

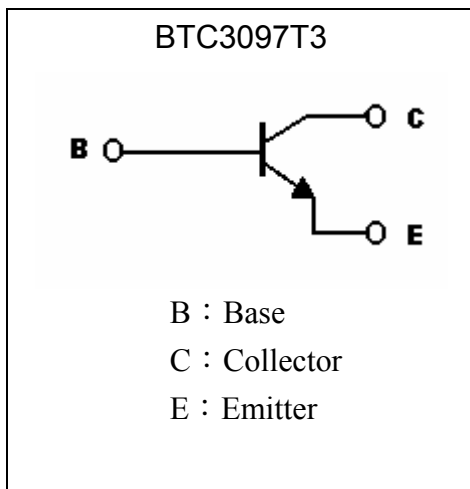
High Voltage NPN Triple Diffused Planar Transistor

BTC3097T3

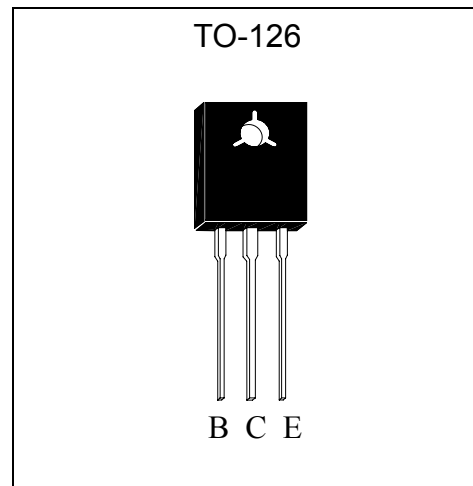
Features

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

Symbol



Outline



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	$P_d(T_a=25^{\circ}C)$	1	W
	$P_d(T_c=25^{\circ}C)$	10	
Operating Junction and Storage Temperature Range	$T_j ; T_{stg}$	-55~+150	°C

Note : *1. Single Pulse $P_w \leq 300\mu s$, Duty $\leq 2\%$.

**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 _{FE1}	20	-	-	-	V _{CE} =5V, I _C =10mA
*h _{FE2}	24	-	35	-	V _{CE} =5V, I _C =100mA
*h _{FE3}	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		

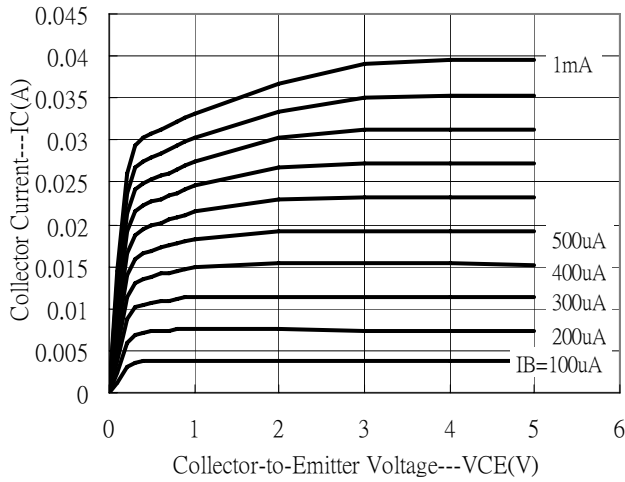
*Pulse Test : Pulse Width ≤300μs, Duty Cycle ≤2%

Ordering Information

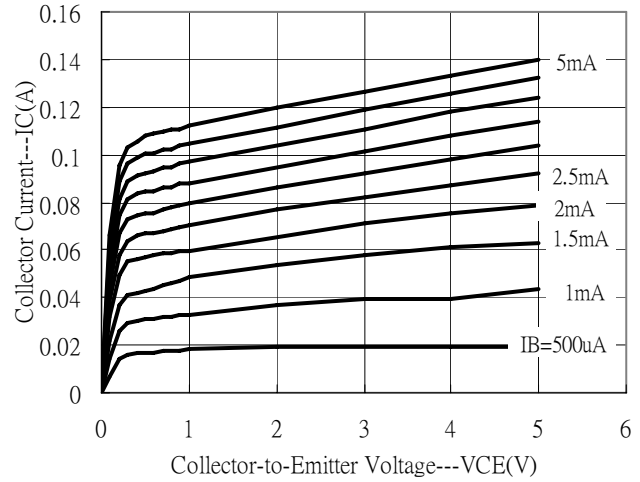
Device	Package	Shipping
BTC3097T3	TO-126 (Pb-free lead plating package)	200 pcs / bag, 10 bags/box, 10 boxes/carton

Typical Characteristics

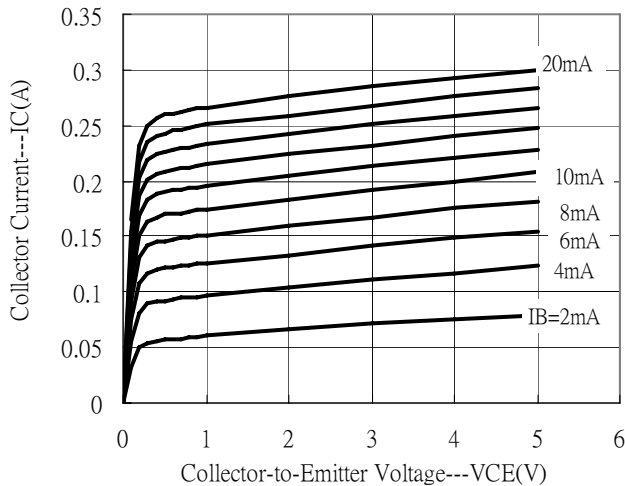
Emitter Grounded Output Characteristics



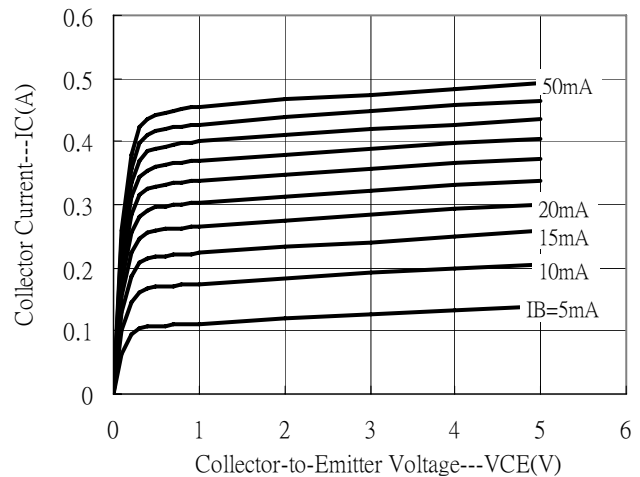
Emitter Grounded Output Characteristics



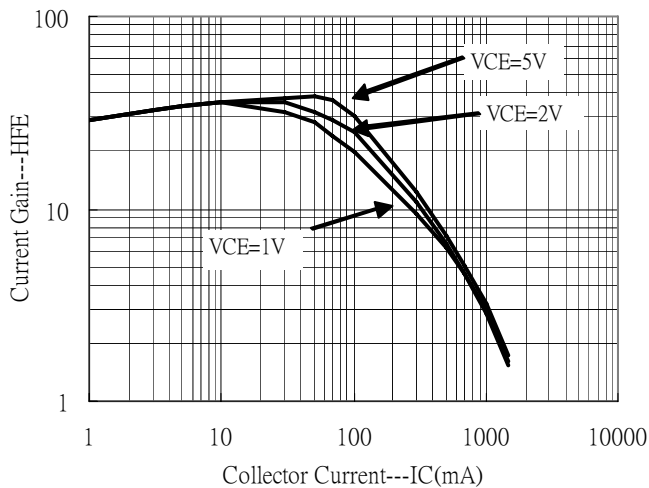
Emitter Grounded Output Characteristics



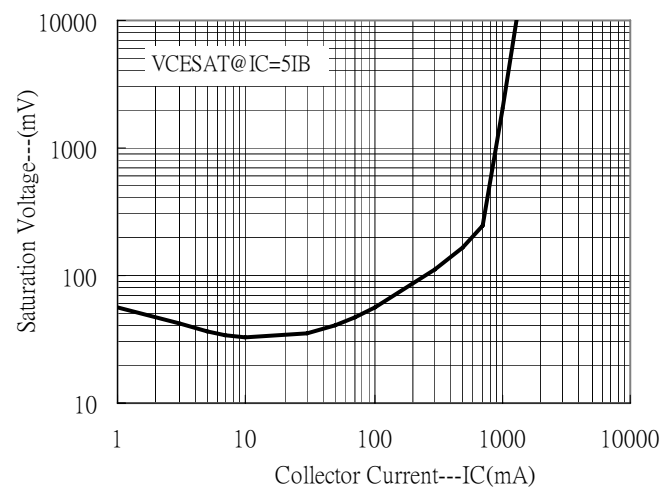
Emitter Grounded Output Characteristics



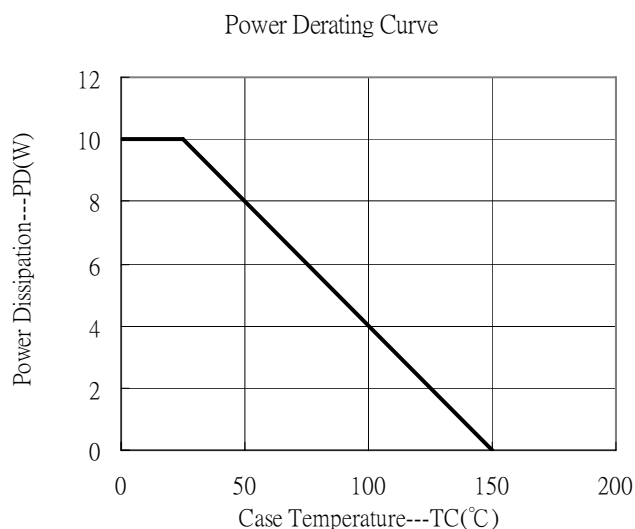
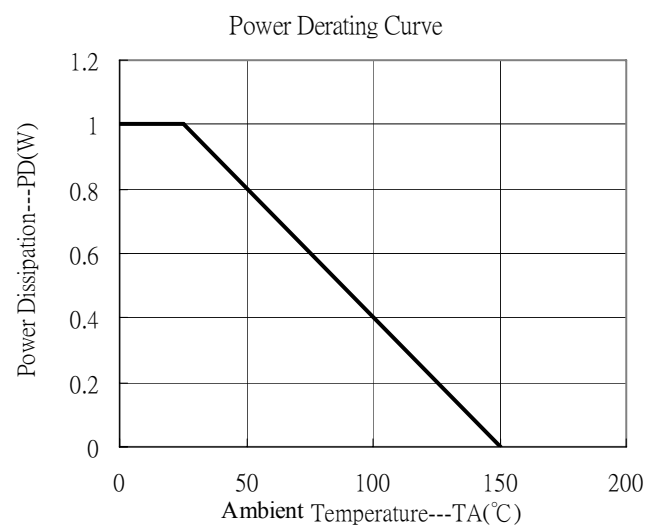
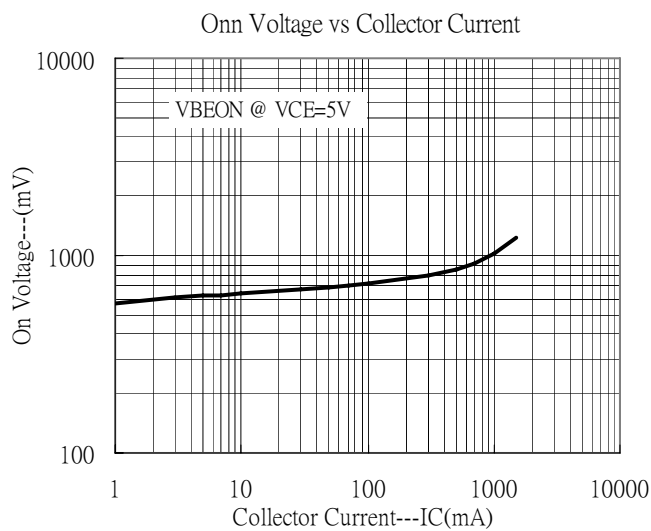
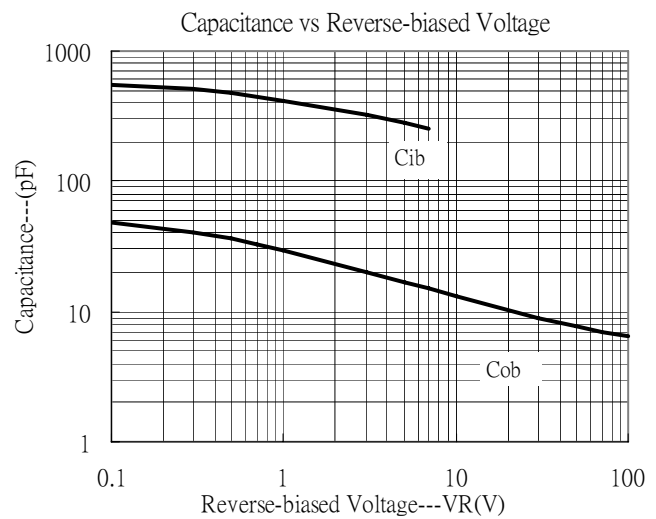
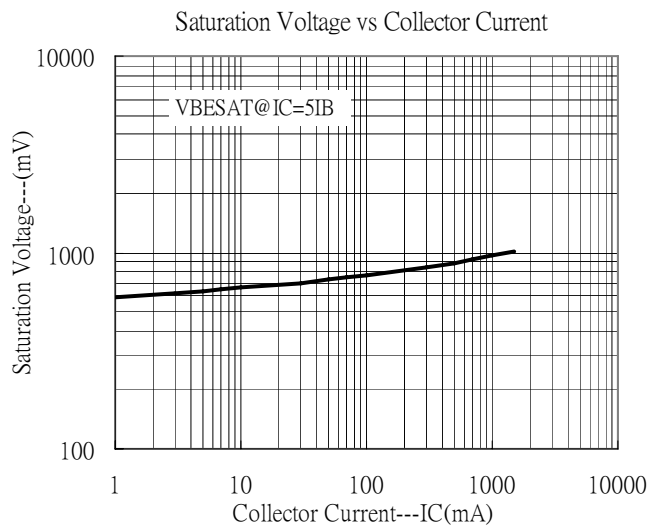
Current Gain vs Collector Current



Saturation Voltage vs Collector Current



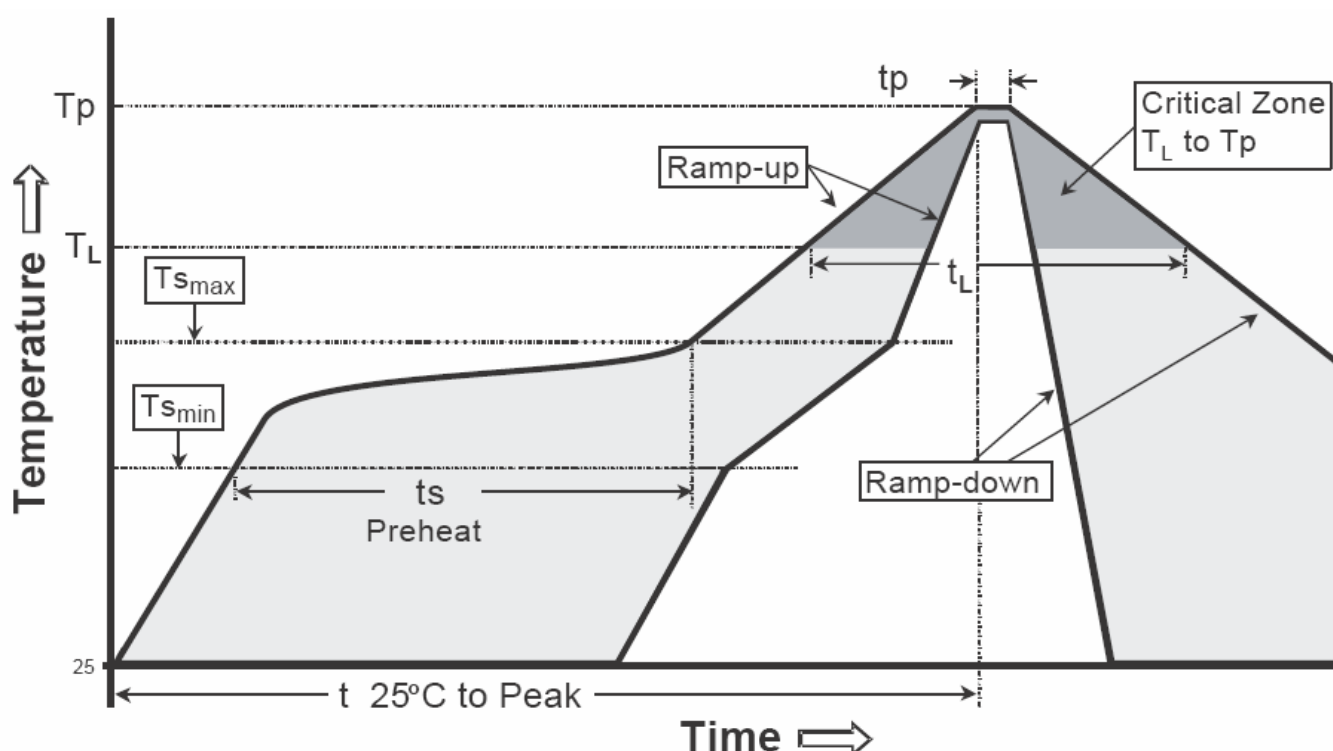
Typical Characteristics(Cont.)



Recommended wave soldering condition

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

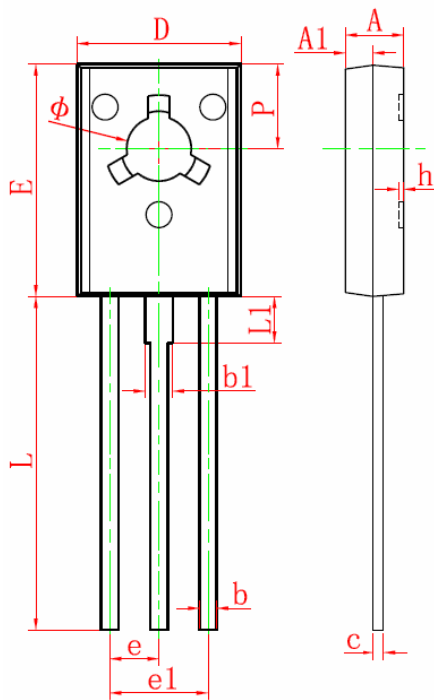
Recommended temperature profile for IR reflow



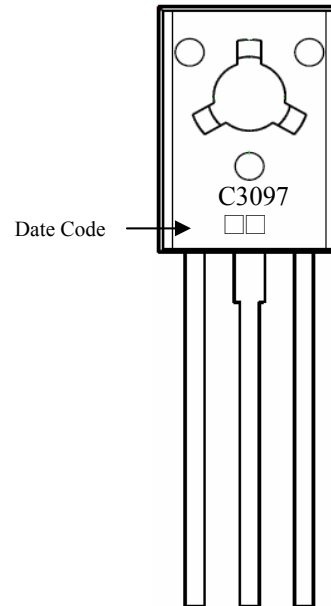
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T_{smax} to T_p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T_{smin})	100°C	150°C
-Temperature Max(T_{smax})	150°C	200°C
-Time(t_{smin} to t_{smax})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (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(t_p)	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.

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