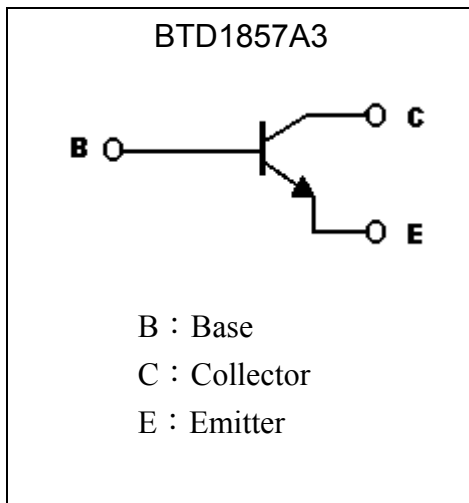
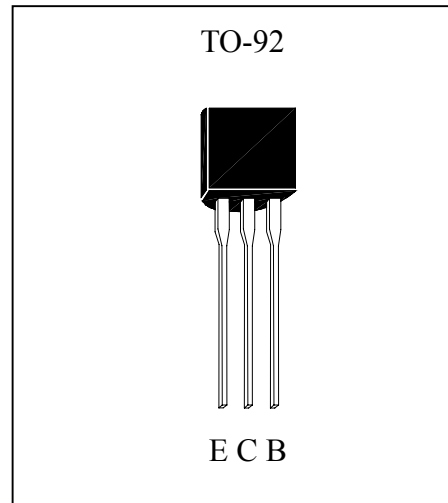


Silicon NPN Epitaxial Planar Transistor

BTD1857A3

Description

- High BV_{CEO}
- High current capability
- Complementary to BTB1236A3
- 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}	180	V
Emitter-Base Voltage	V_{EB0}	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	750	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^\circ\text{C}$

**Characteristics (Ta=25°C)**

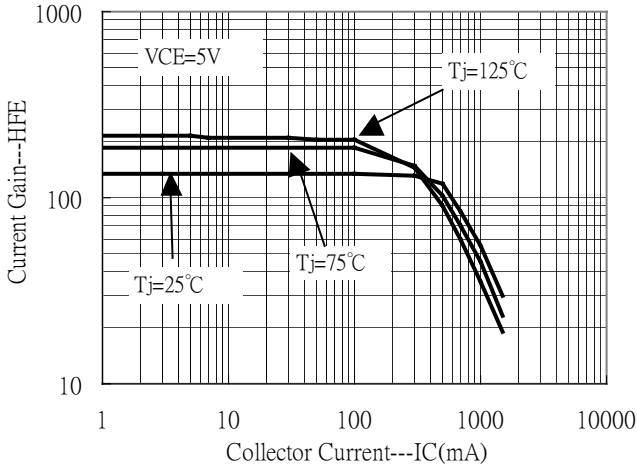
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	180	-	-	V	$I_C=50\mu A, I_E=0$
BV_{CEO}	180	-	-	V	$I_C=1mA, I_B=0$
BV_{EBO}	5	-	-	V	$I_E=50\mu A, I_C=0$
I_{CBO}	-	-	1	μA	$V_{CB}=160V, I_E=0$
I_{EBO}	-	-	1	μA	$V_{EB}=4V, I_C=0$
* $V_{CE(sat)}$	-	-	0.6	V	$I_C=1A, I_B=100mA$
* $V_{BE(on)}$	0.45	-	0.8	V	$V_{CE}=5V, I_C=5mA$
h_{FE1}	82	-	390	-	$V_{CE}=5V, I_C=200mA$
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 $\leq 2\%$ **Classification of $h_{FE} 1$**

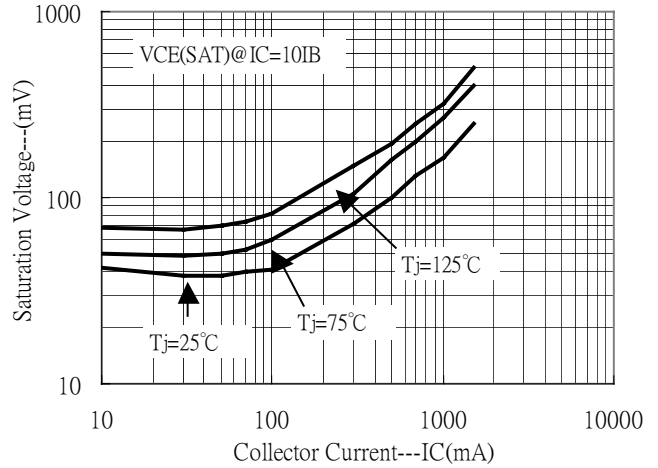
Rank	P	Q	R
Range	82~180	120~270	180~390

Characteristic Curves

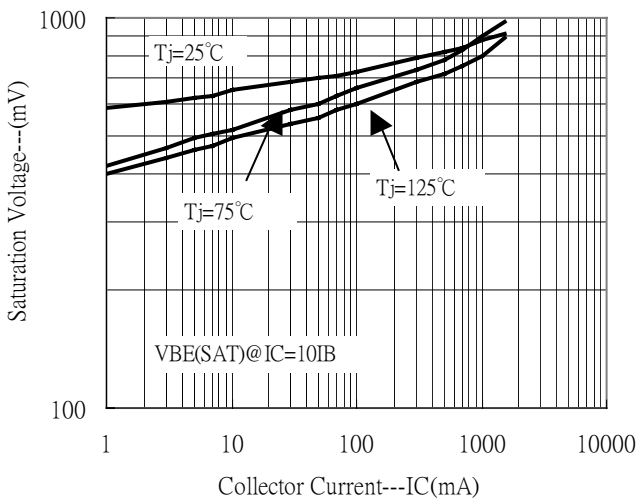
Current Gain vs Collector Current



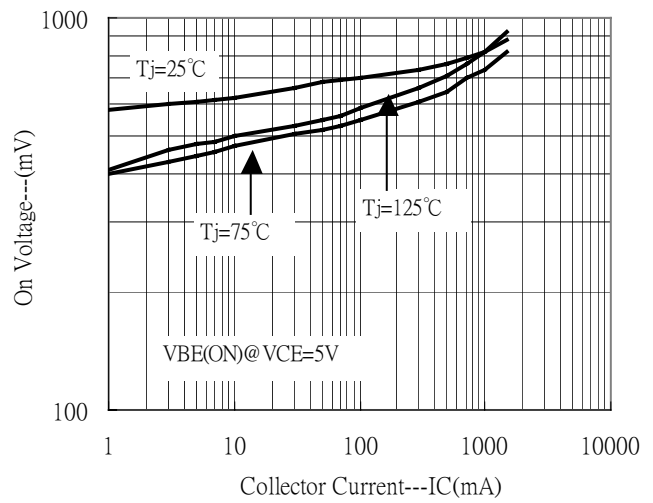
Saturation Voltage vs Collector Current



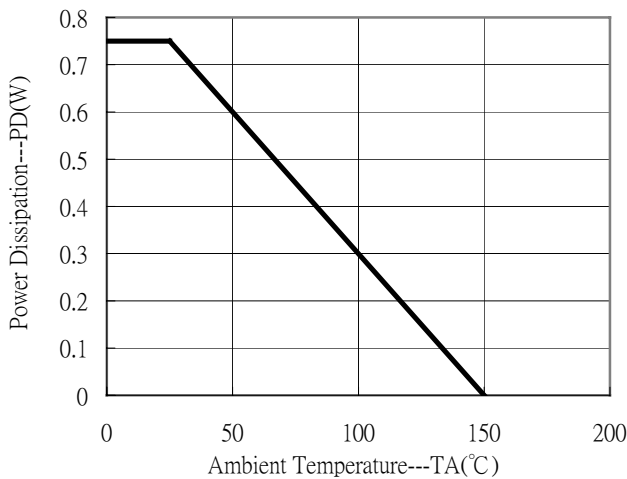
Saturation Voltage vs Collector Current



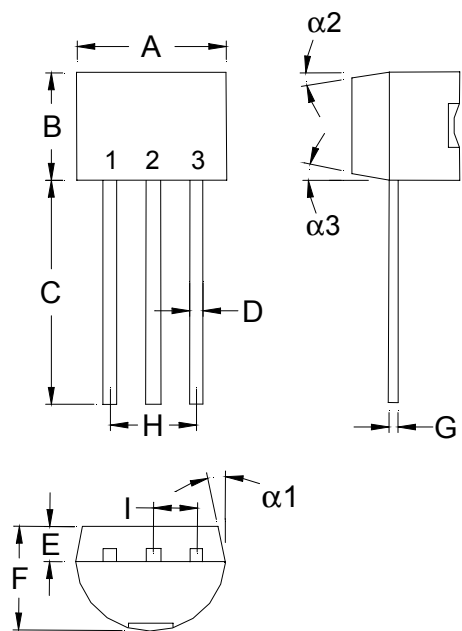
On Voltage vs Collector Current



Power Derating Curve



TO-92 Dimension



Marking:

D1857

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

3-Lead TO-92 Plastic Package
 CYStek Package Code: A3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1704	0.1902	4.33	4.83	G	0.0142	0.0220	0.36	0.56
B	0.1704	0.1902	4.33	4.83	H	-	*0.1000	-	*2.54
C	0.5000	-	12.70	-	I	-	*0.0500	-	*1.27
D	0.0142	0.0220	0.36	0.56	$\alpha 1$	-	*5°	-	*5°
E	-	*0.0500	-	*1.27	$\alpha 2$	-	*2°	-	*2°
F	0.1323	0.1480	3.36	3.76	$\alpha 3$	-	*2°	-	*2°

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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