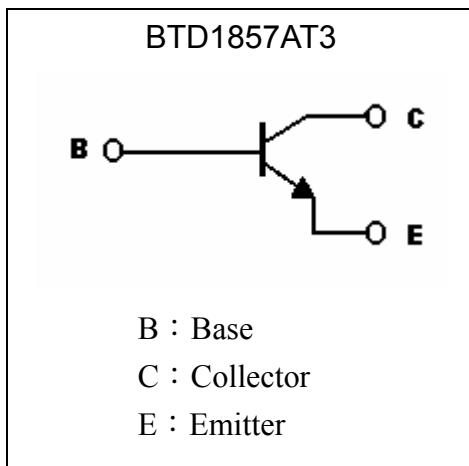
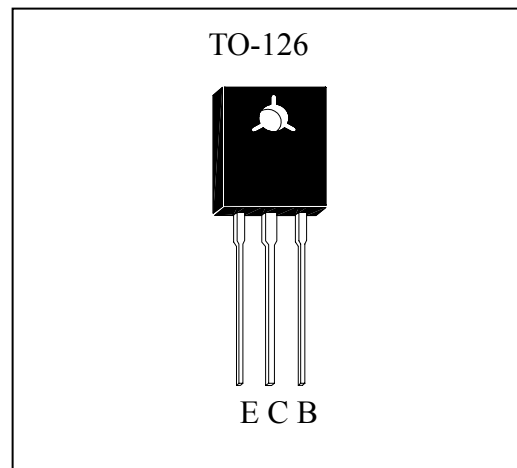


**Silicon NPN Epitaxial Planar Transistor**

# BTD1857AT3

**Description**

- High  $BV_{CEO}$
- High current capability
- Complementary to BTB1236AT3

**Symbol**

**Outline**

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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	$V_{CBO}$	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 @ $T_A=25^{\circ}\text{C}$	$P_D$	1	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)**

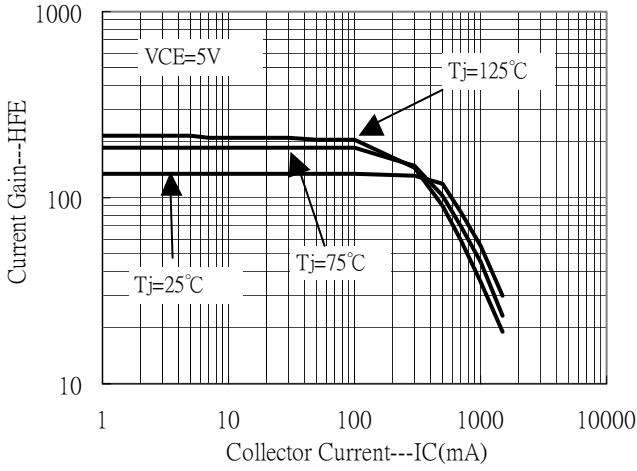
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
$BV_{CBO}$	180	-	-	V	$I_C=50\mu A, I_E=0$
$BV_{CEO}$	160	-	-	V	$I_C=1mA, I_B=0$
$BV_{EBO}$	5	-	-	V	$I_E=50\mu A, I_C=0$
$I_{CBO}$	-	-	1	$\mu A$	$V_{CB}=160V, I_E=0$
$I_{EBO}$	-	-	1	$\mu A$	$V_{EB}=4V, I_C=0$
* $V_{CE(sat)}$	-	-	0.6	V	$I_C=1A, I_B=100mA$
* $V_{BE(on)}$	-	-	1.5	V	$V_{CE}=5V, I_C=150mA$
$h_{FE1}$	60	-	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  $\leq 2\%$ **Classification of  $h_{FE} 1$** 

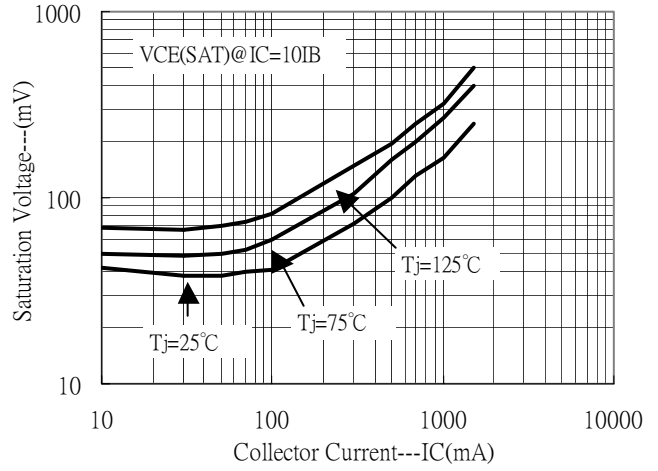
Rank	P	Q	R
Range	82~190	120~200	180~320

**Characteristic Curves**

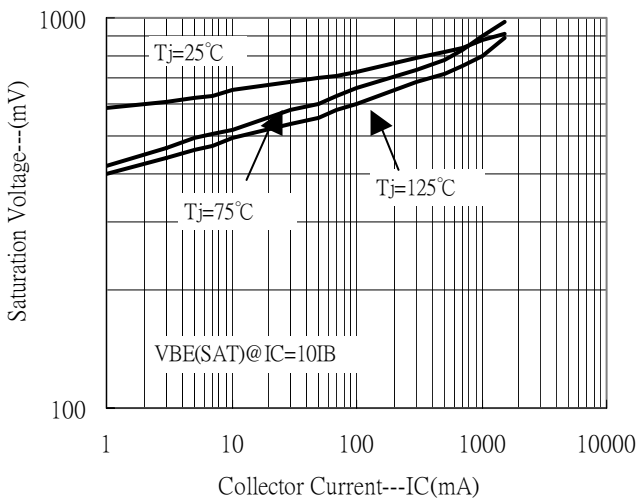
Current Gain vs Collector Current



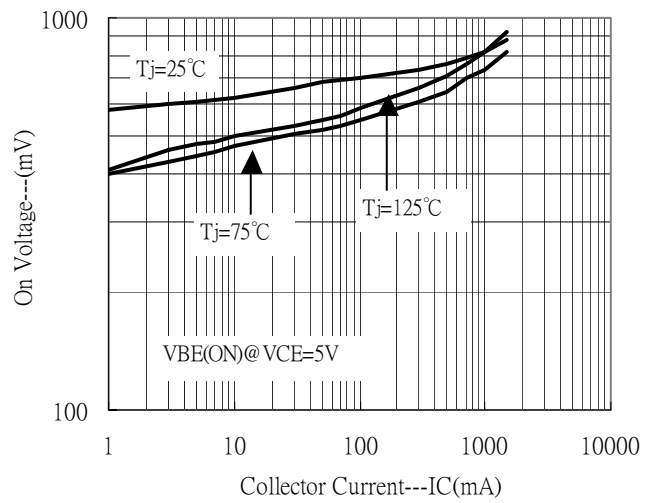
Saturation Voltage vs Collector Current



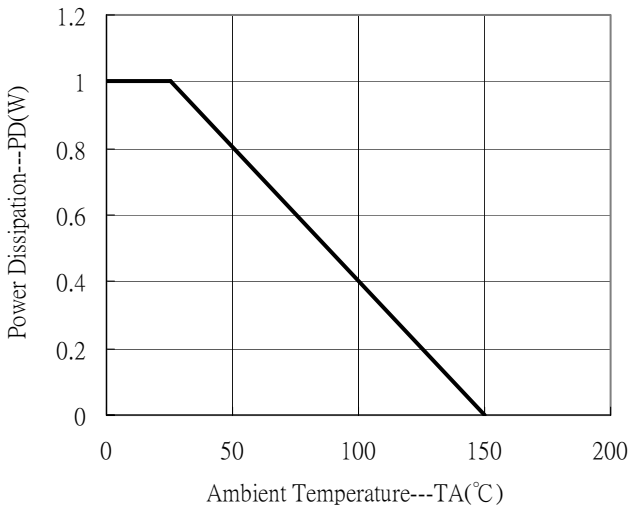
Saturation Voltage vs Collector Current



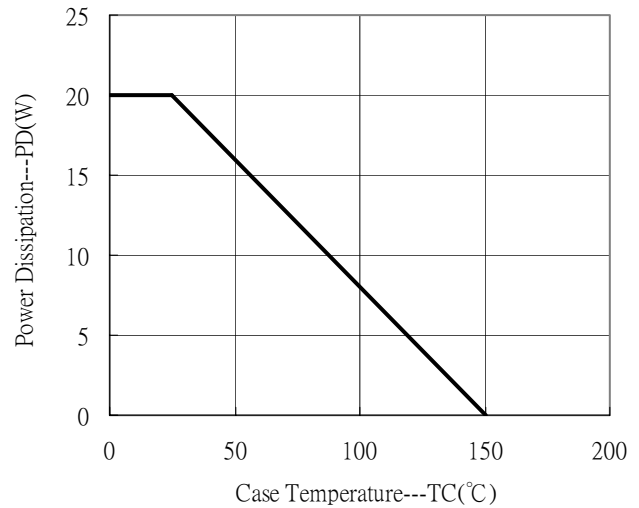
On Voltage vs Collector Current



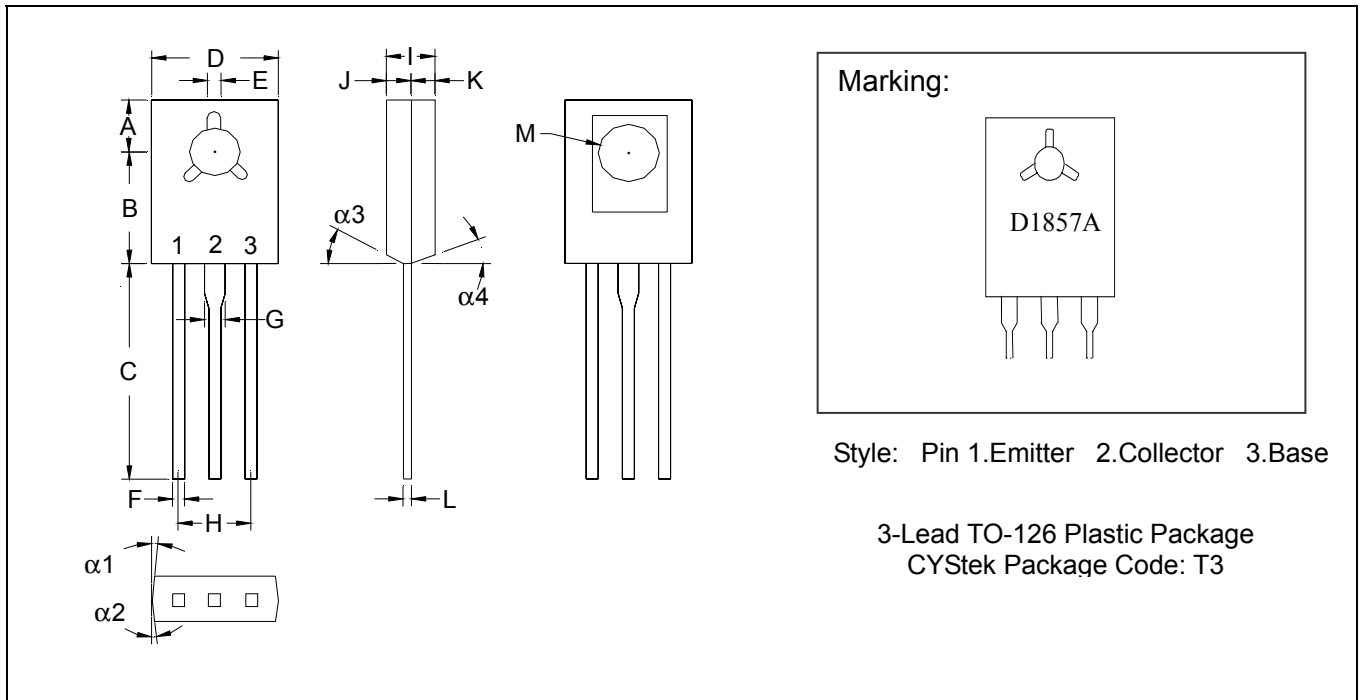
Power Derating Curve



Power Derating Curve



**TO-126 Dimension**



\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
$\alpha 1$	-	*3°	-	*3°	F	0.0280	0.0319	0.71	0.81
$\alpha 2$	-	*3°	-	*3°	G	0.0480	0.0520	1.22	1.32
$\alpha 3$	-	*3°	-	*3°	H	0.1709	0.1890	4.34	4.80
$\alpha 4$	-	*3°	-	*3°	I	0.0950	0.1050	2.41	2.66
A	0.1500	0.1539	3.81	3.91	J	0.0450	0.0550	1.14	1.39
B	0.2752	0.2791	6.99	7.09	K	0.0450	0.0550	1.14	1.39
C	0.5315	0.6102	13.50	15.50	L	-	*0.0217	-	*0.55
D	0.2854	0.3039	7.52	7.72	M	0.1378	0.1520	3.50	3.86
E	0.0374	0.0413	0.95	1.05					

- 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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