



# BC817-16-AU / BC817-25-AU / BC817-40-AU

## Silicon NPN General Purpose Transistors

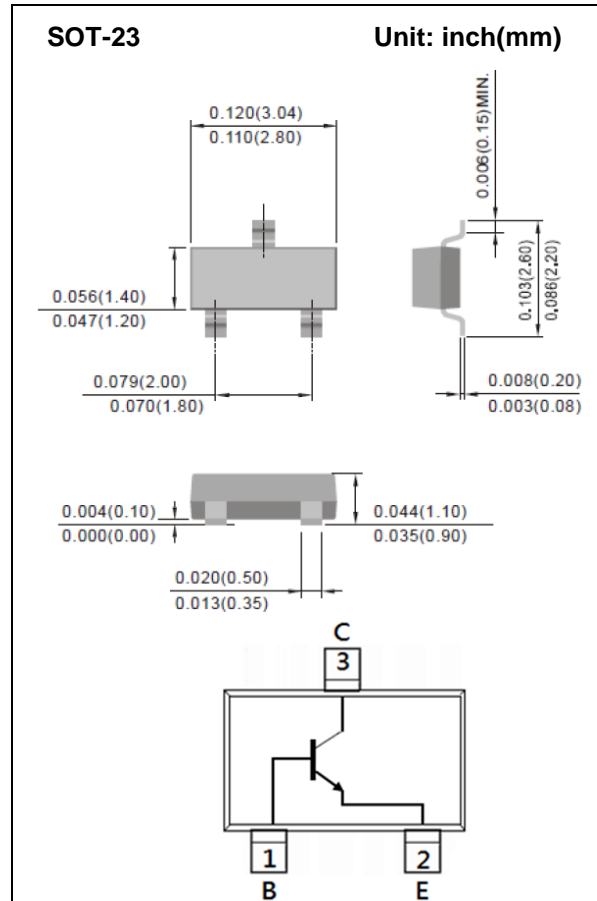
**Voltage** 45V **Current** 500mA

### Features

- Silicon NPN Epitaxial type
- Excellent DC current gain characteristics
- General purpose amplifier application
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 Standard
- PNP complement: BC807-AU series

### Mechanical Data

- Case: SOT-23 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0003 ounces, 0.0084grams
- Marking: BC817-16-AU: 8A  
BC817-25-AU: 8B  
BC817-40-AU: 8C



## Maximum Ratings and Thermal Characteristics (T<sub>A</sub>=25 °C unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNITS
Collector-Base Voltage	V <sub>CB0</sub>	50	V
Collector-Emitter Voltage	V <sub>CE0</sub>	45	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Collector Current (DC)	I <sub>C</sub>	500	mA
Collector Current (Pulse)	I <sub>CP</sub>	1000	mA
Total Power Dissipation	P <sub>TOT</sub>	330	mW
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55~150	°C
Thermal Resistance from Junction to Ambient <sup>(Note)</sup>	R <sub>θJA</sub>	375	°C/W

Note: Mounted on minimum pad mount on FR-4 board.



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**Electrical Characteristics** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=10\text{mA}, I_B=0\text{A}$	45	-	-	V
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=10\mu\text{A}, I_E=0\text{A}$	50	-	-	V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=1\mu\text{A}, I_C=0\text{A}$	5	-	-	V
Collector-Base Cutoff Current	$I_{CBO}$	$V_{CB}=20\text{V}, I_E=0\text{A}$	-	-	100	nA
Collector-Base Cutoff Current	$I_{CBO}$	$T_j=125^{\circ}\text{C}$	-	-	5	$\mu\text{A}$
Emitter-Base Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}$	-	-	100	nA
<b>ON characteristics</b>						
DC Current Gain	BC817-16-AU	$h_{FE}$	$V_{CE}=1\text{V}, I_C=100\text{mA}$	100	-	250
	BC817-25-AU			160	-	400
	BC817-40-AU			250	-	600
DC Current Gain		$V_{CE}=1\text{V}, I_C=500\text{mA}$	40	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	-	0.7	V
Base-Emitter Turn-on voltage	$V_{BE(on)}$	$I_C=500\text{mA}, V_{CE}=1\text{V}$	-	-	1.2	V
Transition Frequency	$f_T$	$I_C=10\text{mA}, V_{CE}=5\text{V}$	100	-	-	MHz
Collector Output Capacitance	$C_{OB}$	$V_{CB}=10\text{V}, f=1\text{MHz}$	-	7	-	pF



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## TYPICAL CHARACTERISTIC CURVES

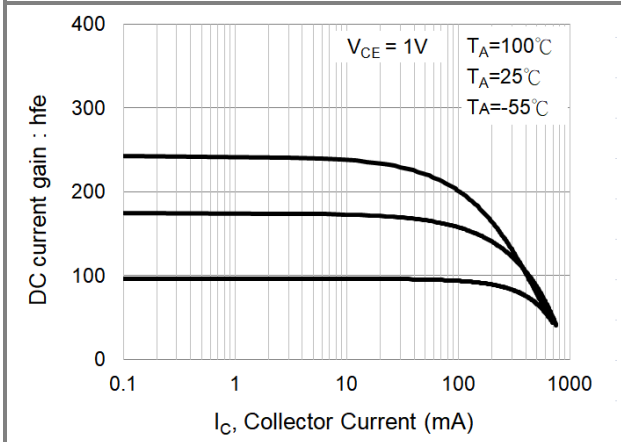


Fig.1 DC Current Gain(-16)

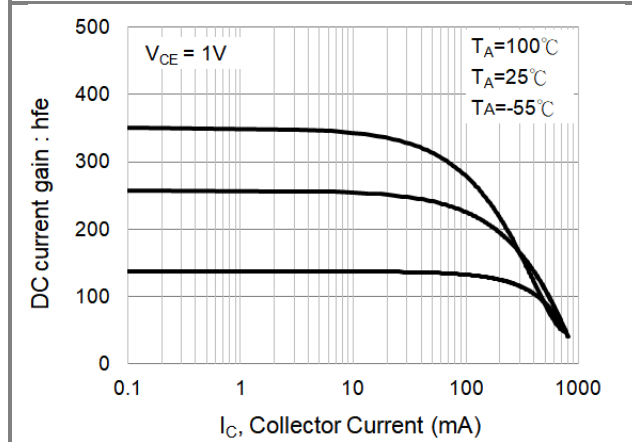


Fig.2 DC Current Gain (-25)

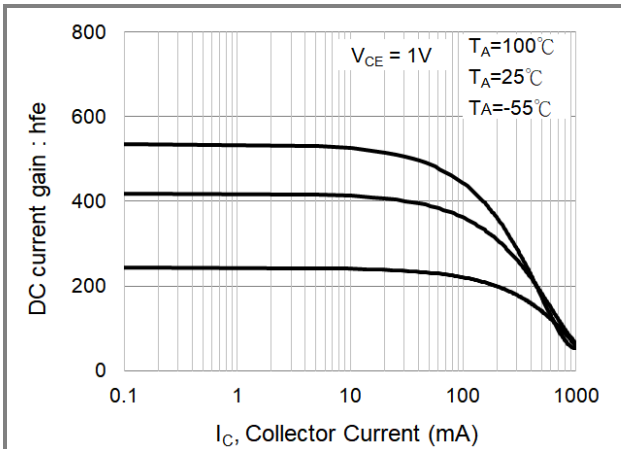


Fig.3 DC Current Gain (-40)

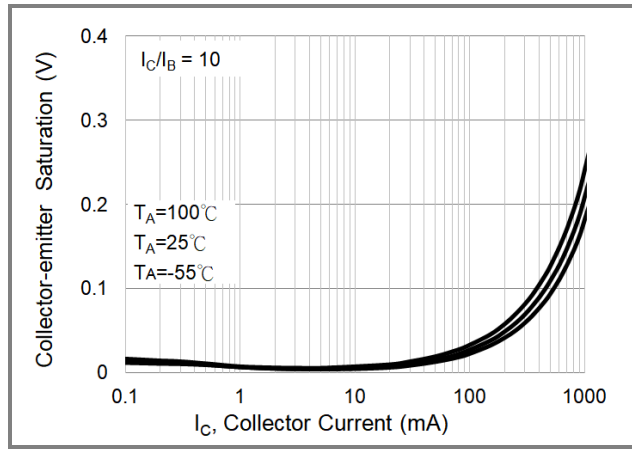


Fig.4 Collector-Emitter Saturation Voltage (-16)

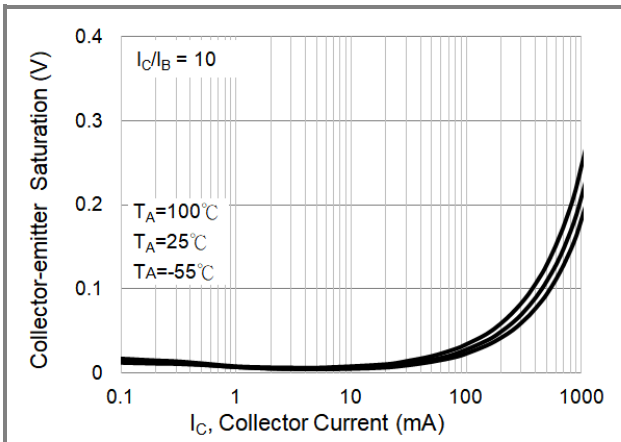


Fig.5 Collector-Emitter Saturation Voltage (-25)

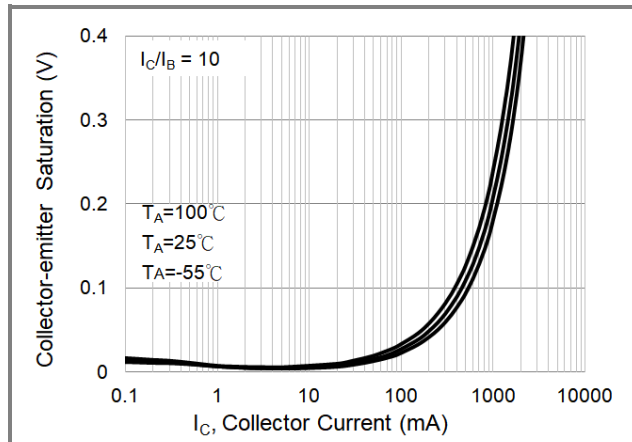


Fig.6 Collector-Emitter Saturation Voltage (-40)



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## TYPICAL CHARACTERISTIC CURVES

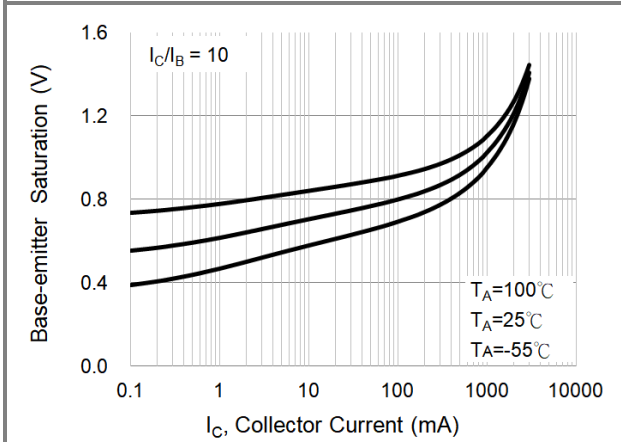


Fig.7 Base-Emitter Saturation Voltage (-16)

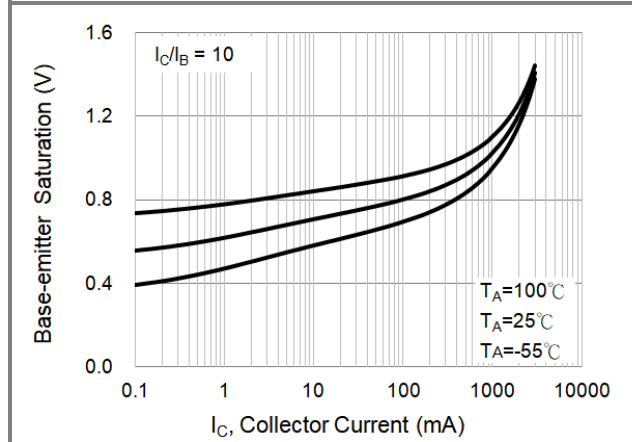


Fig.8 Base-Emitter Saturation Voltage (-25)

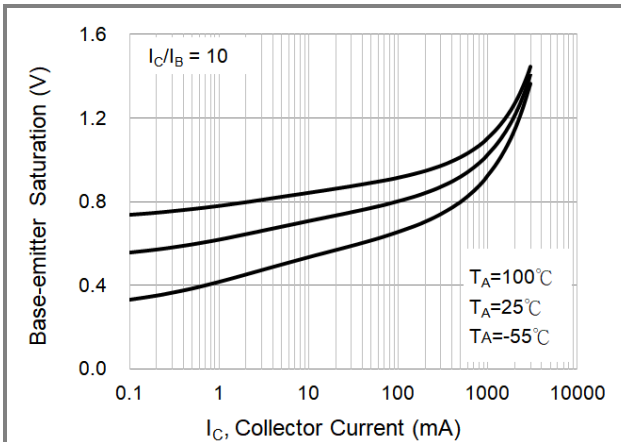


Fig.9 Base-Emitter Saturation Voltage (-40)

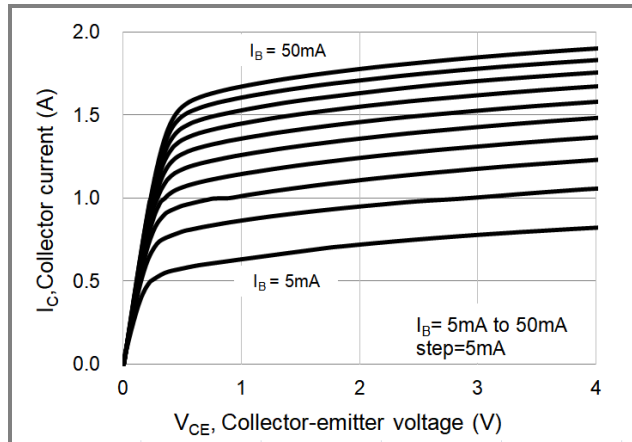


Fig.10 Collector Current (-16)

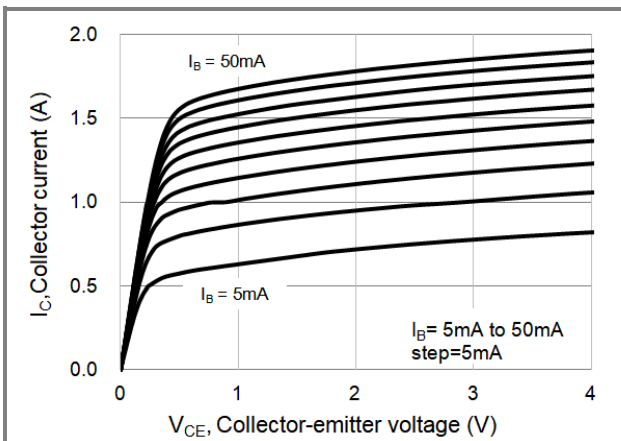


Fig.11 Collector Current (-25)

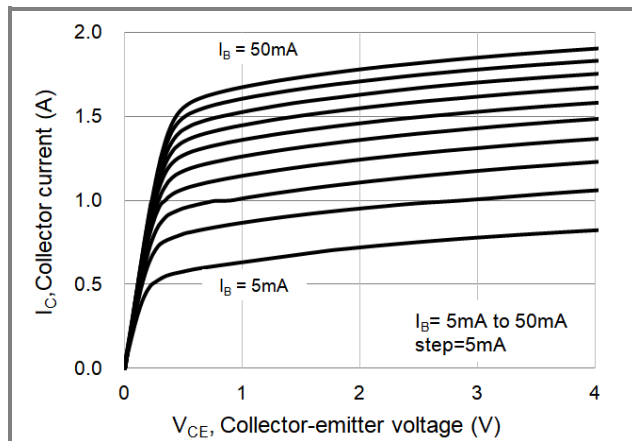


Fig.12 Collector Current (-40)

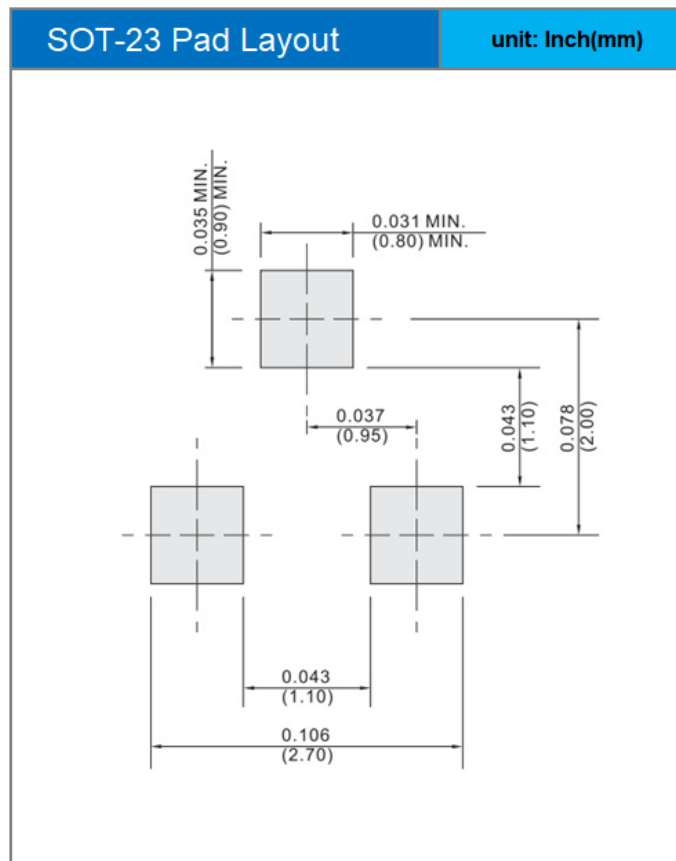


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## PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
BC817-16-AU_R1_000A1	SOT-23	3K pcs / 7" reel	8A	Halogen free
BC817-25-AU_R1_000A1	SOT-23	3K pcs / 7" reel	8B	Halogen free
BC817-40-AU_R1_000A1	SOT-23	3K pcs / 7" reel	8C	Halogen free

## MOUNTING PAD LAYOUT





## **BC817-16-AU / BC817-25-AU / BC817-40-AU**

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