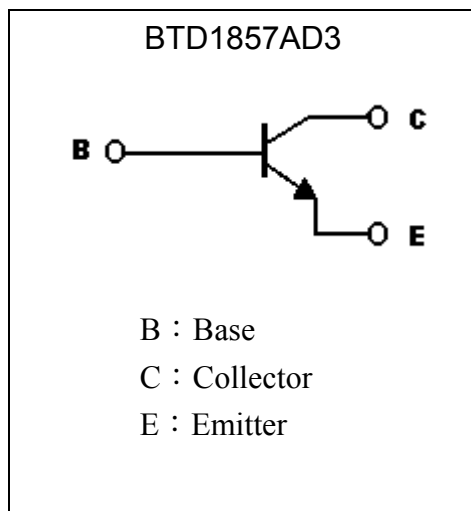
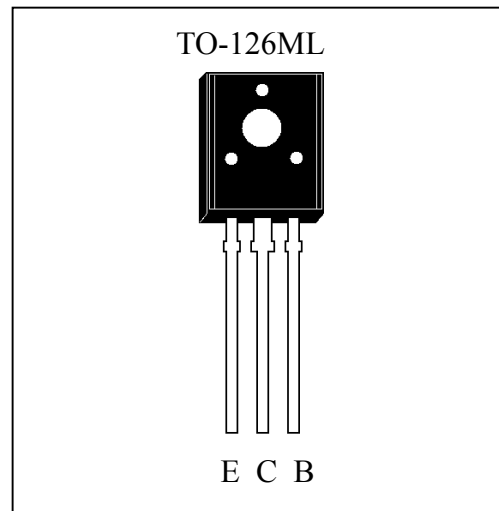


**Silicon NPN Epitaxial Planar Transistor**

# BTD1857AD3

**Description**

- High  $BV_{CEO}$
- High current capability
- Complementary to BTB1236AD3
- Pb-free package

**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	$^\circ\text{C}$

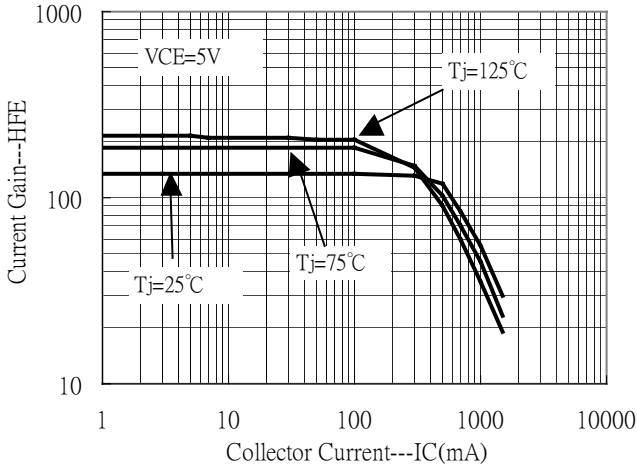
**Characteristics (Ta=25°C)**

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	$V_{CE}=5V, I_C=150mA$
$h_{FE1}$	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	$V_{CB}=10V, I_E=0, f=1MHz$

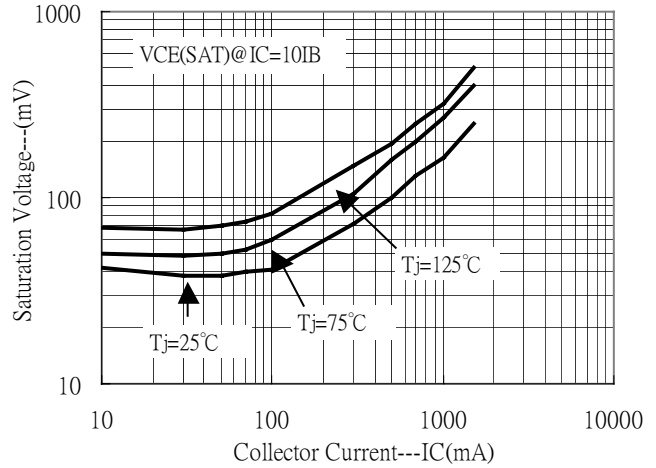
\*Pulse Test: Pulse Width  $\leq 380\mu s$ , Duty Cycle  $\leq 2\%$

**Characteristic Curves**

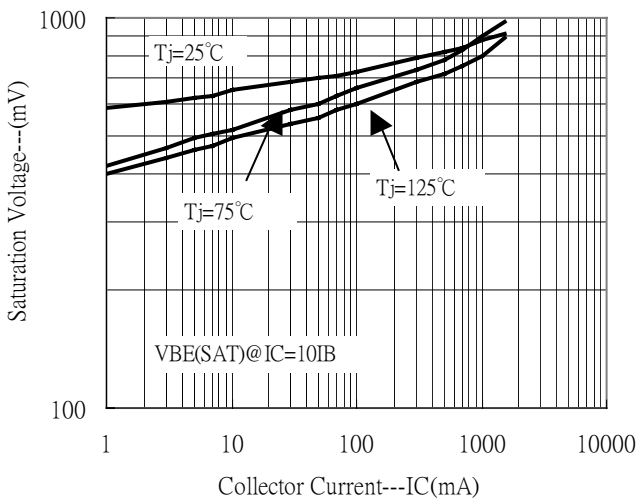
Current Gain vs Collector Current



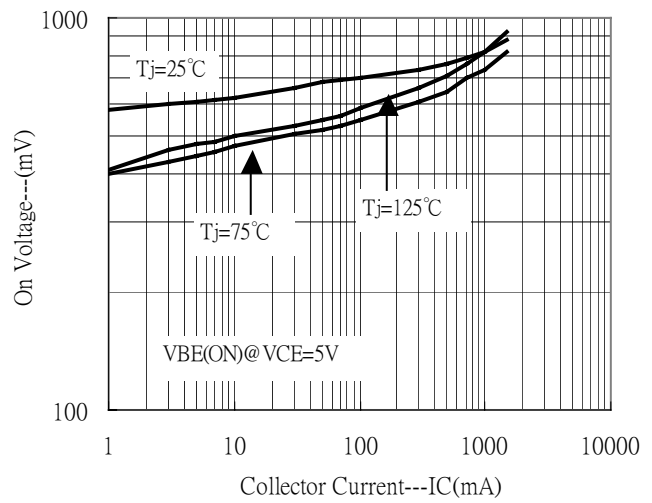
Saturation Voltage vs Collector Current



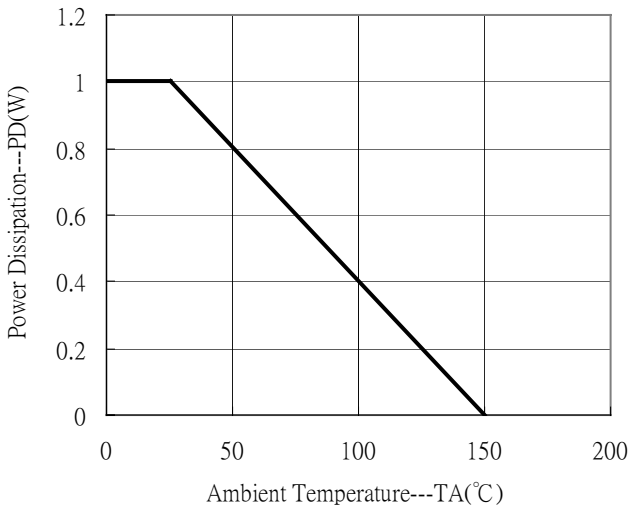
Saturation Voltage vs Collector Current



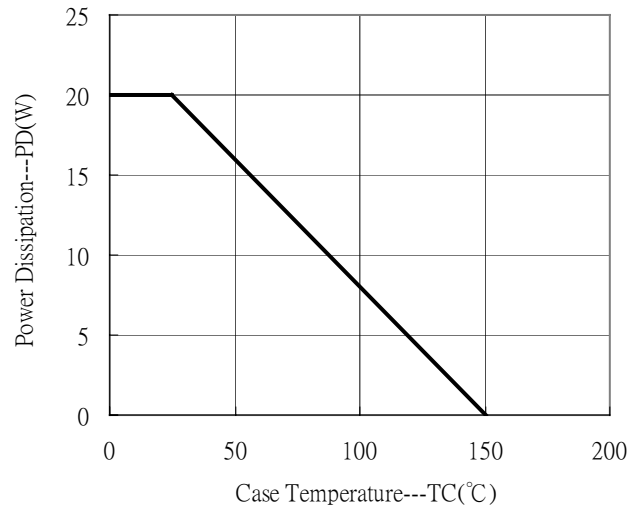
On Voltage vs Collector Current



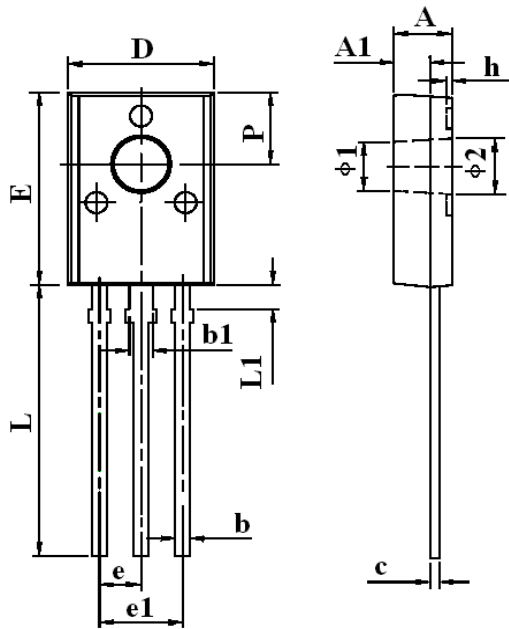
Power Derating Curve



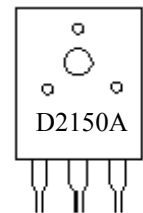
Power Derating Curve



**TO-126ML Dimension**



Marking:



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

3-Lead TO-126ML Plastic Package  
 CYStek Package Code: D3

\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.118	0.134	3.000	3.400	e	*0.090		*2.28	
A1	0.071	0.087	1.800	2.200	e1	0.176	0.183	4.460	4.660
b	0.026	0.034	0.660	0.860	L	0.594	0.610	15.100	15.500
b1	0.046	0.054	1.170	1.370	L1	0.051	0.059	1.300	1.500
c	0.018	0.024	0.450	0.600	P	0.159	0.167	4.040	4.240
D	0.307	0.323	7.800	8.200	Φ1	0.118	0.126	3.000	3.200
E	0.425	0.441	10.800	11.200	Φ2	0.122	0.130	3.100	3.300

- 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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