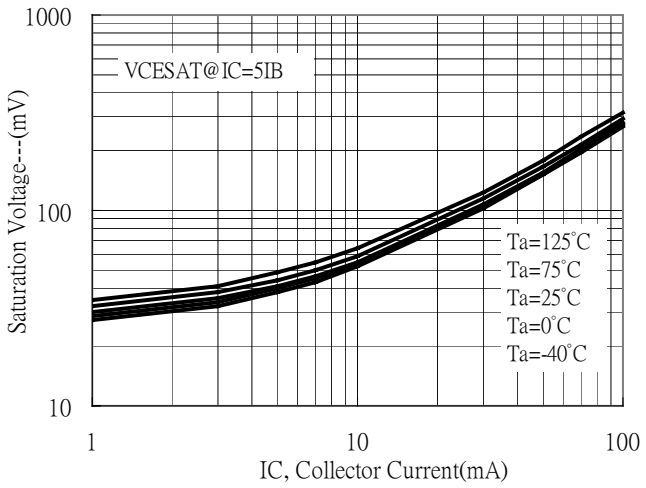
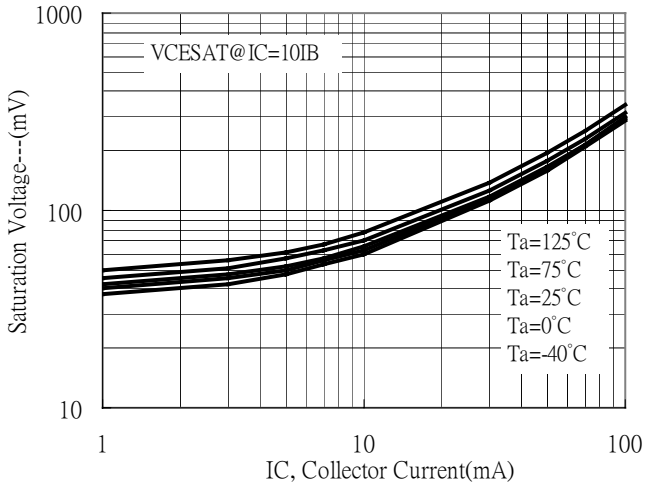


Typical Characteristics(Cont.)

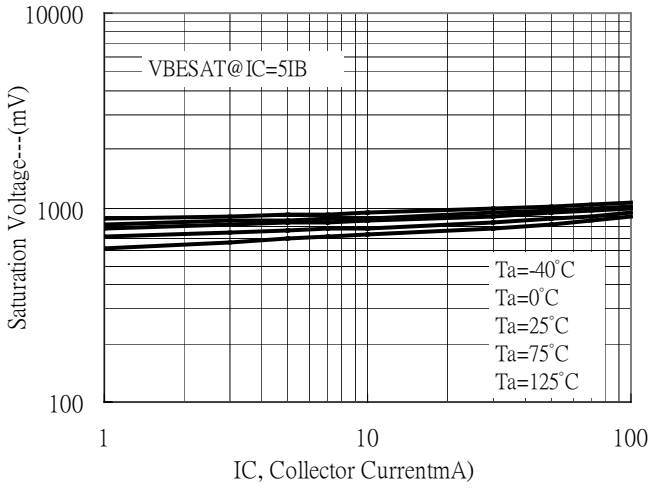
Saturation Voltage vs Collector Current



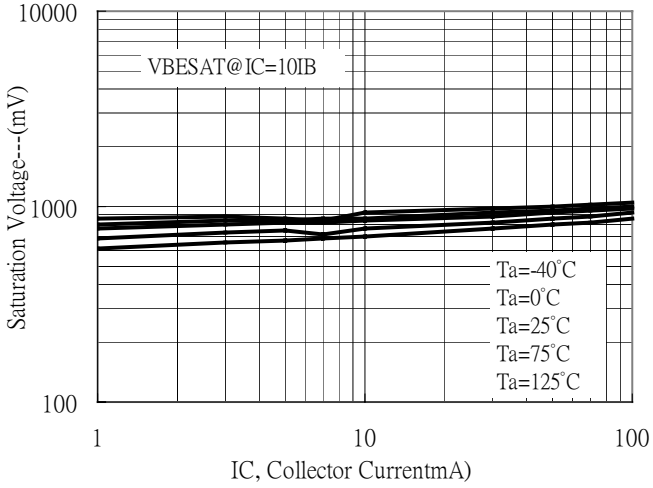
Saturation Voltage vs Collector Current



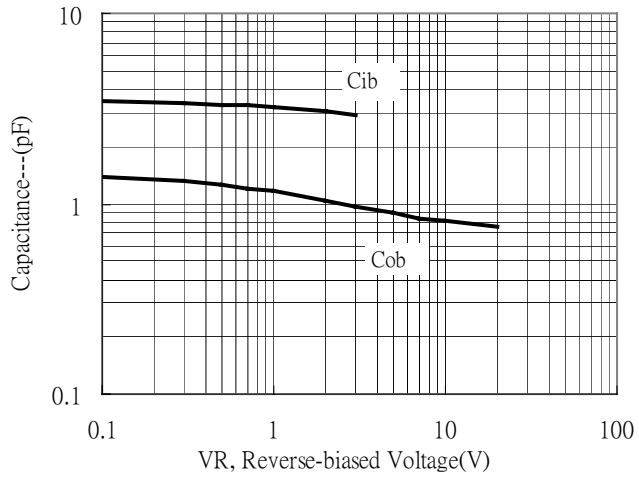
Saturation Voltage vs Collector Current



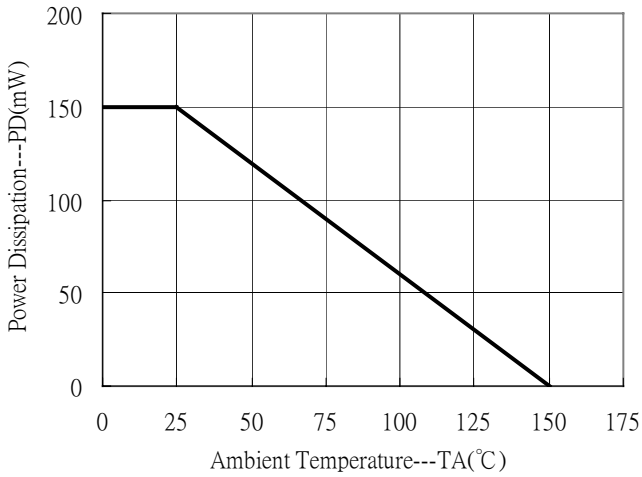
Saturation Voltage vs Collector Current



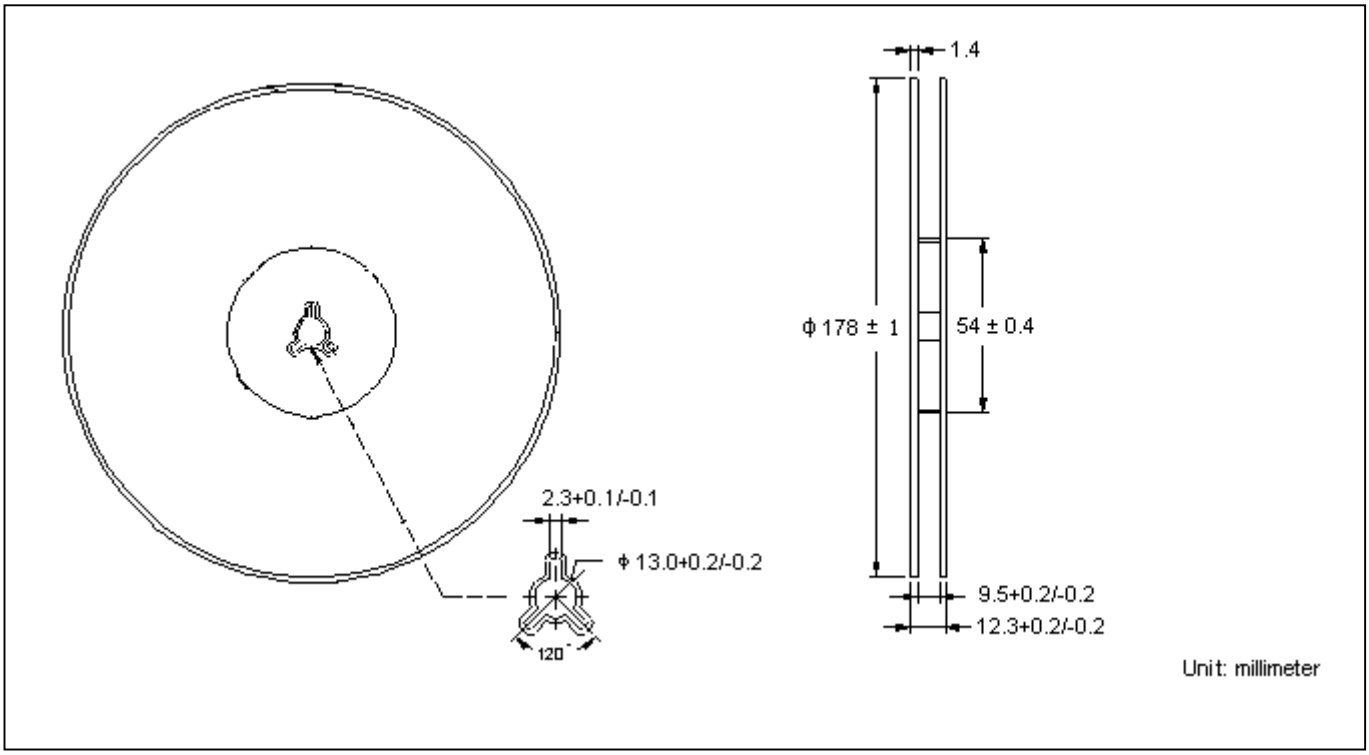
Capacitance vs Reverse-biased Voltage



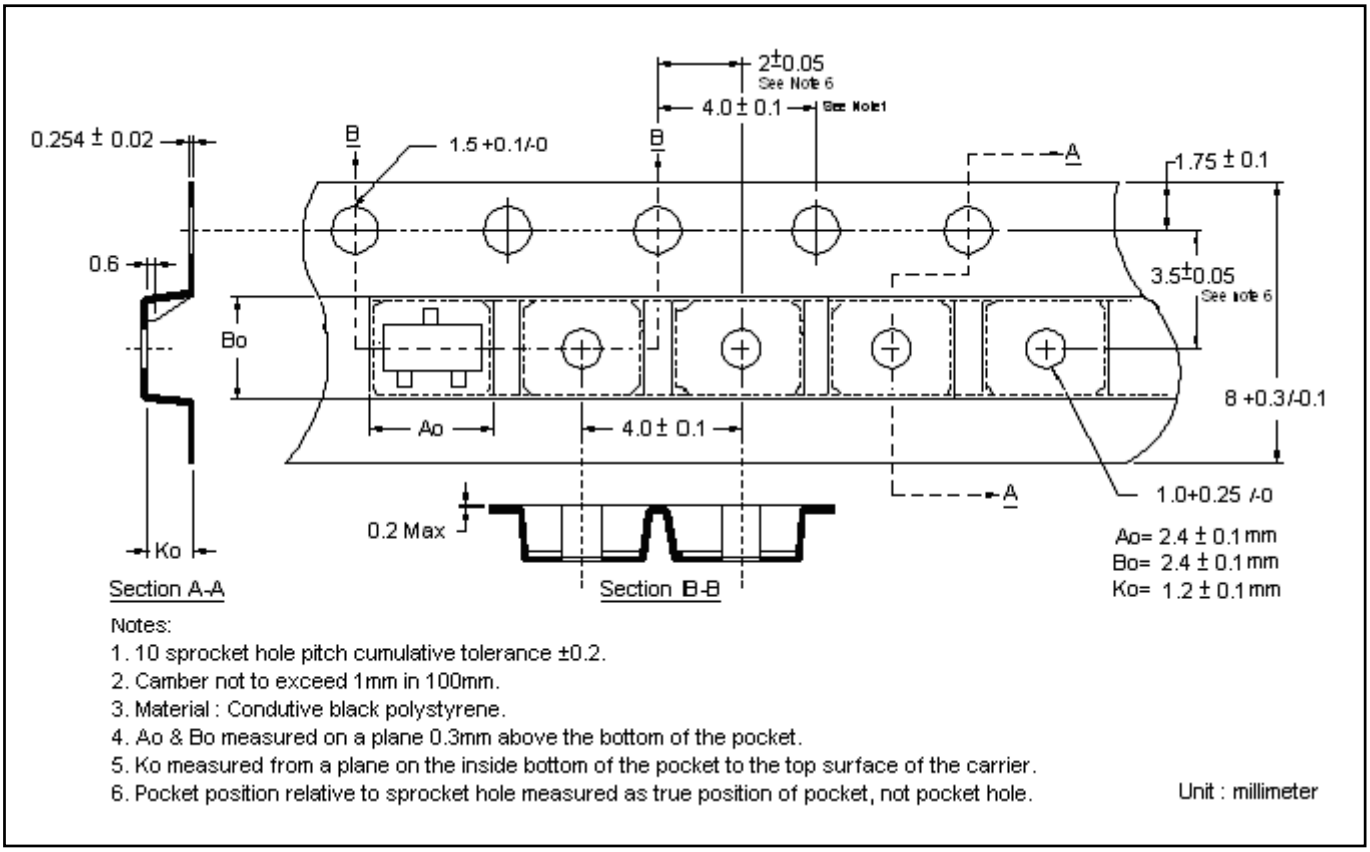
Power Derating Curve



Reel Dimension



Carrier Tape Dimension



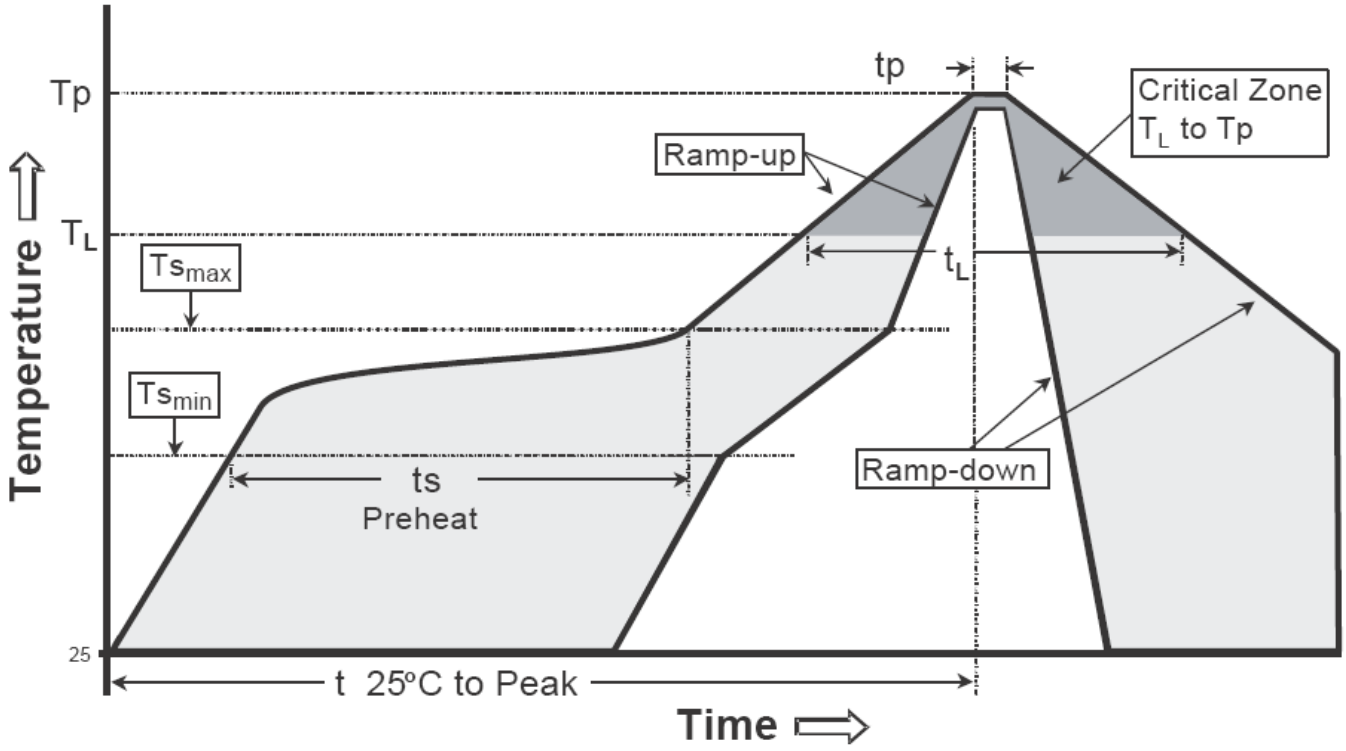
Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material : Condutive black polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

Recommended wave soldering condition

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

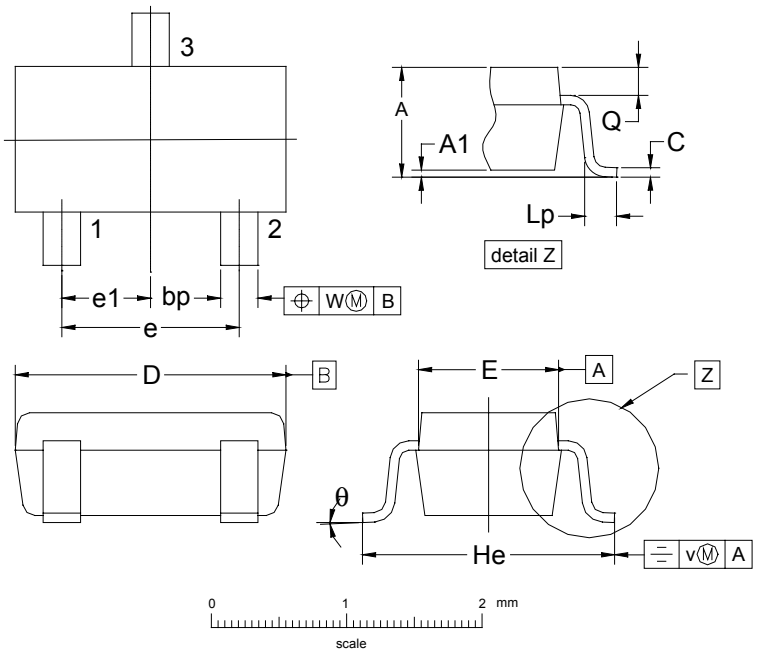
Recommended temperature profile for IR reflow



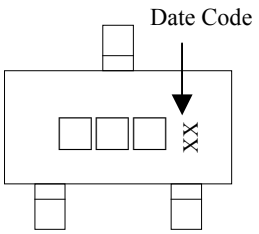
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL) − Time (tL)	 183°C 60-150 seconds	 217°C 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-323 Dimension



Marking:



□□□ :

HFE Rank	R24	R25
Marking Code	R24	R25

3-Lead SOT-323 Plastic
Surface Mounted Package
CYStek Package Code: S3

Style: Pin 1.Base 2.Emitter 3.Collector

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0315	0.0433	0.80	1.10	e1	0.0256*		0.65*	
A1	0.0000	0.0039	0.00	0.10	He	0.0846	0.0965	2.15	2.45
bp	0.0078	0.0157	0.20	0.40	Lp	0.0105	0.0181	0.26	0.46
C	0.0031	0.0059	0.08	0.15	Q	0.0051	0.0091	0.13	0.23
D	0.0709	0.0866	1.80	2.20	v	0.0079	-	0.2	-
E	0.0453	0.0531	1.15	1.35	w	0.0079	-	0.2	-
e	0.0472	0.0551	1.20	1.40	θ	0°	8°	0°	8°

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.