

**General Purpose NPN Epitaxial Planar Transistor**

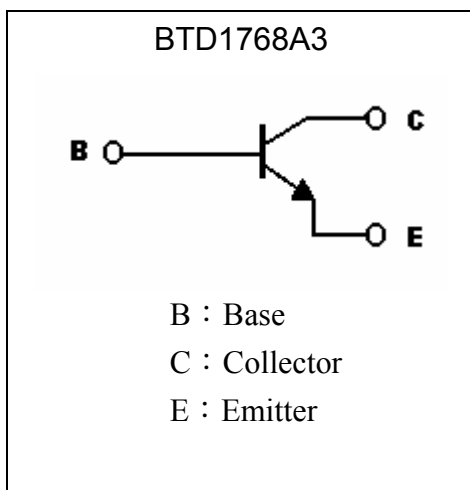
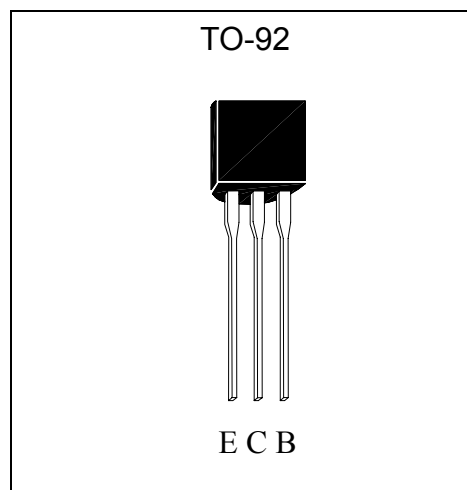
# BTD1768A3

**Description**

The BTD1768A3 is designed for use in driver and output stages of AF amplifier and general purpose application.

**Features**

- Low collector saturation voltage
- High breakdown voltage,  $V_{CE0}=80V$  (min.)
- High collector current,  $I_{C(max)}=1A$  (DC)

**Symbol**

**Outline**

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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	$V_{CB0}$	100	V
Collector-Emitter Voltage	$V_{CE0}$	80	V
Emitter-Base Voltage	$V_{EB0}$	5	V
Collector Current (DC)	$I_C$	1	A
Collector Current (Pulse)	$I_{CP}$	2 (Note)	A
Power Dissipation	$P_D$	750	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	167	$^{\circ}C/W$
Junction Temperature	$T_j$	150	$^{\circ}C$
Storage Temperature	$T_{stg}$	-55~+150	$^{\circ}C$

Note : Pulse test,  $P_w \leq 10ms$ , Duty  $\leq 50\%$ .



**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
$BV_{CBO}$	100	-	-	V	$I_C=50\mu A$
$BV_{CEO}$	80	-	-	V	$I_C=1mA$
$BV_{EBO}$	5	-	-	V	$I_E=50\mu A$
$I_{CBO}$	-	-	1	$\mu A$	$V_{CB}=80V, I_E=0$
$I_{EBO}$	-	-	1	$\mu A$	$V_{EB}=4V, I_C=0$
$*V_{CE(SAT)}$	-	0.15	0.4	V	$I_C=500mA, I_B=20mA$
$*h_{FE}$	120	-	560	-	$V_{CE}=3V, I_C=100mA$
$f_T$	-	100	-	MHz	$V_{CE}=10V, I_C=50mA, f=100MHz$
$C_{ob}$	-	20	-	pF	$V_{CB}=10V, I_E=0A, f=1MHz$

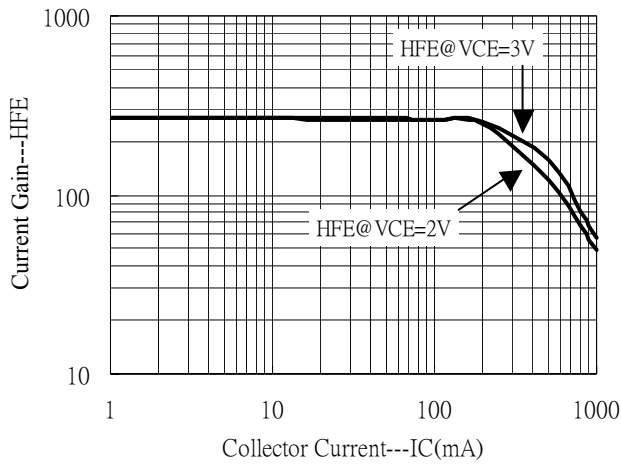
\*Pulse Test: Pulse Width  $\leq 380\mu s$ , Duty Cycle  $\leq 2\%$

**Classification Of  $h_{FE}$**

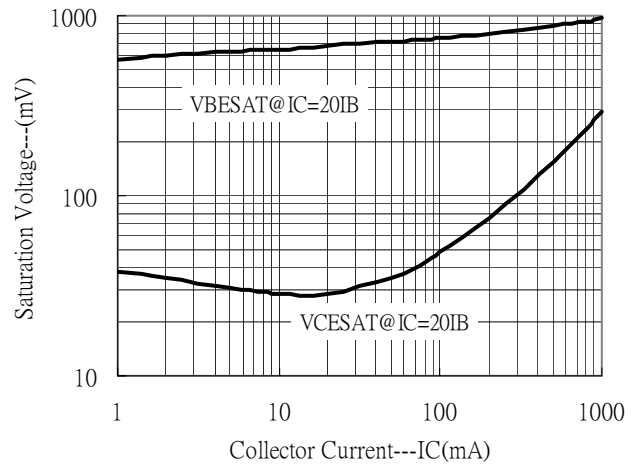
Rank	Q	R	S
Range	120~270	180~390	270~560

## Characteristic Curves

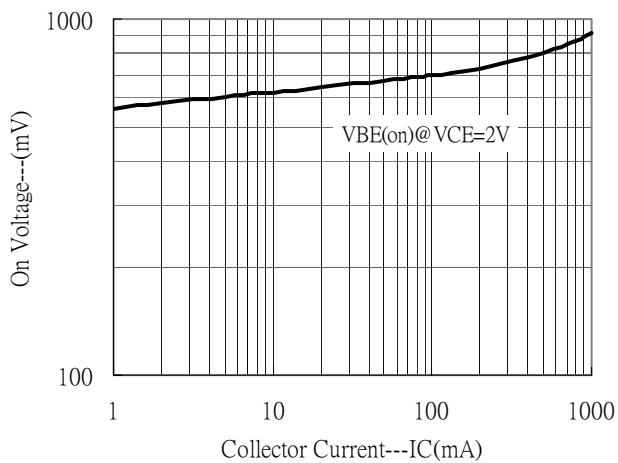
Current Gain vs Collector Current



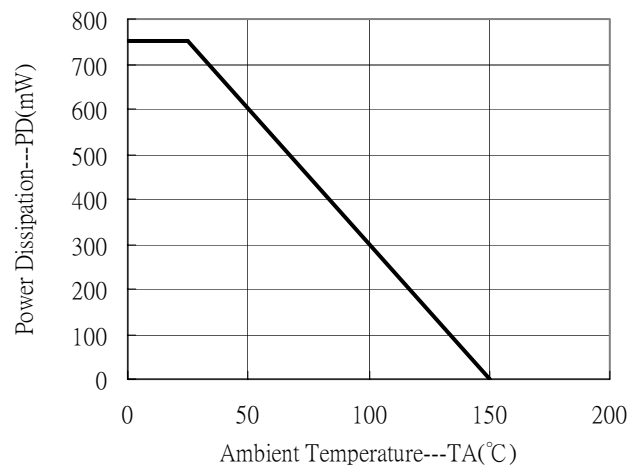
Saturation Voltage vs Collector Current



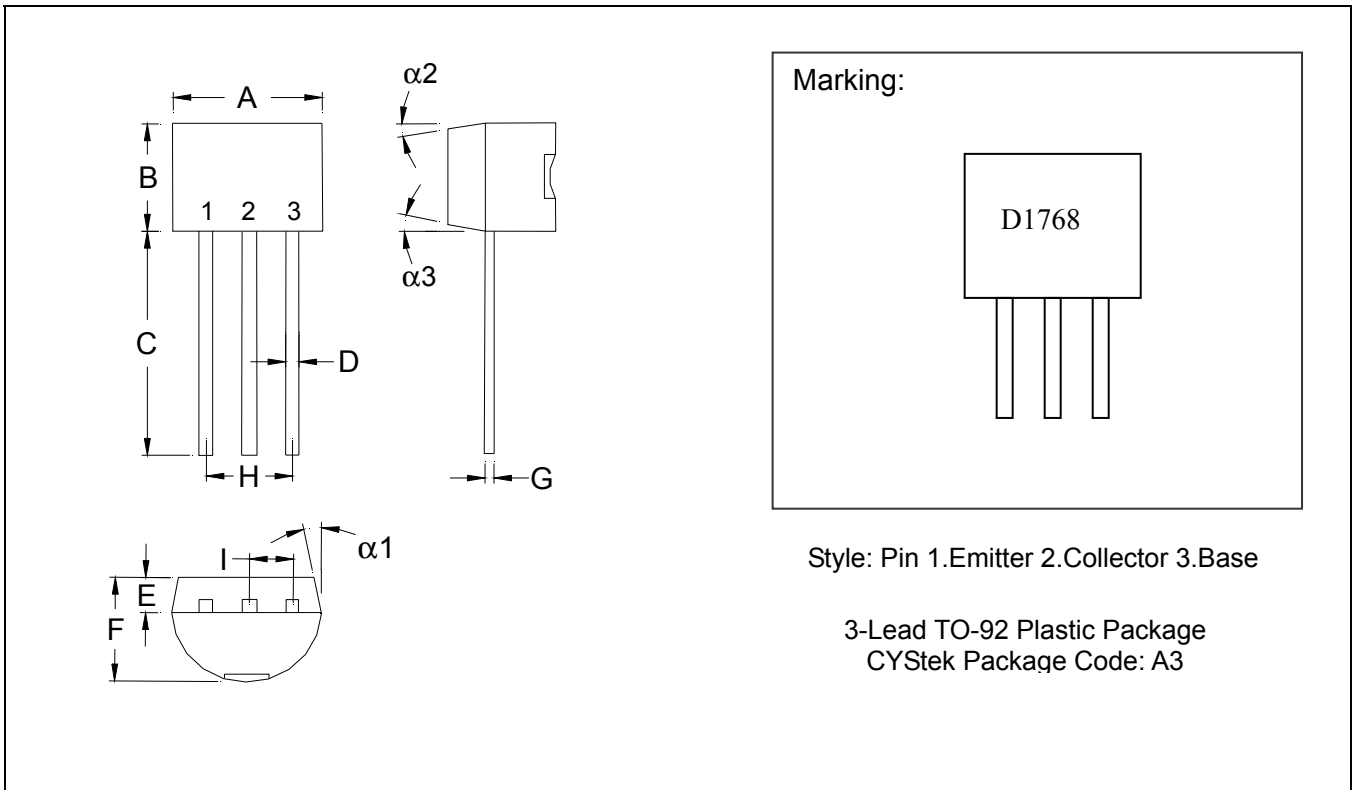
On Voltage vs Collector Current



Power Derating Curve



**TO-92 Dimension**



\*: 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	α1	-	*5°	-	*5°
E	-	*0.0500	-	*1.27	α2	-	*2°	-	*2°
F	0.1323	0.1480	3.36	3.76	α3	-	*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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