

**NPN Epitaxial Planar Transistor**

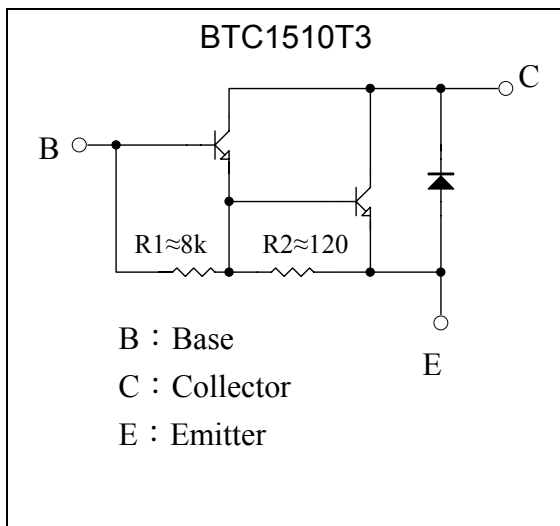
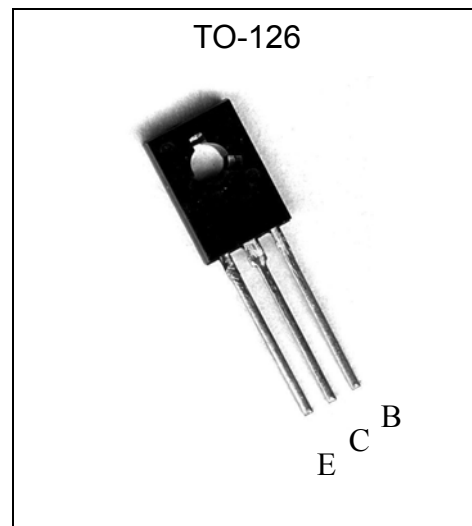
# BTC1510T3

**Description**

The BTC1510T3 is a NPN Darlington transistor, designed for general purpose amplifier and low speed switching application.

**Features:**

- High  $BV_{CEO}$
- Low  $V_{CE(SAT)}$
- High current gain
- Monolithic construction with built-in base-emitter shunt resistors
- Pb-free package

**Equivalent Circuit****Outline**

**Absolute Maximum Ratings** (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V <sub>CB0</sub>	150	V
Collector-Emitter Voltage	V <sub>CE0</sub>	150	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Collector Current	I <sub>C(DC)</sub>	10	A
	I <sub>C(Pulse)</sub>	15 *1	
Power Dissipation	Pd(T <sub>A</sub> =25°C)	1	W
	Pd(T <sub>C</sub> =25°C)	10	
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55~+150	°C

Note : \*1. Single Pulse Pw=100ms

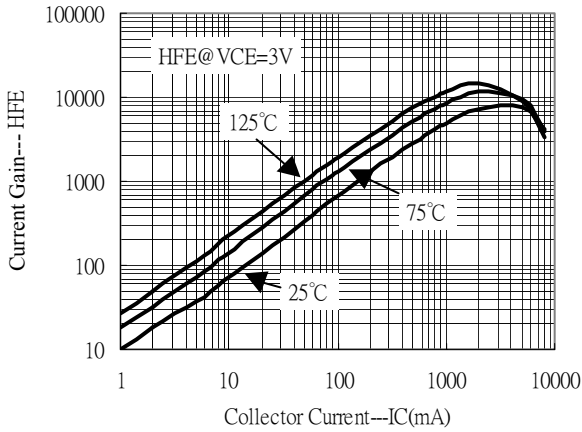
**Characteristics** (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV <sub>CB0</sub>	150	-	-	V	I <sub>C</sub> =100μA, I <sub>E</sub> =0
BV <sub>CE0</sub>	150	-	-	V	I <sub>C</sub> =1mA, I <sub>B</sub> =0
I <sub>CE0</sub>	-	-	200	μA	V <sub>CE</sub> =150V, I <sub>E</sub> =0
I <sub>CB0</sub>	-	-	200	μA	V <sub>CB</sub> =150V, I <sub>E</sub> =0
I <sub>EBO</sub>	-	-	2	mA	V <sub>EB</sub> =5V, I <sub>C</sub> =0
*V <sub>CE(sat)</sub> 1	-	-	1.5	V	I <sub>C</sub> =5A, I <sub>B</sub> =10mA
*V <sub>CE(sat)</sub> 2	-	-	3	V	I <sub>C</sub> =10A, I <sub>B</sub> =100mA
*V <sub>CE(sat)</sub> 3	-	-	2	V	I <sub>C</sub> =5A, I <sub>B</sub> =2.5mA
*V <sub>BE(sat)</sub>	-	-	2	V	I <sub>C</sub> =5A, I <sub>B</sub> =5mA
*V <sub>BE(on)</sub> 1	-	-	2.8	V	V <sub>CE</sub> =3V, I <sub>C</sub> =5A
*V <sub>BE(on)</sub> 2	-	-	4.5	V	V <sub>CE</sub> =3V, I <sub>C</sub> =10A
*V <sub>FEC</sub>	-	-	3	V	I <sub>C</sub> =5A
*h <sub>FE</sub> 1	2	-	20	K	V <sub>CE</sub> =3V, I <sub>C</sub> =5A
*h <sub>FE</sub> 2	100	-	-	-	V <sub>CE</sub> =3V, I <sub>C</sub> =10A

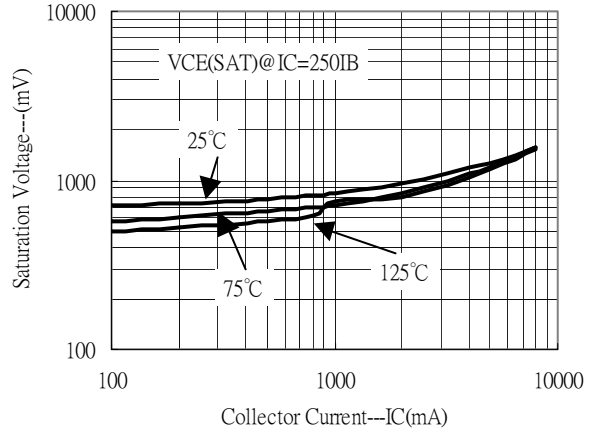
\*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

**Characteristic Curves**

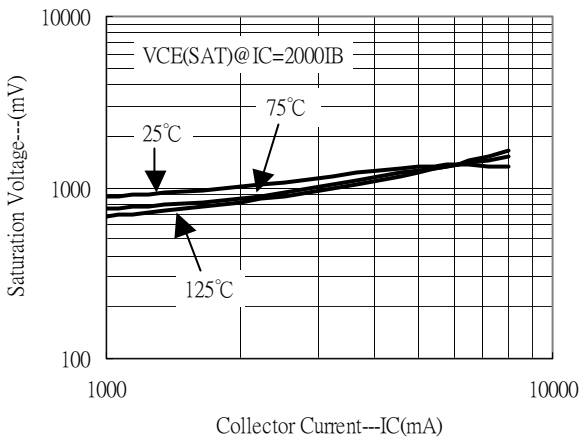
Current Gain vs Collector Current



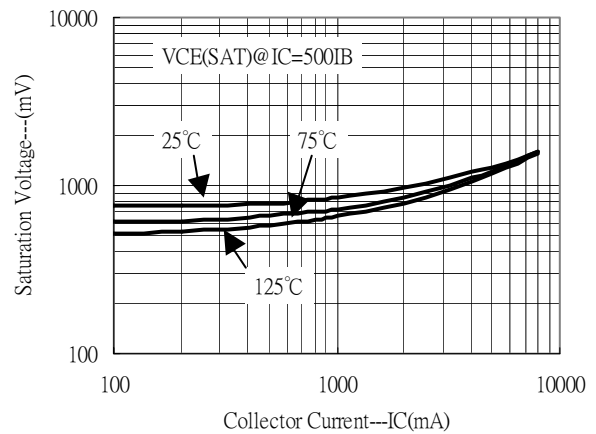
Saturation Voltage vs Collector Current



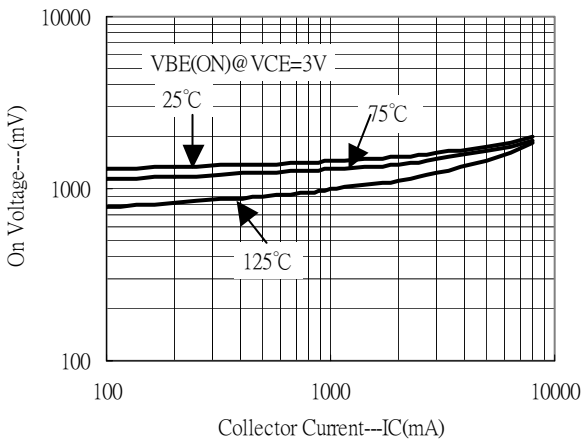
Saturation Voltage vs Collector Current



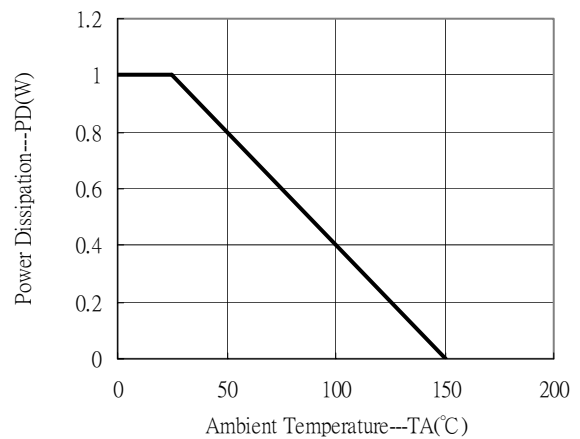
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current

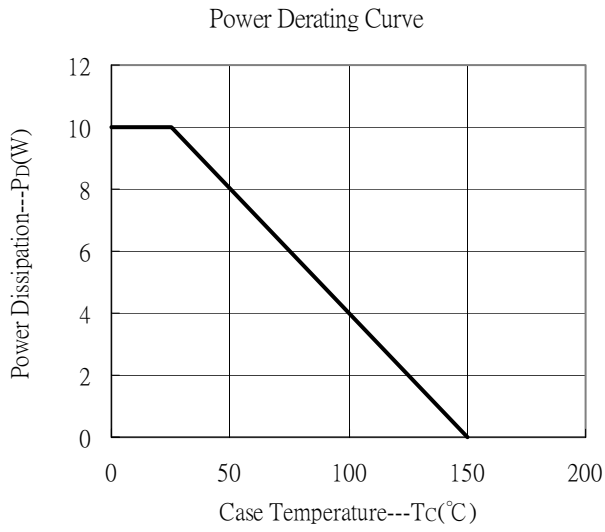


Power Derating Curve

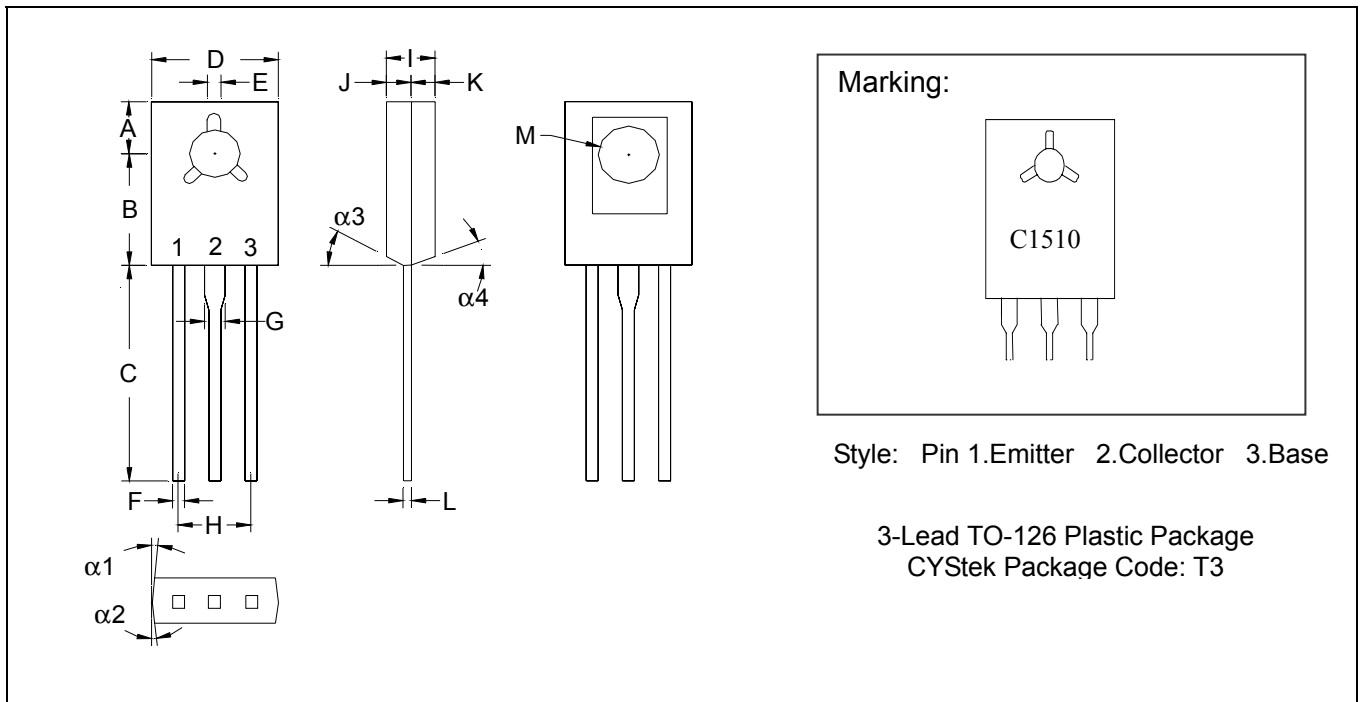




### Characteristic Curves(Cont.)



**TO-126 Dimension**



\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
$\alpha 1$	-	*3°	-	*3°	F	0.0280	0.0319	0.71	0.81
$\alpha 2$	-	*3°	-	*3°	G	0.0480	0.0520	1.22	1.32
$\alpha 3$	-	*3°	-	*3°	H	0.1709	0.1890	4.34	4.80
$\alpha 4$	-	*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: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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