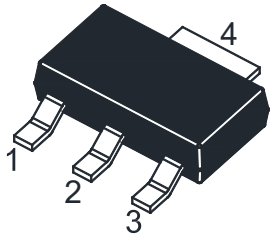
BCP56-xx Series

NPN Silicon Epitaxial Planar Power Transistor



1.Base 2.Collector 3.Emitter 4. Collector
SOT-223 Plastic Package

Features

• Halogen and Antimony Free(HAF), RoHS compliant

Applications

• Low-side switches
• Power management
• Battery-driven devices

Absolute Maximum Ratings (T_a = 25℃)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	100	V
Collector Emitter Voltage	V_{CEO}	80	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Peak Collector Current	I_{CM}	1.5	A
Peak Base Current	I_{BM}	0.2	A
Total Power Dissipation	P_{tot}	1.33	W
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	- 65 to + 150	℃

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient [1)]	$R_{\theta JA}$	94	℃/W

[1)] **Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.**

Characteristics at T_a = 25℃

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain						
at V_{CE} = 2 V, I_C = 5 mA		h_{FE}	25	-	-	-
at V_{CE} = 2 V, I_C = 500 mA		h_{FE}	25	-	-	-
at V_{CE} = 2 V, I_C = 150 mA	-10	h_{FE}	63	-	160	-
	-16	h_{FE}	100	-	250	-
Collector Base Cutoff Current at V_{CB} = 30 V		I_{CBO}	-	-	100	nA
Emitter Base Cutoff Current at V_{EB} = 5 V		I_{EBO}	-	-	100	nA
Collector Base Breakdown Voltage at I_C = 100 µA		$V_{(BR)CBO}$	100	-	-	V
Collector Emitter Breakdown Voltage at I_C = 1 mA		$V_{(BR)CEO}$	80	-	-	V
Emitter Base Breakdown Voltage at I_E = 100 µA		$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at I_C = 0.5 A, I_B = 50 mA		$V_{CE(sat)}$	-	-	500	mV
Base Emitter Saturation Voltage at I_C = 0.5 A, I_B = 50 mA		$V_{BE(sat)}$	-	-	1.1	V
Base Emitter Voltage at V_{CE} = 2 V, I_C = 0.5 A		V_{BE}	-	-	1	V
Transition Frequency at V_{CE} = 5 V, I_C = 10 mA , f = 100 MHz		f_T	-	130	-	MHz

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

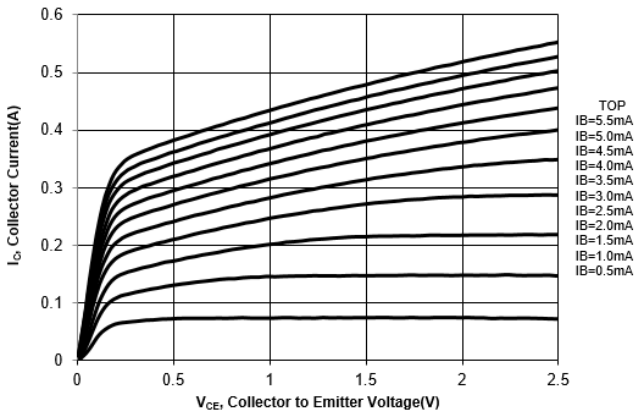


Fig. 2 Collector Current vs. Base to Emitter Voltage

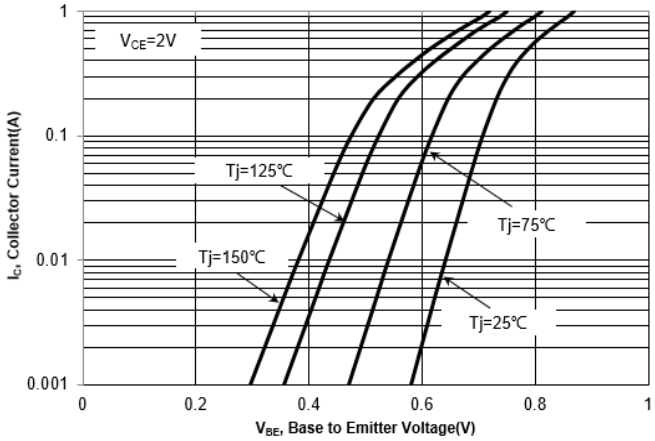


Fig. 3 h_{FE},DC Current Gain vs. Collector Current

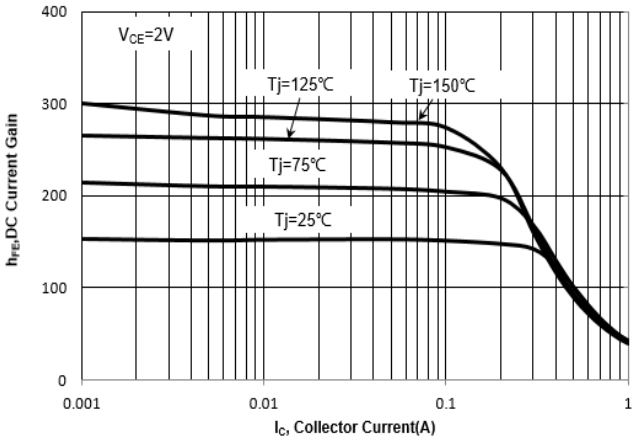
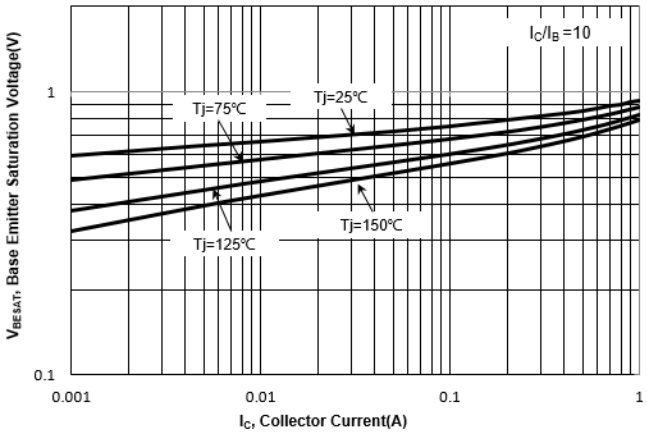


Fig. 4 $V_{BE(sat)}$ vs. Collector Current



Electrical Characteristics Curves

Fig. 5 $V_{CE(sat)}$ vs. Collector Current

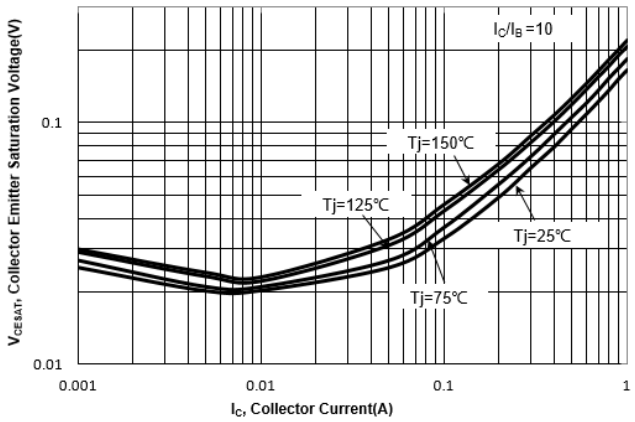


Fig. 6 Output Capacitance

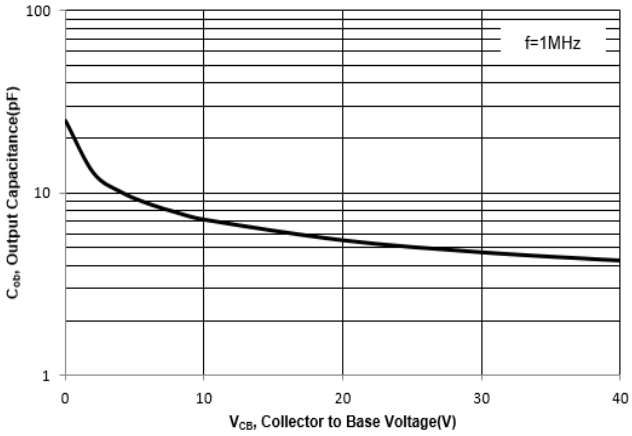
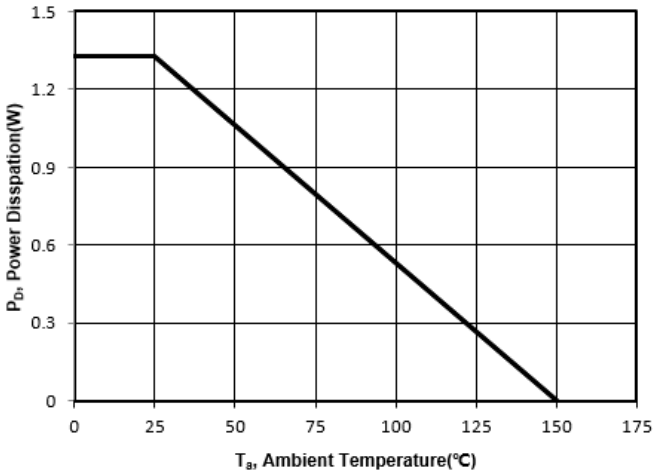
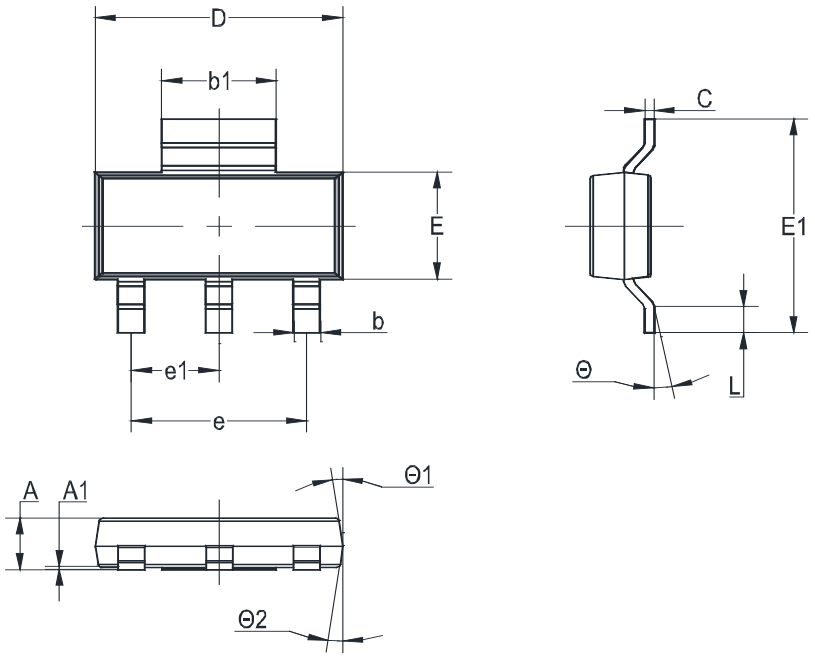


Fig 7. Power Derating Curve



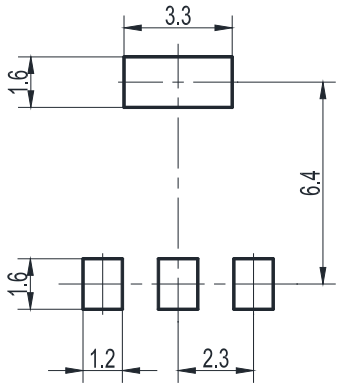
Package Outline (Dimensions in mm)

SOT-223



Unit	A	A1	b	b1	C	D	E	E1	e	e1	L	Θ	Θ1	Θ2
mm	1.8 1.5	0.1 MAX	0.8 0.6	3.1 2.9	0.32 0.22	6.7 6.3	3.7 3.3	7.3 6.7	4.6 TYP	2.3 TYP	1.1 0.7	10° 0°	7° 0°	7° 0°

Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-223	12	8 ± 0.1	0.315 ± 0.004	330	13	3,000

Marking information

" BCP56-10Q " = Part No. (" * " = HFE grouping Code)

" **** " = Date Code Marking

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