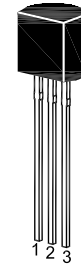


## NPN Silicon Epitaxial Planar Transistor

### Features

- The transistor is subdivided into one group, according to its DC current gain



1. Emitter 2. Collector 3. Base  
TO-92 Plastic Package

### Applications

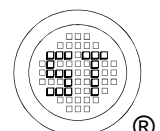
- For switching and amplifier
- Especially suitable for AF-driver stages and low power output stages

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CB0}$	40	V
Collector Emitter Voltage	$V_{CE0}$	20	V
Emitter Base Voltage	$V_{EB0}$	6	V
Collector Current	$I_C$	1	A
Peak Collector Current	$I_{CM}$	1.25	A
Base Current	$I_B$	100	mA
Power Dissipation	$P_{tot}$	850	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

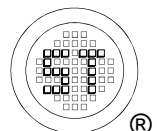
### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	147	$^\circ\text{C/W}$



Characteristics at  $T_a = 25\text{ }^\circ\text{C}$ 

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 1\text{ V}$ , $I_C = 5\text{ mA}$	$h_{FE}$	45	170	-	-
at $V_{CE} = 1\text{ V}$ , $I_C = 100\text{ mA}$	$h_{FE}$	200	-	1000	-
at $V_{CE} = 1\text{ V}$ , $I_C = 800\text{ mA}$	$h_{FE}$	40	80	-	-
Collector Base Cutoff Current at $V_{CB} = 35\text{ V}$	$I_{CBO}$	-	-	100	nA
Emitter Base Cutoff Current at $V_{EB} = 6\text{ V}$	$I_{EBO}$	-	-	100	nA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	40	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 2\text{ mA}$	$V_{(BR)CEO}$	20	-	-	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	6	-	-	V
Collector Emitter Saturation Voltage at $I_C = 600\text{ mA}$ , $I_B = 20\text{ mA}$	$V_{CE(sat)}$	-	-	0.55	V
Base Emitter Saturation Voltage at $I_C = 600\text{ mA}$ , $I_B = 20\text{ mA}$	$V_{BE(sat)}$	-	0.98	1.2	V
Base Emitter Voltage at $I_C = 10\text{ mA}$ , $V_{CE} = 1\text{ V}$	$V_{BE}$	-	0.66	1.0	V
Gain Bandwidth Product at $V_{CE} = 10\text{ V}$ , $I_C = 50\text{ mA}$	$f_T$	100	-	-	MHz
Collector Base Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	-	9	pF



Electrical Characteristics Curves

Fig 1. Power Derating Curve

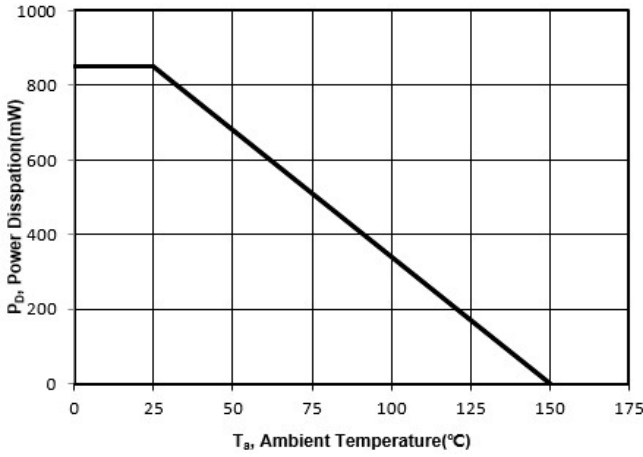


Fig. 2 Output Characteristics Curve

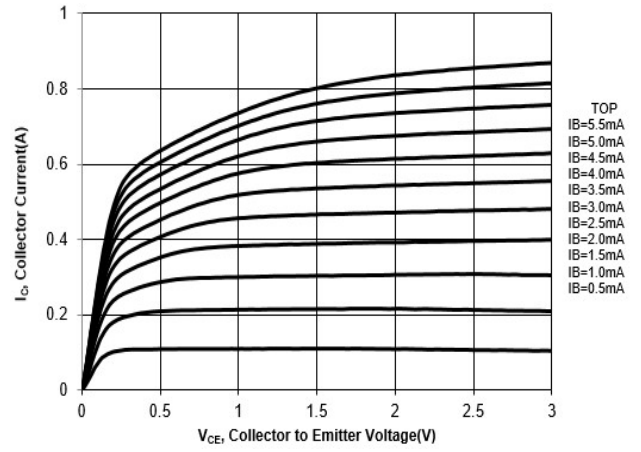


Fig. 3 Collector Current vs. V<sub>BE</sub>

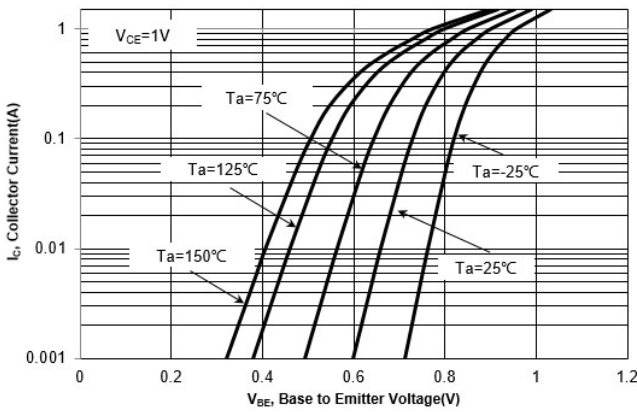
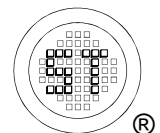
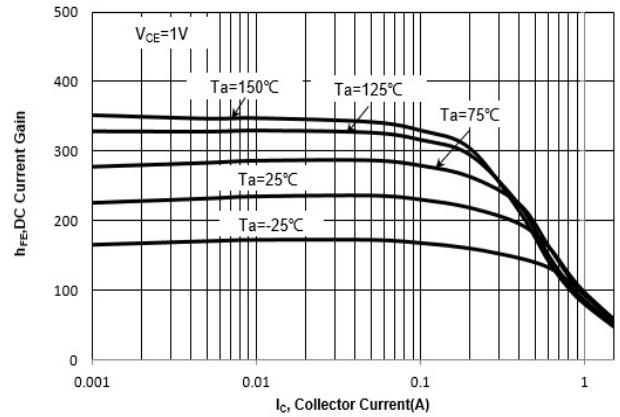


Fig. 4 h<sub>FE</sub> vs. Collector Current



Electrical Characteristics Curves

Fig. 5  $V_{BE(sat)}$  vs. Collector Current

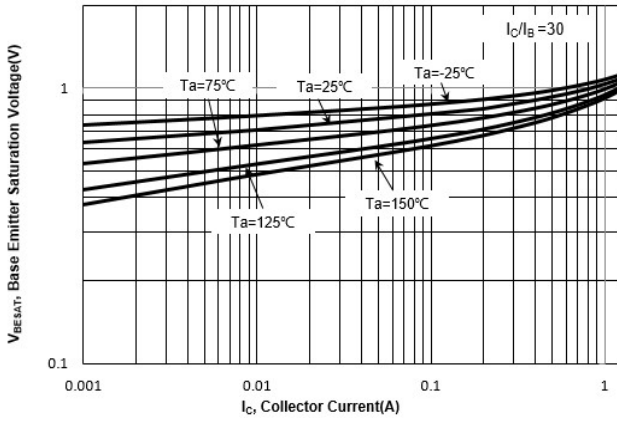


Fig. 6  $V_{CE(sat)}$  vs. Collector Current

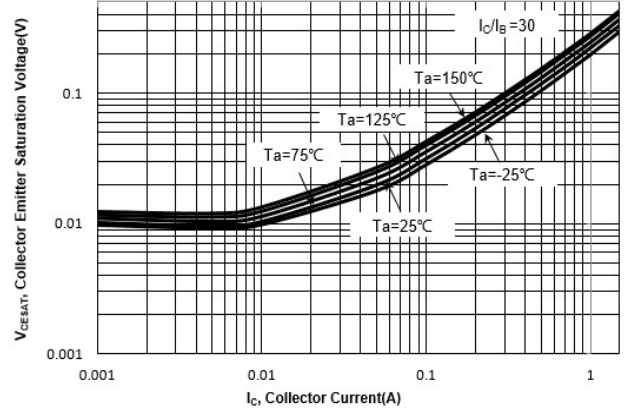
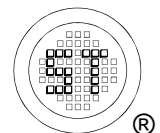
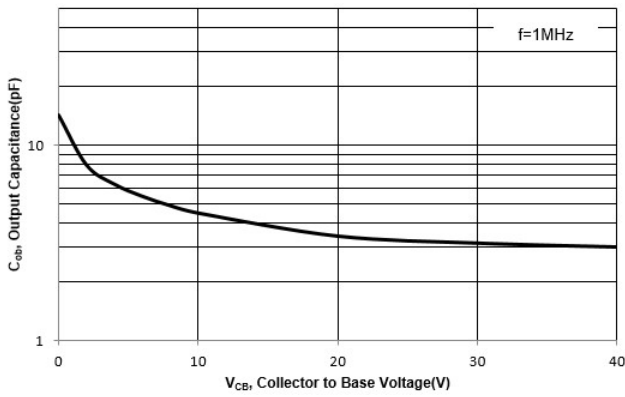
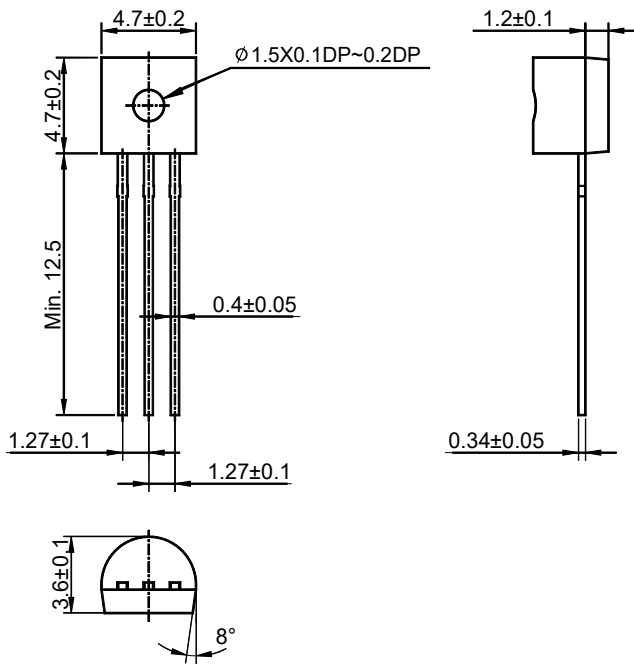


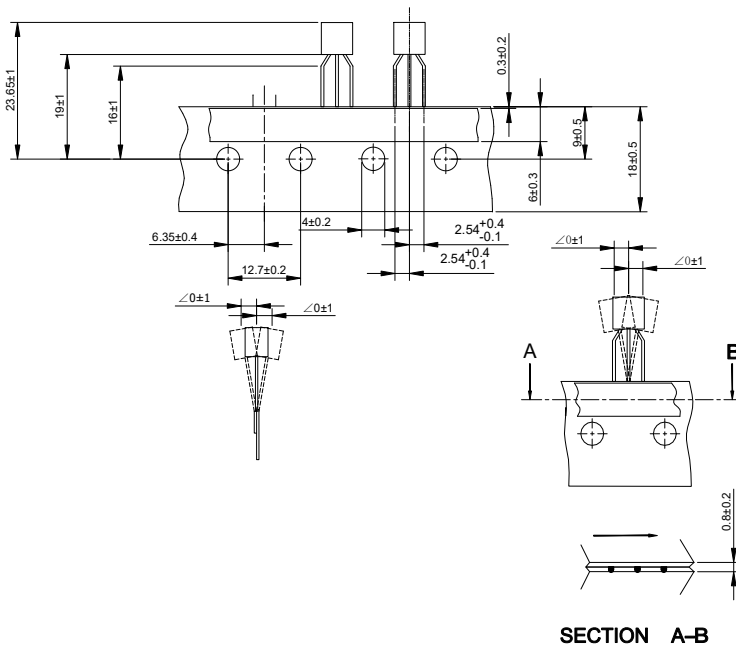
Fig 7. Output Capacitance



**TO-92 Package Outline (Dimensions in millimeters)**



**TO-92 Ammo-Pack Outline (Dimensions in millimeters)**



**Packing information**

Package	Bulk Packing			Ammo-Packing	
	Per Bag Qty	Per Box Qty	Per Carton Qty	Per Box Qty	Per Carton Qty
TO-92	1,000	5,000	50,000	4,000	20,000

