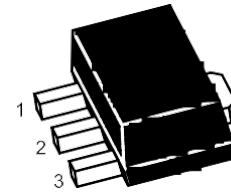


NPN Silicon Epitaxial Planar Transistors

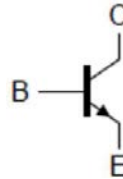
Features

- AEC-Q101 Qualified
- Halogen and Antimony Free(HAF), RoHS compliant



Mechanical Data

- SOT-89 Plastic Package
- Mounting position: Any



1.Base 2.Collector 3.Emitter
SOT-89 Plastic Package

Absolute Maximum Ratings (T _A =25°C unless otherwise noted)			
Parameter	Symbol	Value	Unit
Collector Base Voltage	V _{CBO}	100	V
Collector Emitter Voltage	V _{CEO}	80	V
Emitter Base Voltage	V _{EBO}	5	V
Collector Current	I _C	1	A
Peak Collector Current	I _{CM}	1.5	A
Total Power Dissipation	P _{tot}	0.5 ¹⁾ 1.3 ²⁾	W
Junction Temperature	T _j	150	°C
Storage Temperature Range	T _{stg}	- 65 to + 150	°C

Thermal Characteristics			
Parameter	Symbol	Value	Unit
Thermal Resistance Junction to Ambient ¹⁾	R _{thJA}	250 ¹⁾ 94 ²⁾	°C/W

¹⁾ Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.

²⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 2\text{ V}$, $I_C = 5\text{ mA}$ at $V_{CE} = 2\text{ V}$, $I_C = 500\text{ mA}$ at $V_{CE} = 2\text{ V}$, $I_C = 150\text{ mA}$ ABCX56-10Q ABCX56-16Q	h_{FE}	40 25 63 100	-	- - 160 250	-
Collector Base Cutoff Current at $V_{CB} = 30\text{ V}$	I_{CBO}	-	-	100	nA
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$	I_{EBO}	-	-	100	nA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	100	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	80	-	-	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	$V_{CE(sat)}$	-	-	0.5	V
Base Emitter Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	$V_{BE(sat)}$	-	-	1.2	V
Base Emitter Voltage at $V_{CE} = 2\text{ V}$, $I_C = 500\text{ mA}$	V_{BE}	-	-	1	V
Transition Frequency at $V_{CE} = 5\text{ V}$, $I_C = 50\text{ mA}$, $f = 100\text{ MHz}$	f_T	100	-	-	MHz
Collector Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_c	-	6	-	pF

Typical Characteristics Curves

Fig. 1 Output Characteristics Curve

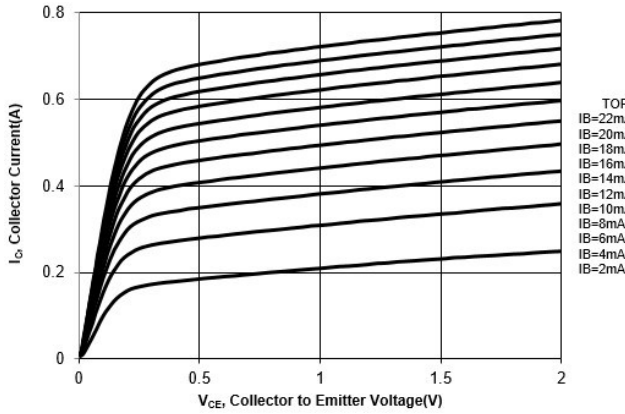


Fig. 2 Collector Current vs. Base to Emitter Voltage

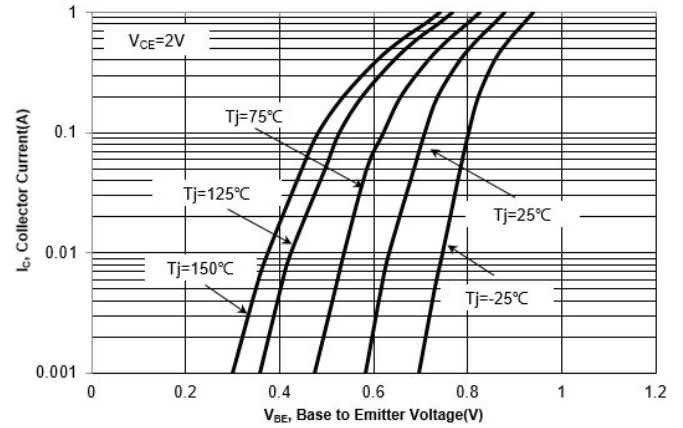


Fig. 3 DC Current Gain vs. Collector Current

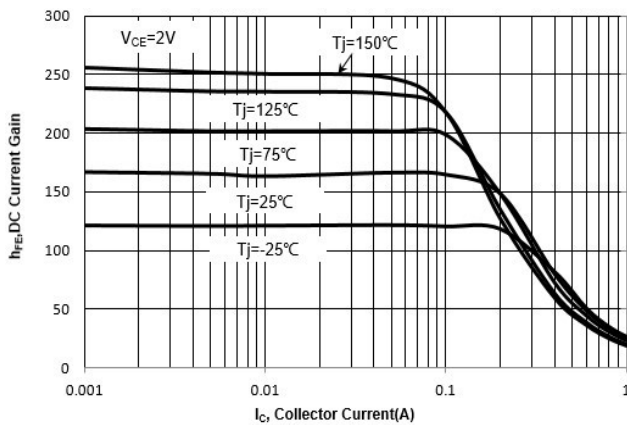


Fig. 4 $V_{BE(sat)}$ vs. Collector Current

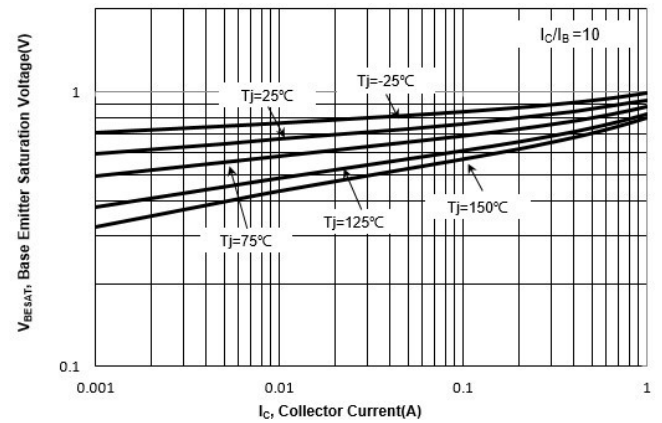


Fig. 5 $V_{CE(sat)}$ vs. Collector Current

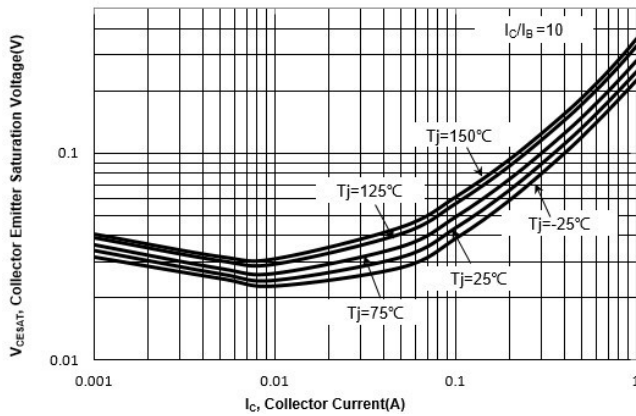


Fig. 6 Output Capacitance

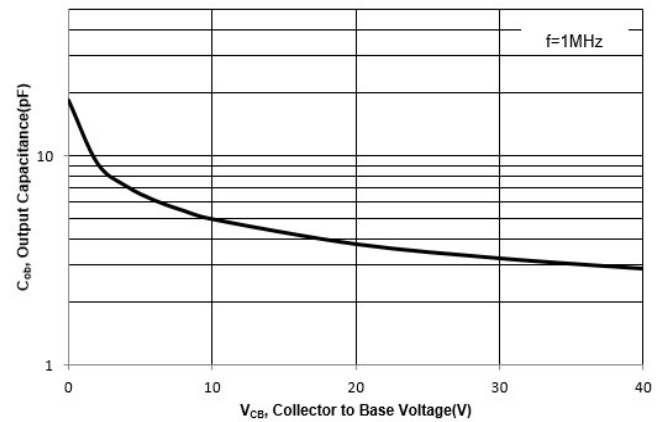
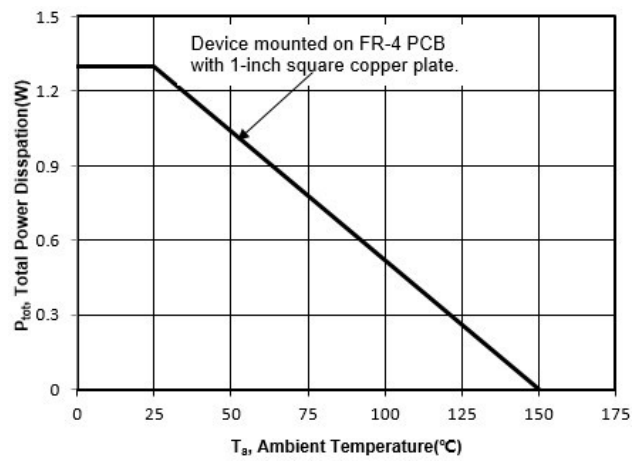
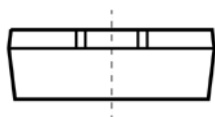
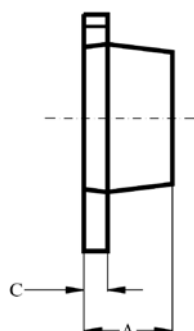
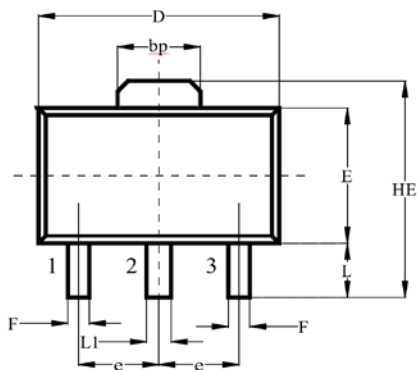


Fig. 7 Power Derating Curve



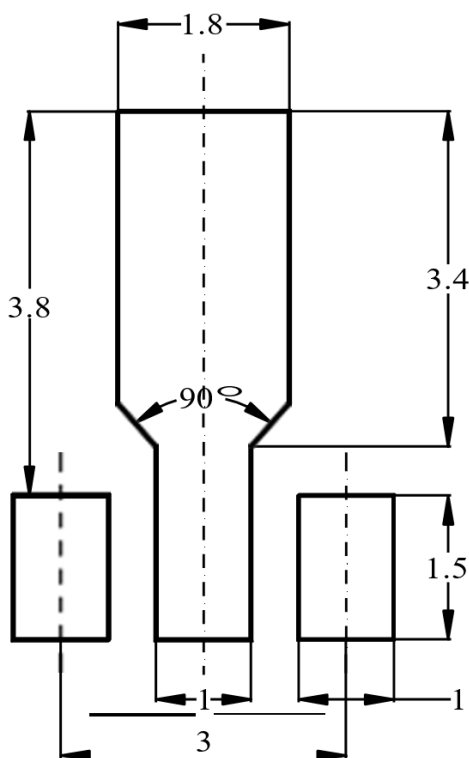
Package Outline Dimensions (Unit: millimeters)

SOT-89



SYMBOL	MILLIMETER		
	MIN	TYP	MAX
A	1.4	/	1.6
bp	1.5	/	1.6
C	0.3	/	0.5
D	4.4	/	4.6
E	2.4	/	2.6
F	0.35	/	0.45
HE	3.75	/	4.25
e	/	/	1.5
L	0.95	/	1.05
L1	0.41	/	0.51

Recommended Soldering Footprint (Unit: millimeters)



Packing Information

Package	Tape Width	Pitch		Reel Size		Per Reel Packing Quantity
	mm	mm	inch	mm	inch	
SOT-89	12	8 ± 0.1	0.315 ± 0.004	178	7	1000
				330	13	3000

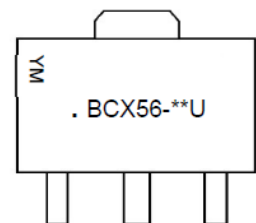
Marking information

" BCX56-**U " = Part No. (" ** " = HFE grouping Code)

" YM " = Date Code Marking

" • " = Automotive-grade material

Font type: Arial



Revision History

Version	Date	Major Changes
Rev.A	2025.01.19	Official Release

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