

# BCA69-25-AU

## PNP Low $V_{CE(SAT)}$ Transistor

**Voltage**

**-20V**

**Current**

**-2A**

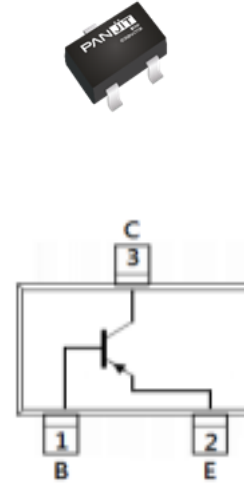
### Features

- Silicon PNP epitaxial type
- Low  $V_{CE(SAT)}$  -0.6V(max) @  $I_C/I_B = -2A / -200mA$
- High collector current capability
- Excellent DC current gain characteristics
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC61249 Standard
- NPN complement : BCA68-25-AU

### Mechanical Data

- Case : SOT-23 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0084 grams

SOT-23



### Maximum Ratings and Thermal Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Collector-Base Voltage	$V_{CBO}$	-32	V
Collector-Emitter Voltage	$V_{CEO}$	-20	
Emitter-Base Voltage	$V_{EBO}$	-5	
Collector Current (DC)	$I_C$	-2	A
Collector Current (Pulse)	$I_{CM}$	-4	
Base Current (DC)	$I_B$	-0.2	
Base Current (Pulse)	$I_{BM}$	-0.4	
Power Dissipation	$P_D$	0.83	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~150	$^\circ\text{C}$
Thermal Resistance From Junction to Ambient <sup>(Note 2)</sup>	$R_{\theta JA}$	150	$^\circ\text{C/W}$

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## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	I <sub>C</sub> = -10mA, I <sub>B</sub> = 0A	-20	-	-	V
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	I <sub>C</sub> = -0.1mA, I <sub>E</sub> = 0A	-32	-	-	
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	I <sub>E</sub> = -0.1mA, I <sub>C</sub> = 0A	-5	-	-	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> = -32V, I <sub>E</sub> = 0A	-	-	-100	nA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> = -5V, I <sub>C</sub> = 0A	-	-	-100	
Collector-Emitter Cutoff Current	I <sub>CES</sub>	V <sub>CES</sub> = -20V, I <sub>E</sub> = 0A	-	-	-100	
<b>ON Characteristics</b>						
DC Current Gain <sup>(Note 1)</sup>	h <sub>FE</sub>	V <sub>CE</sub> = -1V, I <sub>C</sub> = -500mA	160	250	375	-
		V <sub>CE</sub> = -1V, I <sub>C</sub> = -1A	60	-	-	
		V <sub>CE</sub> = -1V, I <sub>C</sub> = -2A	40	-	-	
Collector-Emitter Saturation Voltage (Note 1)	V <sub>CE(SAT)</sub>	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA	-	-140	-500	mV
		I <sub>C</sub> = -2A, I <sub>B</sub> = -200mA	-	-260	-600	
Base-Emitter Turn-On Voltage <sup>(Note 1)</sup>	V <sub>BE(ON)</sub>	V <sub>CE</sub> = -10V, I <sub>C</sub> = -5mA	-	-0.6	-0.7	V
		V <sub>CE</sub> = -1V, I <sub>C</sub> = -1A	-	-0.85	-1	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = -5V, I <sub>E</sub> = -50mA	40	140	-	MHz
Base input Capacitance	C <sub>IB</sub>	V <sub>EB</sub> = -0.5V, f=1MHz	-	107	-	pF
Collector Output Capacitance	C <sub>OB</sub>	V <sub>CB</sub> = -10V, f=1MHz	-	15	-	

Notes :

1. Pulse width ≤ 300us, Duty cycle ≤ 2%.
2. Mounted on FR4 PCB at 1 inch square copper pad.

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## TYPICAL CHARACTERISTIC CURVES

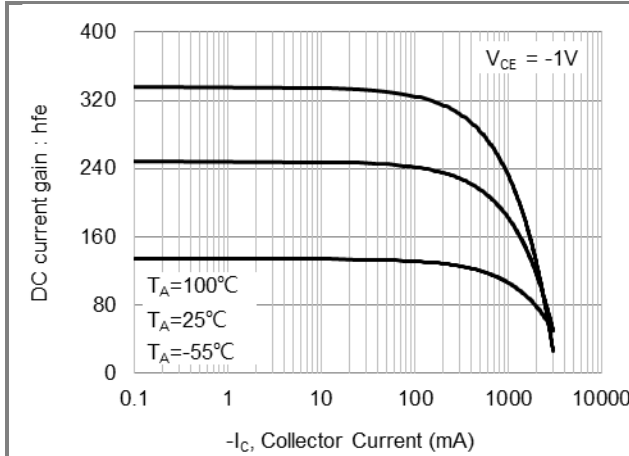


Fig.1 DC Current Gain

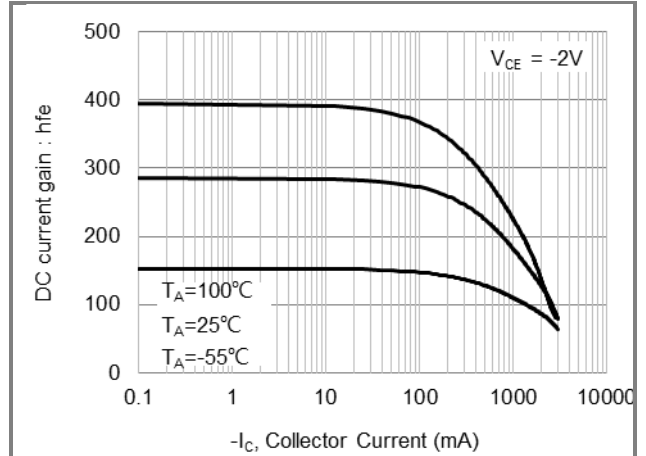


Fig.2 DC Current Gain

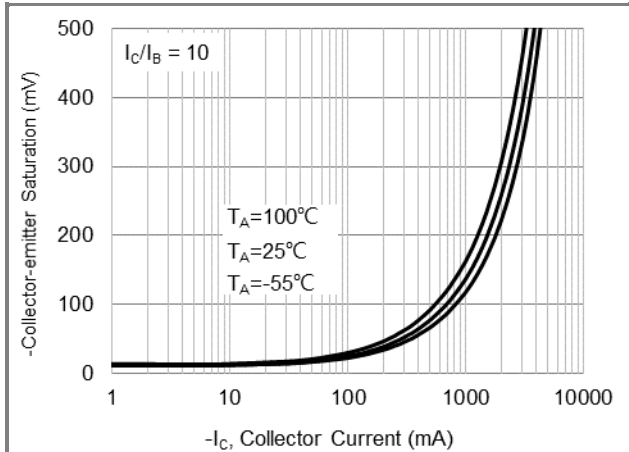


Fig.3 Collector-Emitter Saturation Voltage

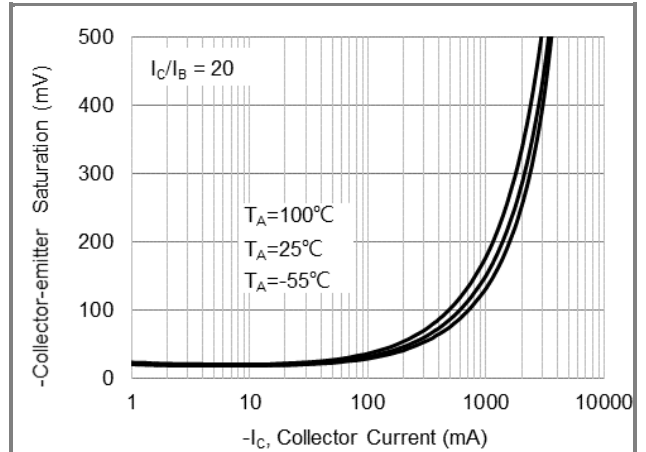


Fig.4 Collector-Emitter Saturation Voltage

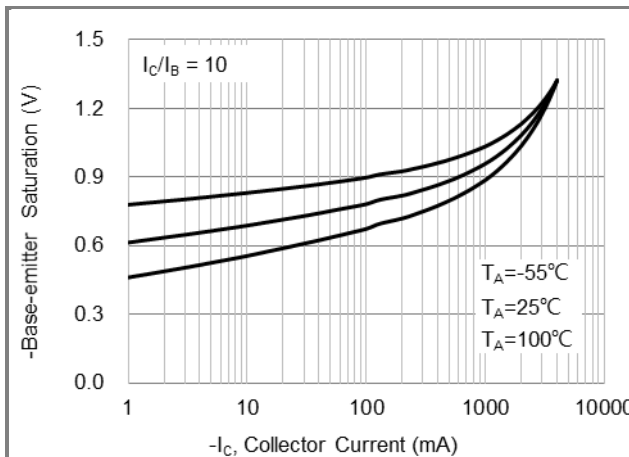


Fig.5 Base-Emitter Saturation Voltage

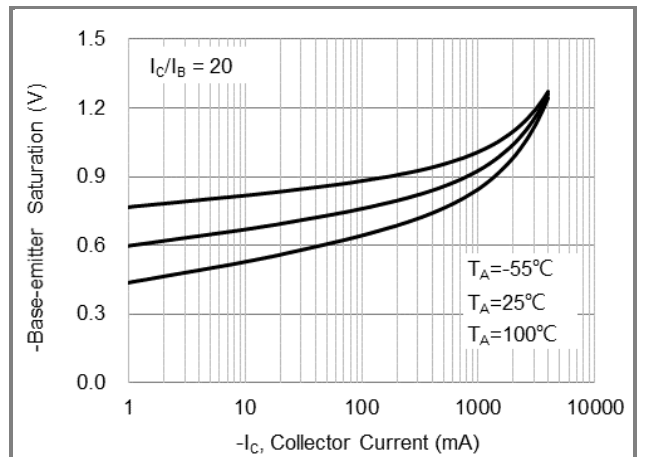


Fig.6 Base-Emitter Saturation Voltage

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## TYPICAL CHARACTERISTIC CURVES

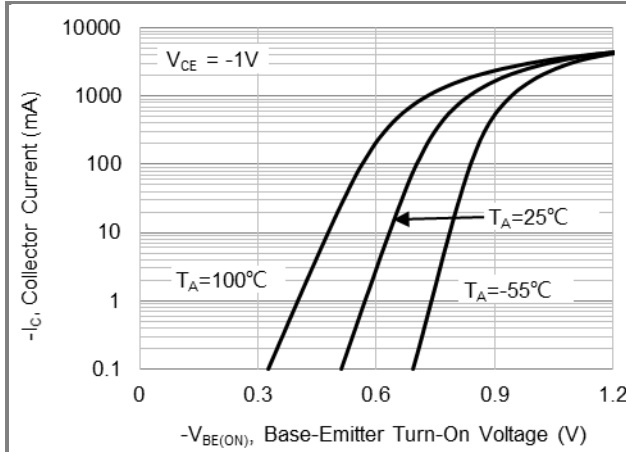


Fig.7 Base-Emitter Turn-On Voltage

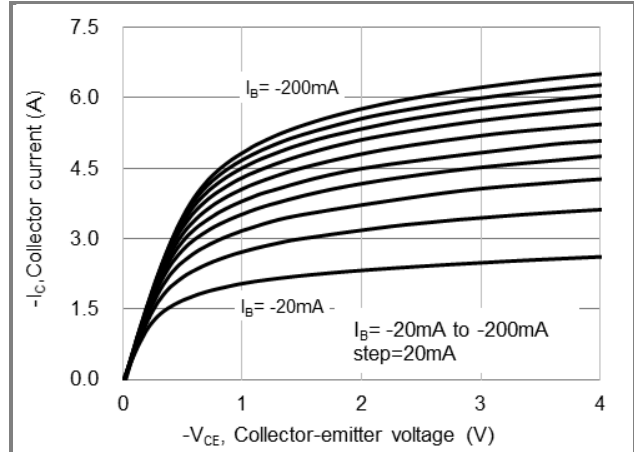


Fig.8 Collector Current

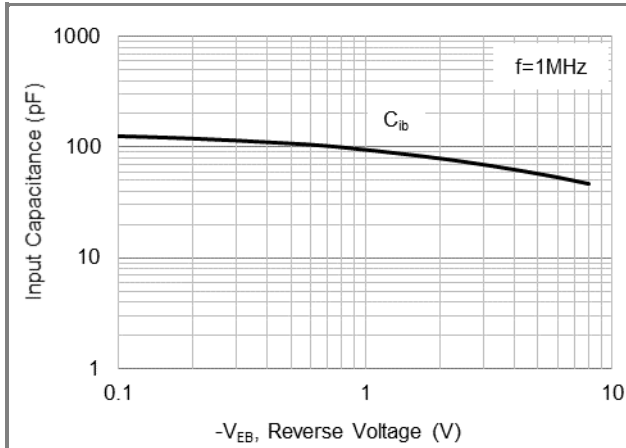


Fig.9 Input Capacitance

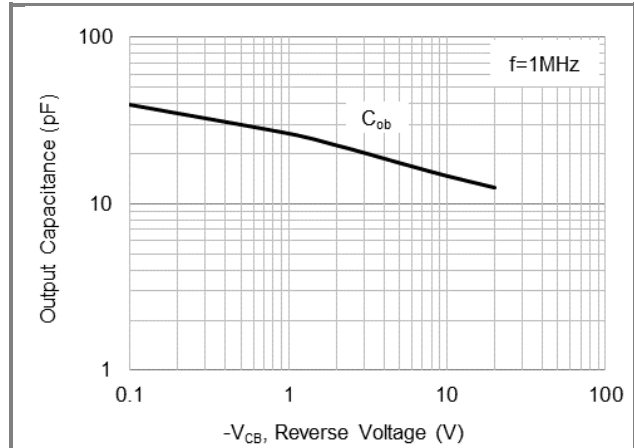


Fig.10 Output Capacitance

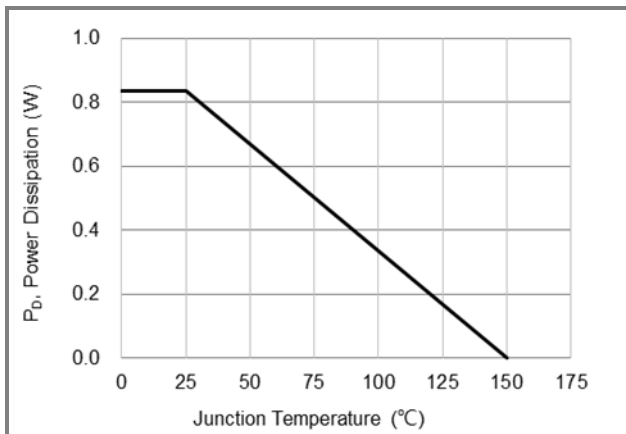


Fig.11 Power Derating Curve

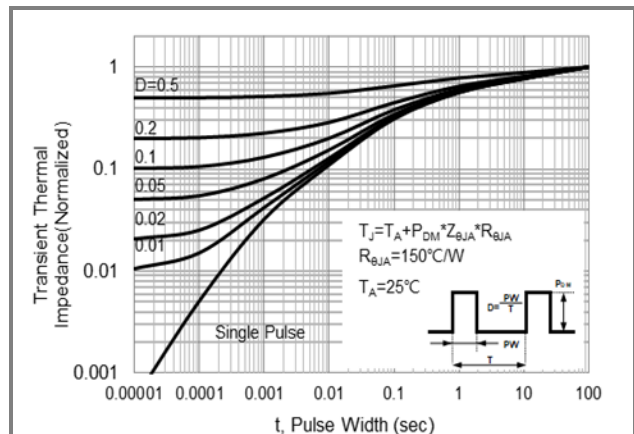


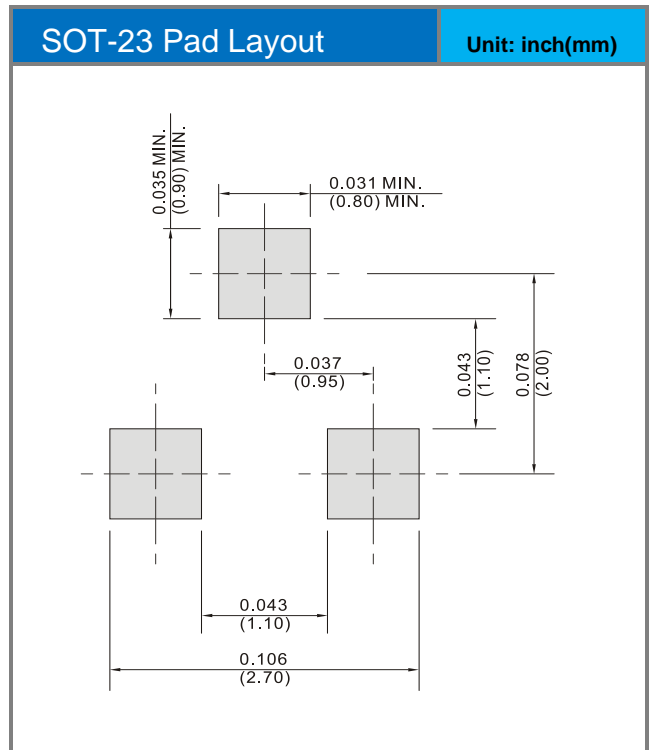
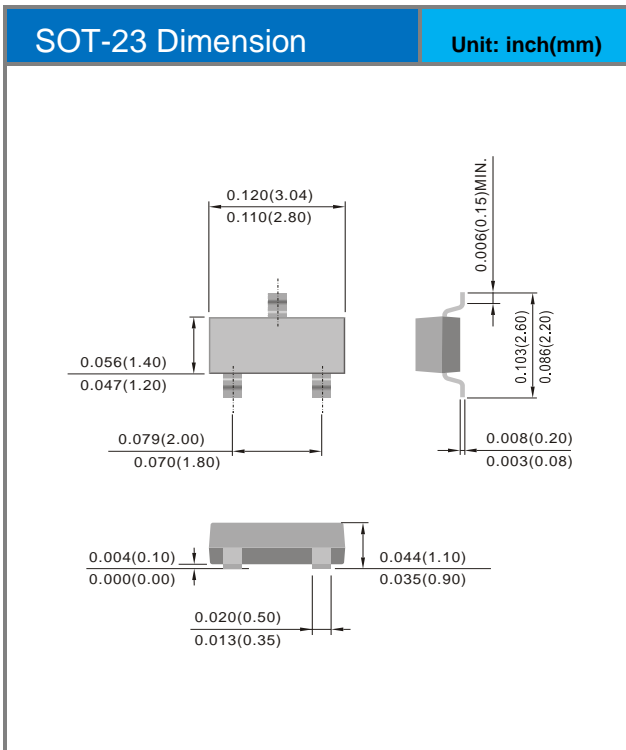
Fig.12 Normalized Transient Thermal Impedance

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## Product and Packing Information

Part No.	Package Type	Packing Type	Marking
BCA69-25-AU	SOT-23	3K pcs / 7" reel	69H

## Packaging Information & Mounting Pad Layout



## BCA69-25-AU

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