



# BC817DPN-AU

## DUAL NPN/PNP GENERAL PURPOSE TRANSISTORS

**Voltage** 45/-45V **Current** 0.5/-0.5A

### Features

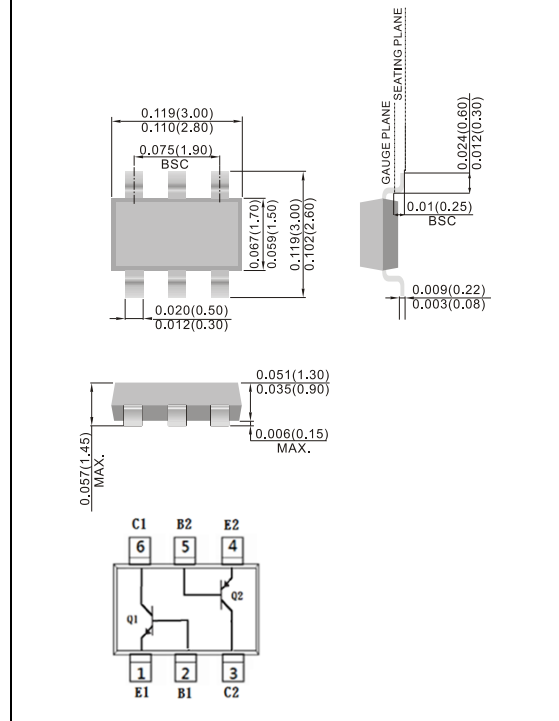
- General purpose amplifier applications
- High collector current capability
- Excellent DC current gain characteristics
- Acquire quality system certificate : TS16949
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS2.0 (2011/65/EU & 2015/865/EU directive).
- Green molding compound as per IEC61249 Std.. (Halogen Free)

### Mechanical Data

- Case : SOT-23 6L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0005 ounces, 0.014 grams
- Marking : 8PN

SOT-23 6L

Unit: inch(mm)



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

PARAMETER	SYMBOL	LIMIT		UNITS
		NPN	PNP	
Collector-Base Voltage	V <sub>CBO</sub>	50	-50	V
Collector-Emitter Voltage	V <sub>CEO</sub>	45	-45	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	-5	V
Collector Current (DC)	I <sub>C</sub>	0.5	-0.5	A
Collector Current (Pulse)	I <sub>CP</sub>	1	-1	A
Base Current	I <sub>B</sub>	0.1	-0.1	A
Collector Power Dissipation	P <sub>D</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>	378		°C/W

Note: Mounted on FR4 PCB at 1 inch square copper pad.



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## Electrical Characteristics Q1 ( $T_A=25^{\circ}\text{C}$ 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	$BV_{CBO}$	$I_C=0.01\text{mA}, I_E=0\text{A}$	50	-	-	V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=0.01\text{mA}, I_C=0\text{A}$	5	-	-	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=20\text{V}, I_E=0\text{A}$	-	-	100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0\text{A}$	-	-	100	nA
<b>ON characteristics</b>						
DC Current Gain (Note1)	$h_{FE}$	$V_{CE}=1\text{V}, I_C=0.1\text{A}$	100	-	600	-
		$V_{CE}=1\text{V}, I_C=0.5\text{A}$	40	-	-	
Collector-Emitter Saturation Voltage (Note1)	$V_{CE(SAT)}$	$I_C=0.5\text{A}, I_B=50\text{mA}$	-	-	0.7	V
Base-Emitter Turn-on Voltage (Note1)	$V_{BE(ON)}$	$V_{CE}=1\text{V}, I_C=0.5\text{A}$	-	-	1.2	V
Transition Frequency	$f_T$	$V_{CE}=5\text{V}, I_C=0.01\text{A}$ $F=100\text{MHz}$	100	-	-	MHz
Collector Output Capacitance	$C_{OB}$	$V_{CB}=10\text{V}, I_E=0\text{A},$ $F=1\text{MHz}$	-	7	-	pF

Note: 1. Pulse width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$



## BC817DPN-AU

### Electrical Characteristics Q2 ( $T_A=25^\circ\text{C}$ unless otherwise noted)

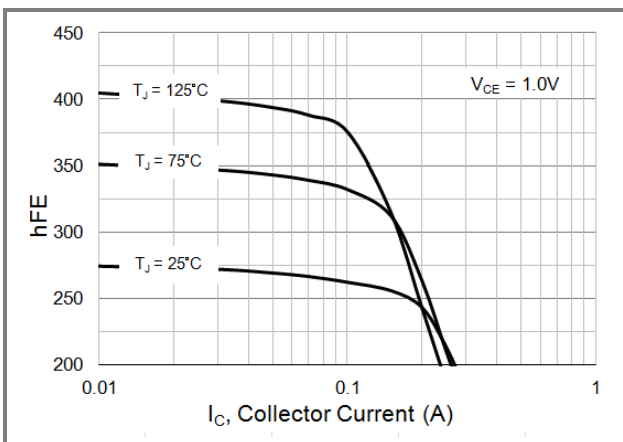
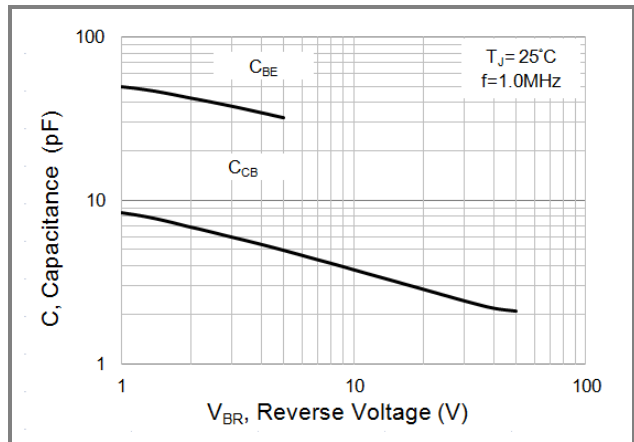
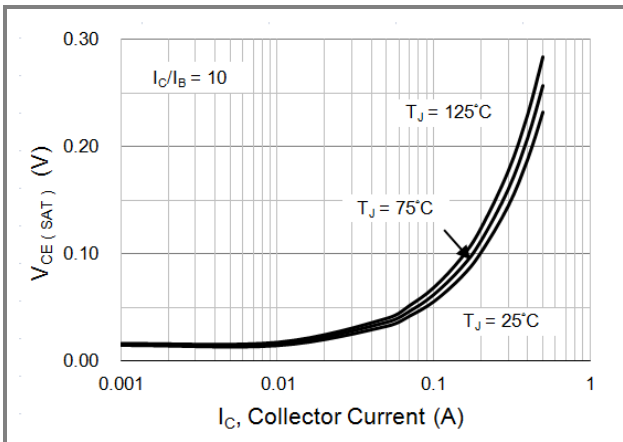
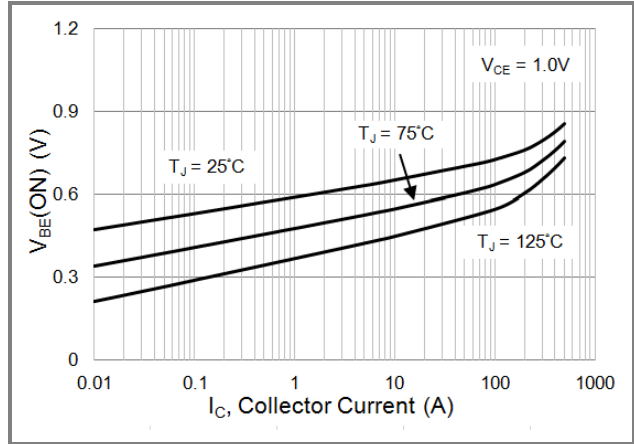
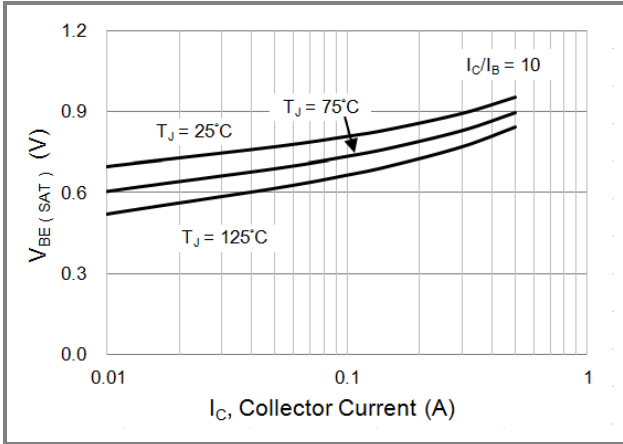
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C = -10\text{mA}, I_B = 0\text{A}$	-45	-	-	V
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C = -0.01\text{mA}, I_E = 0\text{A}$	-50	-	-	V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E = -0.01\text{mA}, I_C = 0\text{A}$	-5	-	-	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = -20\text{V}, I_E = 0\text{A}$	-	-	-100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = -4\text{V}, I_C = 0\text{A}$	-	-	-100	nA
<b>ON characteristics</b>						
DC Current Gain (Note1)	$h_{FE}$	$V_{CE} = -1\text{V}, I_C = -0.1\text{A}$	100	-	600	-
		$V_{CE} = -1\text{V}, I_C = -0.5\text{A}$	40	-	-	
Collector-Emitter Saturation Voltage (Note1)	$V_{CE(SAT)}$	$I_C = -0.5\text{A}, I_B = -50\text{mA}$	-	-	-0.7	V
Base-Emitter Turn-on Voltage (Note1)	$V_{BE(ON)}$	$V_{CE} = -1\text{V}, I_C = -0.5\text{A}$	-	-	-1.2	V
Transition Frequency	$f_T$	$V_{CE} = -5\text{V}, I_C = -0.01\text{A}$ $F = 100\text{MHz}$	100	-	-	MHz
Collector Output Capacitance	$C_{OB}$	$V_{CB} = -10\text{V}, I_E = 0\text{A},$ $F = 1\text{MHz}$	-	7	-	pF

Note: 1. Pulse width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$



# BC817DPN-AU

## NPN TYPICAL CHARACTERISTIC CURVES





# BC817DPN-AU

## PNP TYPICAL CHARACTERISTIC CURVES

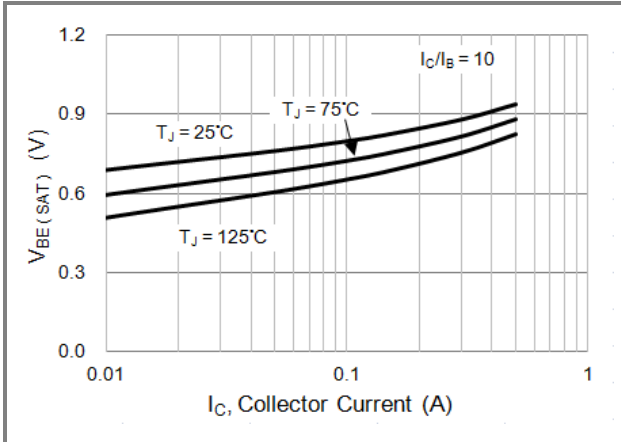


Fig.1 Typical Base-Emitter Saturation Voltage

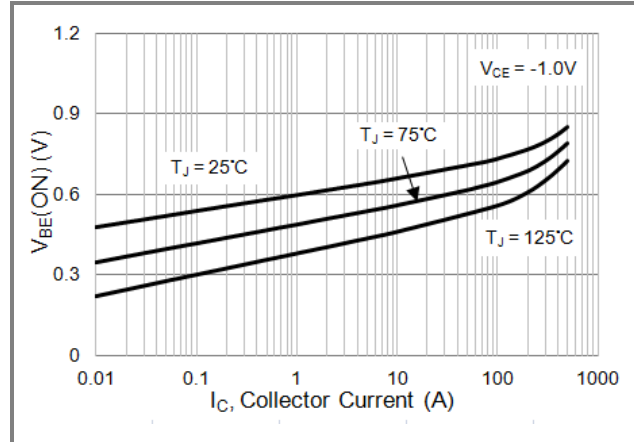


Fig.2 Typical Base-Emitter Turn ON Voltage

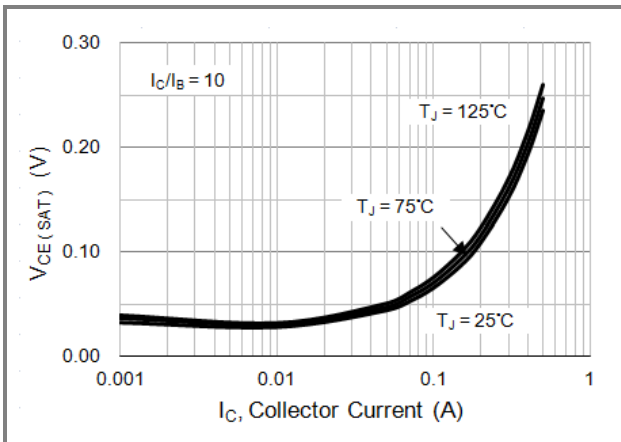


Fig.3 Typical Collector-Emitter Saturation

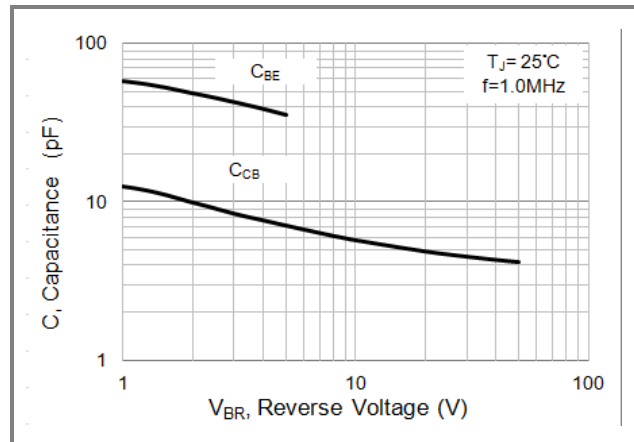


Fig.4 Typical Capacitance

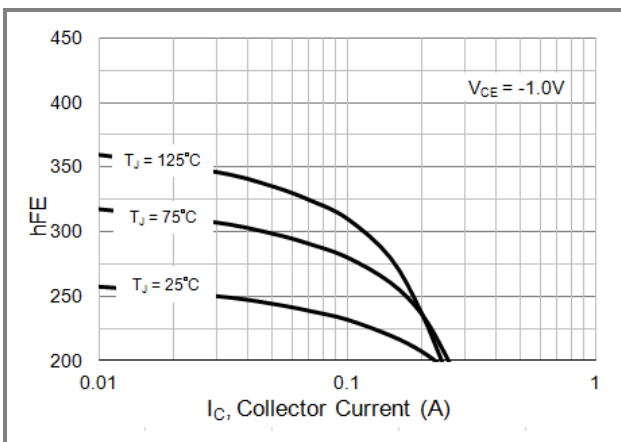


Fig.5 Typical DC Current Gain

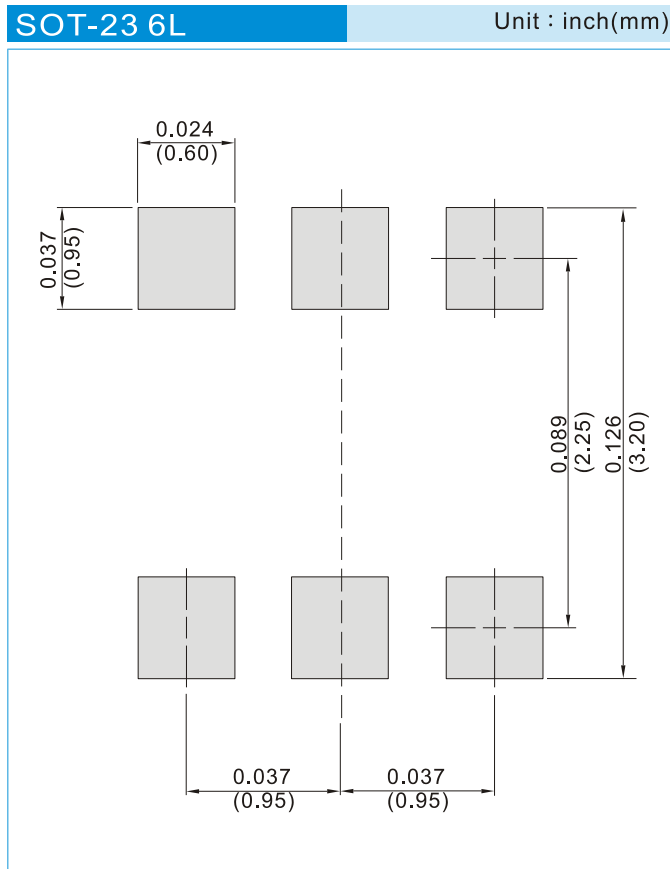


# BC817DPN-AU

## PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing Type	Marking	Version
BC817DPN-AU_R1_000A1	SOT-23 6L	3K pcs / 7" reel	8PN	Halogen free
BC817DPN-AU_R2_000A1	SOT-23 6L	10K pcs / 13" reel	8PN	Halogen free

## MOUNTING PAD LAYOUT





## BC817DPN-AU

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