

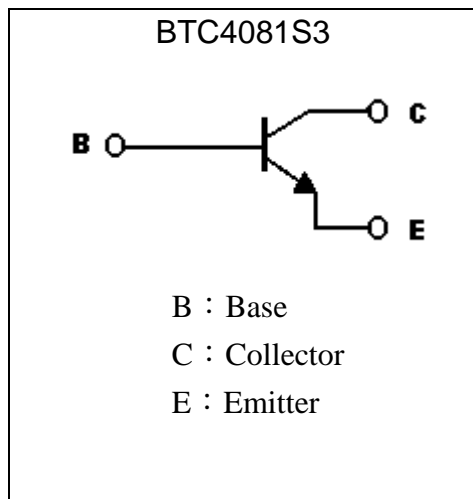
General Purpose NPN Epitaxial Planar Transistor

BTC4081S3

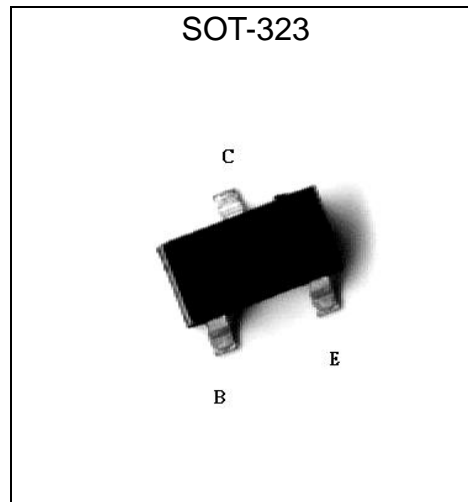
Description

- The BTC4081S3 is designed for using in driver stage of AF amplifier and general purpose amplification.
- Low Cob, Typ. Cob=2.0pF
- Complementary to BTA1576S3
- Pb-free lead plating and halogen-free package

Symbol

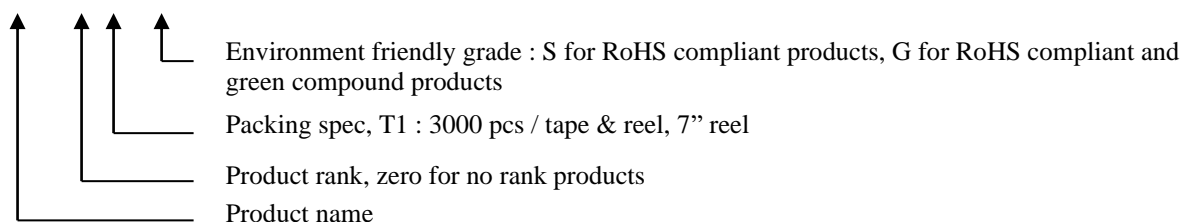


Outline



Ordering Information

Device	Package	Shipping
BTC4081S3-R-T1-G	SOT-323 (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}	65	V
Emitter-Base Voltage	V _{EBO}	7	V
Collector Current	I _C	150	mA
Peak Collector Current	I _{CM}	300	mA
Peak Base Current	I _{BM}	100	mA
Power Dissipation	P _D	225	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	555	°C/W
Operating Junction and Storage Temperature range	T _j ; T _{stg}	-65~+150	°C

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	100	-	-	V	I _C =100μA
BV _{CEO}	65	-	-	V	I _C =1mA
BV _{EBO}	7	-	-	V	I _E =50μA
I _{CB0}	-	-	30	nA	V _{CB} =100V
I _{EBO}	-	-	30	nA	V _{EB} =7V
*V _{CE(sat)}	-	47	80	mV	I _C =110μA, I _B =10μA
*V _{CE(sat)}	-	58	95	mV	I _C =10mA, I _B =0.5mA
*V _{CE(sat)}	-	79	120	mV	I _C =50mA, I _B =5mA
*V _{CE(sat)}	-	123	180	mV	I _C =100mA, I _B =10mA
*V _{CE(sat)}	-	148	225	mV	I _C =100mA, I _B =5mA
*V _{BE(sat)}	-	711	930	mV	I _C =10mA, I _B =0.5mA
*V _{BE(sat)}	-	867	980	mV	I _C =100mA, I _B =10mA
*V _{BE(sat)}	-	853	960	mV	I _C =100mA, I _B =5mA
*V _{BE(on)}	600	646	700	mV	V _{CE} =5V, I _C =2mA
*V _{BE(on)}	-	692	750	mV	V _{CE} =5V, I _C =10mA
*h _{FE 1}	160	-	-	-	V _{CE} =5V, I _C =10μA
*h _{FE 2}	200	290	450	-	V _{CE} =6V, I _C =1mA
f _T	80	180	-	MHz	V _{CE} =12V, I _C =2mA, f=100MHz
C _{ob}	-	2	3.5	pF	V _{CB} =10V, f=1MHz
C _{ib}	-	13.7	20	pF	V _{EB} =0.5V, f=1MHz

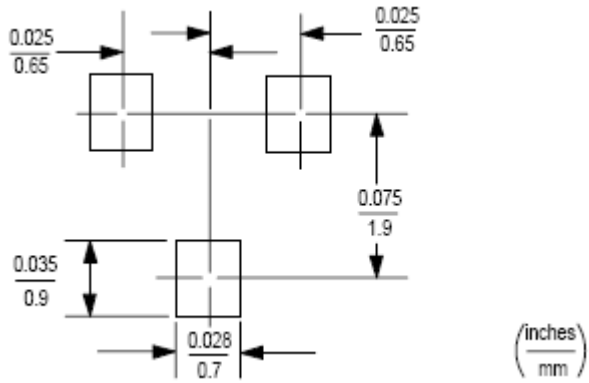
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Classification Of h_{FE 2}

Rank	R
Range	200~450

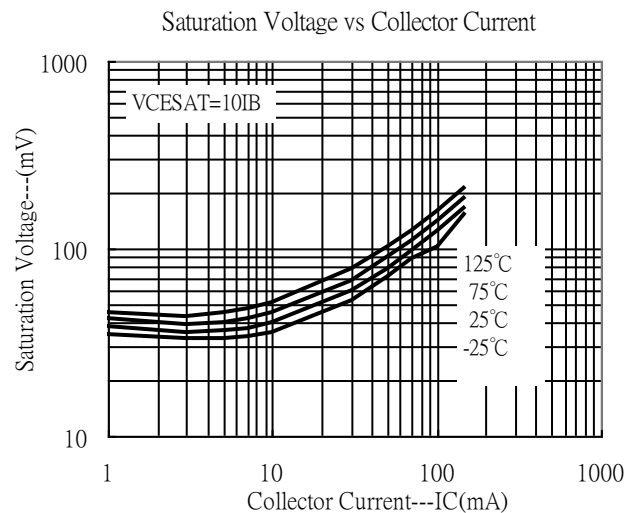
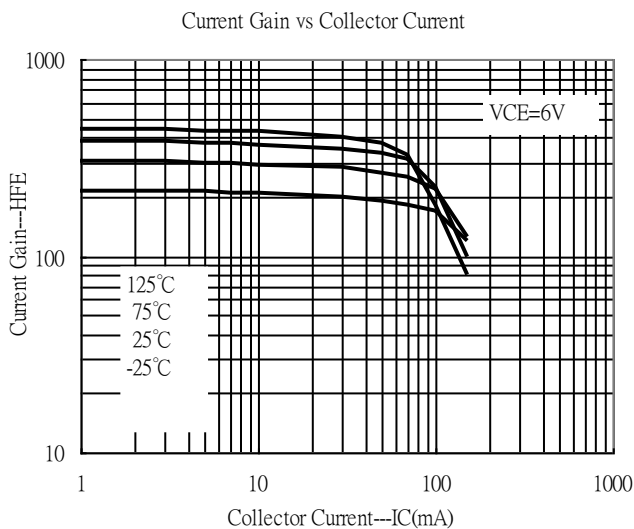
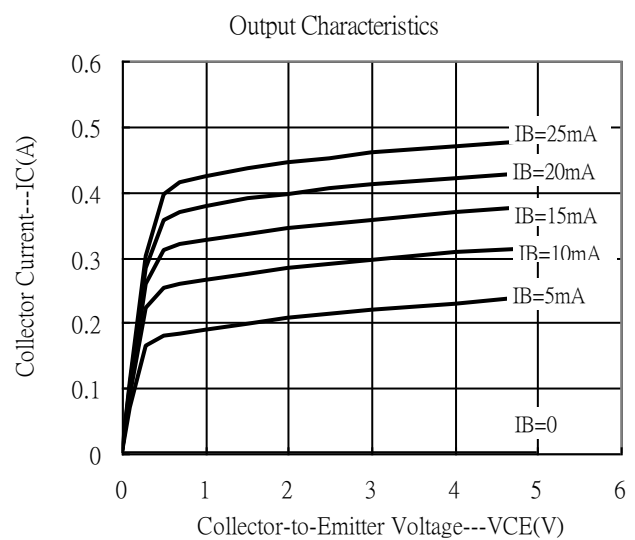
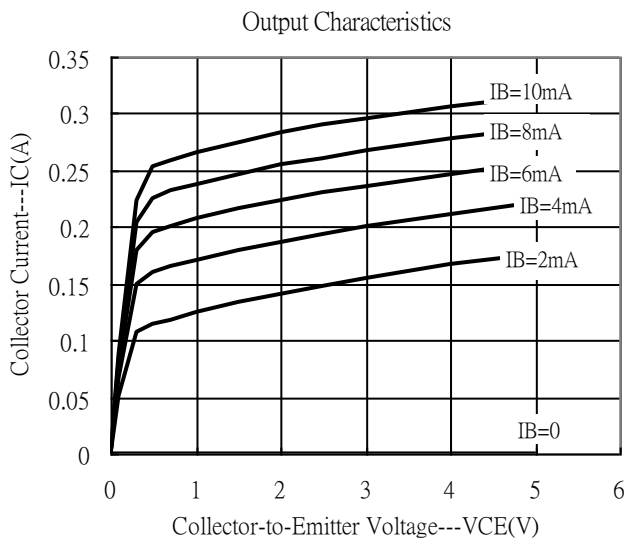
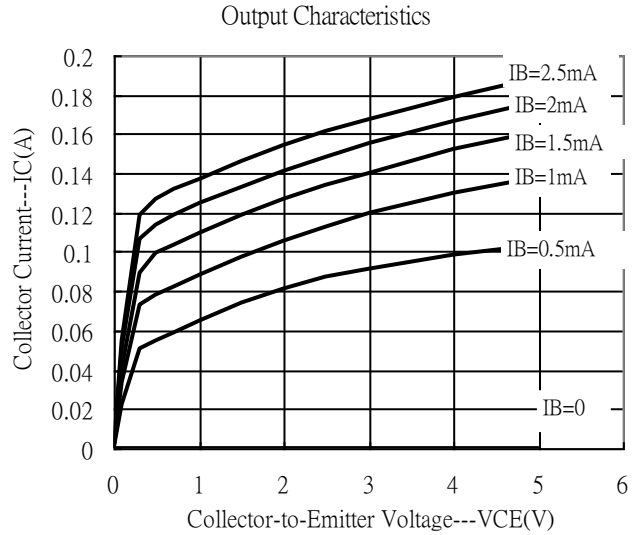
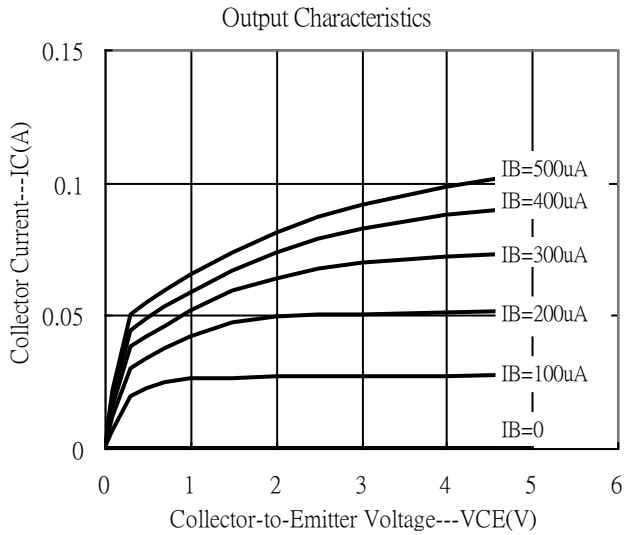


Recommended Footprint



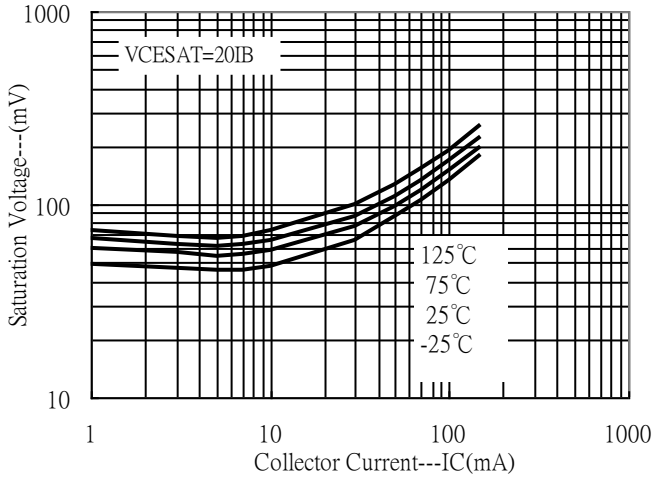


Typical Characteristics

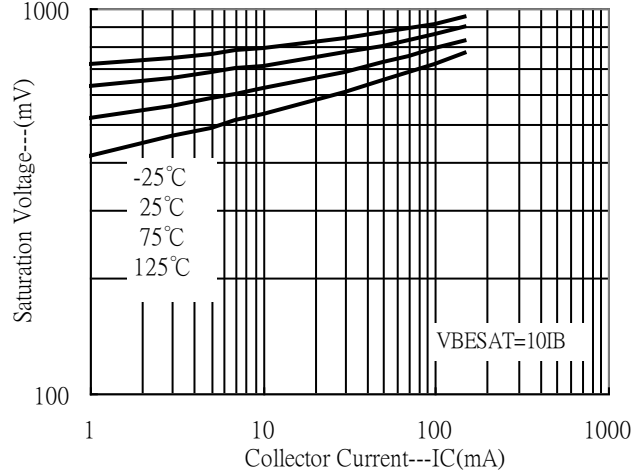


Typical Characteristics(Cont.)

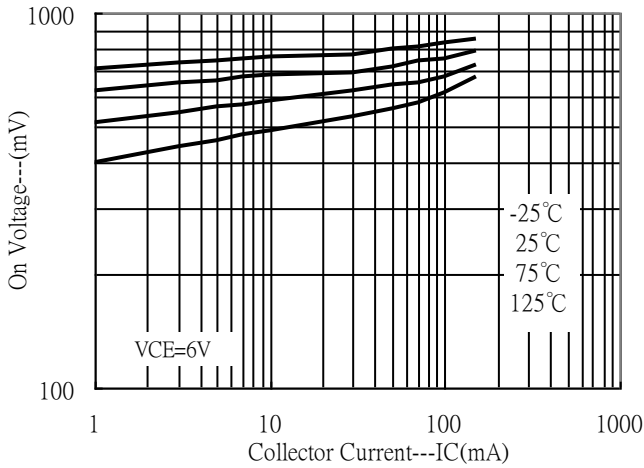
Saturation Voltage vs Collector Current



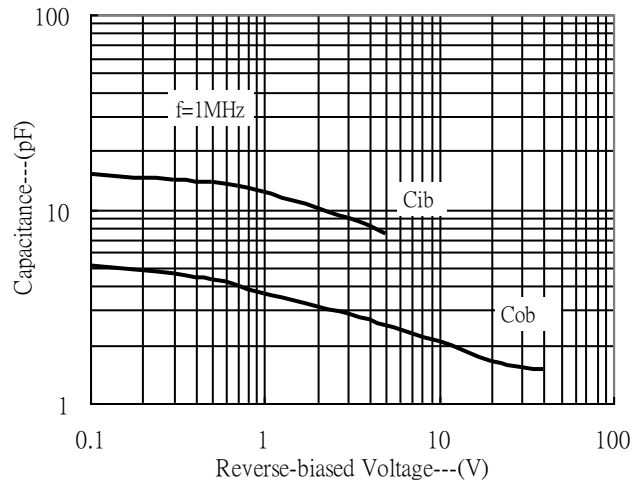
Saturation Voltage vs Collector Current



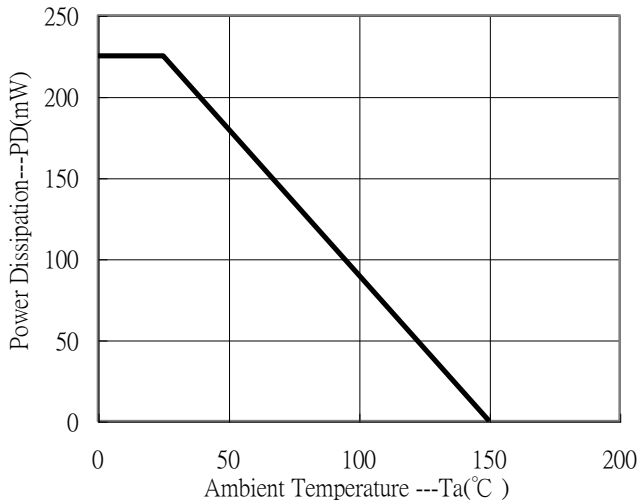
On Voltage vs Collector Current



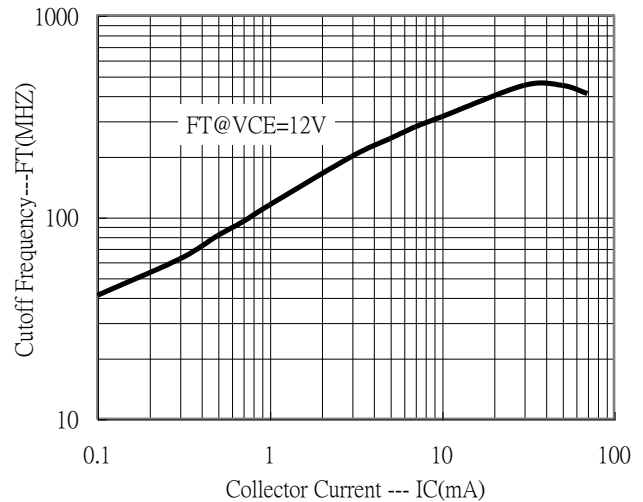
Capacitance Characteristics



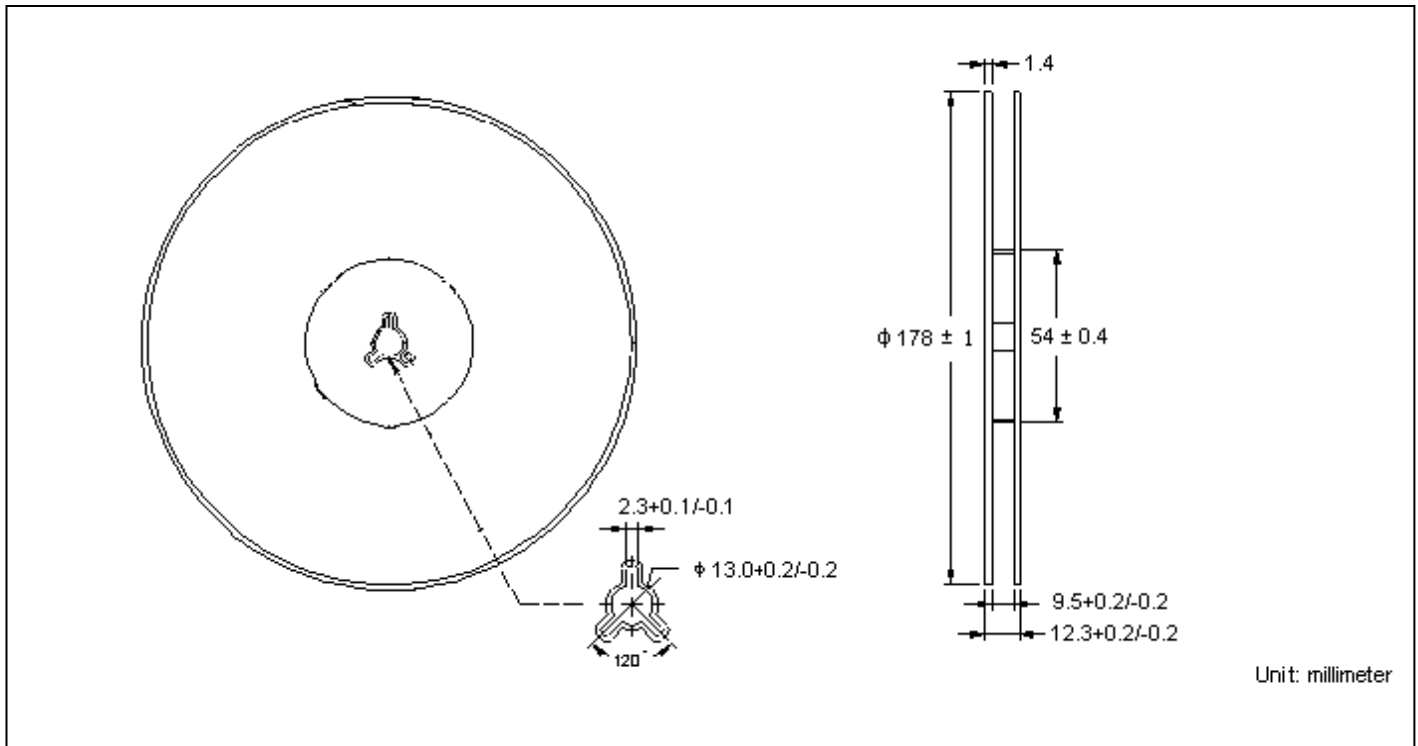
Power Derating Curve



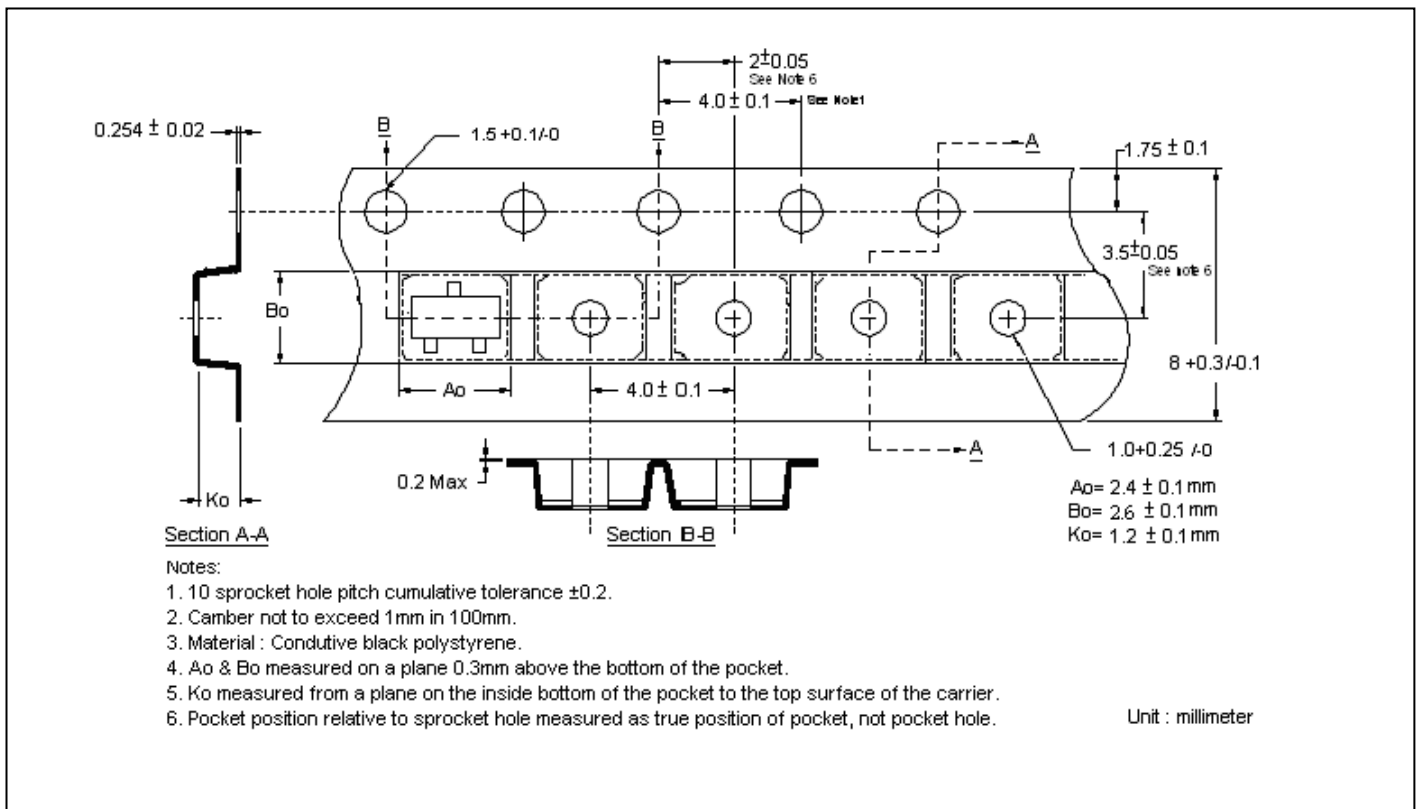
Cutoff Frequency vs Collector Current



Reel Dimension



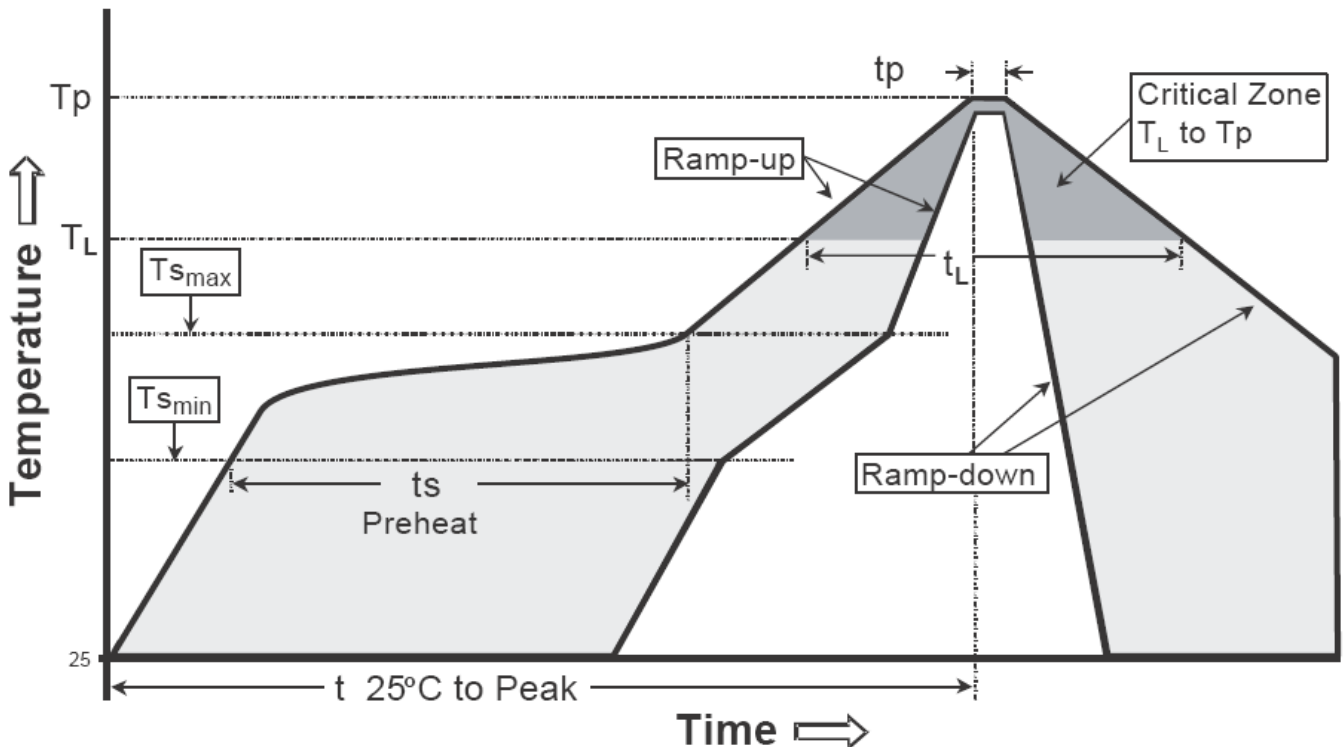
Carrier Tape Dimension



Recommended wave soldering condition

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

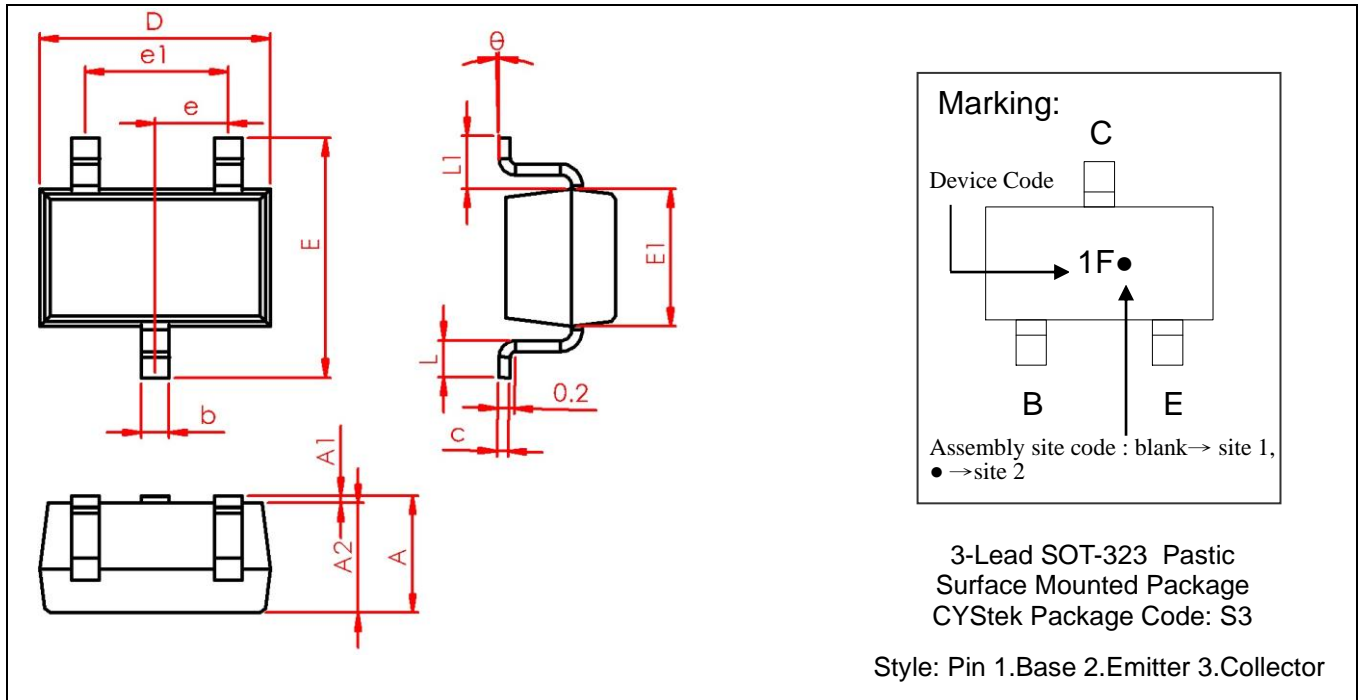
Recommended temperature profile for IR reflow



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-323 Dimension



DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.035	0.043	0.90	1.10	E1	0.045	0.053	1.15	1.35
A1	0.000	0.004	0.00	0.10	e	0.026 TYP		0.65 TYP	
A2	0.035	0.043	0.90	1.10	e1	0.047	0.055	1.20	1.40
b	0.005	0.016	0.15	0.40	L	0.010	0.018	0.26	0.46
c	0.001	0.006	0.05	0.15	L1	0.021 REF		0.525 REF	
D	0.079	0.087	2.00	2.20	θ	0°	8°	0°	8°
E	0.085	0.096	2.15	2.45					

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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