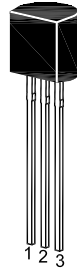


## BCX38

### NPN Silicon Epitaxial Planar Power Darlingtion Transistor



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

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	80	V
Collector Emitter Voltage	$V_{CEO}$	60	V
Emitter Base Voltage	$V_{EBO}$	10	V
Collector Current	$I_C$	800	mA
Peak Collector Current	$I_{CM}$	2	A
Power Dissipation	$P_{tot}$	1	W
Operating and Storage Temperature Range	$T_j, T_{stg}$	- 55 to + 175	$^\circ\text{C}$

#### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	125	$^\circ\text{C/W}$

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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $V_{CE} = 5\text{ V}$ , $I_C = 100\text{ mA}$  at $V_{CE} = 5\text{ V}$ , $I_C = 500\text{ mA}$	A	$h_{FE}$	500	-
	B	$h_{FE}$	2000	-
	C	$h_{FE}$	5000	-
	A	$h_{FE}$	1000	-
	B	$h_{FE}$	4000	-
	C	$h_{FE}$	10000	-
Collector Base Cutoff Current at $V_{CB} = 60\text{ V}$	$I_{CBO}$	-	100	nA
Emitter Base Cutoff Current at $V_{EB} = 8\text{ V}$	$I_{EBO}$	-	100	nA
Collector Base Breakdown Voltage at $I_C = 10\text{ }\mu\text{A}$	$V_{(BR)CBO}$	80	-	V
Collector Emitter Breakdown Voltage at $I_C = 10\text{ mA}$	$V_{(BR)CEO}$	60	-	V
Emitter Base Breakdown Voltage at $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	10	-	V
Collector Emitter Saturation Voltage at $I_C = 800\text{ mA}$ , $I_B = 8\text{ mA}$	$V_{CE(sat)}$	-	1.25	V
Base Emitter On Voltage at $I_C = 800\text{ mA}$ , $V_{CE} = 5\text{ V}$	$V_{BE(on)}$	-	1.8	V

Electrical Characteristics Curves

Fig. 1 Collector Current vs. Base Emitter Voltage

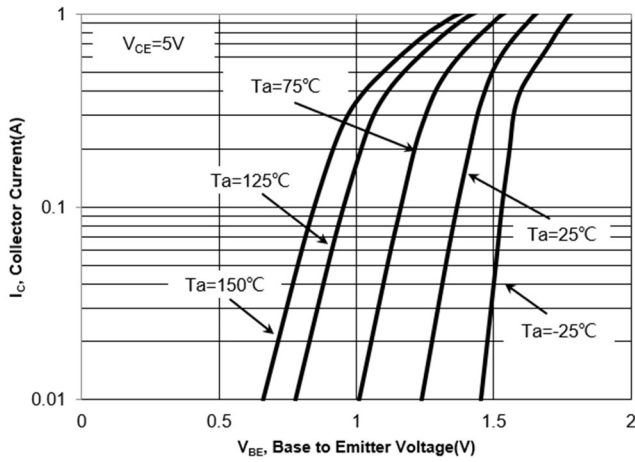


Fig. 2 DC Current Gain vs. Collector Current

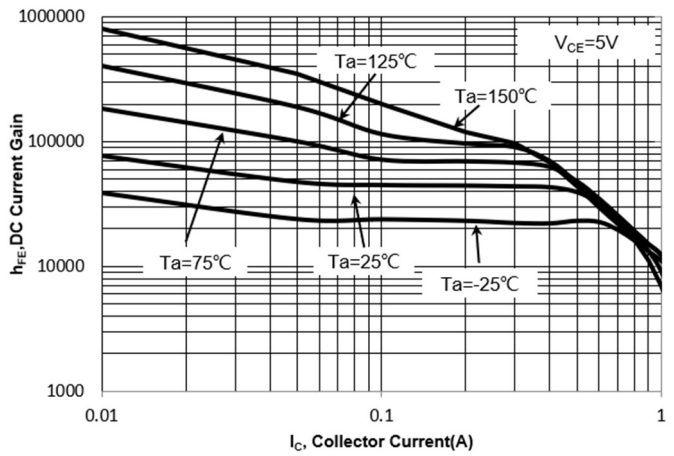


Fig. 3  $V_{BESAT}$  vs. Collector Current

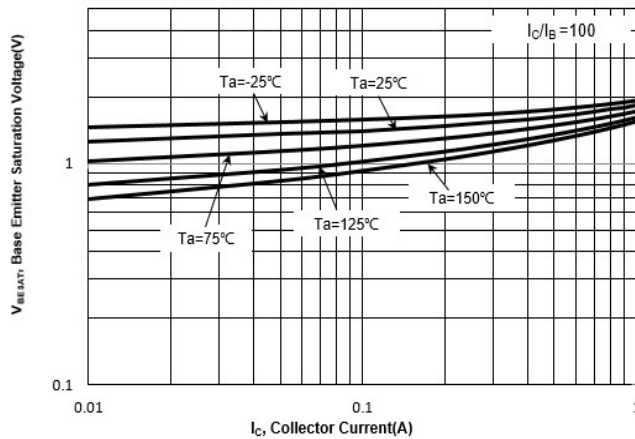


Fig. 4  $V_{CESAT}$  vs. Collector Current

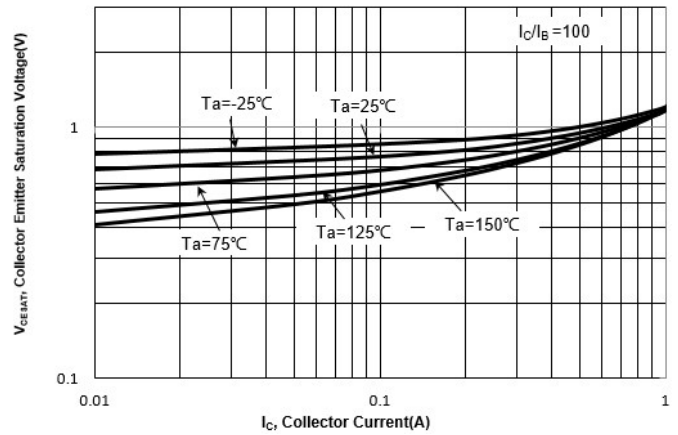


Fig. 5 Output Capacitance

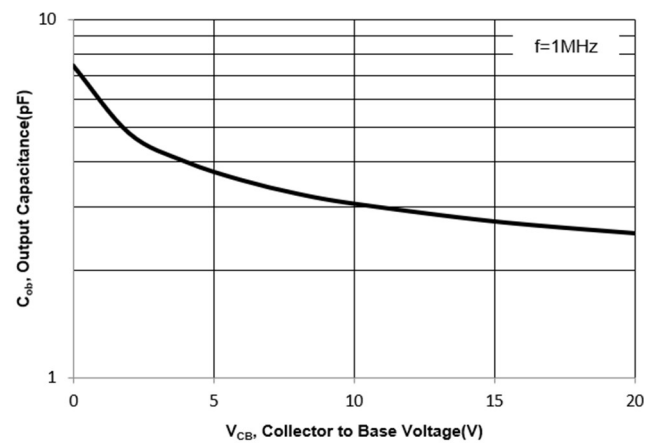
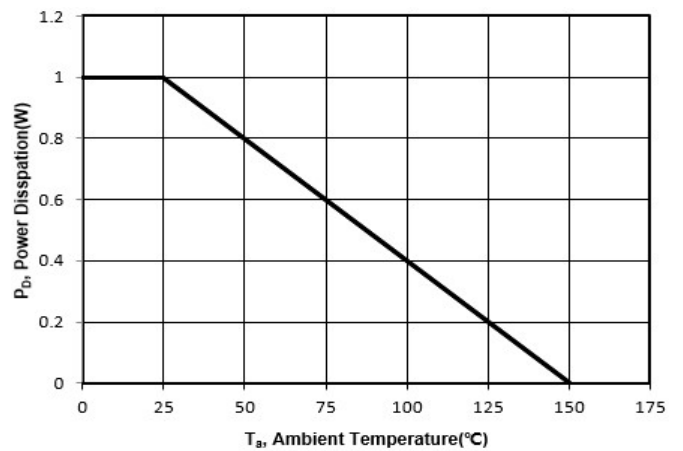
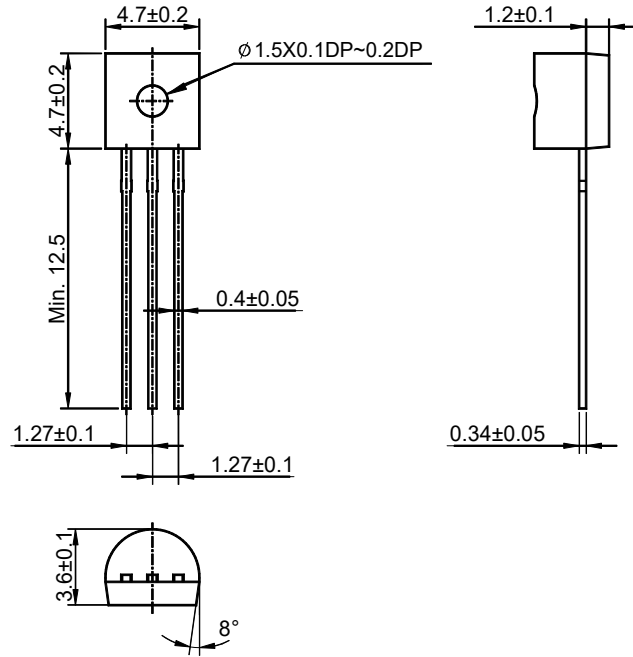


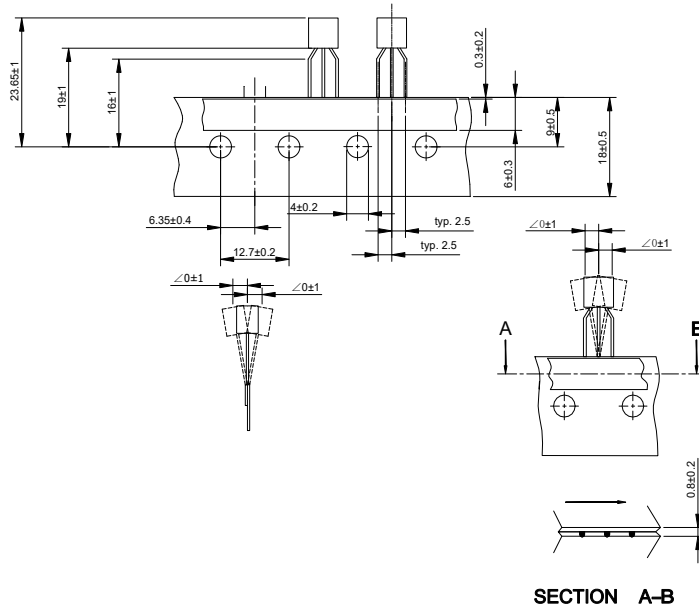
Fig. 6 Power Derating Curve



### 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