

NPN Epitaxial Planar Transistor

BTC1510FP

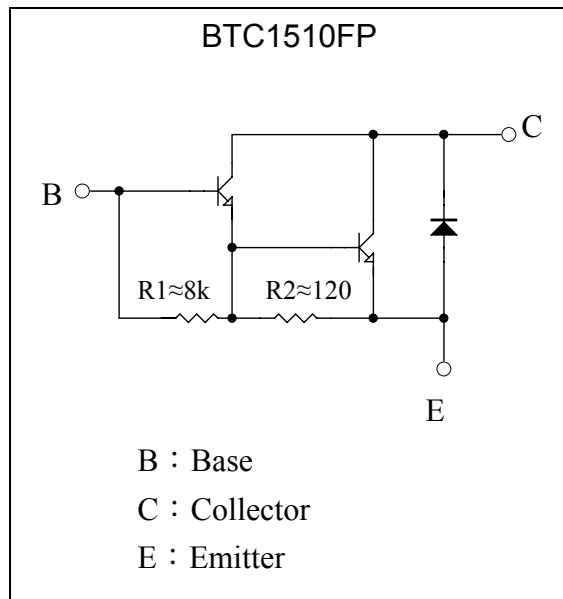
Description

The BTC1510FP is a NPN Darlington transistor, designed for general purpose amplifier and low speed switching application.

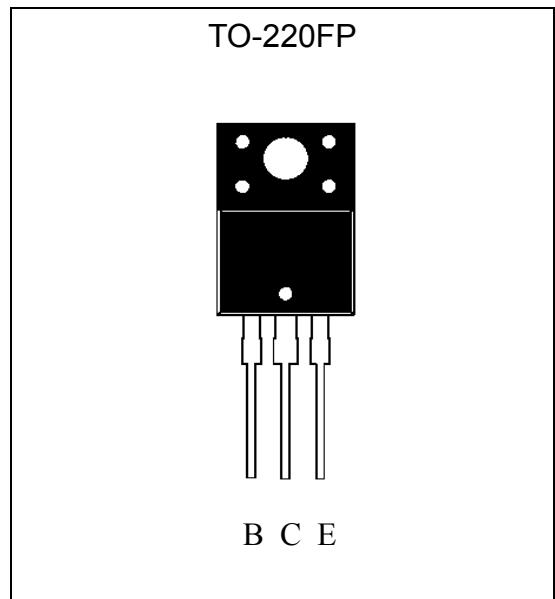
Features:

- 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 _{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	Pd(T _A =25°C)	2	W
	Pd(T _C =25°C)	60	
Thermal Resistance, Junction to Ambient	R _{θJA}	62.5	°C/W
Thermal Resistance, Junction to Case	R _{θJC}	2.08	°C/W
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~+150	°C

Note : *1. Single Pulse Pw=100ms

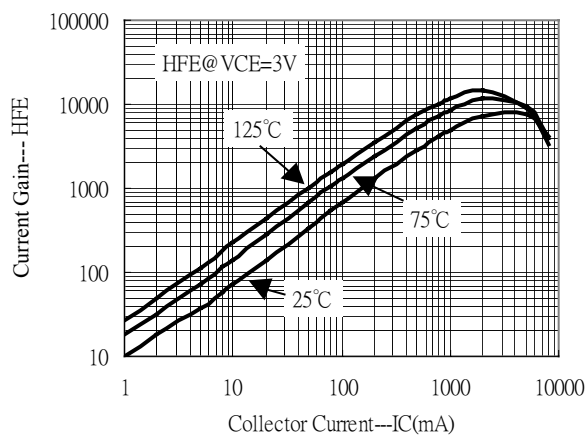
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	150	-	-	V	I _C =100μA, 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 _{FE} 1	2	-	20	K	V _{CE} =3V, I _C =5A
*h _{FE} 2	100	-	-	-	V _{CE} =3V, I _C =10A

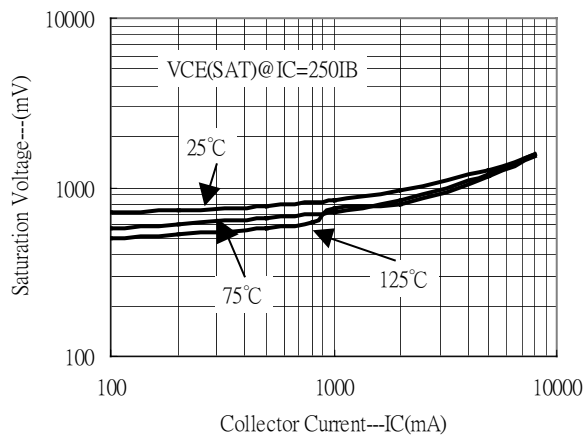
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

Characteristic Curves

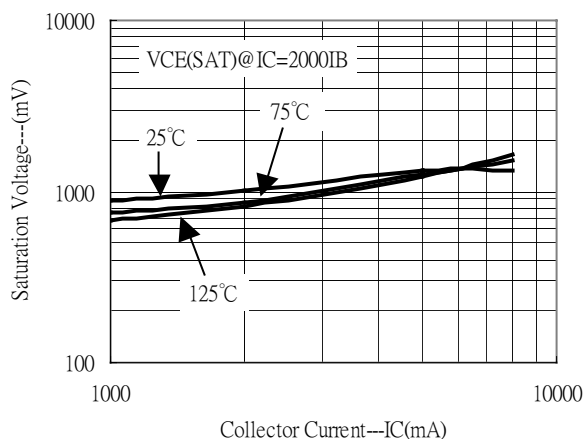
Current Gain vs Collector Current



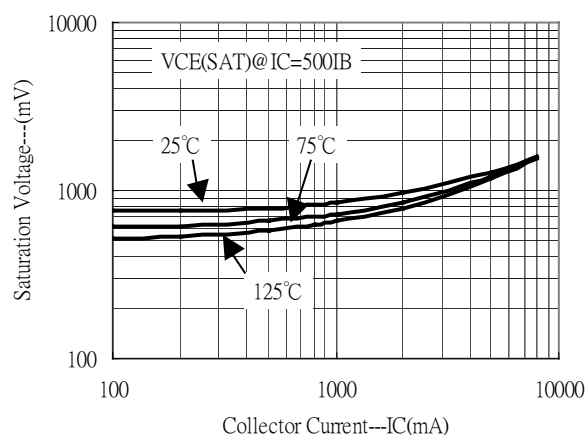
Saturation Voltage vs Collector Current



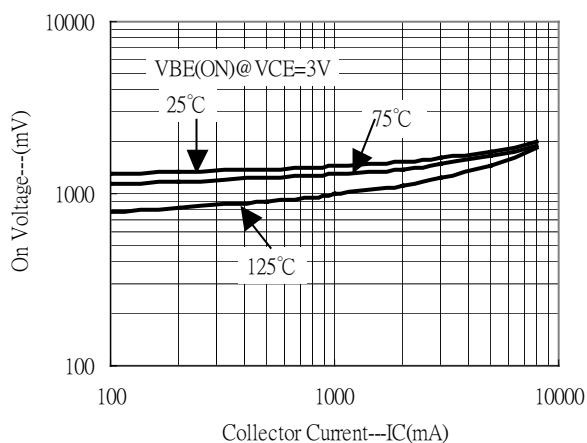
Saturation Voltage vs Collector Current



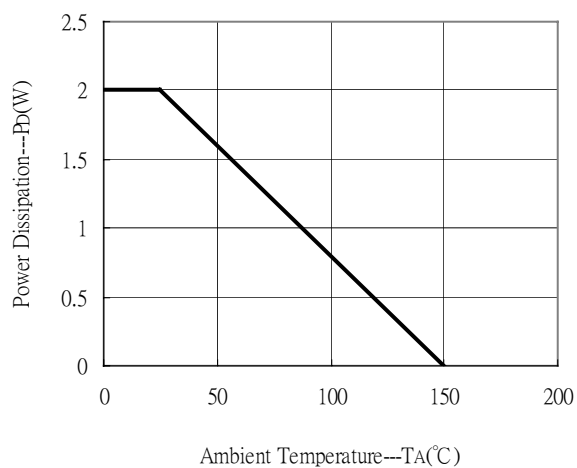
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current

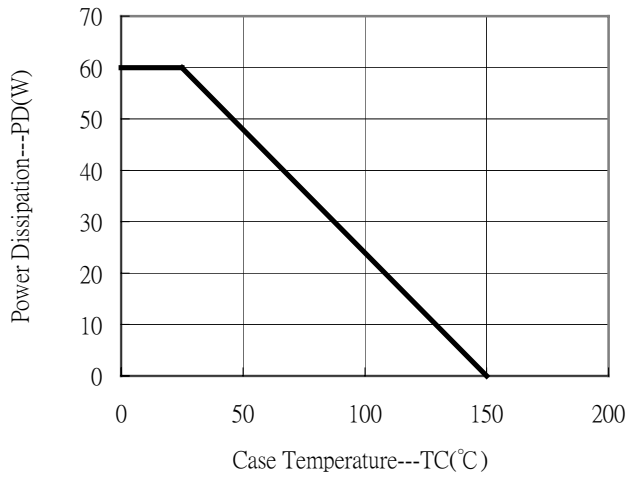


Power Derating Curve

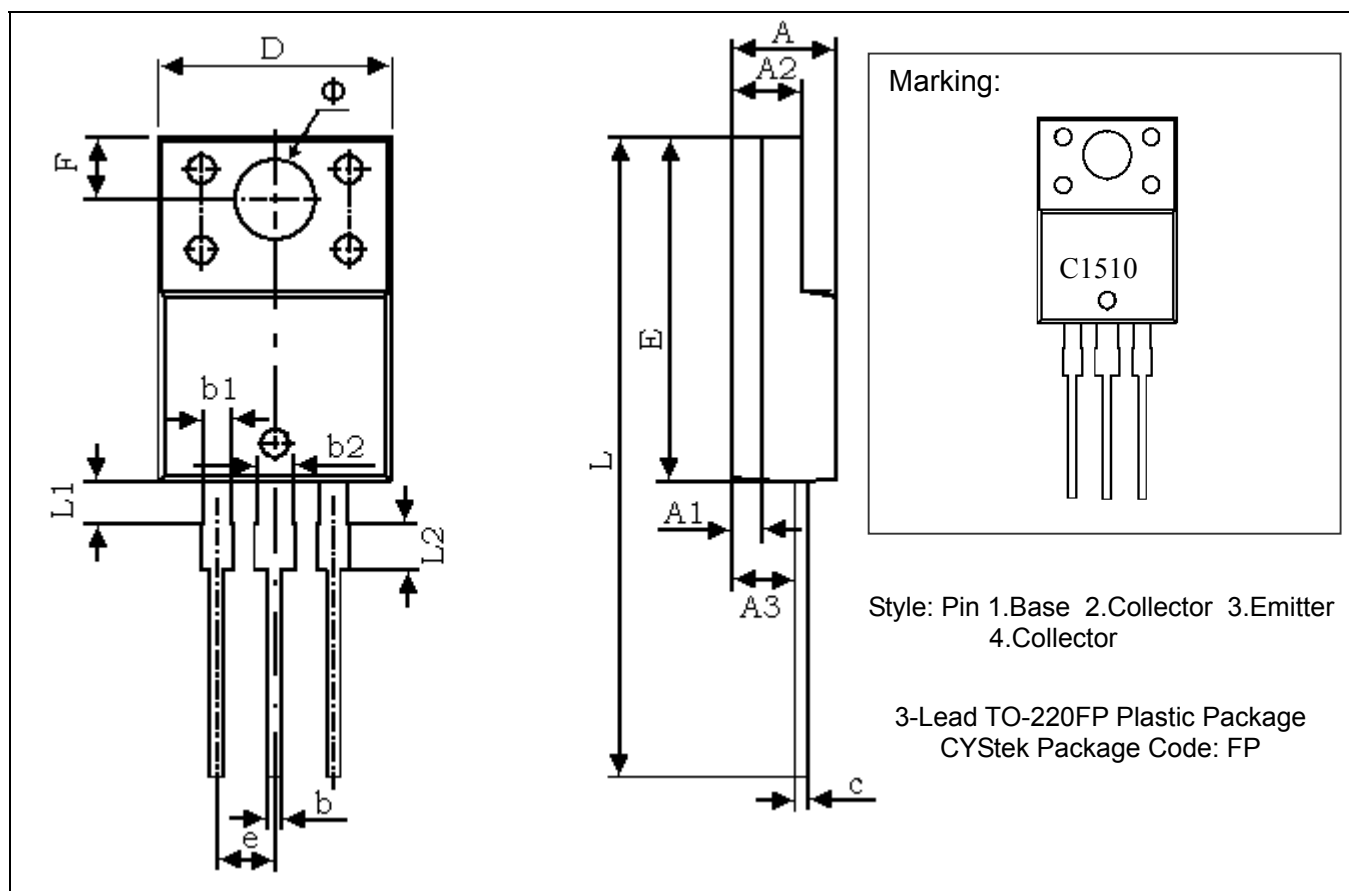


Characteristic Curves(Cont.)

Power Derating Curve



TO-220FP Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.169	0.185	4.300	4.700	D	0.392	0.408	9.960	10.360
A1	0.051 REF		1.300 REF		E	0.583	0.598	14.800	15.200
A2	0.110	0.126	2.800	3.200	e	0.100 TYP		2.540 TYP	
A3	0.098	0.114	2.500	2.900	F	0.106 REF		2.700 REF	
b	0.020	0.030	0.500	0.750	Φ	0.138 REF		3.500 REF	
b1	0.043	0.053	1.100	1.350	L	1.102	1.118	28.000	28.400
b2	0.059	0.069	1.500	1.750	L1	0.067	0.075	1.700	1.900
c	0.020	0.030	0.500	0.750	L2	0.075	0.083	1.900	2.100

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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