

NPN Epitaxial Planar Transistor

BTC1510F3

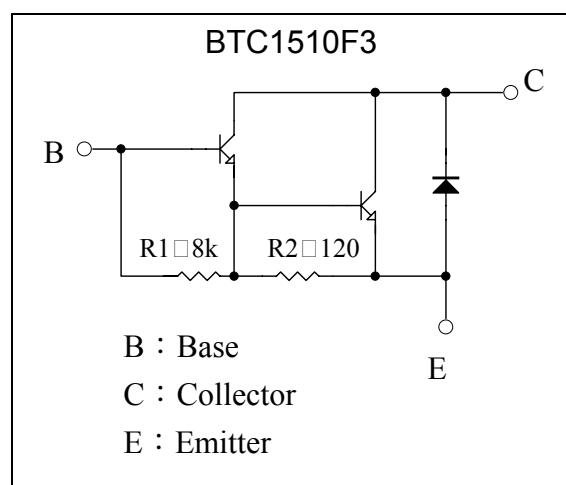
Description

The BTC1510F3 is a NPN Darlington transistor, designed for general purpose amplifier and low speed switching application.

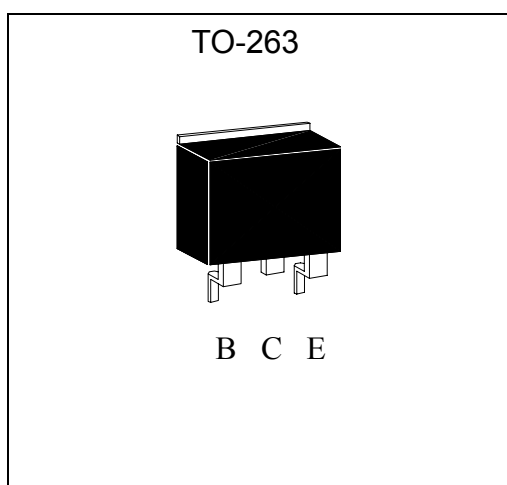
Features:

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

Equivalent Circuit



Outline



Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	150	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	$I_C(DC)$	10	A
	$I_C(Pulse)$	15 *1	
Power Dissipation	$P_d(T_a=25^\circ\text{C})$	2	W
	$P_d(T_c=25^\circ\text{C})$	60	
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^\circ\text{C}$

Note : *1. Single Pulse $P_w=100\text{ms}$

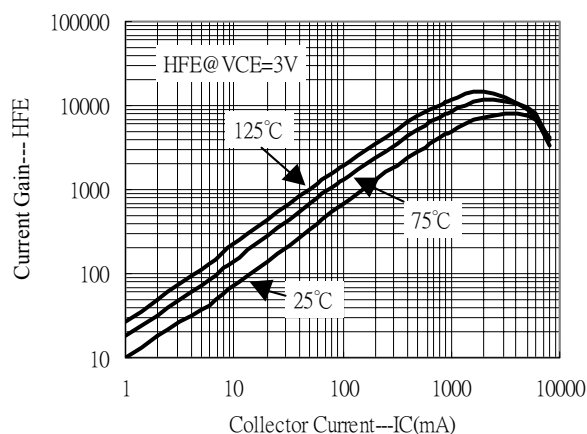
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	150	-	-	V	$I_C=100\mu A, I_E=0$
BV_{CEO}	150	-	-	V	$I_C=1mA, I_B=0$
I_{CEO}	-	-	200	μA	$V_{CE}=150V, I_E=0$
I_{CBO}	-	-	200	μA	$V_{CB}=150V, I_E=0$
I_{EBO}	-	-	2	mA	$V_{EB}=5V, I_C=0$
* $V_{CE(sat)1}$	-	-	2	V	$I_C=5A, I_B=10mA$
* $V_{CE(sat)2}$	-	-	3	V	$I_C=10A, I_B=100mA$
* $V_{CE(sat)3}$	-	-	1.5	V	$I_C=5A, I_B=2.5mA$
* $V_{BE(sat)}$	-	-	2	V	$I_C=5A, I_B=5mA$
* $V_{BE(on)1}$	-	-	2.8	V	$V_{CE}=3V, I_C=5A$
* $V_{BE(on)2}$	-	-	4.5	V	$V_{CE}=3V, I_C=10A$
* V_{FEC}	-	-	3	V	$I_C=5A$
* h_{FE1}	2	-	20	K	$V_{CE}=3V, I_C=5A$
* h_{FE2}	100	-	-	-	$V_{CE}=3V, I_C=10A$

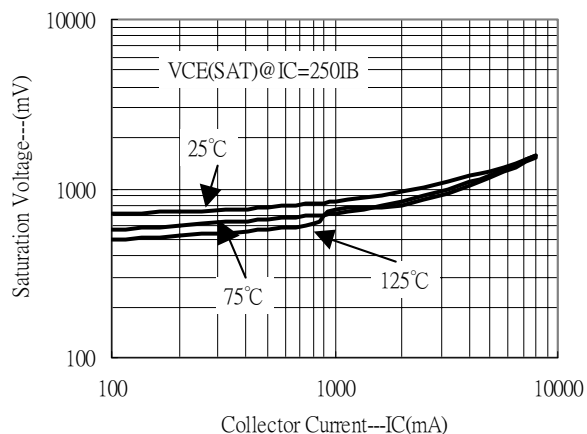
*Pulse Test : Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$

Characteristic Curves

Current Gain vs Collector Current

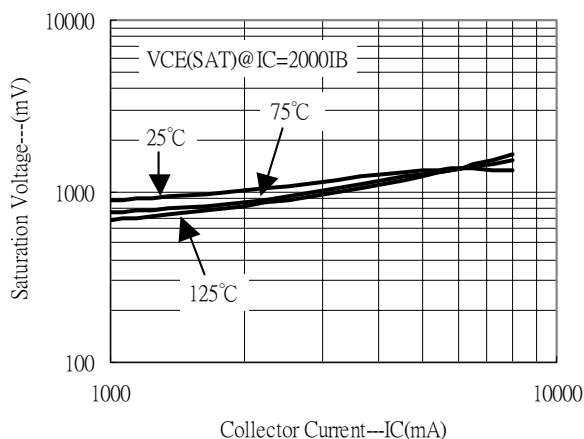


Saturation Voltage vs Collector Current

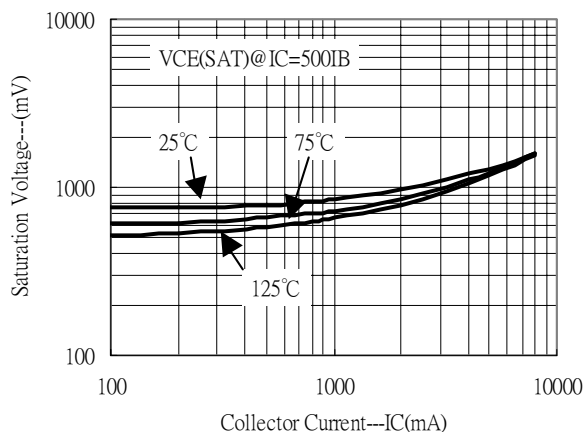


Characteristic Curves(Cont.)

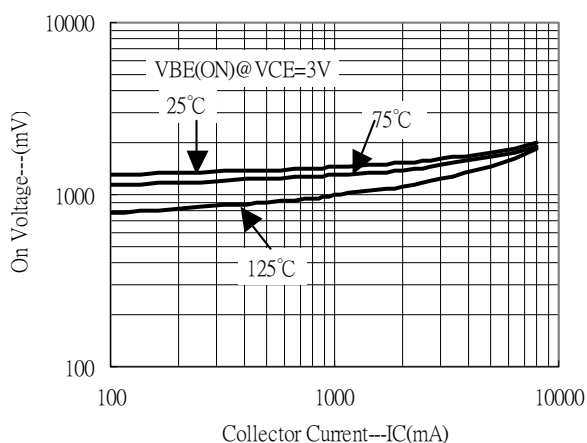
Saturation Voltage vs Collector Current



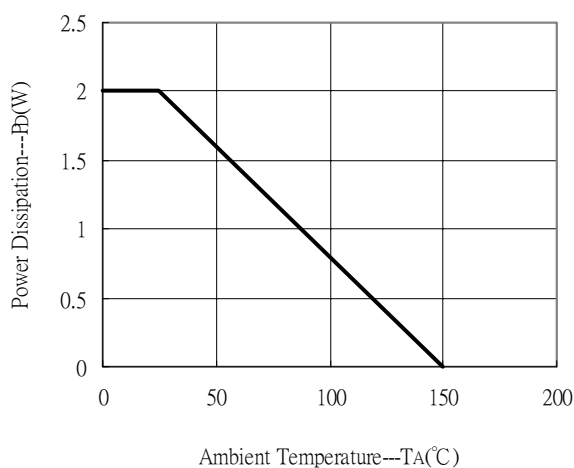
Saturation Voltage vs Collector Current



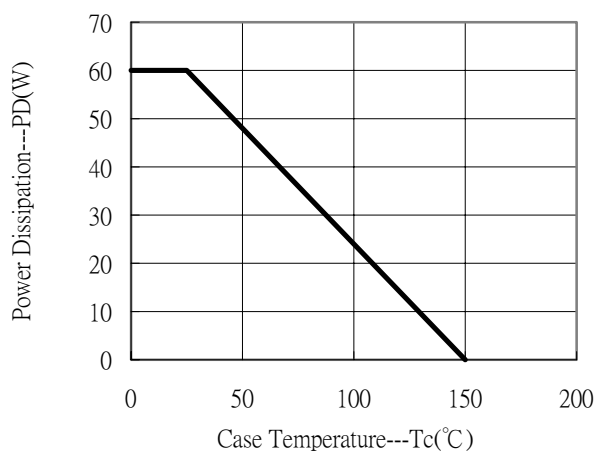
Saturation Voltage vs Collector Current



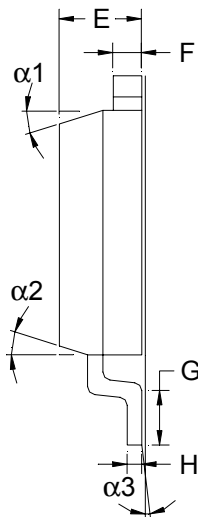
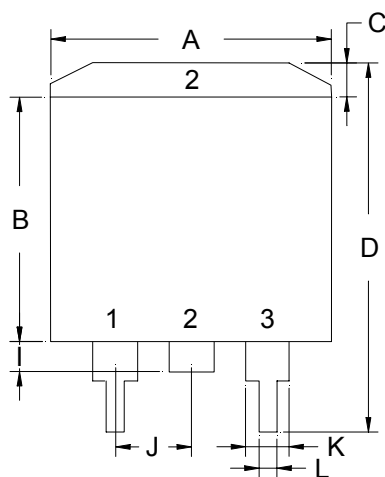
Power Derating Curve



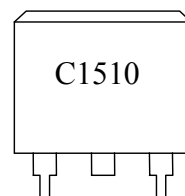
Power Derating Curve



TO-263 Dimension



Marking :



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

3-Lead Plastic Surface Mounted Package
CYStek Package Code : F3

*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.3800	0.4050	9.65	10.29	I	0.0500	0.0700	1.27	1.78
B	0.3300	0.3700	8.38	9.40	J	-	*0.1000	-	*2.54
C	-	0.0550	-	1.40	K	0.0450	0.0550	1.14	1.40
D	0.5750	0.6250	14.61	15.88	L	0.0200	0.0390	0.51	0.99
E	0.1600	0.1900	4.06	4.83	α1	-	-	6°	8°
F	0.0450	0.0550	1.14	1.40	α2	-	-	6°	8°
G	0.0900	0.1100	2.29	2.79	α3	-	-	0°	5°
H	0.0180	0.0290	0.46	0.74					

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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