High Voltage NPN Triple Diffused Planar Transistor

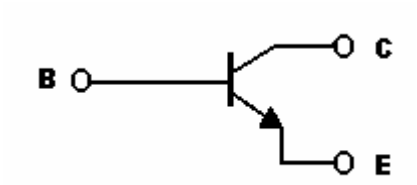
BTC3097T3

Features

- High voltage, BV_{CBO}=1600V min., BV_{CEO}=800V min.
- Pb-free lead plating package

Symbol

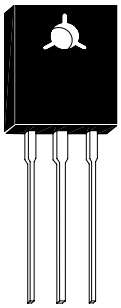
BTC3097T3



B：Base
C：Collector
E：Emitter

Outline

TO-126



B C E

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	1600	V
Collector-Emitter Voltage	V_{CEO}	800	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C(DC)	1	A
	I_C(Pulse)	3 *1	A
Power Dissipation	Pd(Ta=25℃)	1	W
	Pd(Tc=25℃)	10	
Operating Junction and Storage Temperature Range	Tj ; Tstg	-55~+150	°C

Note : *1. Single Pulse Pw≦300μs,Duty≦2%.

Characteristics (Ta=25°C)

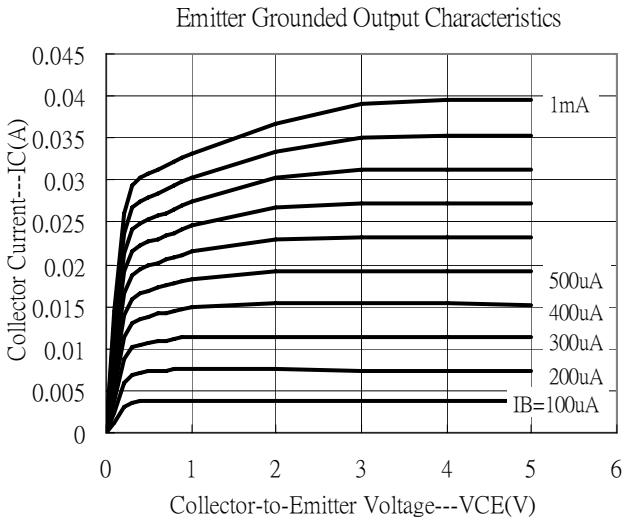
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	1600	-	-	V	I_C=100μA, I_E=0
BV_{CEO}	800	-	-	V	I_C=1mA, I_B=0
BV_{EBO}	6	-	-	V	I_E=100μA, I_C=0
I_{CBO}	-	-	10	μA	V_{CB}=1600V, I_E=0
I_{CEO}	-	-	10	μA	V_{CB}=800V, I_B=0
I_{EBO}	-	-	100	nA	V_{EB}=6V, I_C=0
*$V_{CE(sat)}$	-	-	0.2	V	I_C=200mA, I_B=40mA
*$V_{CE(sat)}$	-	-	0.35	V	I_C=500mA, I_B=100mA
*$V_{BE(sat)}$	-	-	1.2	V	I_C=500mA, I_B=100mA
*$h_{FE}1$	20	-	-	-	V_{CE}=5V, I_C=10mA
*$h_{FE}2$	24	-	35	-	V_{CE}=5V, I_C=100mA
*$h_{FE}3$	5	-	-	-	V_{CE}=5V, I_C=500mA
Cob	-	10	-	pF	V_{CB}=10V, f=1MHz
tr	-	-	0.8	μs	V_{CC}=400V, I_C=0.5A, I_B1=0.1A I_B2=-0.2A
tstg	-	-	3		
tf	-	-	0.4		

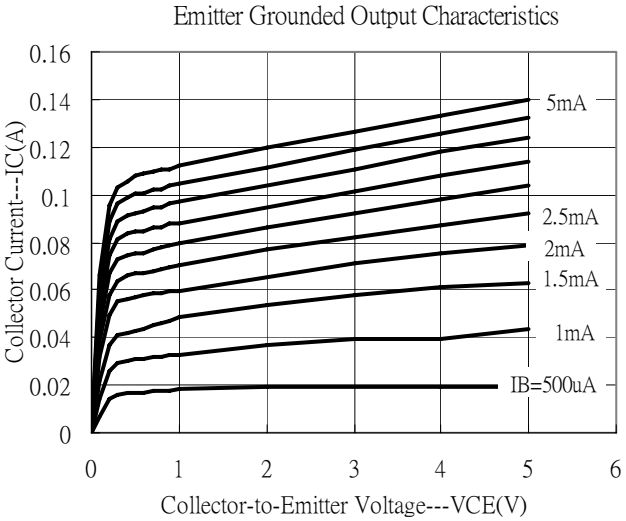
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

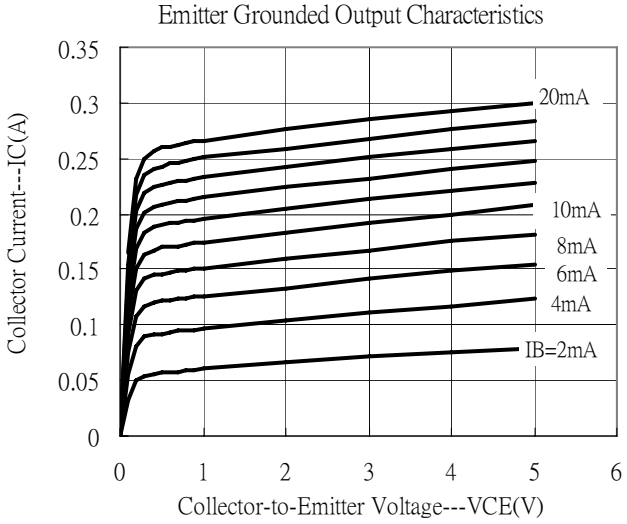
Ordering Information

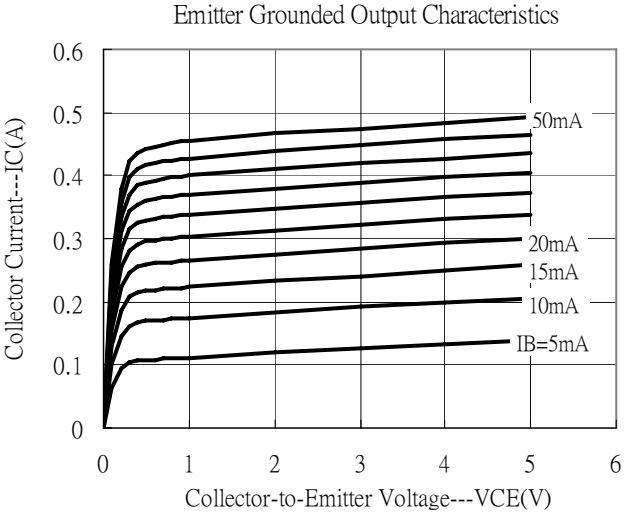
Device	Package	Shipping
BTC3097T3	TO-126 (Pb-free lead plating package)	200 pcs / bag, 10 bags/box, 10 boxes/carton

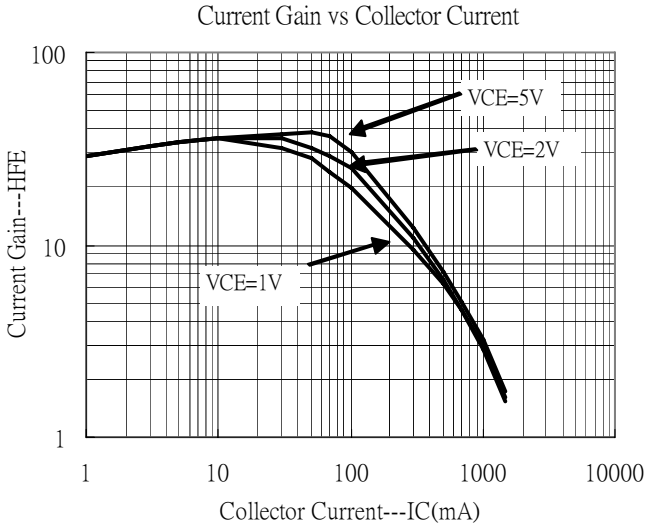
Typical Characteristics

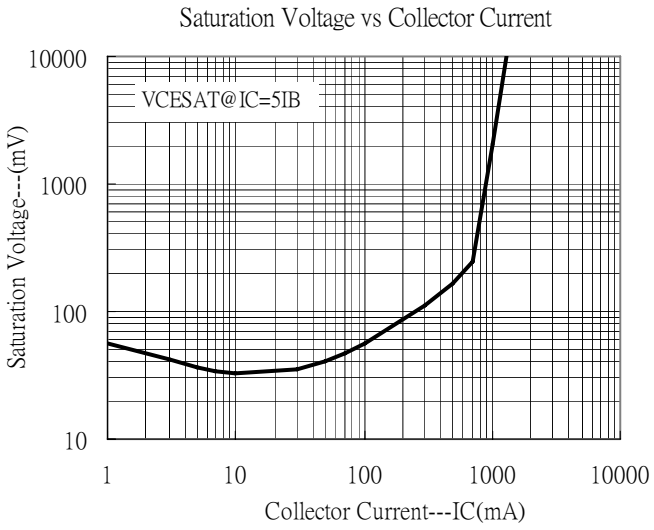






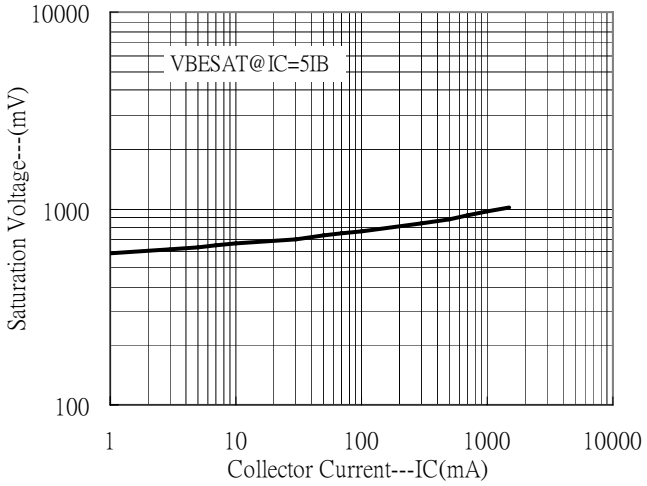




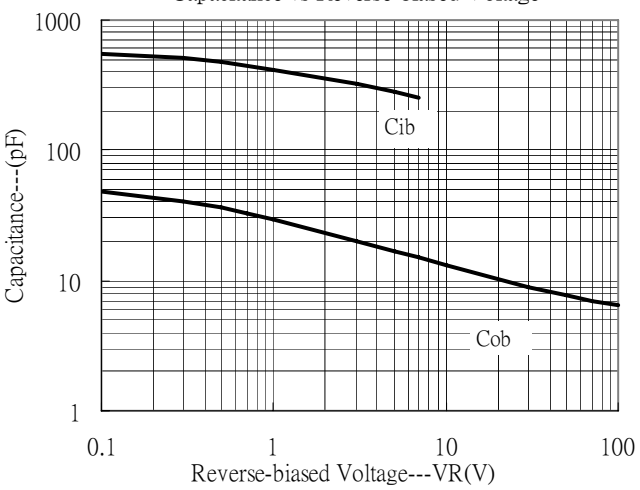


Typical Characteristics(Cont.)

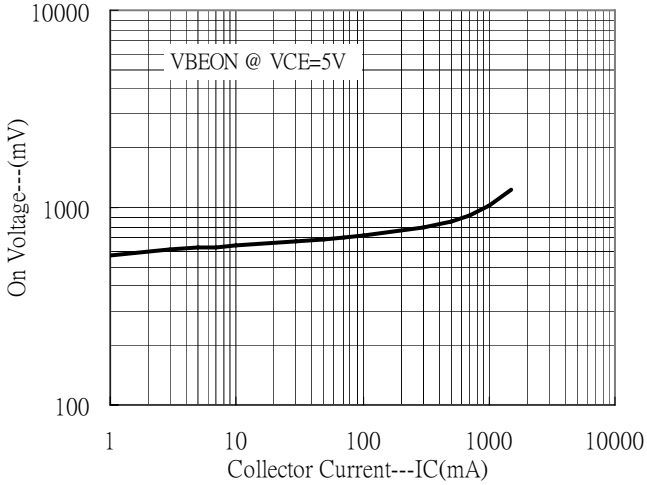
Saturation Voltage vs Collector Current



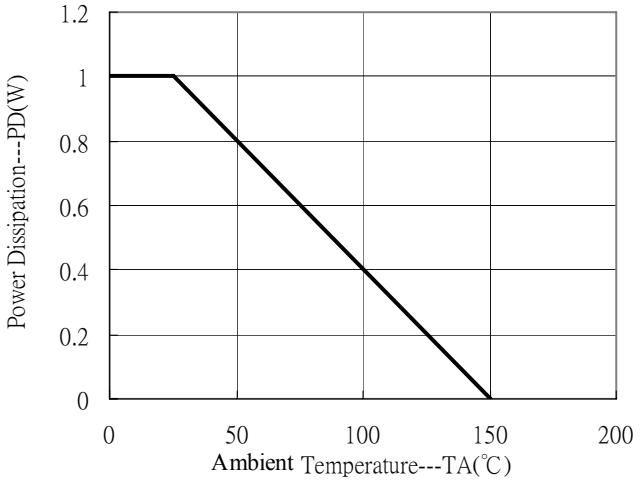
Capacitance vs Reverse-biased Voltage



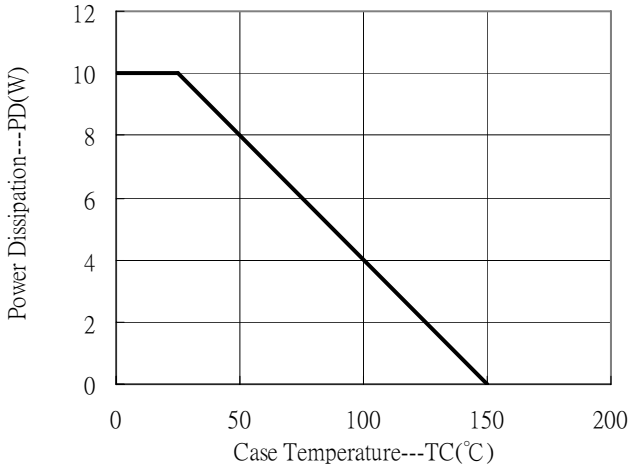
Onn Voltage vs Collector Current



Power Derating Curve



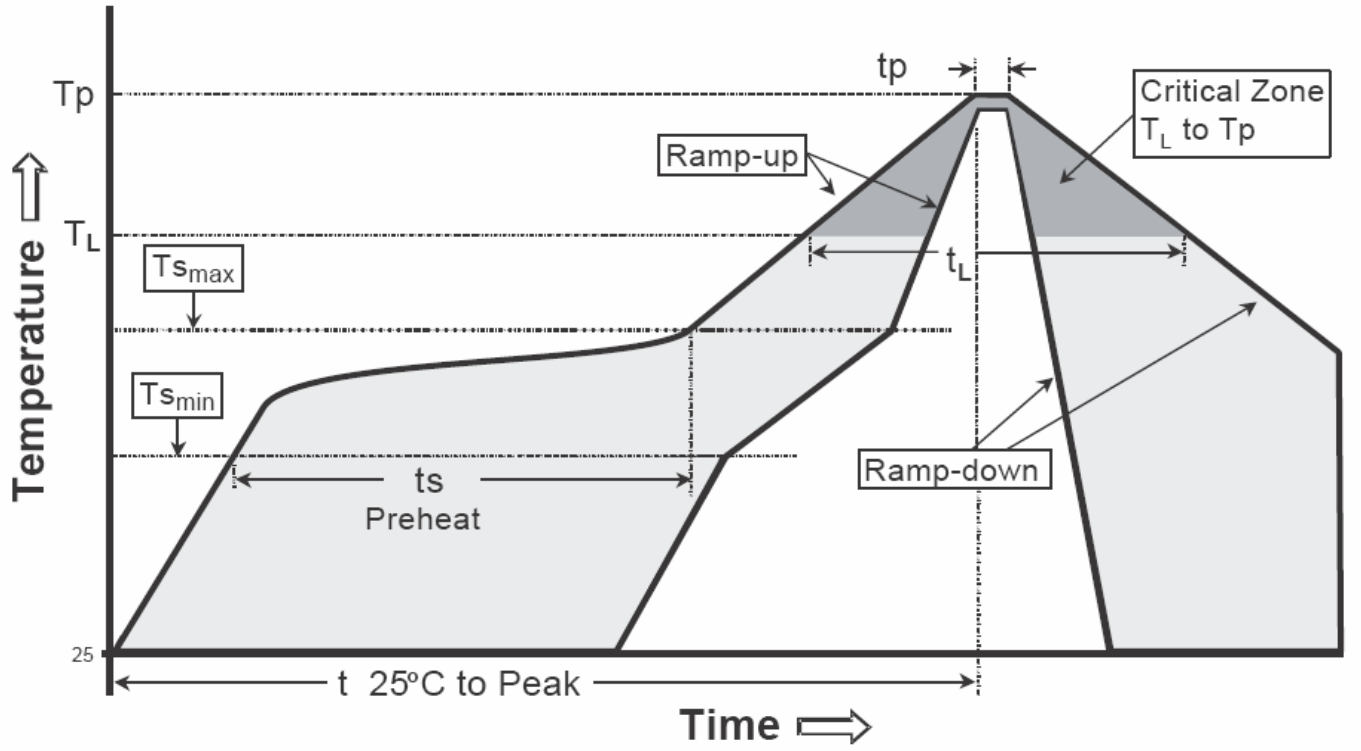
Power Derating Curve



Recommended wave soldering condition

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

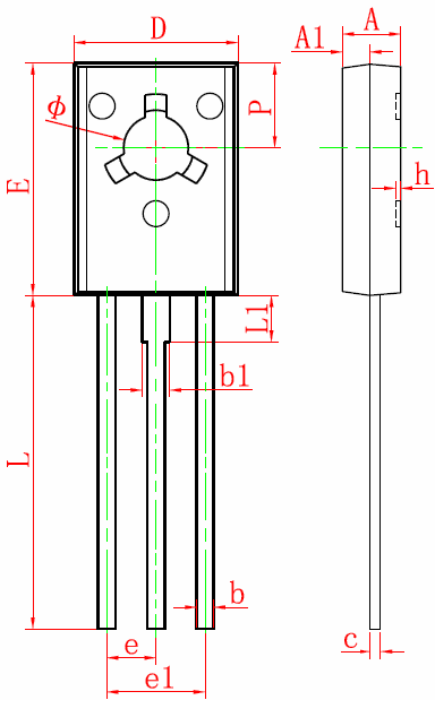
Recommended temperature profile for IR reflow



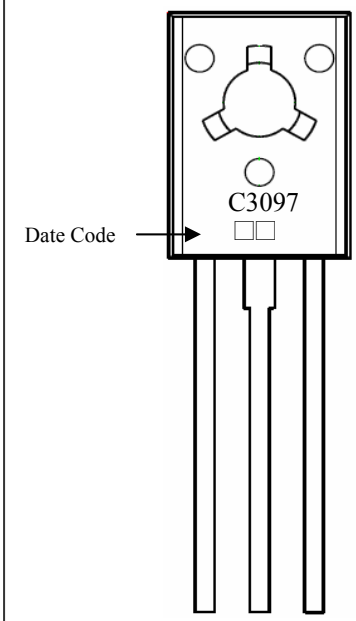
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL)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

TO-126 Dimension



Marking:



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

3-Lead TO-126 Plastic Package
CYStek Package Code: T3

*: Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	2.500	2.900	0.098	0.114	e	*2.290		*0.090	
A1	1.100	1.500	0.043	0.059	e1	4.480	4.680	0.176	0.184
b	0.660	0.860	0.026	0.034	h	0.000	0.300	0.000	0.012
b1	1.170	1.370	0.046	0.054	L	15.300	15.700	0.602	0.618
c	0.450	0.600	0.018	0.024	L1	2.100	2.300	0.083	0.091
D	7.400	7.800	0.291	0.307	P	3.900	4.100	0.154	0.161
E	10.600	11.000	0.417	0.433	Φ	3.000	3.200	0.118	0.126

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.