

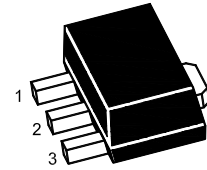
BCX53U-AH

PNP Silicon Epitaxial Planar Transistor

Medium Power Transistor

Features

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



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

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

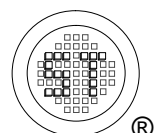
Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{\text{CBO}}$	100	V
Collector Emitter Voltage	$-V_{\text{CEO}}$	80	V
Emitter Base Voltage	$-V_{\text{EBO}}$	5	V
Collector Current	$-I_{\text{C}}$	1	A
Peak Collector Current	$-I_{\text{CM}}$	2	A
Total Power Dissipation	P_{tot}	0.5 ¹⁾ 1.3 ²⁾	W
Junction Temperature	T_{j}	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 65 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta\text{JA}}$	250 ¹⁾ 96 ²⁾	$^\circ\text{C/W}$

¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

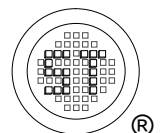
²⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate



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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain					
at $-V_{CE} = 2\text{ V}$, $-I_C = 5\text{ mA}$	h_{FE}	40	-	-	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 150\text{ mA}$	h_{FE}	63	-	160	-
	h_{FE}	100	-	250	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 500\text{ mA}$	h_{FE}	25	-	-	-
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 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	-	145	-	MHz
Collector Capacitance					
at $-V_{CB} = 15\text{ V}$, $f = 1\text{ MHz}$	C_c	-	15	-	pF



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Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

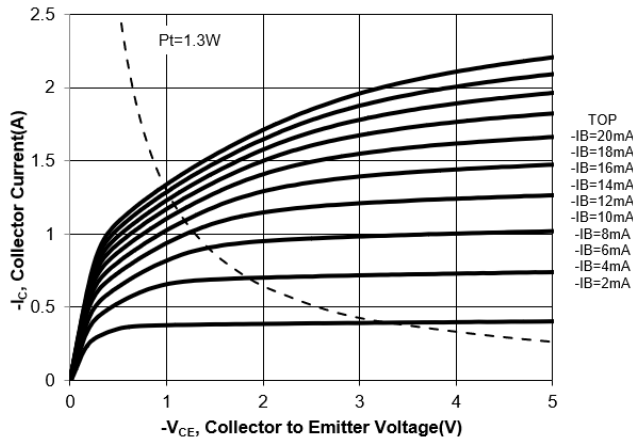


Fig. 2 Output Characteristics Curve

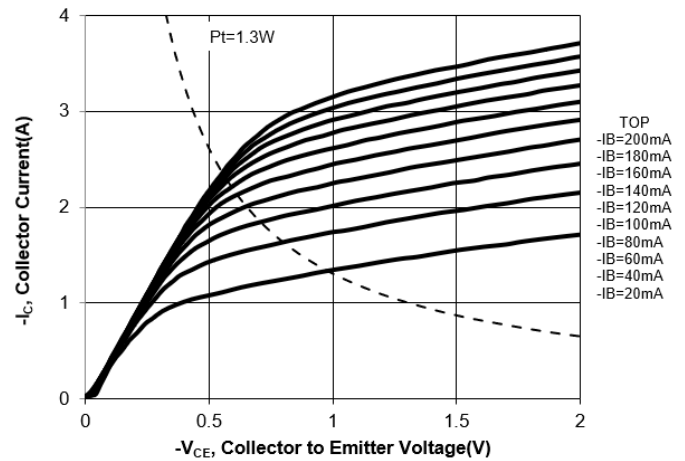


Fig. 3 Collector Current Vs. Base to Emitter Voltage

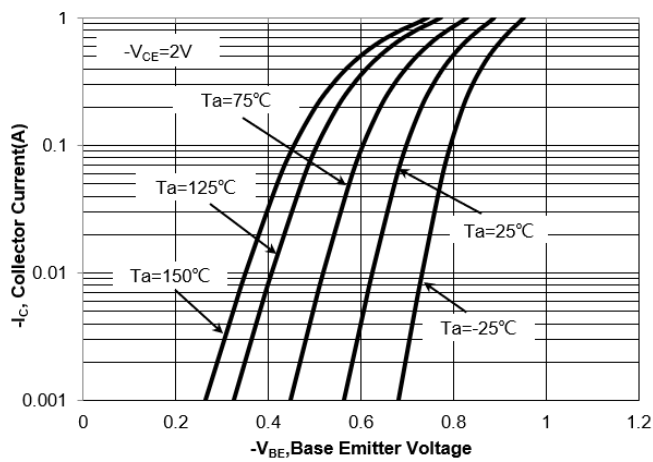
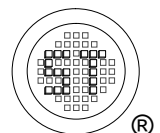
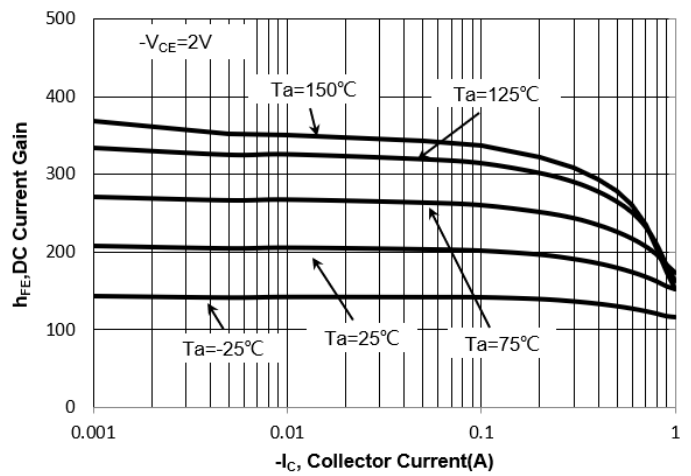


Fig. 4 h_{FE} , DC Current Gain vs. Collector Current



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Electrical Characteristics Curves

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

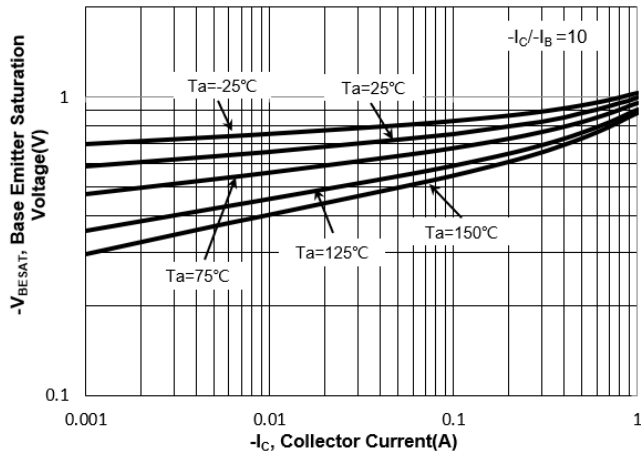


Fig. 6 $V_{CE(SAT)}$ vs. Collector Current

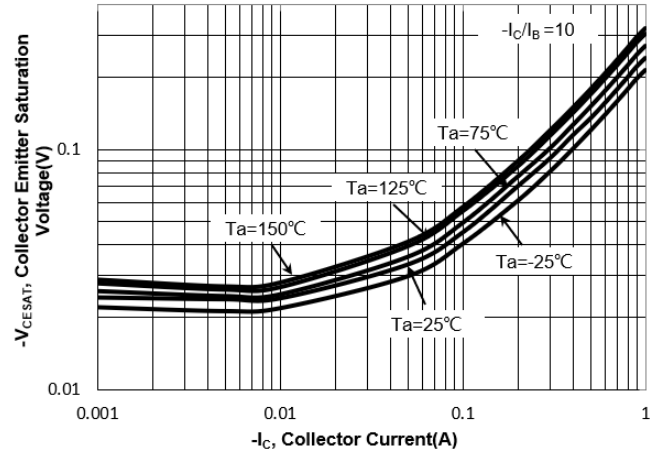


Fig. 7 Junction Capacitance

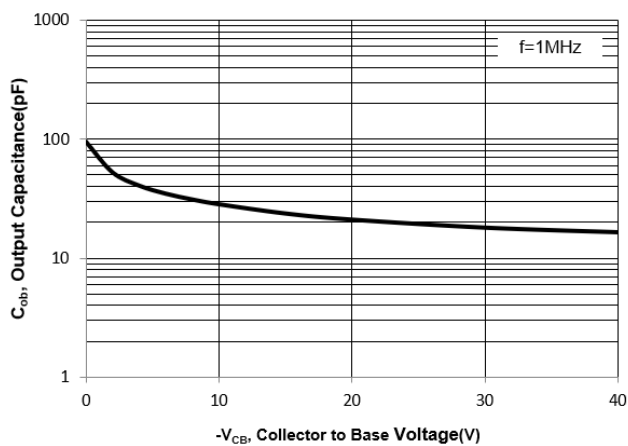
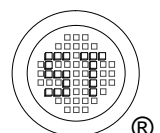
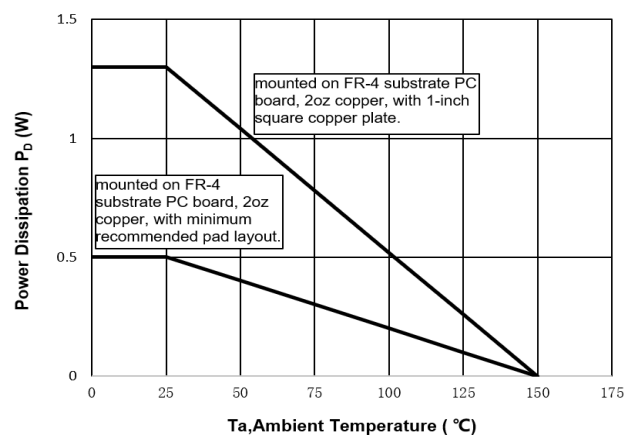


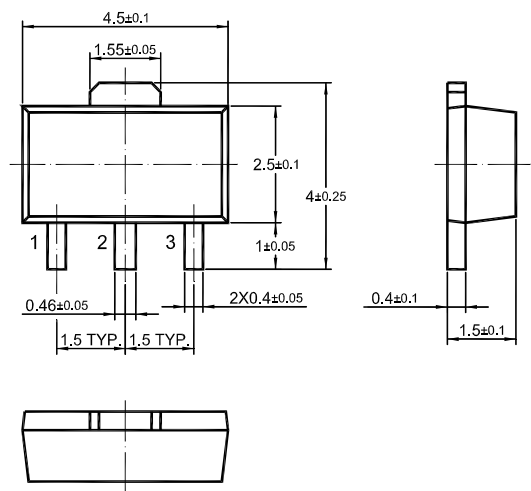
Fig. 8 Power Derating Curve



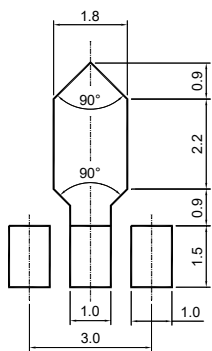
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Package Outline (Dimensions in mm)

SOT-89



Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-89	12	8 ± 0.1	0.315 ± 0.004	178	7	1,000
				330	13	4,000

Marking information

" BCX53-**U " = Part No. (" ** " = HFE grouping Code)

" • " = HAF (Halogen and Antimony Free)

"YM" = Date Code Marking

"Y" = Year

"M" = Month

Font type: Arial

