

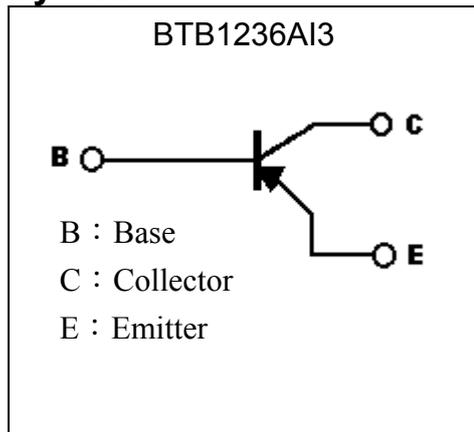
Silicon PNP Epitaxial Planar Transistor

BTB1236AI3

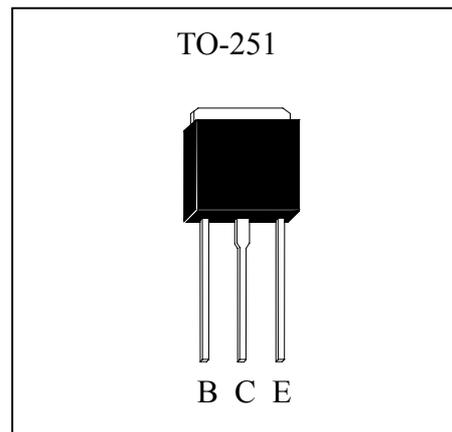
Description

- High BV_{CEO}
- High current capability
- Complementary to BTB1857AI3
- RoHS compliant package
- Pb-free lead plating and halogen-free package

Symbol

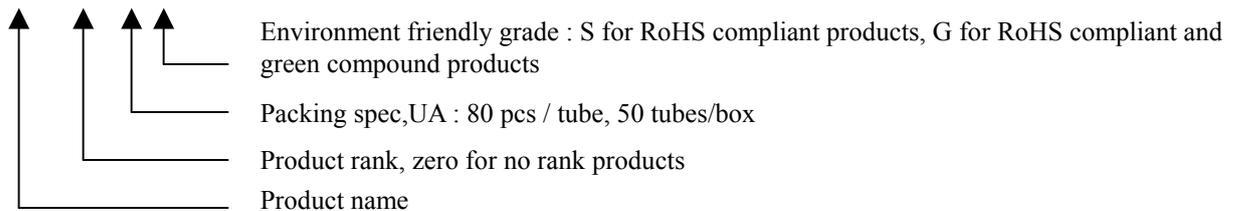


Outline



Ordering Information

Device	Package	Shipping
BTB1236AI3-0-UA-G	TO-251 (Pb-free lead plating and halogen-free package)	80 pcs/tube, 50 tubes/box





Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V _{CB0}	-180	V
Collector-Emitter Voltage	V _{CEO}	-160	V
Emitter-Base Voltage	V _{EBO}	-5	V
Collector Current (DC)	I _C	-1.5	A
Collector Current (Pulse)	I _{CP}	-3 (Note)	A
Power Dissipation	P _D	T _A =25°C	1
		T _C =25°C	10
Operating Junction Temperature Range	T _j	-55~+150	°C
Storage Temperature Range	T _{stg}	-55~+150	°C

Note : Single Pulse P_w ≤ 350μs, Duty ≤ 2%.

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	R _{th,j-c}	12.5	°C/W
Thermal Resistance, Junction-to-ambient, max	R _{th,j-a}	125	°C/W

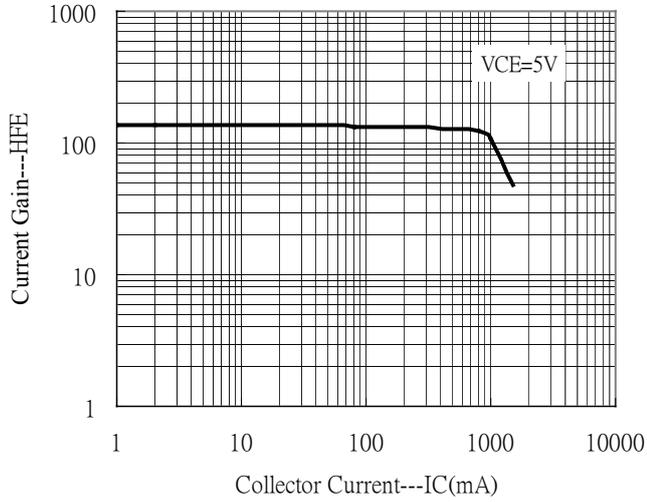
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	-180	-	-	V	I _C =-50μA, I _E =0
BV _{CEO}	-160	-	-	V	I _C =-1mA, I _B =0
BV _{EBO}	-5	-	-	V	I _E =-50μA, I _C =0
I _{CB0}	-	-	-1	μA	V _{CB} =-160V, I _E =0
I _{EBO}	-	-	-1	μA	V _{EB} =-4V, I _C =0
*V _{CE(sat)}	-	-	-0.6	V	I _C =-1A, I _B =-100mA
*V _{BE(on)}	-	-	-1.5	V	V _{CE} =-5V, I _C =-150mA
h _{FE1}	180	-	390	-	V _{CE} =-5V, I _C =-100mA
h _{FE2}	80	-	-	-	V _{CE} =-5V, I _C =-500mA
f _T	-	180	-	MHz	V _{CE} =-5V, I _C =-150mA
C _{ob}	-	24	-	pF	V _{CB} =-10V, I _E =0, f=1MHz

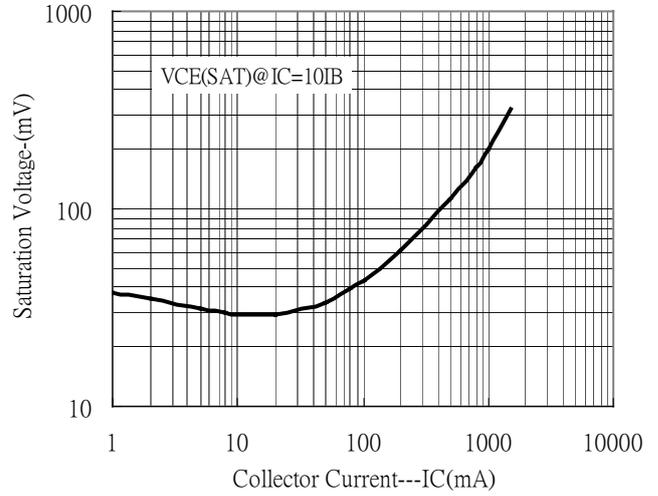
*Pulse Test: Pulse Width ≤ 380μs, Duty Cycle ≤ 2%

Typical Characteristics

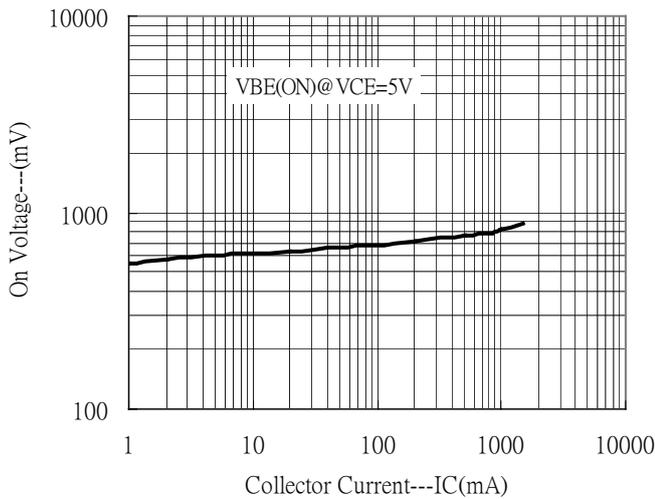
Current Gain vs Collector Current



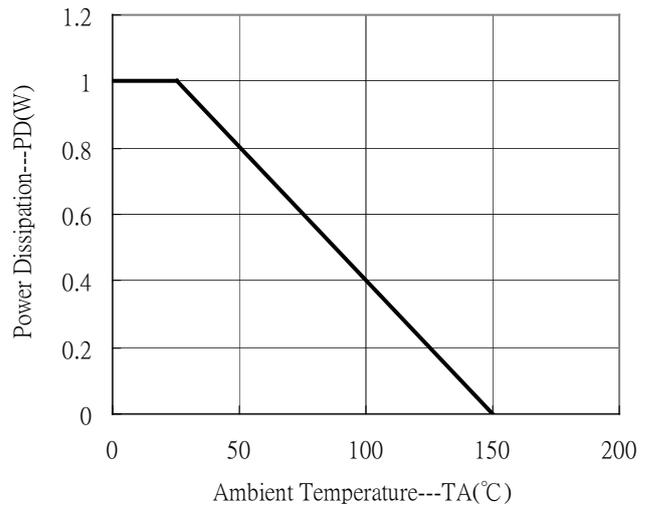
Saturation Voltage vs Collector Current



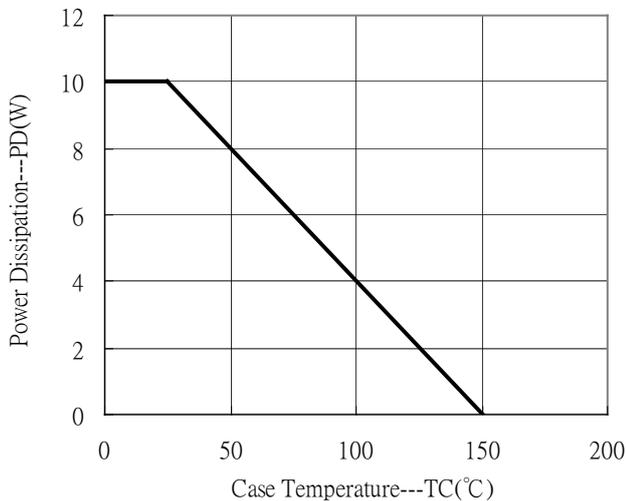
On Voltage vs Collector Current



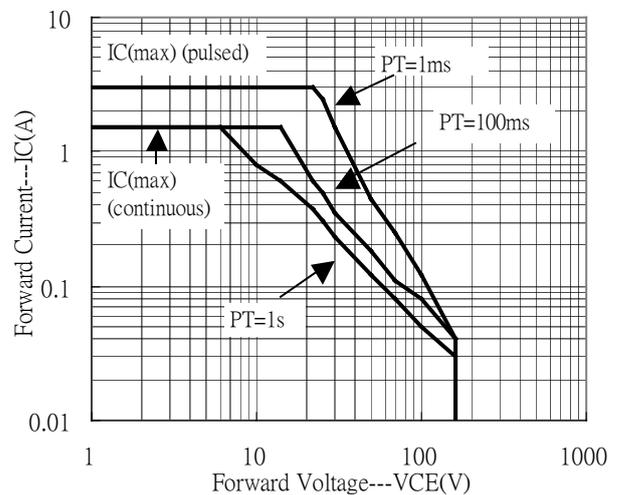
Power Derating Curve



Power Derating Curve



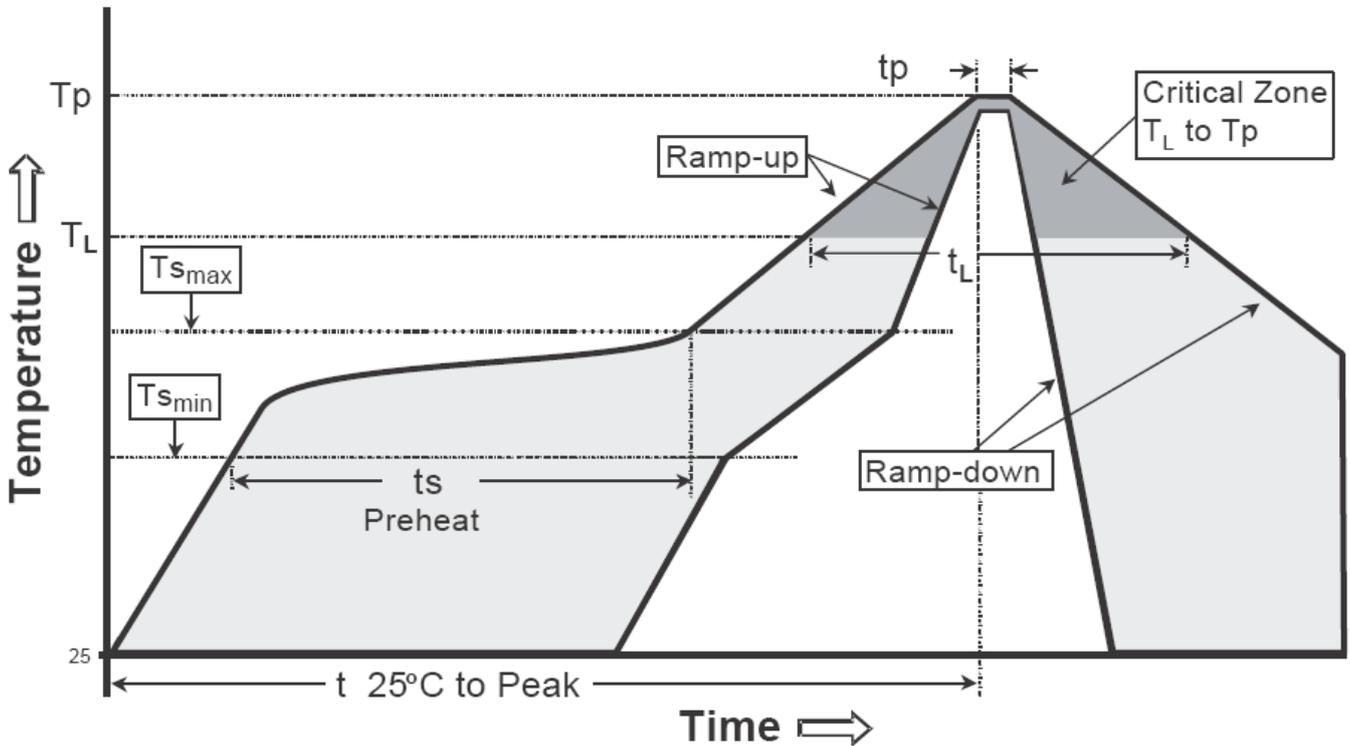
Safe Operating Area



Recommended wave soldering condition

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

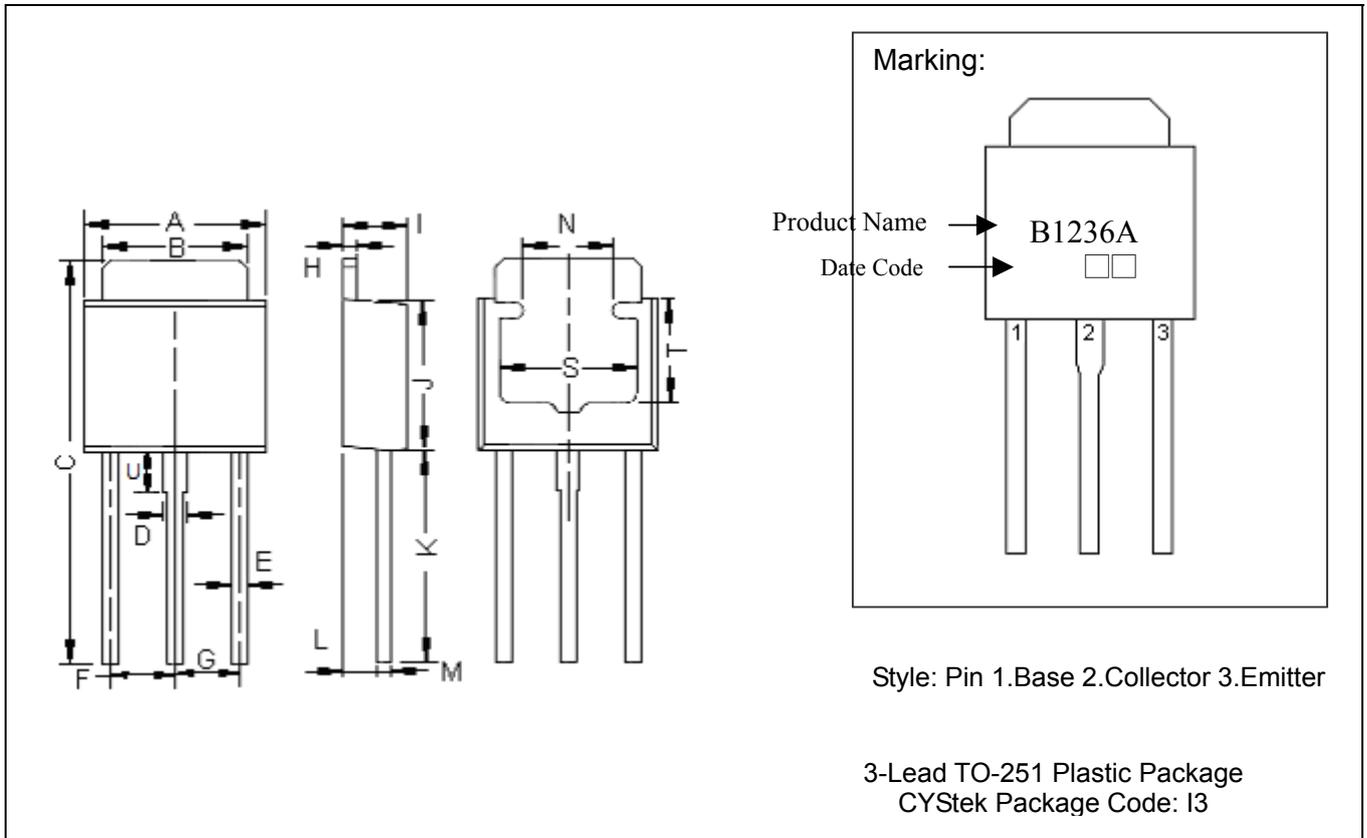
Recommended temperature profile for IR reflow



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.

TO-251 Dimension



DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.250	0.262	6.350	6.650	J	0.213	0.224	5.400	5.700
B	0.205	0.213	5.200	5.400	K	0.295	0.311	7.500	7.900
C	0.571	0.587	14.500	14.900	L	0.042	0.054	1.050	1.350
D	0.028	0.035	0.700	0.900	M	0.017	0.023	0.430	0.580
E	0.020	0.028	0.500	0.700	N	0.118 REF		3.000 REF	
F	0.091 TYP		2.300 TYP		S	0.197 REF		5.000 REF	
G	0.091 TYP		2.300 TYP		T	0.150 REF		3.800 REF	
H	0.017	0.023	0.430	0.580	U	0.055 REF		1.400 REF	
I	0.087	0.094	2.200	2.400					

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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