NPN Epitaxial Planar Transistor

BTD2195T3

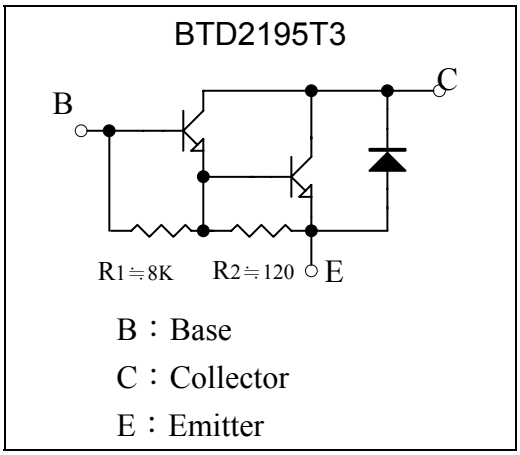
BV_{CEO}	120V
I_C	4A
$V_{CE(SAT)}$	1.5V(max)

Description

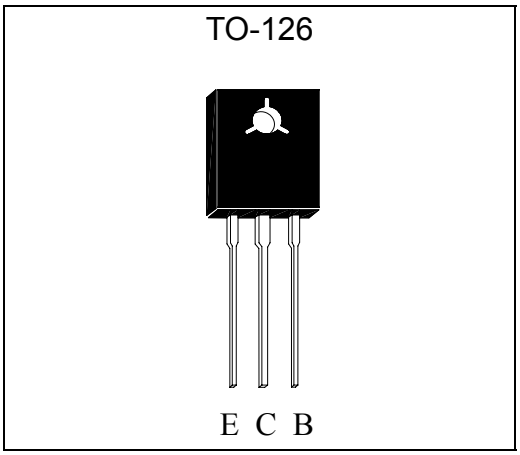
The BTD2195T3 is designed for use in general purpose amplifier and low speed switching application.

Pb-free lead plating package process is adopted.

Equivalent Circuit



Outline



Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-Base Voltage		V_{CBO}	130	V
Collector-Emitter Voltage		V_{CEO}	120	
Emitter-Base Voltage		V_{EBO}	5	
Collector Current (DC)		I_C	4	A
Collector Current (Pulse)		I_{CP}	6 (Note 1)	
Power Dissipation	T_A=25°C	P_D	1.25	W
	T_C=25°C		40	
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	100	°C/W
Thermal Resistance, Junction to Case		$R_{\theta JC}$	3.13	
Operating Junction Temperature Range		Tj	-55~+150	°C
Storage Temperature Range		Tstg	-55~+150	

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

Characteristics (Ta=25°C)

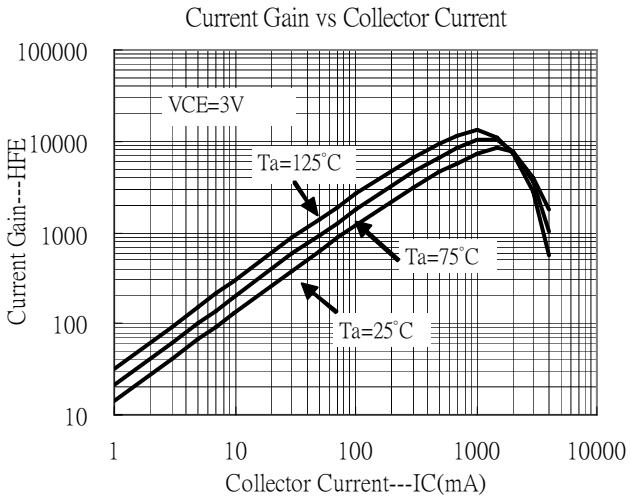
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CEO}	120	-	-	V	I_C=1mA, I_B=0
BV_{CBO}	130	-	-	V	I_C=100μA, I_E=0
I_{CBO}	-	-	10	μA	V_{CB}=100V, I_E=0
I_{CEO}	-	-	10	μA	V_{CE}=100V, I_B=0
I_{EBO}	-	-	2	mA	V_{EB}=5V, I_C=0
*$V_{CE(sat)}$	-	-	1.5	V	I_C=2A, I_B=2mA
*$V_{BE(on)}$			2	V	V_{CE}=4V, I_C=2A
*$h_{FE}1$	1000	-	-	-	V_{CE}=4V, I_C=1A
*$h_{FE}2$	1000	-	-	-	V_{CE}=4V, I_C=2A
Cob	-		200	pF	V_{CB}=10V, I_E=0A, f=1MHz

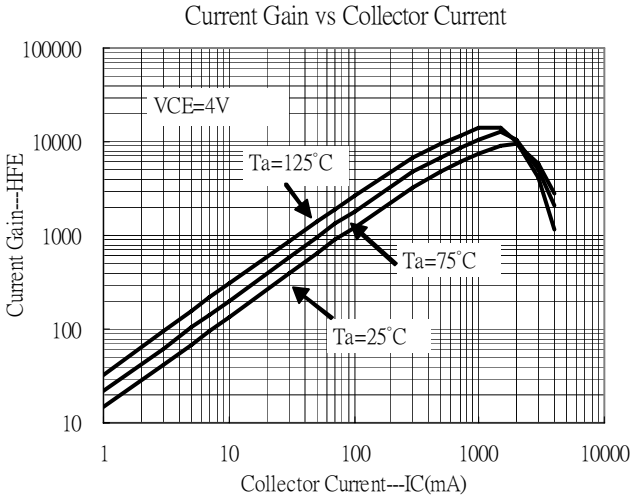
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

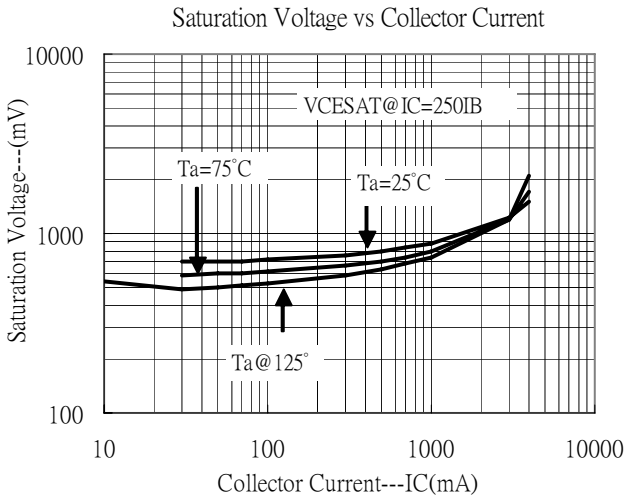
Ordering Information

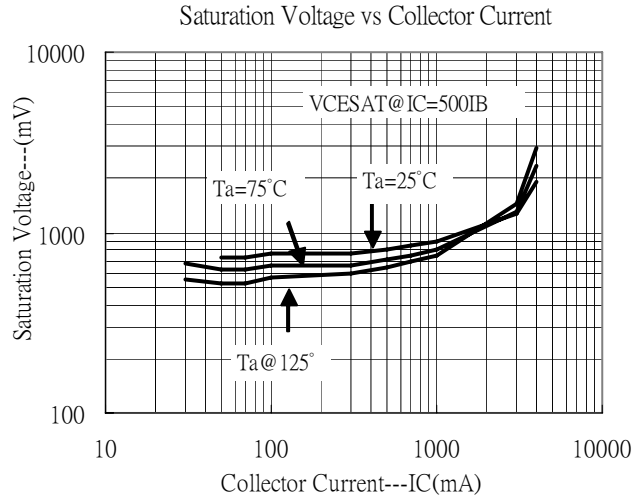
Device	Package	Shipping	Marking
BTD2195T3	TO-126 (Pb-free lead plating)	200 pcs / bag, 15 bags/box, 10 boxes/carton	D2195

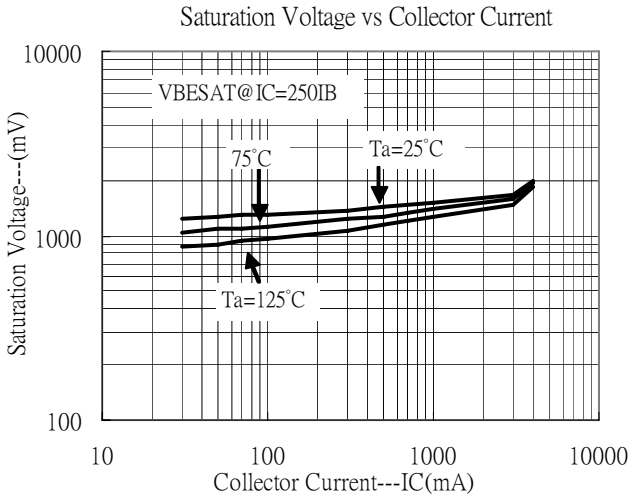
Typical Characteristics

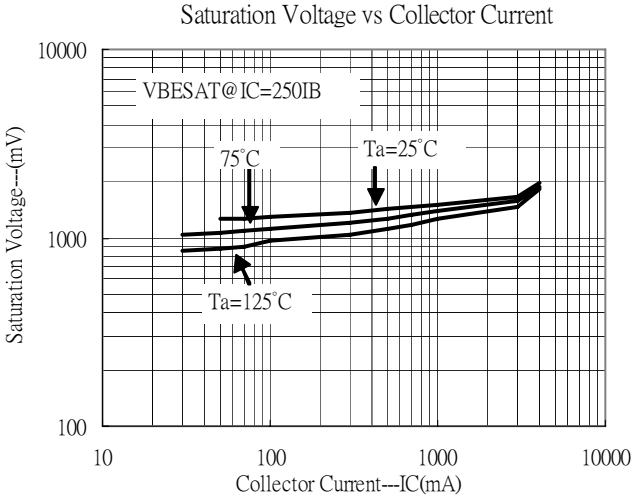






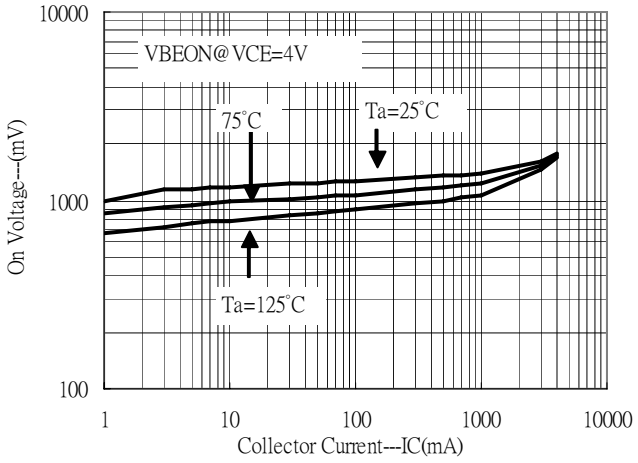




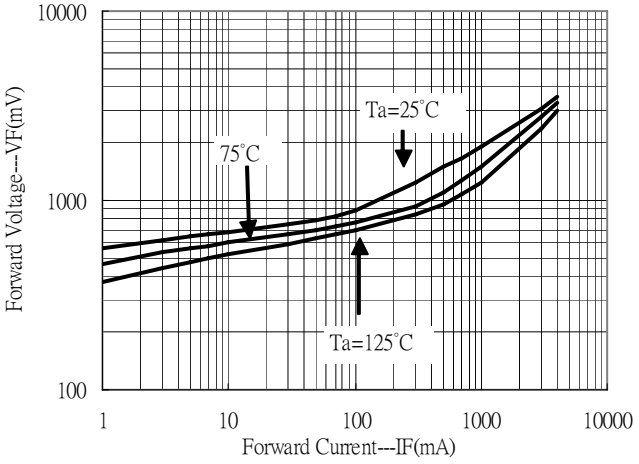


Typical Characteristics(Cont.)

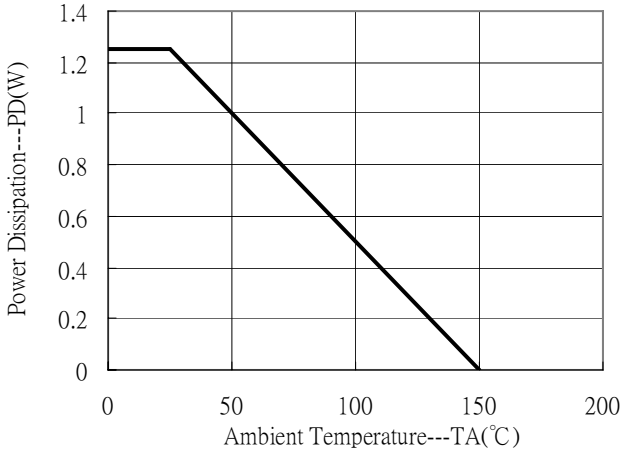
On Voltage vs Collector Current



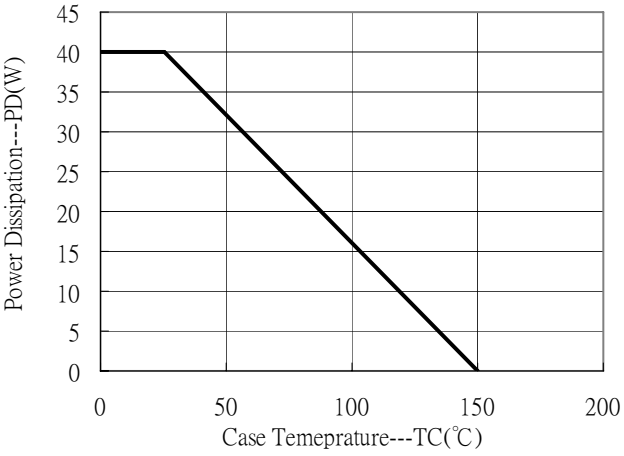
Built-in Diode Characteristics



Power Derating Curve



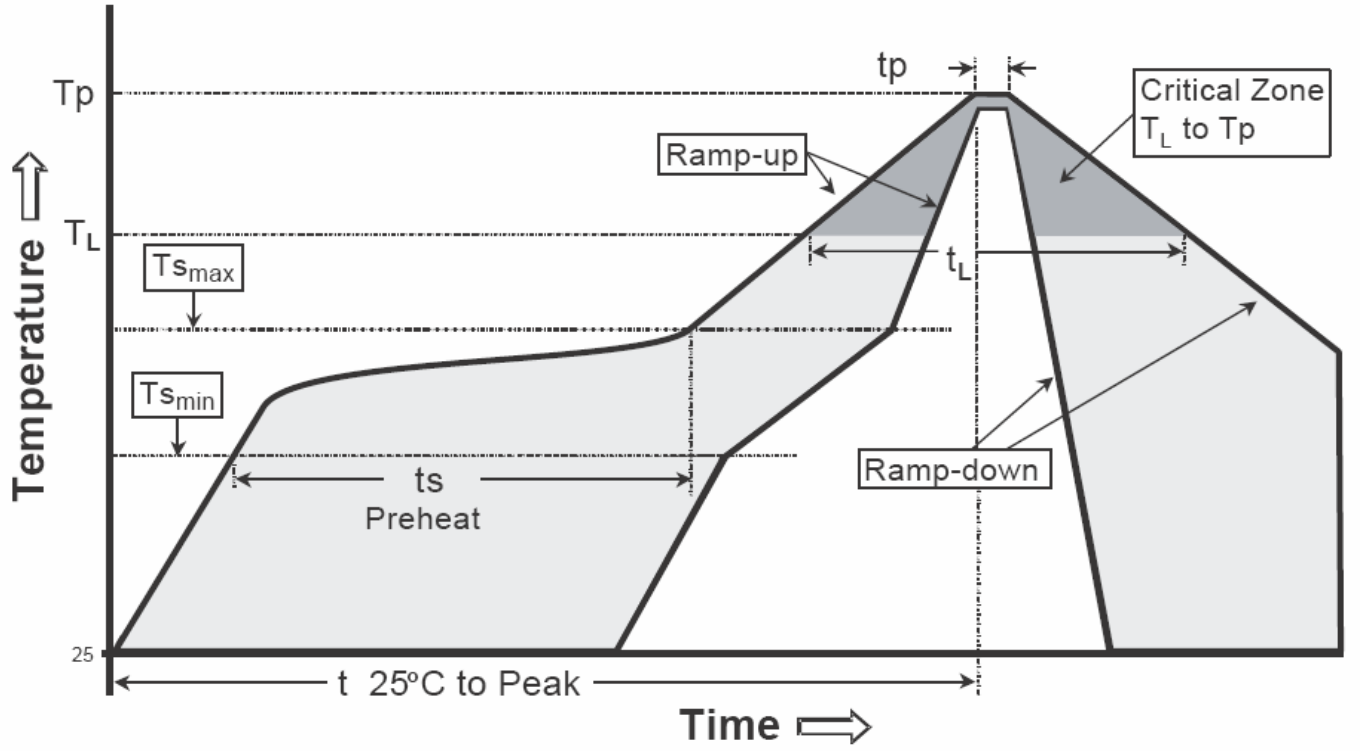
Power Derating Curve



Recommended wave soldering condition

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

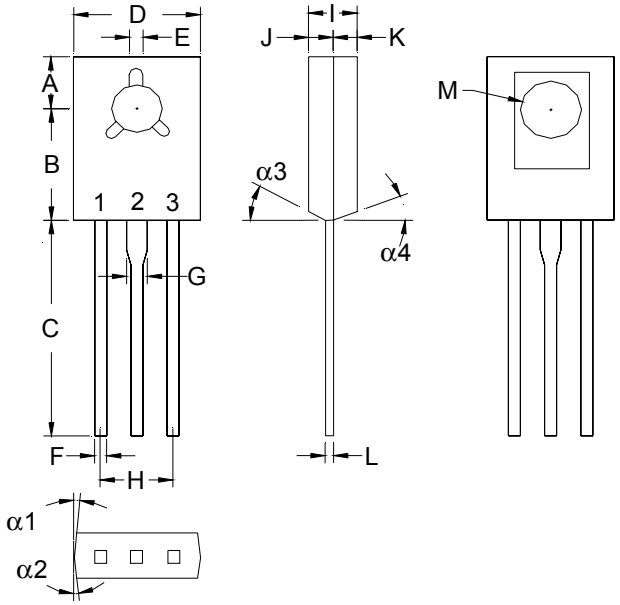
Recommended temperature profile for IR reflow

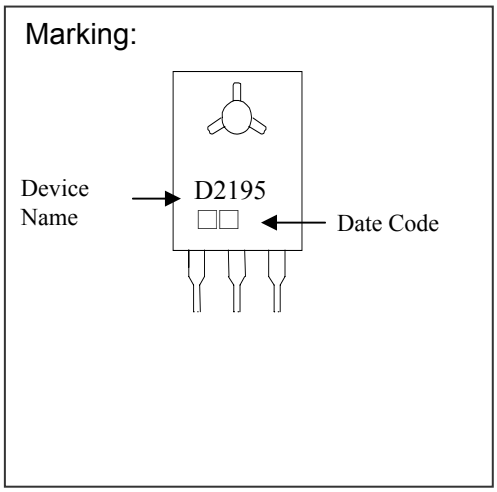


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature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





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

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

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
α1	-	*3°	-	*3°	F	0.0280	0.0319	0.71	0.81
α2	-	*3°	-	*3°	G	0.0480	0.0520	1.22	1.32
α3	-	*3°	-	*3°	H	0.1709	0.1890	4.34	4.80
α4	-	*3°	-	*3°	I	0.0950	0.1050	2.41	2.66
A	0.1500	0.1539	3.81	3.91	J	0.0450	0.0550	1.14	1.39
B	0.2752	0.2791	6.99	7.09	K	0.0450	0.0550	1.14	1.39
C	0.5315	0.6102	13.50	15.50	L	-	*0.0217	-	*0.55
D	0.2854	0.3039	7.52	7.72	M	0.1378	0.1520	3.50	3.86
E	0.0374	0.0413	0.95	1.05					

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.