

Low Vcesat NPN Epitaxial Planar Transistor

BTD1805FP

Description

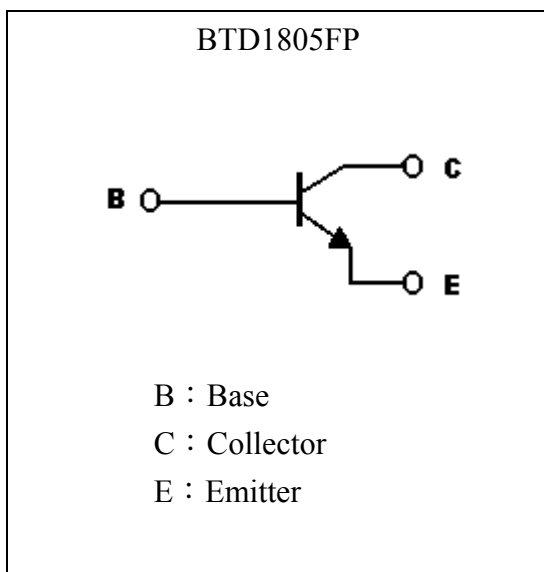
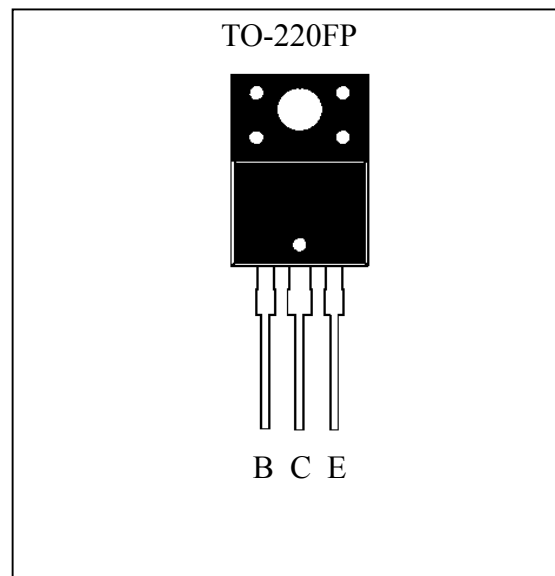
The device is manufactured in NPN planar technology by using a “Base Island” layout. The resulting transistor shows exceptional high gain performance coupled with very low saturation voltage.

Features

- Very low collector-to-emitter saturation voltage
- Fast switching speed
- High current gain characteristic
- Large current capability
- Pb-free package

Applications

- CCFL drivers
- Voltage regulators
- Relay drivers
- High efficiency low voltage switching applications

Symbol**Outline**



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage (IE=0)	V _{CBO}	150	V
Collector-Emitter Voltage (IB=0)	V _{CEO}	60	V
Emitter-Base Voltage (IC=0)	V _{EBO}	7	V
Collector Current (DC)	I _C	5	A
Collector Current (Pulse)	I _{CP}	10 (Note 1)	
Base Current	I _B	2	A
Power Dissipation @ TA=25°C	P _D	2	W
Power Dissipation @ TC=25°C	P _D	40	
Thermal Resistance, Junction to Ambient	R _{θJA}	62.5	°C/W
Thermal Resistance, Junction to Case	R _{θJC}	3.125	°C/W
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~+150	°C

Note : 1. Single Pulse , Pw ≤ 380μs, Duty ≤ 2%.

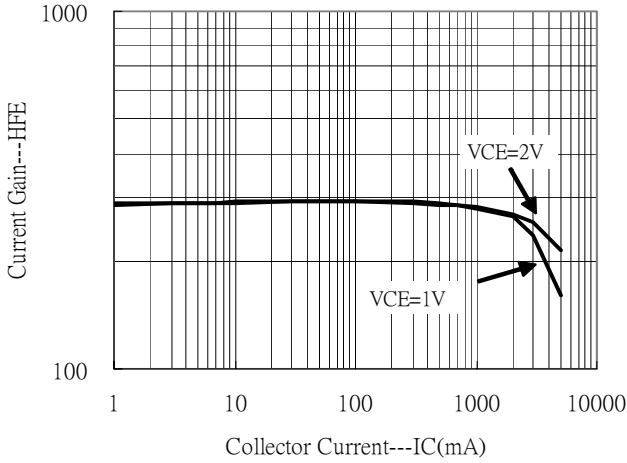
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	150	-	-	V	I _C =100μA, I _E =0
*BV _{CEO}	60	-	-	V	I _C =1mA, I _B =0
BV _{EBO}	7	-	-	V	I _C =100μA, I _C =0
I _{CBO}	-	-	0.1	μA	V _{CB} =80V, I _E =0
I _{EBO}	-	-	0.1	μA	V _{EB} =4V, I _C =0
*V _{CE(sat)} 1	-	-	50	mV	I _C =100mA, I _B =5mA
*V _{CE(sat)} 2	-	200	300	mV	I _C =2A, I _B =50mA
*V _{CE(sat)} 3	-	240	400	mV	I _C =3A, I _B =150mA
*V _{CE(sat)} 4	-	-	600	mV	I _C =5A, I _B =200mA
*V _{BE(sat)}	-	0.9	1.2	V	I _C =2A, I _B =100mA
*h _{FE} 1	200	-	400	-	V _{CE} =2V, I _C =100mA
*h _{FE} 2	85	-	-	-	V _{CE} =2V, I _C =5A
*h _{FE} 3	20	-	-	-	V _{CE} =2V, I _C =10A
f _T	-	150	-	MHz	V _{CE} =10V, I _C =50mA
C _{ob}	-	50	-	pF	V _{CB} =10V, f=1MHz
t _{on}	-	50	-	ns	V _{CC} =30V, I _C =10I _{B1} =-10I _{B2} =1A, R _L =30Ω
t _{stg}	-	1.35	-	μs	
t _f	-	120	-	ns	

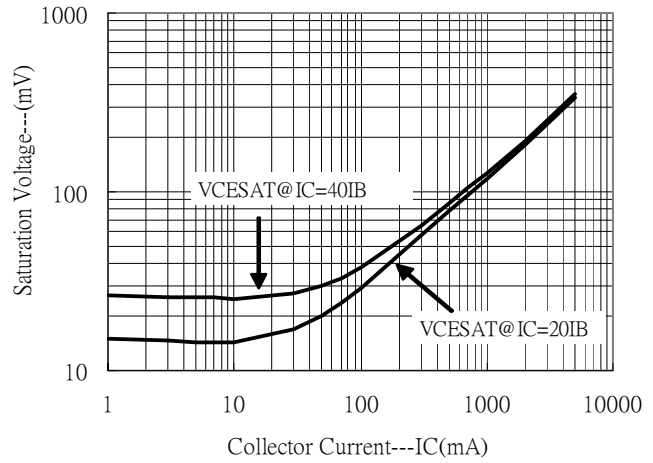
*Pulse Test : Pulse Width ≤ 380μs, Duty Cycles ≤ 2%

Characteristic Curves

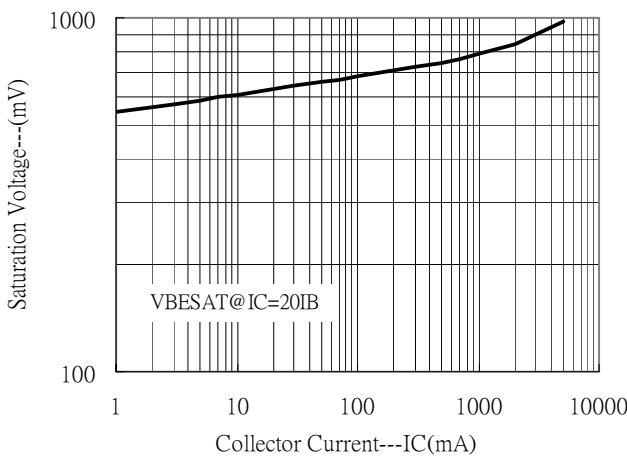
Current Gain vs Collector Current



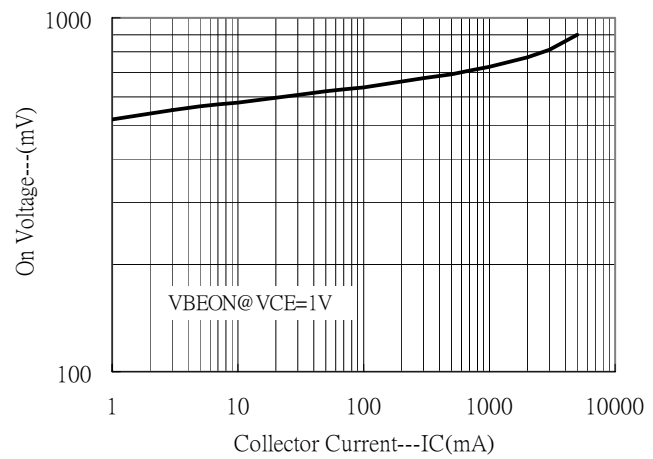
Saturation Voltage vs Collector Current



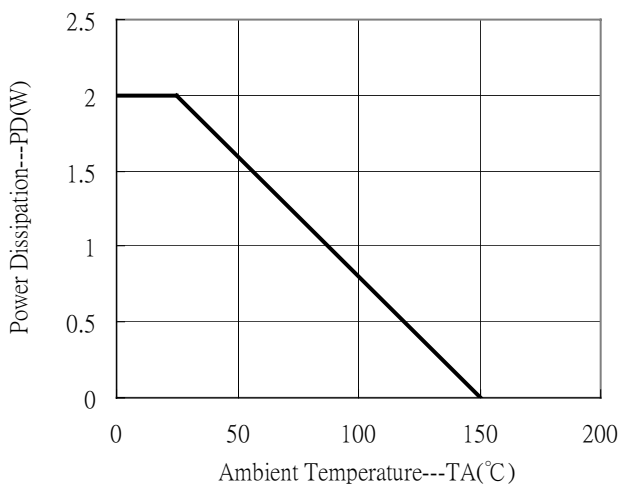
Saturation Voltage vs Collector Current



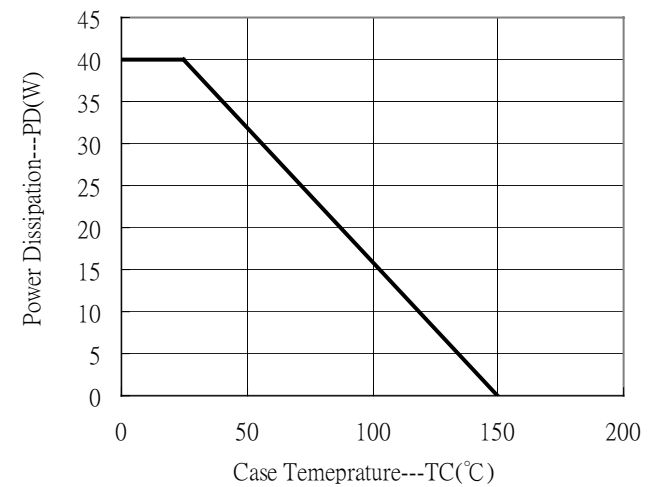
On Voltage vs Collector Current



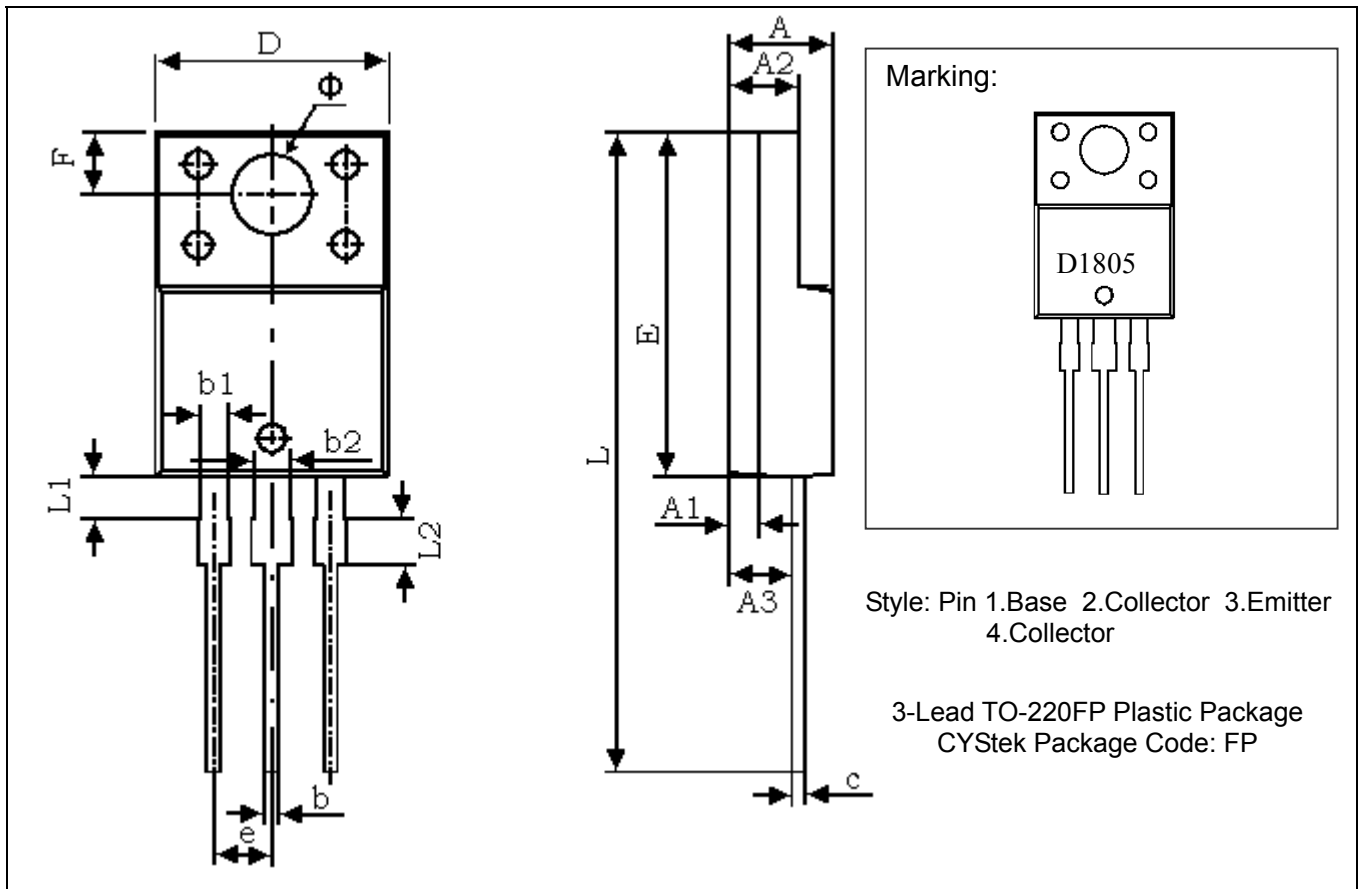
Power Derating Curve



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:**
- Controlling dimension: millimeters.
 - Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 - 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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