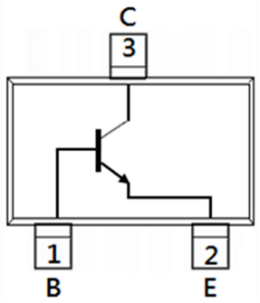
BCA55-16-AU

NPN Low $V_{CE(SAT)}$ Transistor

Voltage	60V	Current	1A

SOT-23



Features

- Silicon NPN epitaxial type
- Low $V_{CE(SAT)}$ 0.5V(max)@I_C/I_B= 500mA / 50mA
- 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
- PNP complement : BCA52-16-AU

Mechanical Data

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

Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	60	
Emitter-Base Voltage	V_{EBO}	5	
Collector Current (DC)	I_C	1	A
Collector Current (Pulse)	I_{CM}	2	
Base Current (DC)	I_B	0.1	
Base Current (Pulse)	I_{BM}	0.2	
Power Dissipation	P_D	0.83	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55~150	°C
Thermal Resistance From Junction to Ambient(Note 2)	$R_{\theta JA}$	150	°C/W

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Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
OFF Characteristics						
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C= 10mA, I_B= 0A	60	-	-	V
Collector-Base Breakdown Voltage	BV_{CBO}	I_C= 0.1mA, I_E= 0A	60	-	-	
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E= 0.1mA, I_C= 0A	5	-	-	
Collector Cutoff Current	I_{CBO}	V_{CB}= 60V, I_E= 0A	-	-	100	nA
Emitter Cutoff Current	I_{EBO}	V_{EB}= 5V, I_C= 0A	-	-	100	
Collector-Emitter Cutoff Current	I_{CES}	V_{CES}= 60V, I_E= 0A	-	-	100	
ON Characteristics						
DC Current Gain(Note 1)	h_{FE}	V_{CE}= 2V, I_C= 5mA	63	-	-	-
		V_{CE}= 2V, I_C= 150mA	100	-	250	
		V_{CE}= 2V, I_C= 500mA	40	-	-	
Collector-Emitter Saturation Voltage (Note 1)	$V_{CE(SAT)}$	I_C= 100mA, I_B= 10mA	-		200	mV
		I_C= 500m A, I_B= 50mA	-		500	
Base-Emitter Turn-On Voltage(Note 1)	$V_{BE(ON)}$	V_{CE}= 2V, I_C= 500mA	-	-	1	V
Transition Frequency	f_T	V_{CE}= 10V, I_E= 50mA	-	180	-	MHz
Base input Capacitance	C_{IB}	V_{EB}= 0.5V, f=1MHz	-	125	-	pF
Collector Output Capacitance	C_{OB}	V_{CB}= 10V, f=1MHz	-	6	-	

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

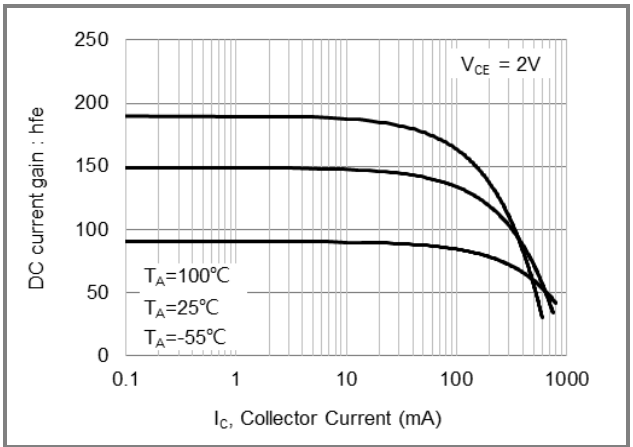

Fig.1 DC Current Gain

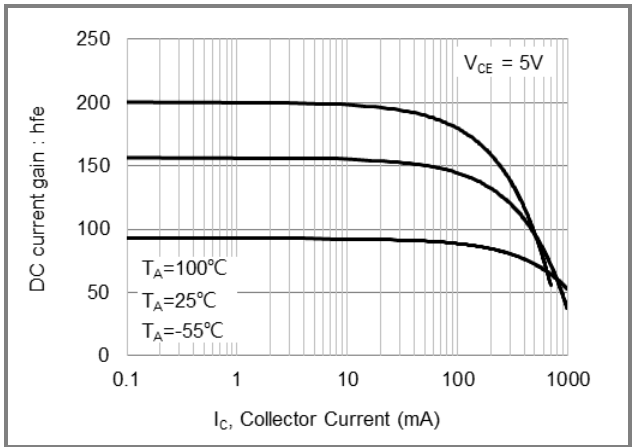

Fig.2 DC Current Gain

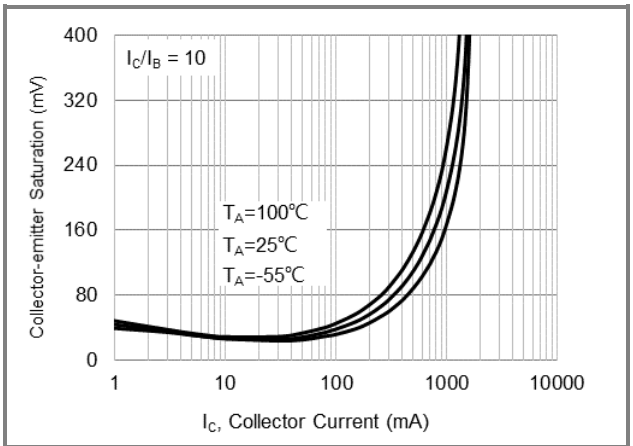

Fig.3 Collector-Emitter Saturation Voltage

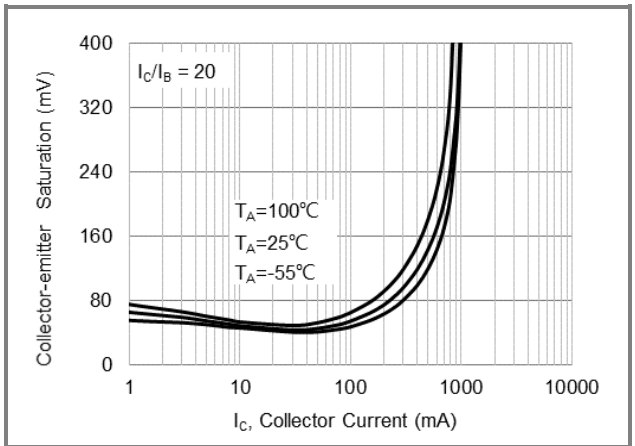

Fig.4 Collector-Emitter Saturation Voltage

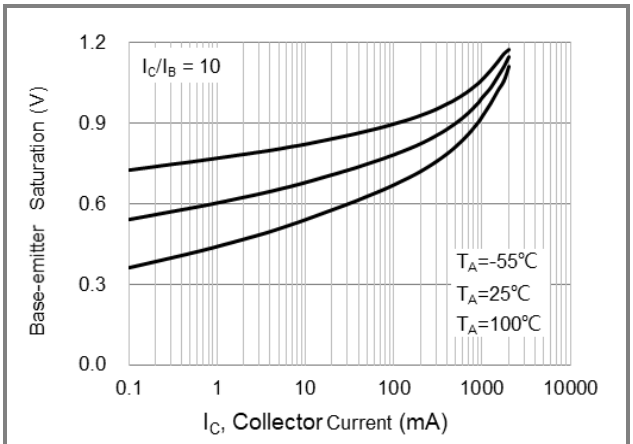

Fig.5 Base-Emitter Saturation Voltage

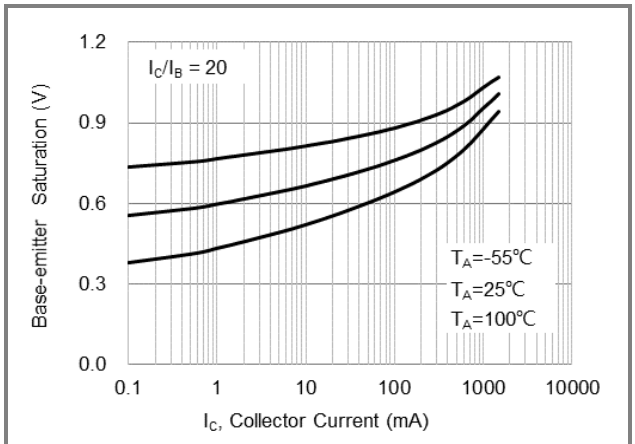

Fig.6 Base-Emitter Saturation Voltage

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TYPICAL CHARACTERISTIC CURVES

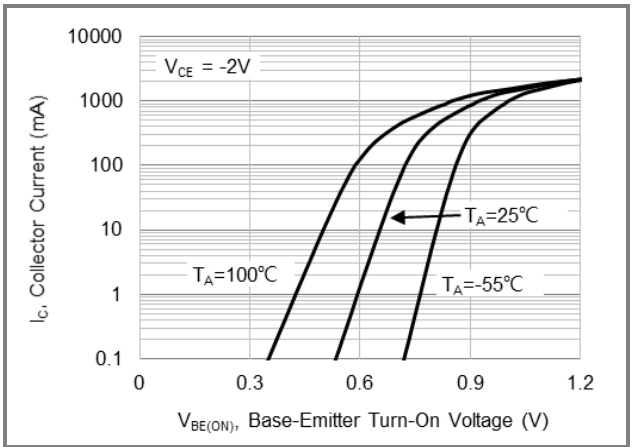

Fig.7 Base-Emitter Turn-On Voltage

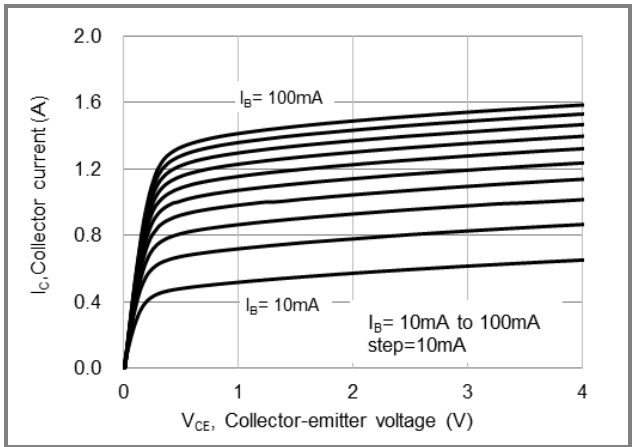

Fig.8 Collector Current

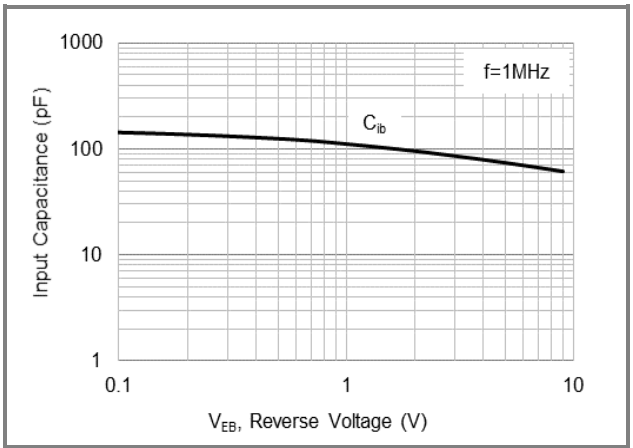

Fig.9 Input Capacitance

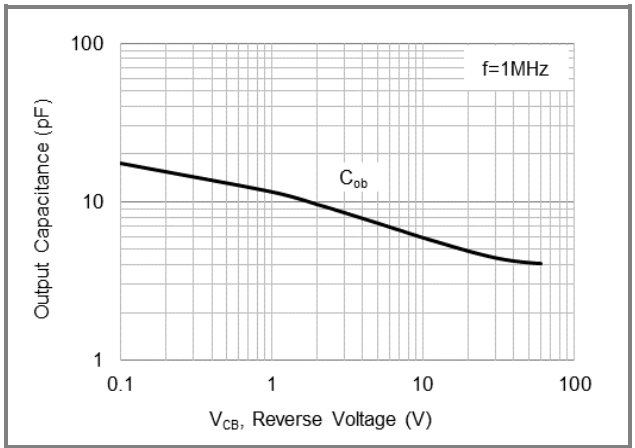

Fig.10 Output Capacitance

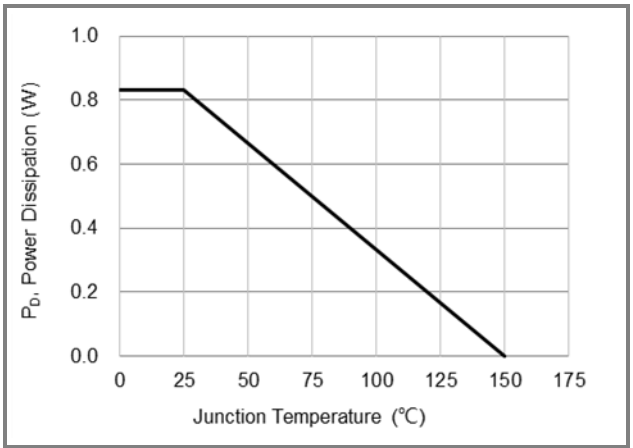

Fig.11 Power Derating Curve

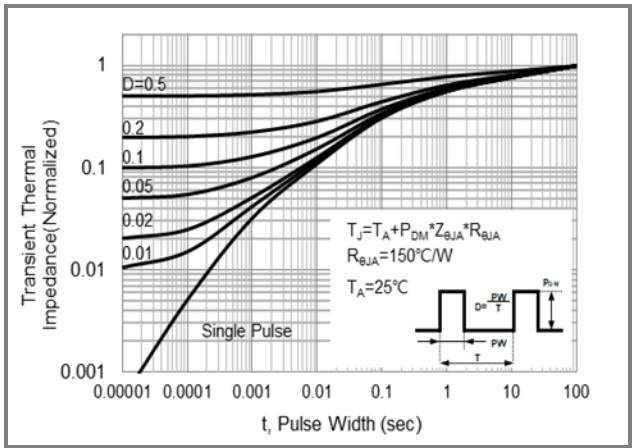

Fig.12 Normalized Transient Thermal Impedance

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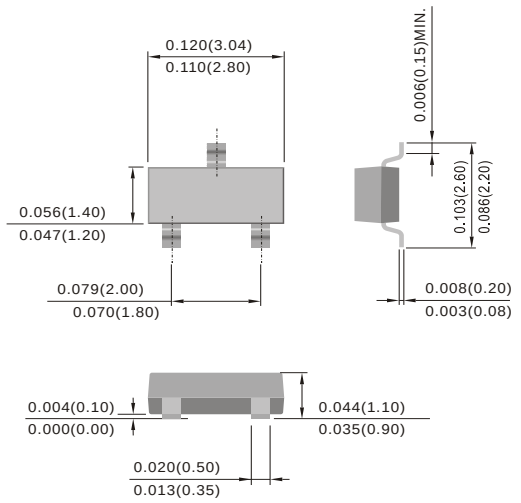
Product and Packing Information

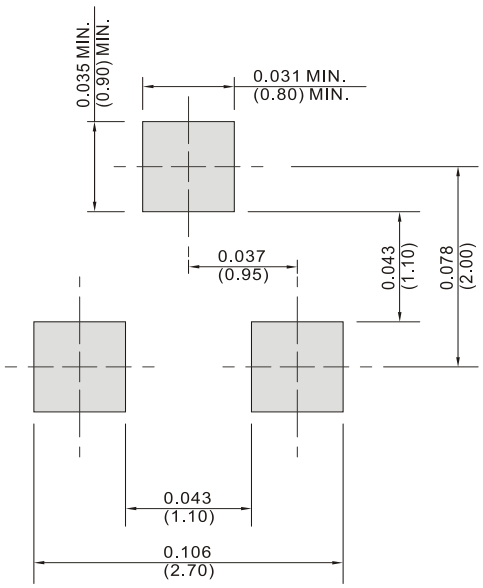
Part No.	Package Type	Packing Type	Marking
BCA55-16-AU	SOT-23	3K pcs / 7” reel	55M

Packaging Information & Mounting Pad Layout

SOT-23 Dimension — Unit: inch(mm)



SOT-23 Pad Layout — Unit: inch(mm)



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