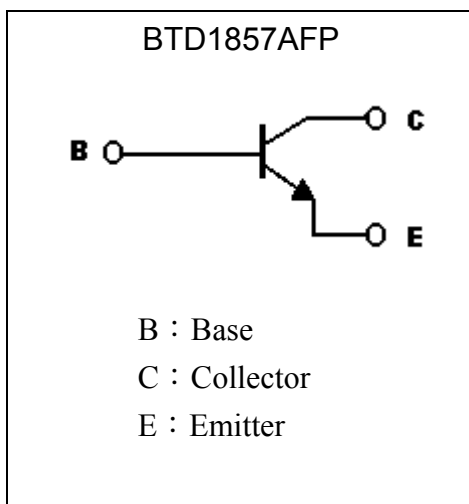
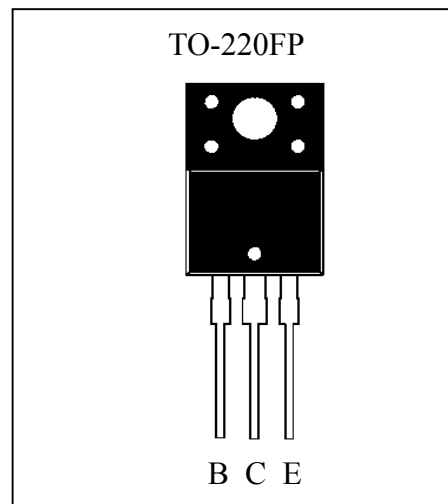


Silicon NPN Epitaxial Planar Transistor

BTD1857AFP

Description

- High BV_{CEO}
- High current capability
- Complementary to BTB1236AFP
- Pb-free package

Symbol

Outline

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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CB0}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	1.5	A
Collector Current (Pulse)	I_{CP}	3	A
Power Dissipation @ $T_A=25^\circ\text{C}$	P_D	2	W
Power Dissipation @ $T_C=25^\circ\text{C}$		20	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^\circ\text{C}$

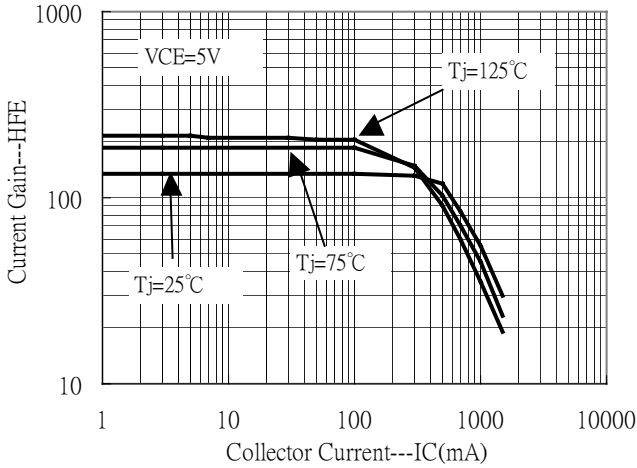
**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	180	-	-	V	$I_C=50\mu A, I_E=0$
BV_{CEO}	160	-	-	V	$I_C=1mA, I_B=0$
BV_{EBO}	5	-	-	V	$I_E=50\mu A, I_C=0$
I_{CBO}	-	-	1	μA	$V_{CB}=160V, I_E=0$
I_{EBO}	-	-	1	μA	$V_{EB}=4V, I_C=0$
* $V_{CE(sat)}$	-	-	0.6	V	$I_C=1A, I_B=100mA$
* $V_{BE(on)}$	-	-	1.5	V	$V_{CE}=5V, I_C=150mA$
h_{FE1}	160	-	320	-	$V_{CE}=5V, I_C=150mA$
h_{FE2}	30	-	-	-	$V_{CE}=5V, I_C=500mA$
f_T	-	140	-	MHz	$V_{CE}=5V, I_C=150mA$
Cob	-	27	-	pF	$V_{CB}=10V, I_E=0, f=1MHz$

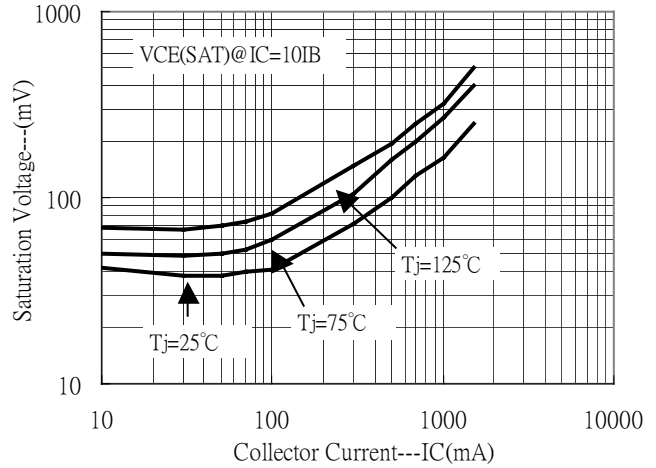
*Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$

Characteristic Curves

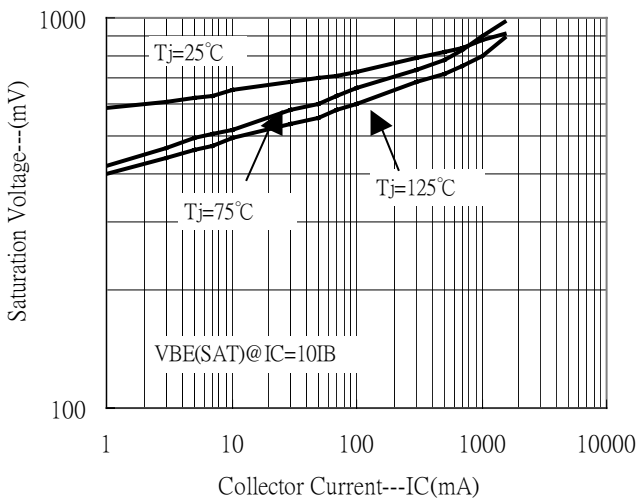
Current Gain vs Collector Current



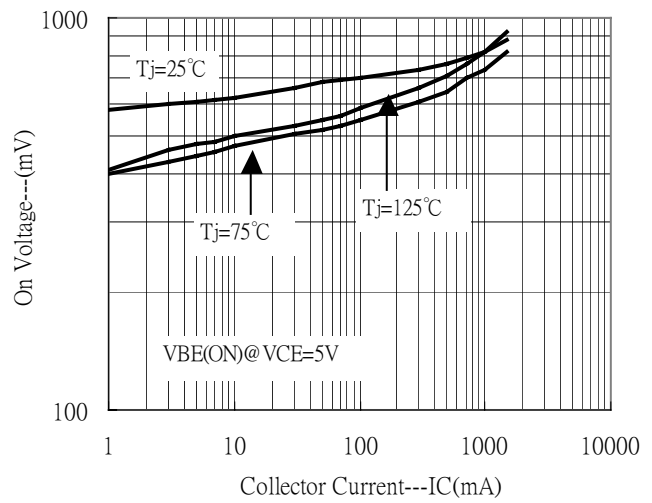
Saturation Voltage vs Collector Current



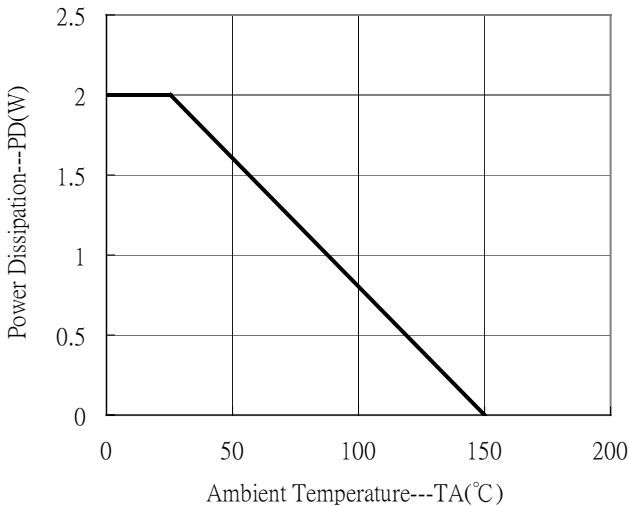
Saturation Voltage vs Collector Current



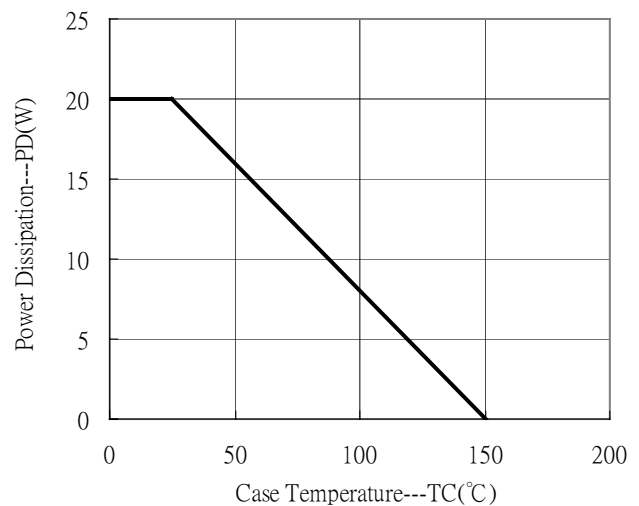
On Voltage vs Collector Current



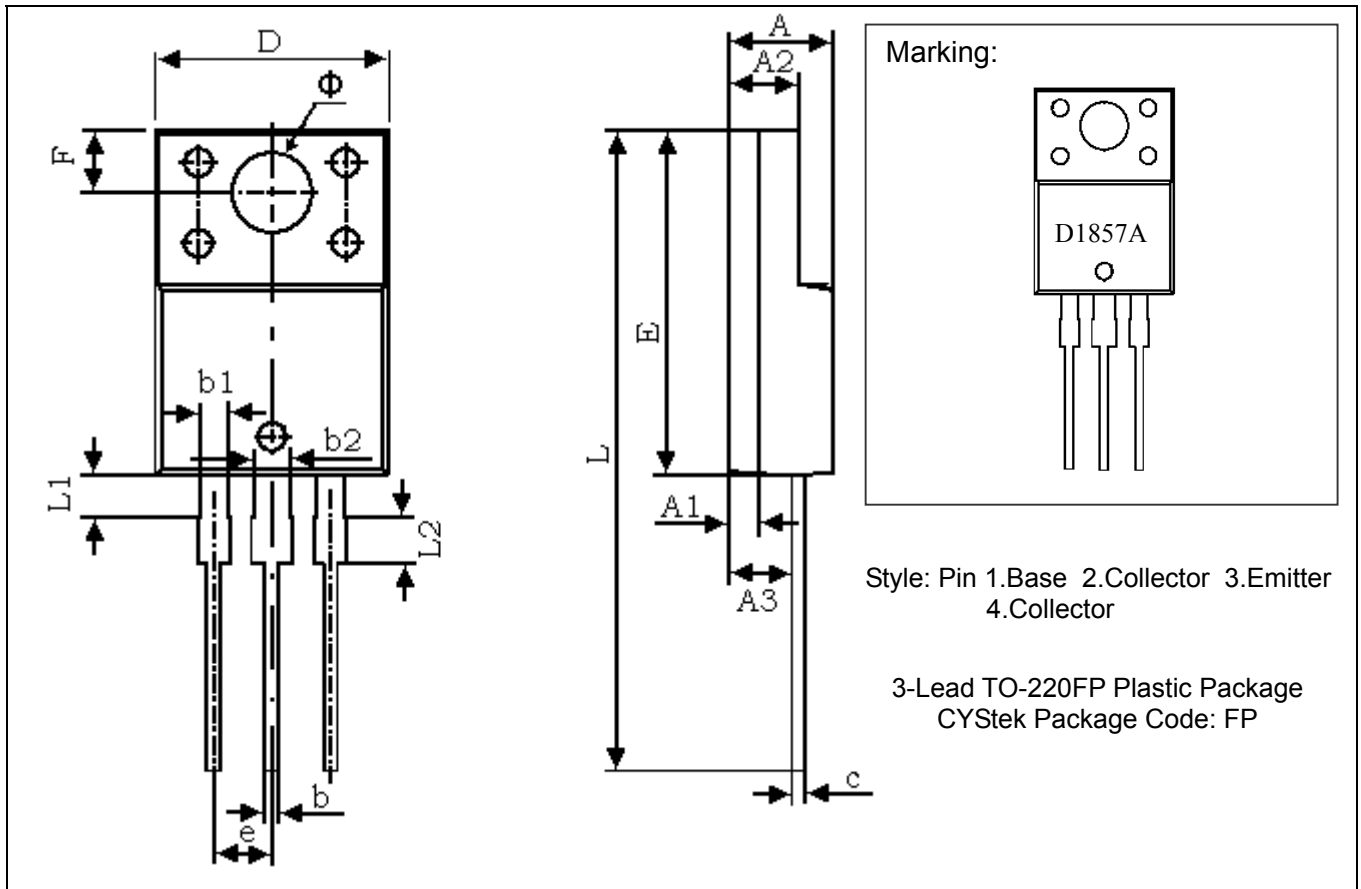
Power Derating Curve



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	phi	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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