Low Vcesat PNP Epitaxial Planar Transistor

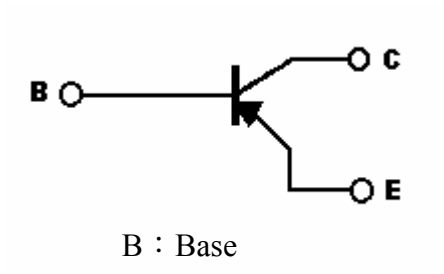
BTB857AD3

Features

- Low V_{CE}(sat), V_{CE}(sat)=-0.15V (typical), at I_C / I_B = -2A / -0.2A
- Excellent DC current gain characteristics
- Wide SOA
- RoHS compliant package

Symbol

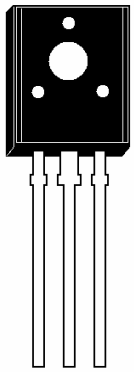
BTB857AD3



B：Base
C：Collector
E：Emitter

Outline

TO-126ML



E C B

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-180	V
Collector-Emitter Voltage	V_{CEO}	-140	V
Emitter-Base Voltage	V_{EBO}	-6	V
Collector Current	$I_{C(DC)}$	-5	A
	$I_{C(Pulse)}$	-8 *1	
Power Dissipation	Pd(T_A=25℃)	1.5	W
	Pd(T_C=25℃)	20	
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Note : *1. Single Pulse Pw=10ms

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	-180	-210	-	V	I_C=-50μA, I_E=0
BV_{CEO}	-140	-170	-	V	I_C=-10mA, I_B=0
BV_{EBO}	-6	-8	-	V	I_E=-50μA, I_C=0
I_{CBO}	-	-	-50	nA	V_{CB}=-150V, I_E=0
I_{CEO}	-	-	-10	μA	V_{CE}=-140V, I_B=0
I_{EBO}	-	-	-50	nA	V_{EB}=-6V, I_C=0
*$V_{CE(sat)}$	-	-0.11	-0.15	V	I_C=-1A, I_B=-100mA
*$V_{CE(sat)}$	-	-0.15	-0.3	V	I_C=-2A, I_B=-200mA
*$V_{CE(sat)}$	-	-0.27	-0.37	V	I_C=-3A, I_B=-300mA
*$V_{BE(sat)}$	-	-	-1.2	V	I_C=-2A, I_B=-200mA
*h_{FE} 1	180	-	390	-	V_{CE}=-3V, I_C=-500mA
*h_{FE} 2	120	-	-	-	V_{CE}=-2V, I_C=-1A
f_T	-	15	-	MHz	V_{CE}=-5V, I_C=-500mA, f=100MHz

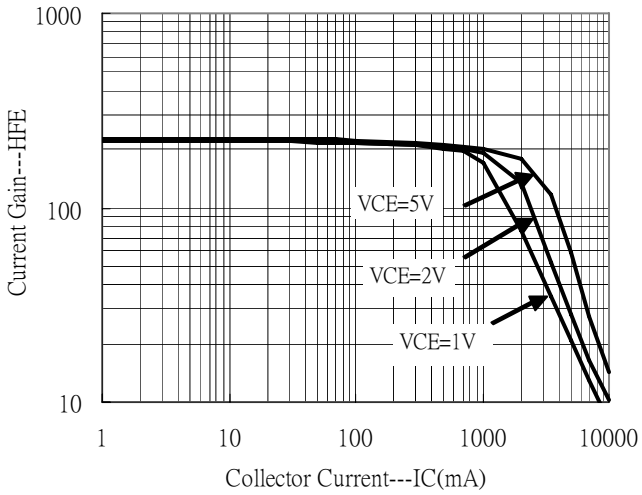
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Ordering Information

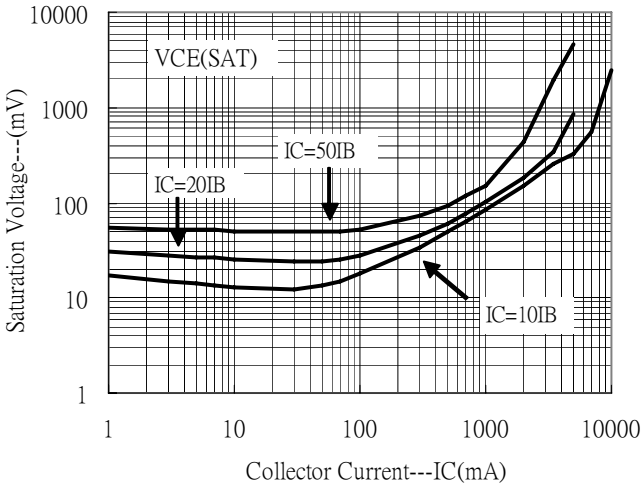
Device	Package	Shipping
BTB857AD3	TO-126ML (RoHS compliant)	200 pcs / bag, 15 bags/box, 10 boxes/carton

Characteristic Curves

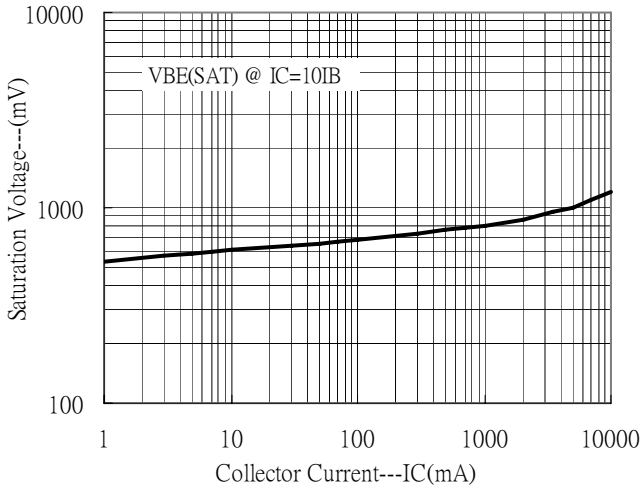
Current Gain vs Collector Current



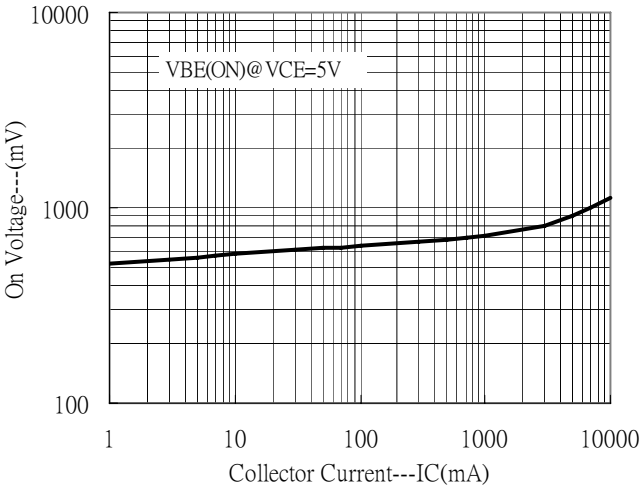
Saturation Voltage vs Collector Current



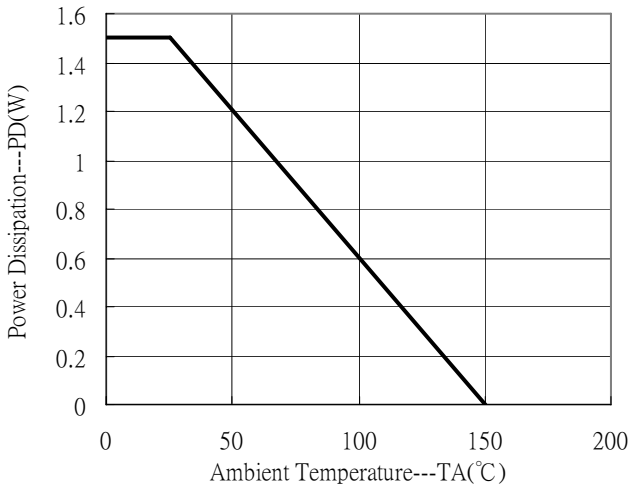
Saturation Voltage vs Collector Current



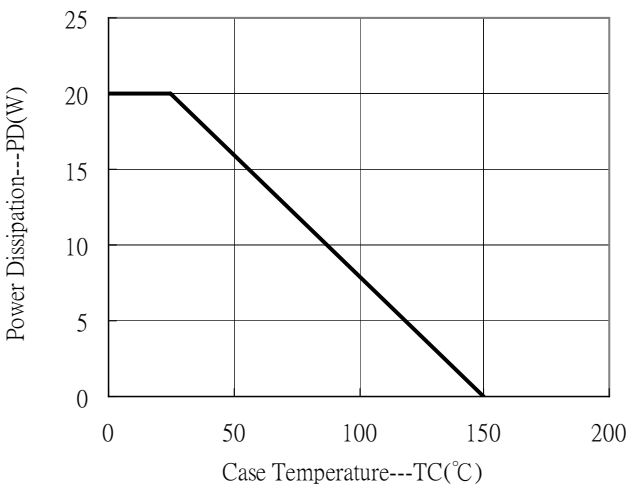
On Vottage vs Collector Current



Power Derating Curve



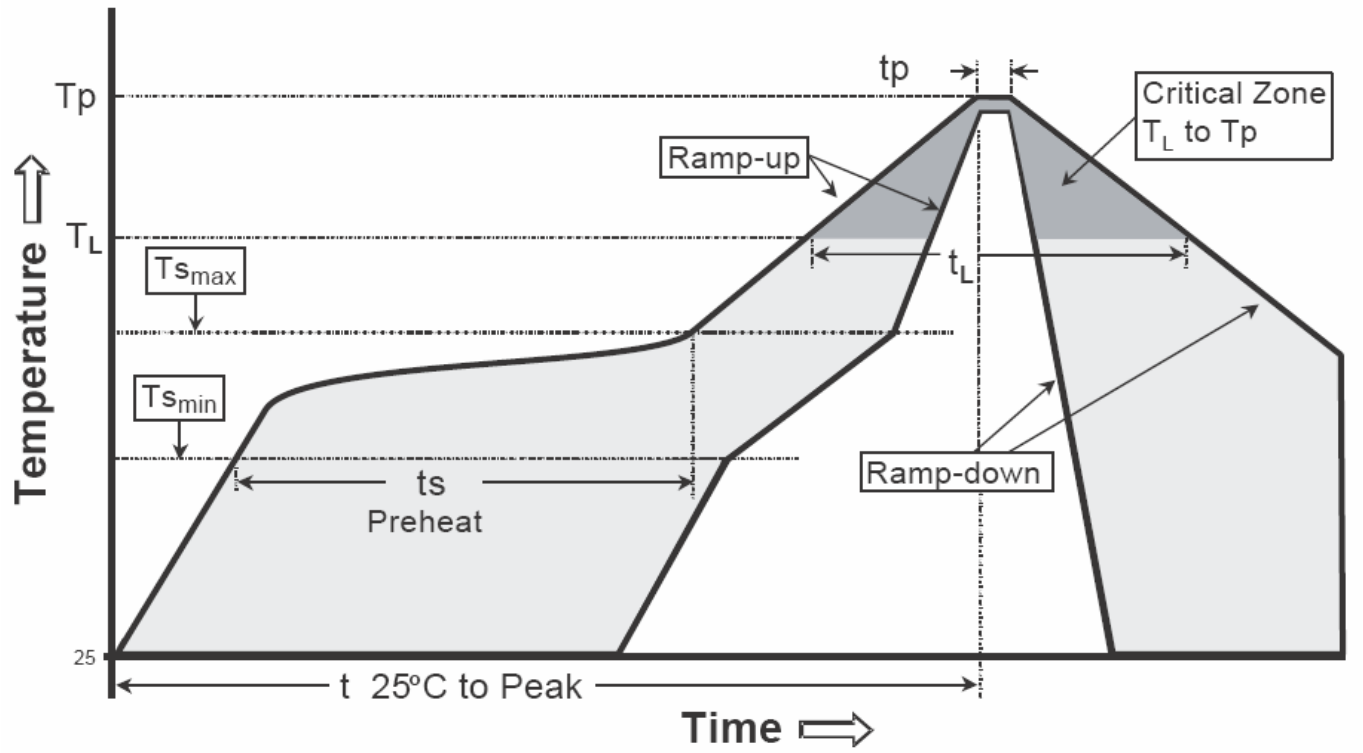
Power Derating Curve



Recommended wave soldering condition

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

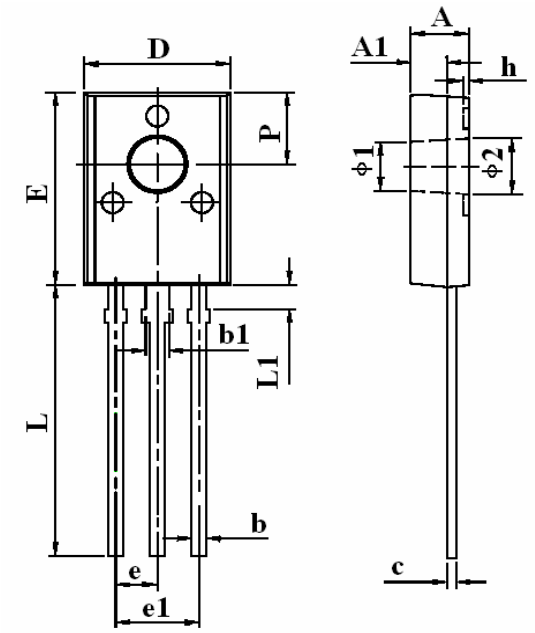
Recommended temperature profile for IR reflow



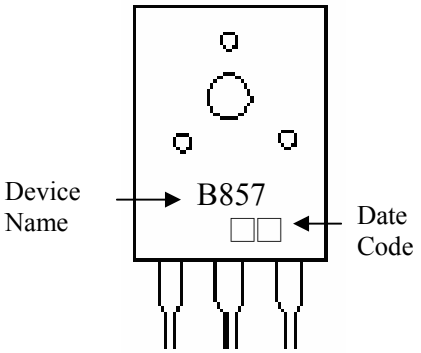
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	 183°C 60-150 seconds	 217°C 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-126ML Dimension



Marking:



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

3-Lead TO-126ML Plastic Package
CYStek Package Code: D3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.118	0.134	3.000	3.400	e	*0.090		*2.28	
A1	0.071	0.087	1.800	2.200	e1	0.176	0.183	4.460	4.660
b	0.026	0.034	0.660	0.860	L	0.594	0.610	15.100	15.500
b1	0.046	0.054	1.170	1.370	L1	0.051	0.059	1.300	1.500
c	0.018	0.024	0.450	0.600	P	0.159	0.167	4.040	4.240
D	0.307	0.323	7.800	8.200	Φ_1	0.118	0.126	3.000	3.200
E	0.425	0.441	10.800	11.200	Φ_2	0.122	0.130	3.100	3.300

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.