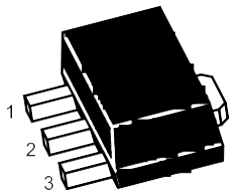
NPN Silicon Epitaxial Planar Transistors

Features

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

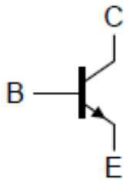
Pb
RoHS
COMPLIANT



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

Mechanical Data

- SOT-89 Plastic Package
- Mounting position: Any



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	℃
Storage Temperature Range	T_{stg}	- 65 to + 150	℃

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°C unless otherwise noted)

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

Typical Characteristics Curves

Fig. 1 Output Characteristics Curve

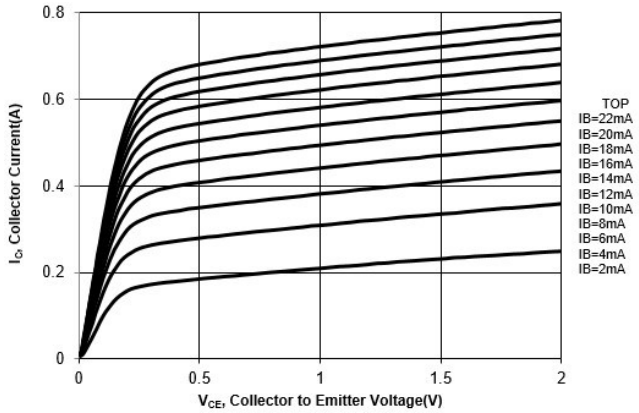


Fig. 2 Collector Current vs. Base to Emitter Voltage

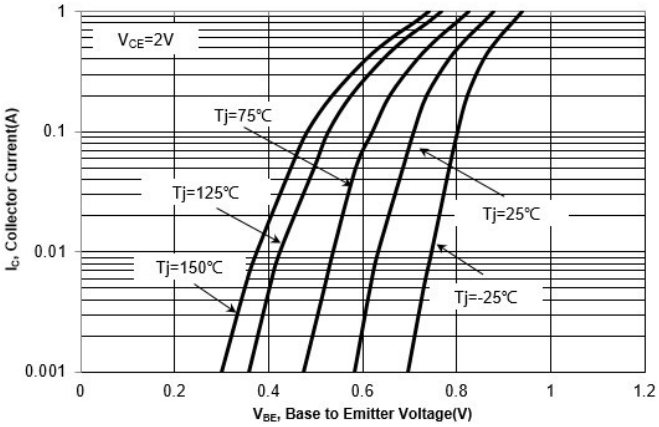


Fig. 3 DC Current Gain vs. Collector Current

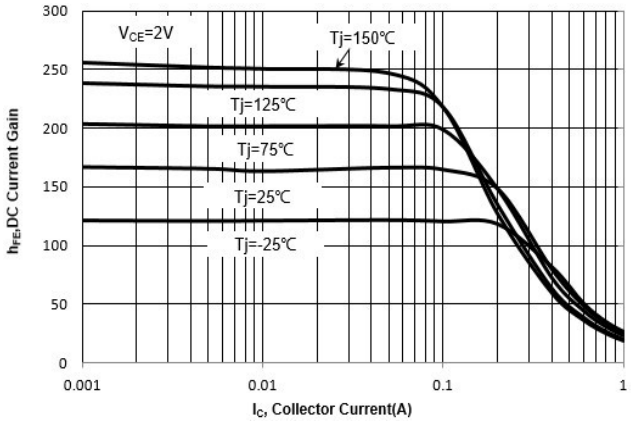


Fig. 4 $V_{BE(sat)}$ vs. Collector Current

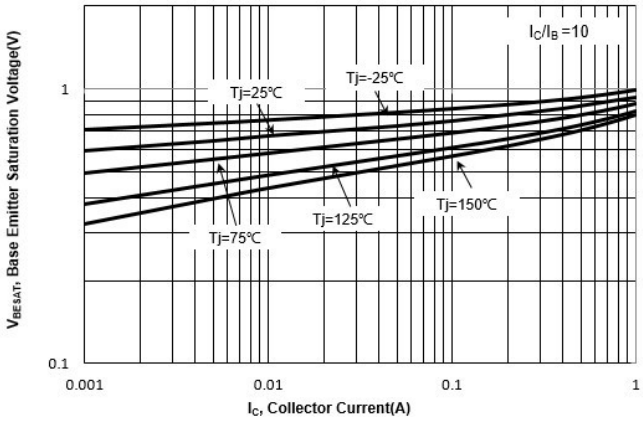


Fig. 5 $V_{CE(sat)}$ vs. Collector Current

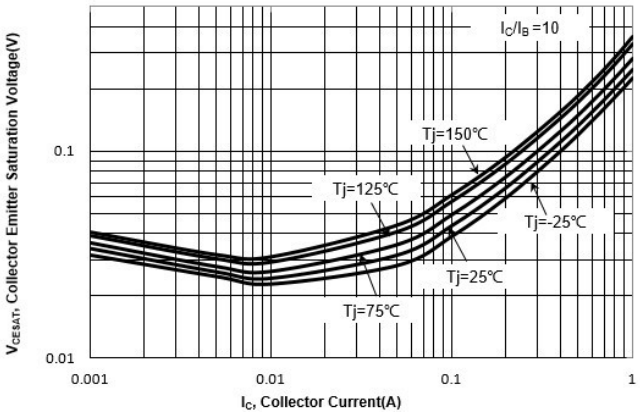


Fig. 6 Output Capacitance

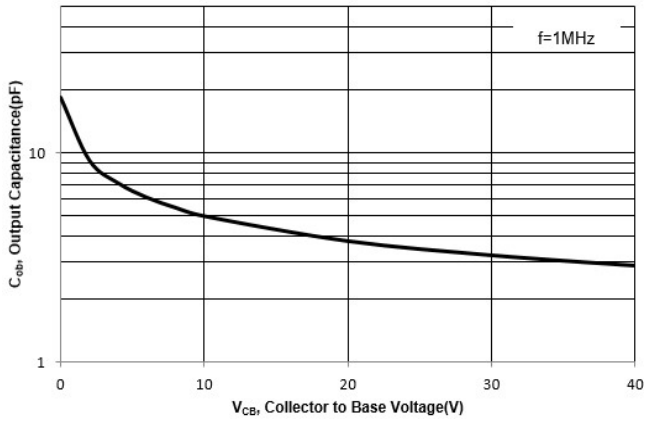
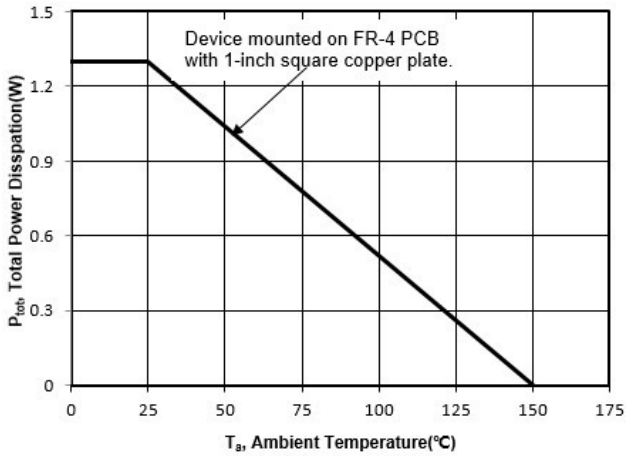
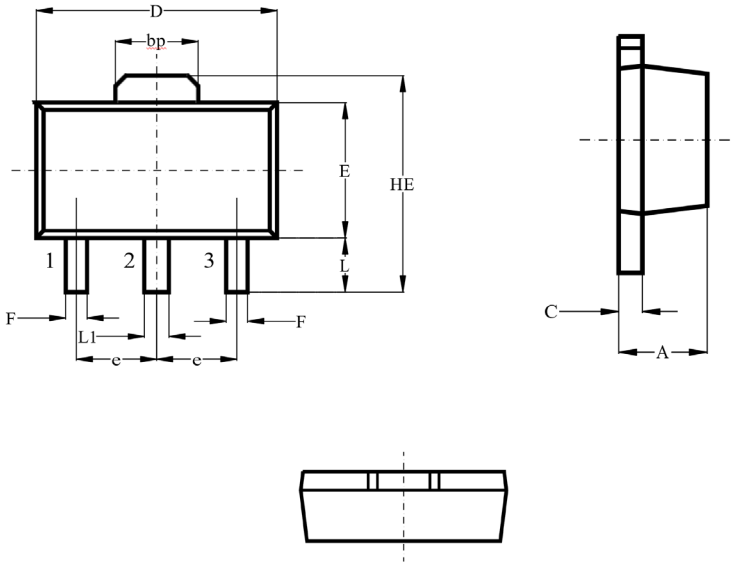


Fig. 7 Power Derating Curve



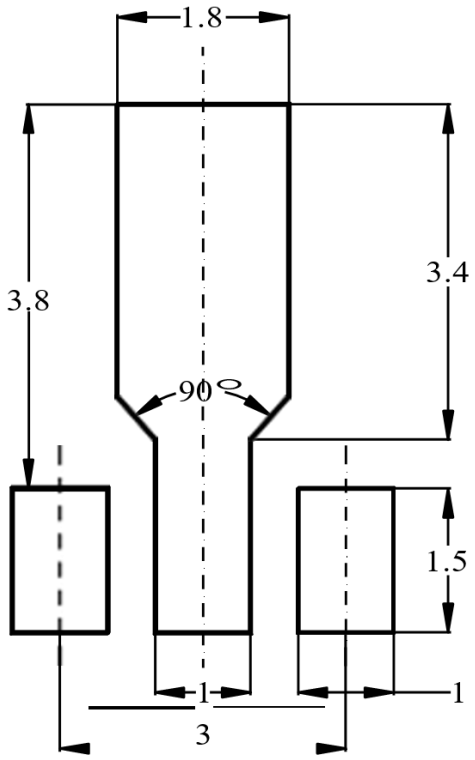
Package Outline Dimensions (Unit: millimeters)

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

Revision History

Version	Date	Major Changes
Rev.A	2025.01.19	Official Release

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