

BCP56-AU

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

Voltage

80V

Current

1A

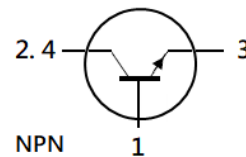
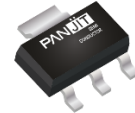
Features

- 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
- PNP complement : BCP53-AU
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC61249 Standard

Mechanical Data

- Case : SOT-223 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.123 grams

SOT-223



Pin Assignment:

1. Base
- 2.4. Collector
3. Emitter

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

PARAMETER	SYMBOL	LIMIT	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	80	
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	1.4	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^{\circ}C$
Thermal Resistance From Junction to Ambient ^(Note 2)	$R_{\theta JA}$	89	$^{\circ}C/W$

BCP56-AU

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	80	-	-	V
Collector-Base Breakdown Voltage	BV _{CBO}	I _C = 0.1mA, I _E = 0A	80	-	-	
Emitter-Base Breakdown Voltage	BV _{EBO}	I _E = 0.1mA, I _C = 0A	5	-	-	
Collector Cutoff Current	I _{CBO}	V _{CB} = 80V, 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} = 80V, 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	63	-	250	
		V _{CE} = 2V, I _C = 500mA	40	-	-	
Collector-Emitter Saturation Voltage (Note 1)	V _{CE(SAT)}	I _C = 100mA, I _B = 10mA	-	-	150	mV
		I _C = 500mA, I _B = 50mA	-	-	500	
Base-Emitter Saturation Voltage (Note 1)	V _{BE(SAT)}	I _C = 100mA, I _B = 10mA	-	0.8	1	V
		I _C = 500mA, I _B = 50mA	-	-	1.1	
Base-Emitter Turn-On Voltage ^(Note 1)	V _{BE(ON)}	V _{CE} = 2V, I _C = 500mA	-	-	1	
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.

BCP56-AU

TYPICAL CHARACTERISTIC CURVES

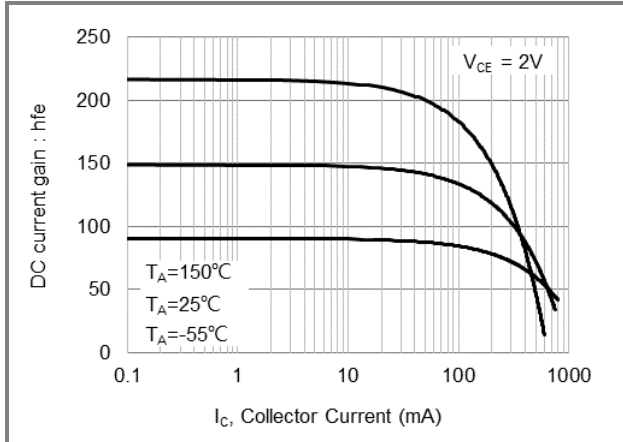


Fig.1 DC Current Gain

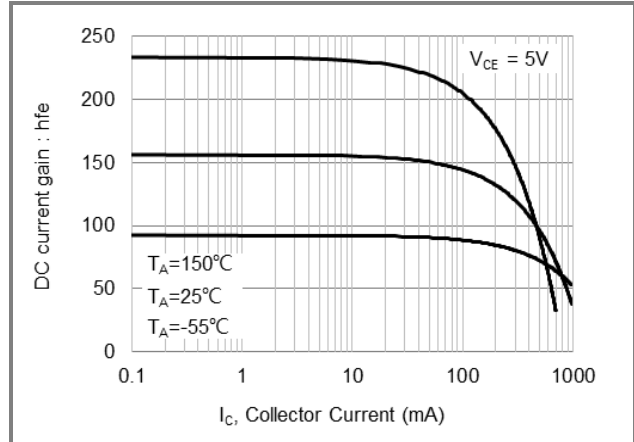


Fig.2 DC Current Gain

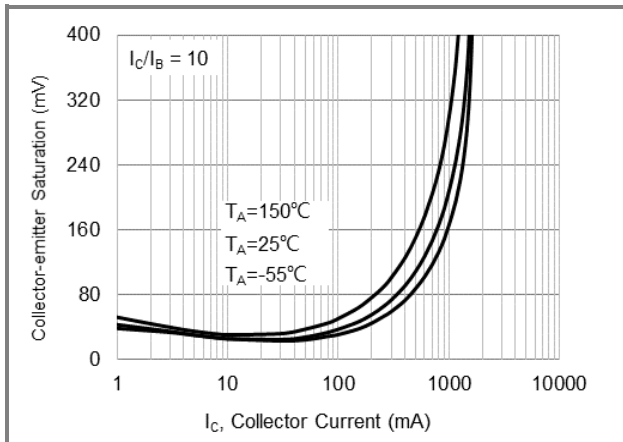


Fig.3 Collector-Emitter Saturation Voltage

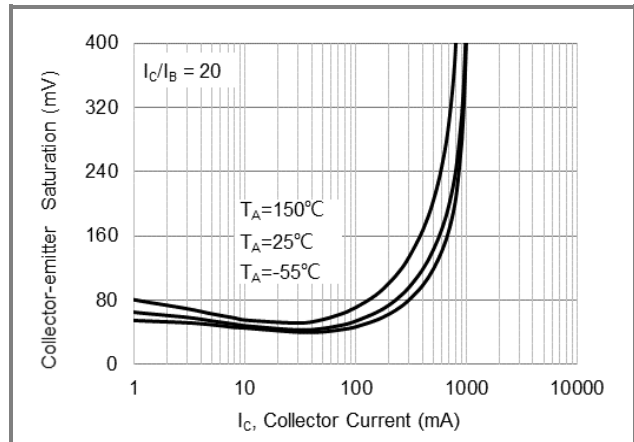


Fig.4 Collector-Emitter Saturation Voltage

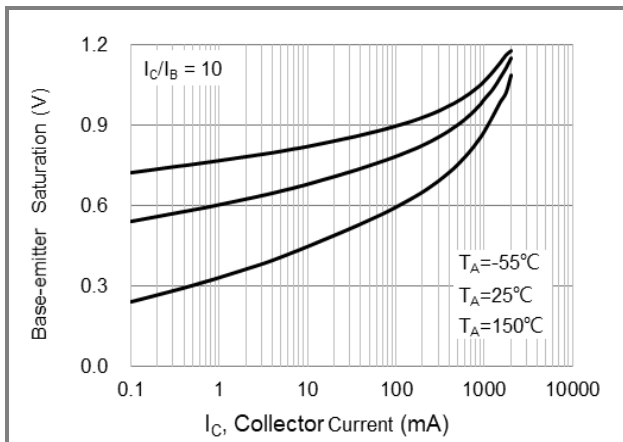


Fig.5 Base-Emitter Saturation Voltage

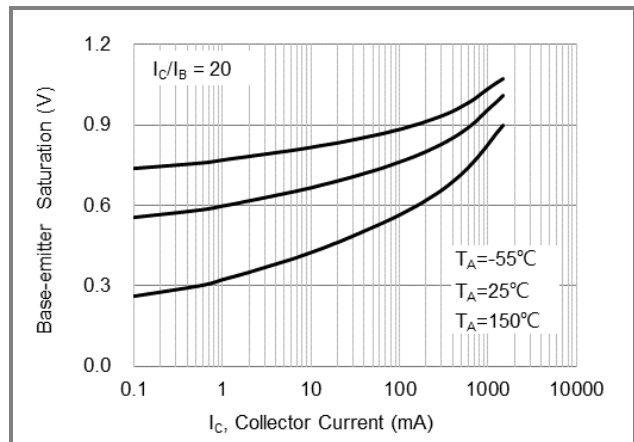


Fig.6 Base-Emitter Saturation Voltage

BCP56-AU

TYPICAL CHARACTERISTIC CURVES

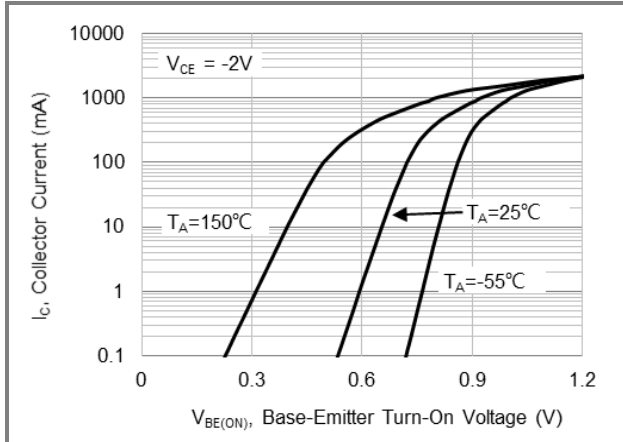


Fig.7 Base-Emitter Turn-On Voltage

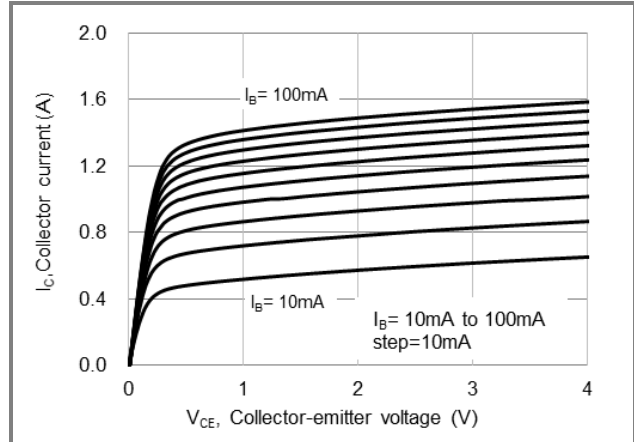


Fig.8 Collector Current

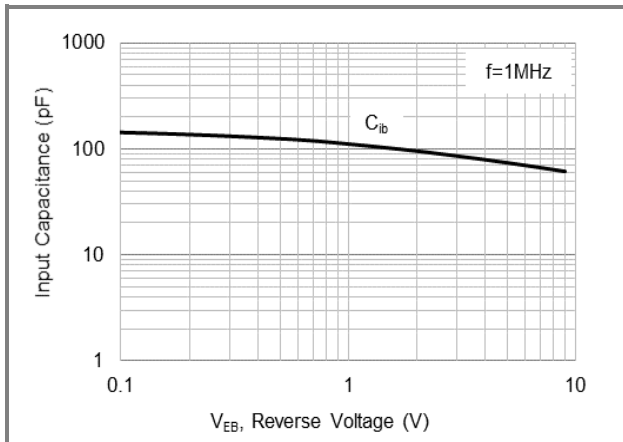


Fig.9 Input Capacitance

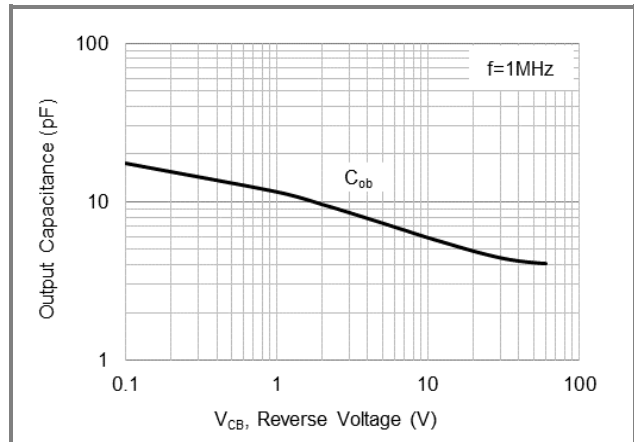


Fig.10 Output Capacitance

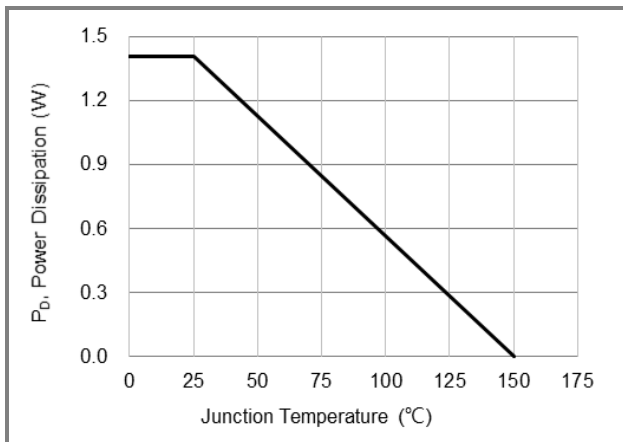


Fig.11 Power Derating Curve

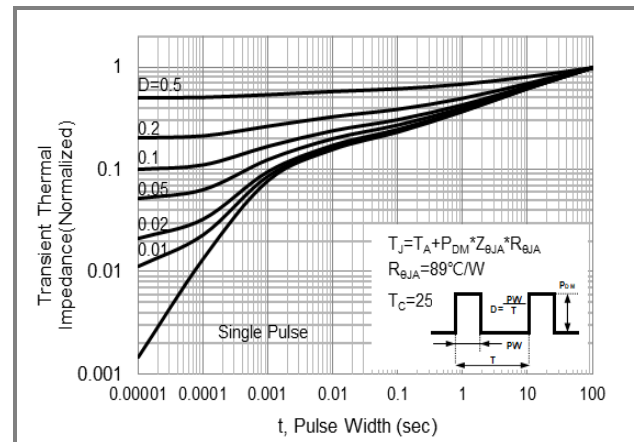


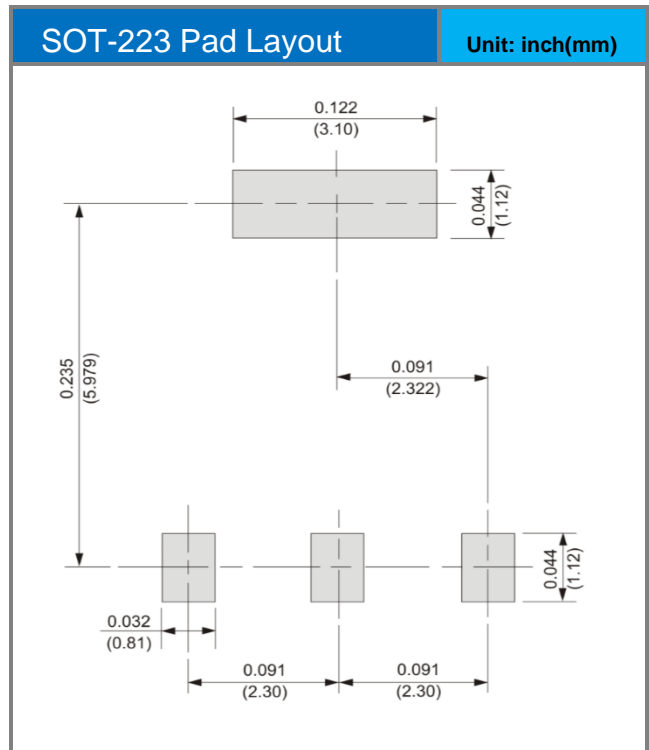
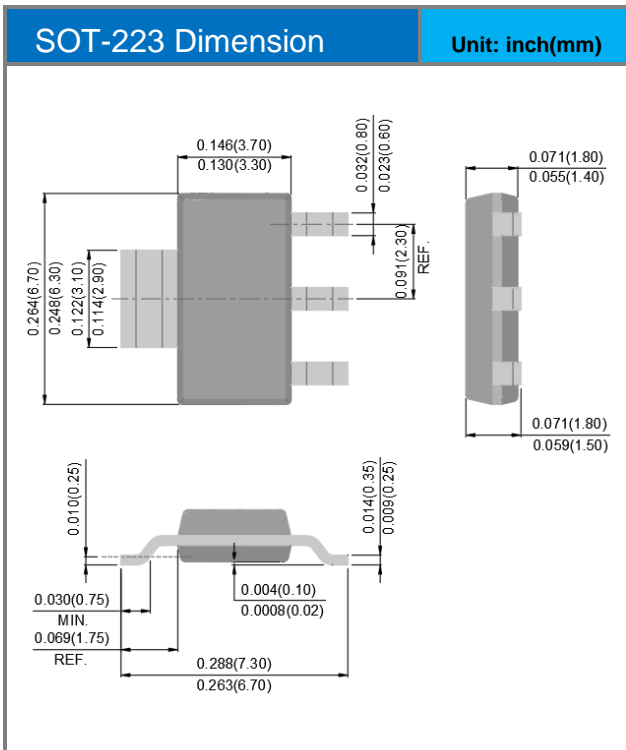
Fig.12 Normalized Transient Thermal Impedance

BCP56-AU

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
BCP56-AU	SOT-223	2.5K pcs / 13" reel	BCP56

Packaging Information & Mounting Pad Layout



BCP56-AU

Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..
- Panjit International Inc. reserves the rights to make changes of the content herein the document follow PCN procedure. Please refer to our website for the latest document.
- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.
- Since Panjit uses lot number as the tracking base, please provide the lot number for tracking when complaining.