Low Vcesat PNP Epitaxial Planar Transistor

BTB1205I3

BV_{CEO}	-20V
I_C	-5A
R_{CESAT}	127mΩ typ.

Features

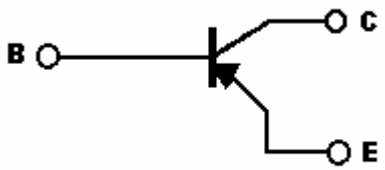
- Low $V_{CE(sat)}$, $V_{CE(sat)}$=-0.38 V (typical), at I_C / I_B = -3A / -60mA
- Excellent DC current gain characteristics
- Fast switching speed
- Large current capacity
- RoHS compliant package

Applications

- Strobe, voltage regulators, relay drivers, lamp drivers

Symbol

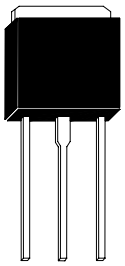
BTB1805I3



B：Base
C：Collector
E：Emitter

Outline

TO-251



B C E

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-25	V
Collector-Emitter Voltage	V_{CEO}	-20	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current(DC)	I_C	-5	A
Collector Current(Pulse)	I_{CP}	-8 (Note 1)	
Base Current	I_B	-0.5	A
Power Dissipation (T_A=25℃)	Pd	1	W
Power Dissipation (T_C=25℃)	Pd	10	
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}	-25	-	-	V	I_C=-10μA, I_E=0
BV_{CEO}	-20	-	-	V	I_C=-1mA, I_B=0
BV_{EBO}	-5	-	-	V	I_E=-10μA, I_C=0
I_{CBO}	-	-	-0.5	μA	V_{CB}=-20V, I_E=0
I_{EBO}	-	-	-0.5	μA	V_{EB}=-4V, I_C=0
*$V_{CE(sat)}$	-	-380	-500	mV	I_C=-3A, I_B=-60mA
*$V_{BE(sat)}$	-	-1.0	-1.3	V	I_C=-3A, I_B=-60mA
*h_{FE}	190	-	380	-	V_{CE}=-2V, I_C=-0.5A
*h_{FE}	60	-	-	-	V_{CE}=-2V, I_C=-4A
f_T	-	320	-	MHz	V_{CE}=-5V, I_C=-200mA, f =100MHz
Cob	-	60	-	pF	V_{CB}=-10V, f =1MHz

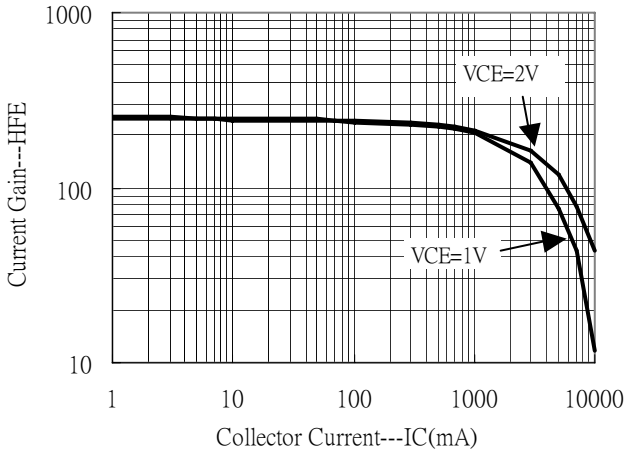
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

Ordering Information

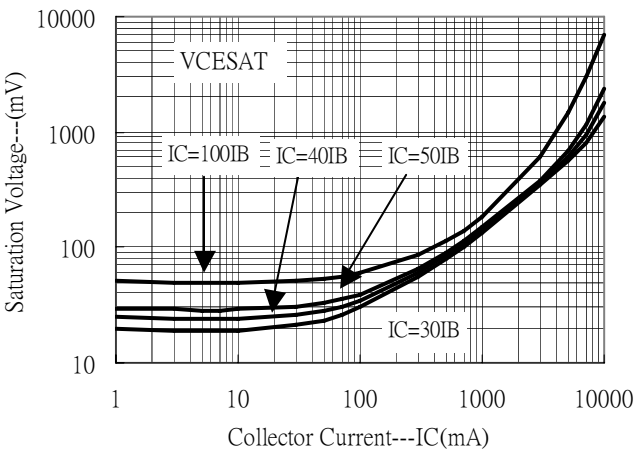
Device	Package	Shipping	Marking
BTB1205I3	TO-251 (RoHS compliant)	80 pcs / tube, 50 tubes / box	B1205

Characteristic Curves

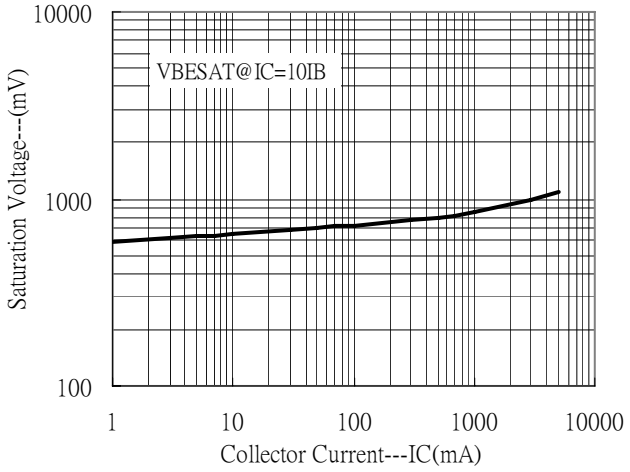
Current Gain vs Collector Current



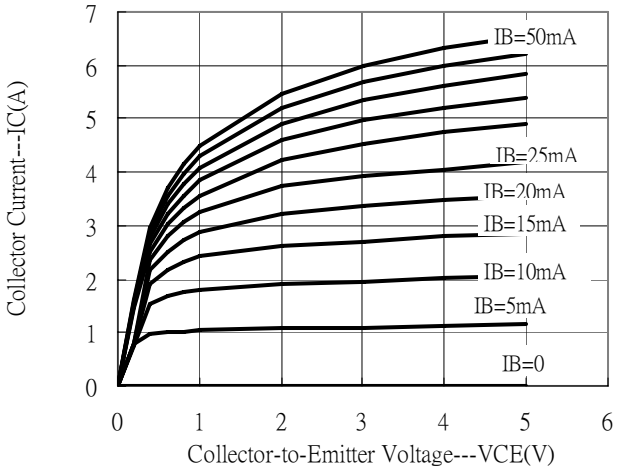
Saturation Voltage vs Collector Current



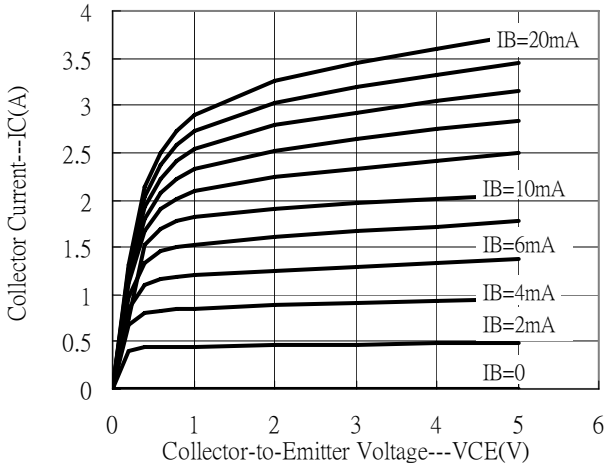
Saturation Voltage vs Collector Current



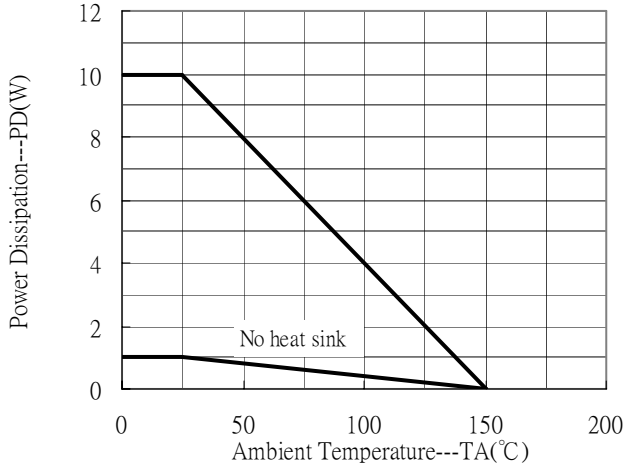
Output Characteristics



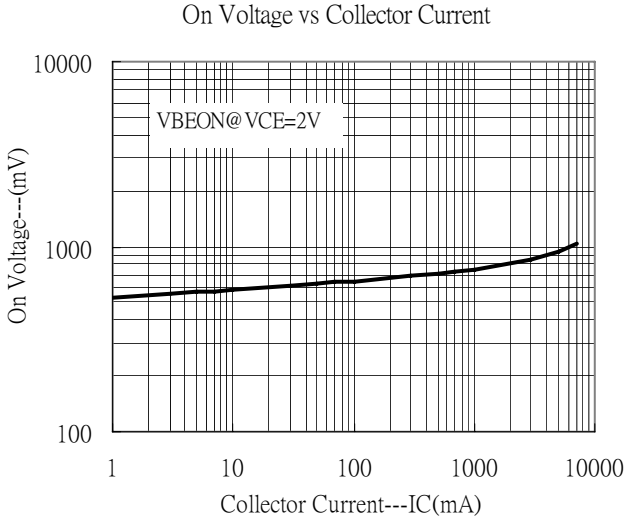
Output Characteristics



Power Derating Curves



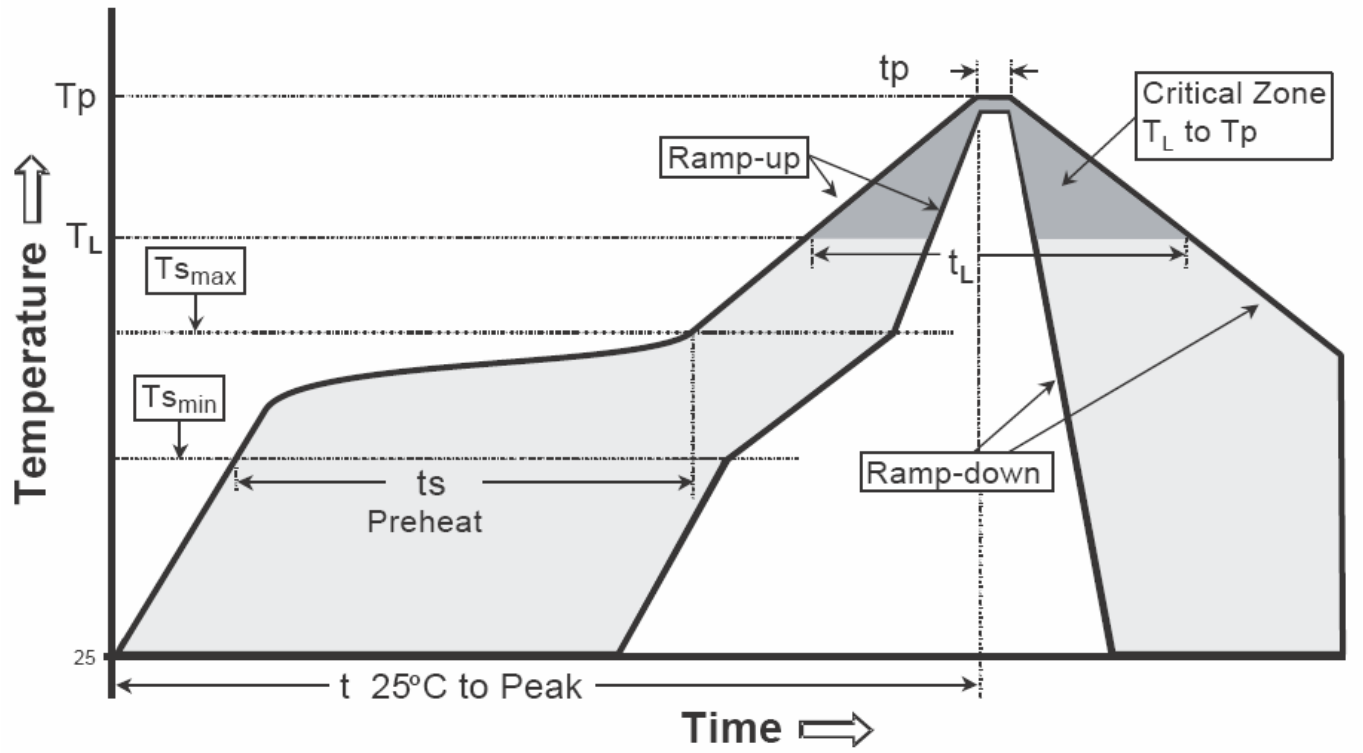
Characteristic Curves(Cont.)



Recommended wave soldering condition

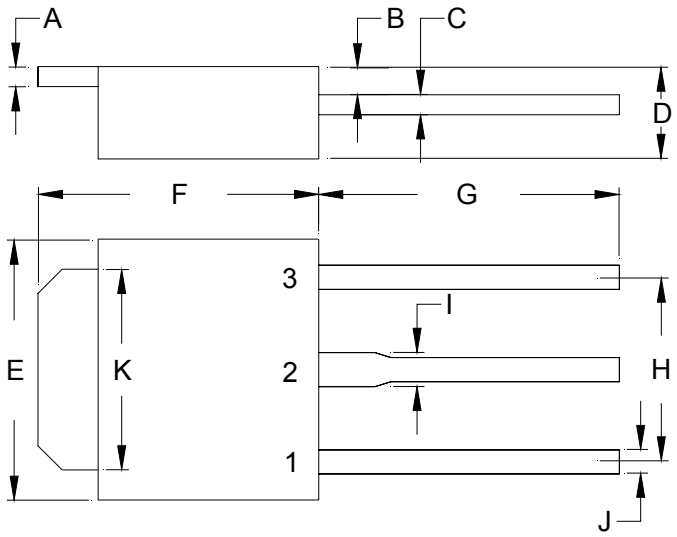
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow

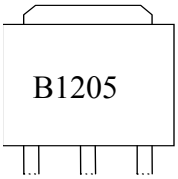


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature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

TO-251 Dimension



Marking:



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

3-Lead TO-251 Plastic Package
CYStek Package Code: I3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0177	0.0217	0.45	0.55	G	0.2559	-	6.50	-
B	0.0354	0.0591	0.90	1.50	H	-	*0.1811	-	*4.60
C	0.0177	0.0236	0.45	0.60	I	-	0.0449	-	1.14
D	0.0866	0.0945	2.20	2.40	J	-	0.0346	-	0.88
E	0.2441	0.2677	6.20	6.80	K	0.2047	0.2165	5.20	5.50
F	0.2677	0.2835	6.80	7.20					

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 :KFC ; pure tin plated
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0