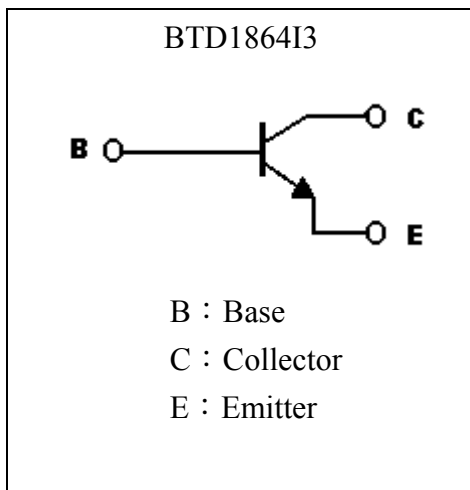
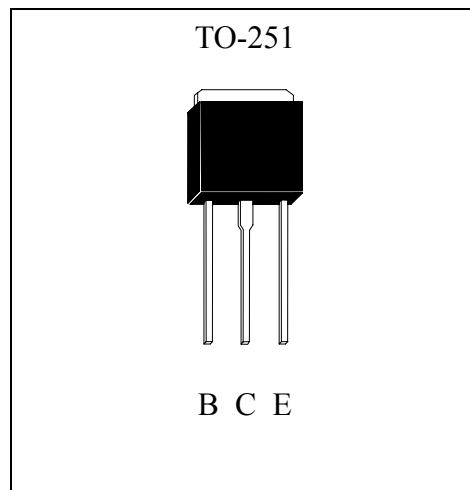


**Low Vcesat NPN Epitaxial Planar Transistor**

# BTD1864I3

**Features**

- Low  $V_{CE(sat)}$
- Excellent current gain characteristics
- Complementary to BTB1243I3

**Symbol**

**Outline**

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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	$V_{CBO}$	80	V
Collector-Emitter Voltage	$V_{CES}$	80	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_c(\text{DC})$	5	A
	$I_c(\text{Pulse})$	7.5 *1	
Power Dissipation	$P_d(T_a=25^\circ\text{C})$	1	W
	$P_d(T_c=25^\circ\text{C})$	15	
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55~+150	$^\circ\text{C}$

 Note : \*1. Single Pulse  $P_w=10\text{ms}$

**Characteristics (Ta=25°C)**

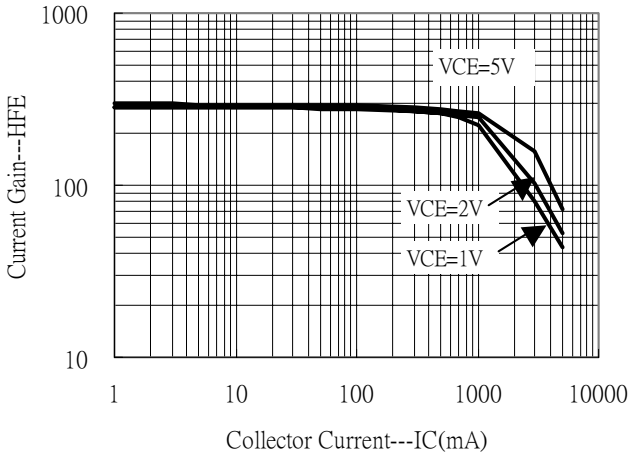
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
$BV_{CB0}$	80	-	-	V	$I_C=10\mu A, I_E=0$
$BV_{CES}$	80	-	-	V	$I_C=100\mu A, R_{BE}=0$
$BV_{CEO}$	50	-	-	V	$I_C=1mA, I_B=0$
$BV_{EBO}$	6	-	-	V	$I_E=10\mu A, I_C=0$
$I_{CBO}$	-	-	1	$\mu A$	$V_{CB}=40V, I_E=0$
$I_{EBO}$	-	-	1	$\mu A$	$V_{EB}=4V, I_C=0$
* $V_{CE(sat)1}$	-	-	135	mV	$I_C=1A, I_B=50mA$
* $V_{CE(sat)2}$	-	-	240	mV	$I_C=2A, I_B=100mA$
* $V_{BE(sat)}$	-	-	1.2	V	$I_C=2A, I_B=100mA$
* $h_{FE1}$	100	-	-	-	$V_{CE}=2V, I_C=20mA$
* $h_{FE2}$	180	-	820	-	$V_{CE}=2V, I_C=500mA$
* $h_{FE3}$	100	-	-	-	$V_{CE}=2V, I_C=1A$
$f_T$	-	400	-	MHz	$V_{CE}=10V, I_C=500mA, f=100MHz$
Cob	-	15	-	pF	$V_{CB}=10V, f=1MHz$
$t_{on}$	-	35	-	ns	$V_{CC}=25V, I_C=10I_{B1}=-10I_{B2}=1A, R_L=25\Omega$
$t_{stg}$	-	300	-	ns	
$t_f$	-	20	-	ns	

\*Pulse Test : Pulse Width  $\leq 380\mu s$ , Duty Cycle  $\leq 2\%$ **Classification Of hFE2**

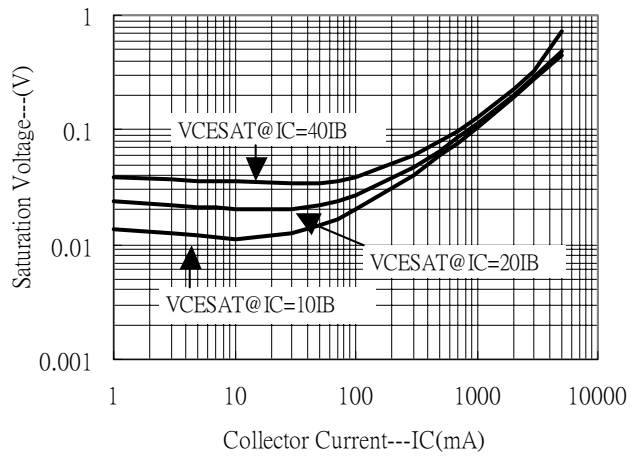
Rank	R	S	T
Range	180~390	270~560	390~820

**Characteristic Curves**

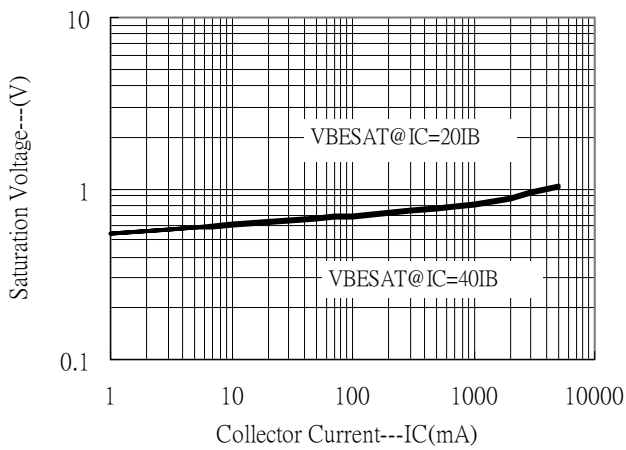
Current Gain vs Collector Current



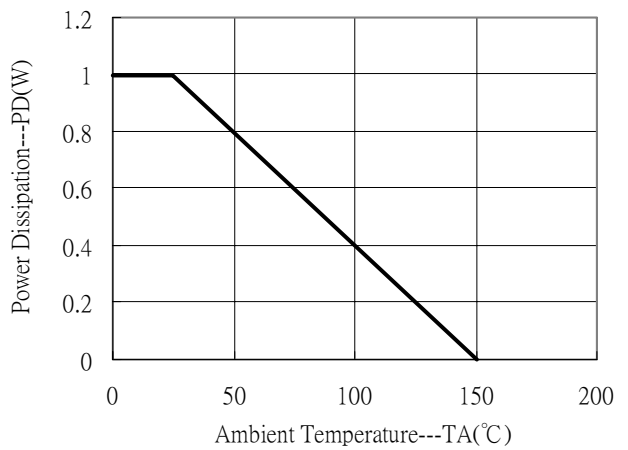
Saturation Voltage vs Collector Current



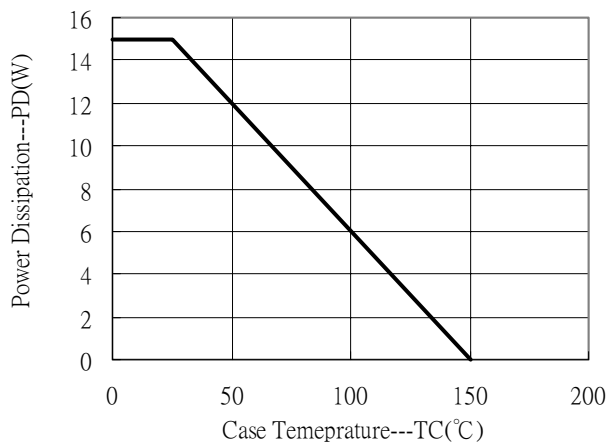
Saturation Voltage vs Collector Current



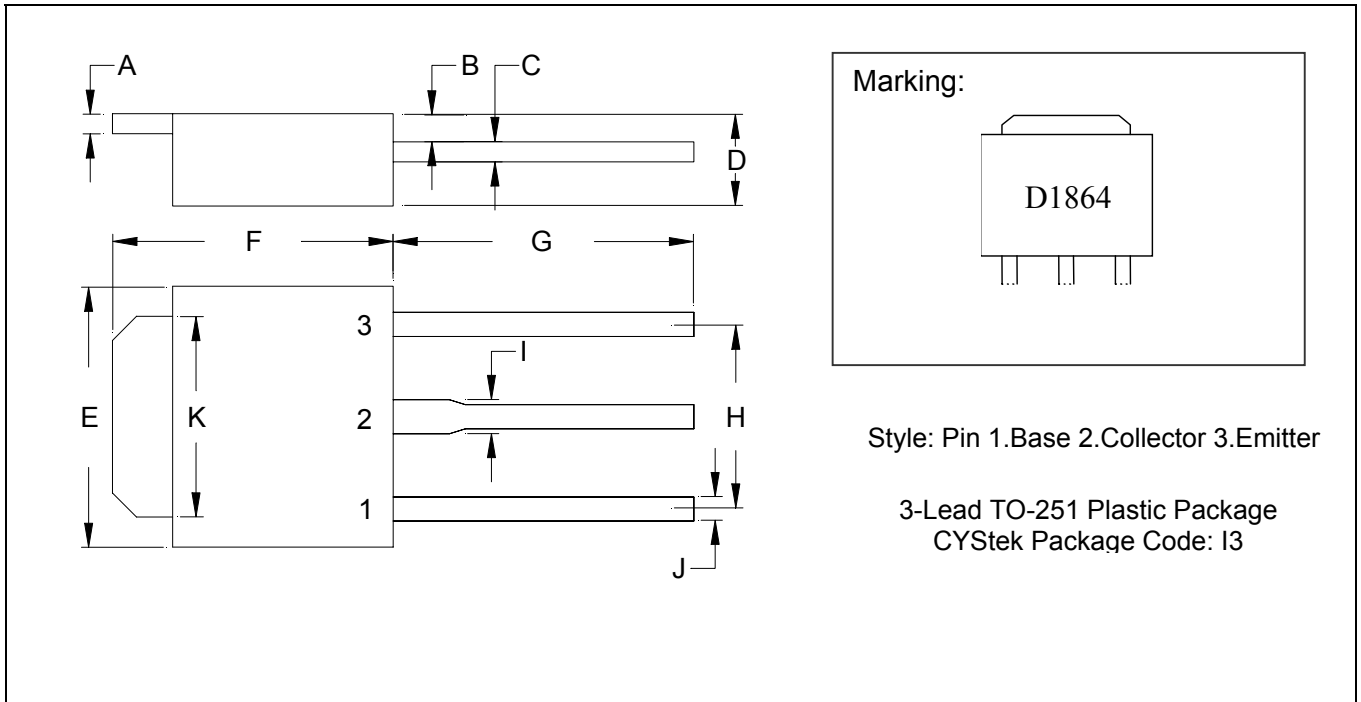
Power Derating Curve



Power Derating Curve



**TO-251 Dimension**



\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0177	0.0217	0.45	0.55	G	0.2559	-	6.50	-
B	0.0354	0.0591	0.90	1.50	H	-	*0.1811	-	*4.60
C	0.0177	0.0236	0.45	0.60	I	-	0.0354	-	0.90
D	0.0866	0.0945	2.20	2.40	J	-	0.0315	-	0.80
E	0.2520	0.2677	6.40	6.80	K	0.2047	0.2165	5.20	5.50
F	0.2677	0.2835	6.80	7.20					

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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