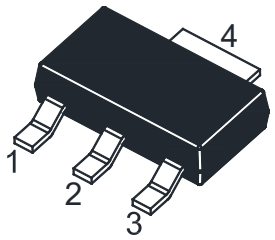
BCP53-xxA Series

PNP Silicon Epitaxial Planar Power Transistor



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

Features

- AEC-Q101 Qualified
- 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 [1)]	P_{tot}	1.3	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)]	$R_{\theta JA}$	96	℃/W

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

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}	40	-	-	-
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 $-I_C$ = 10 mA		$-V_{(BR)CEO}$	80	-	-	V
Emitter Base Breakdown Voltage at $-I_E$ = 10 µA		$-V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $-I_C$ = 500 mA, $-I_B$ = 50 mA		$-V_{CE(sat)}$	-	-	0.5	V
Base Emitter Voltage at $-V_{CE}$ = 2 V, $-I_C$ = 500 mA		$-V_{BE(on)}$	-	-	1	V
Transition Frequency at $-V_{CE}$ = 10 V, $-I_C$ = 50 mA , f = 100 MHz		f_T	-	125	-	MHz

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

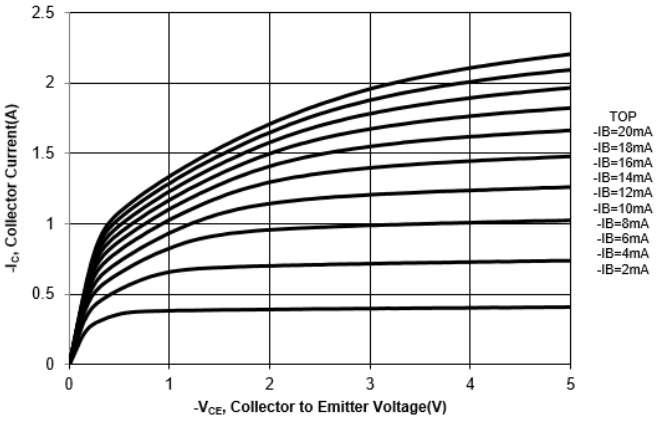


Fig. 2 Collector Current vs. Base to Emitter Voltage

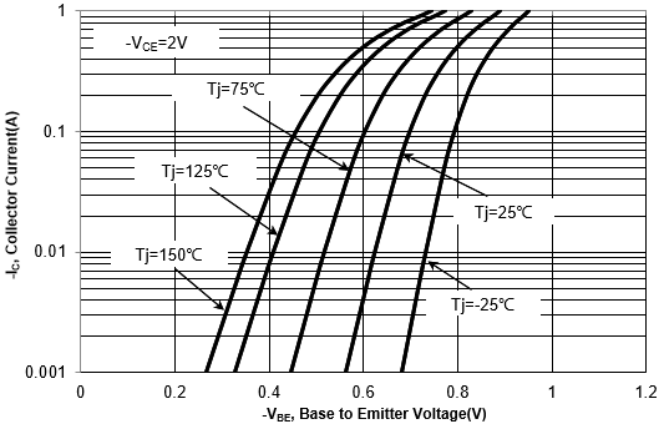


Fig. 3 DC Current Gain vs. Collector Current

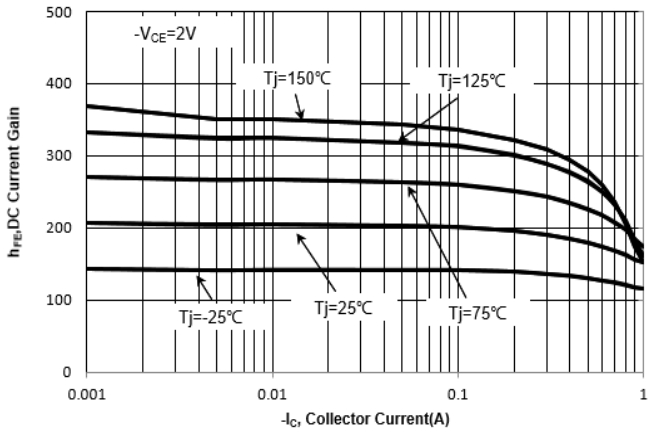
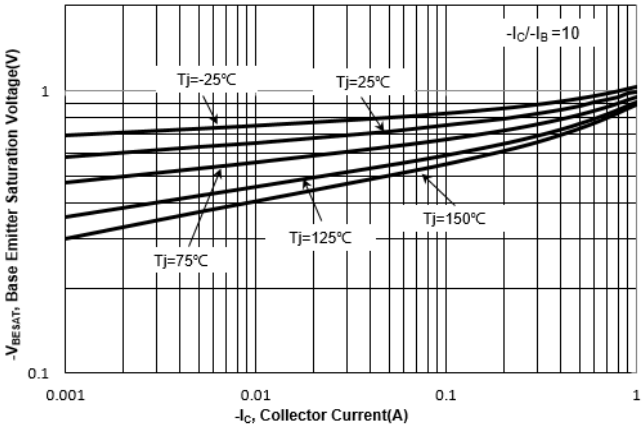


Fig. 4 V_{BESAT} vs. Collector Current



Electrical Characteristics Curves

Fig. 5 V_{CESAT} vs. Collector Current

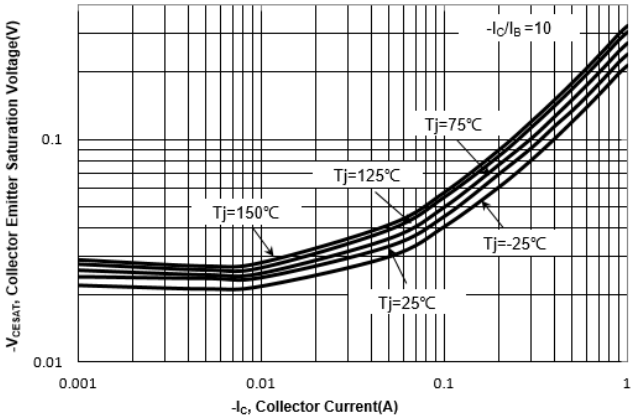


Fig. 6 Output Capacitance

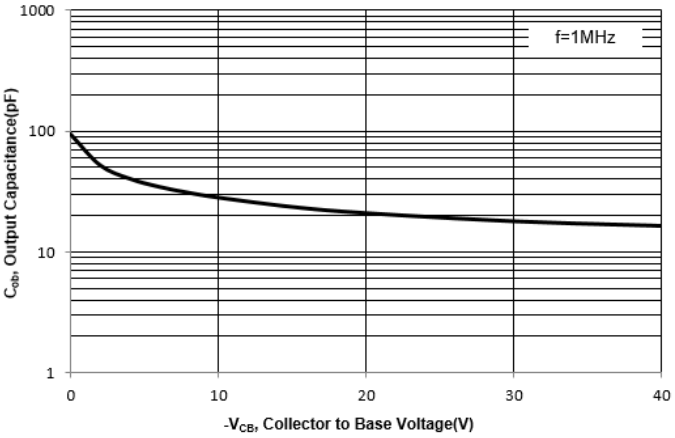
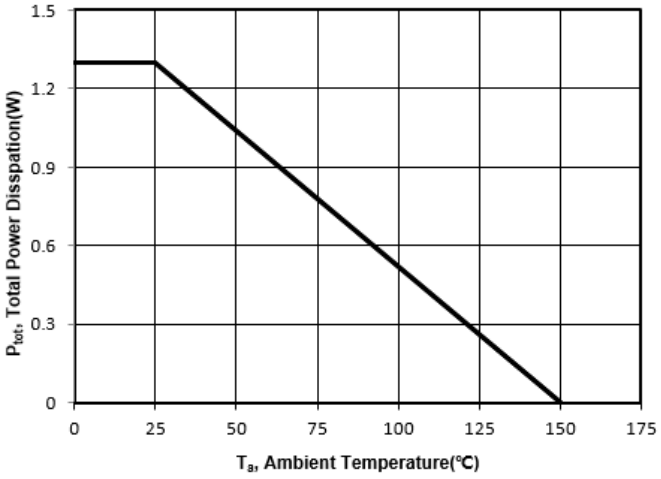
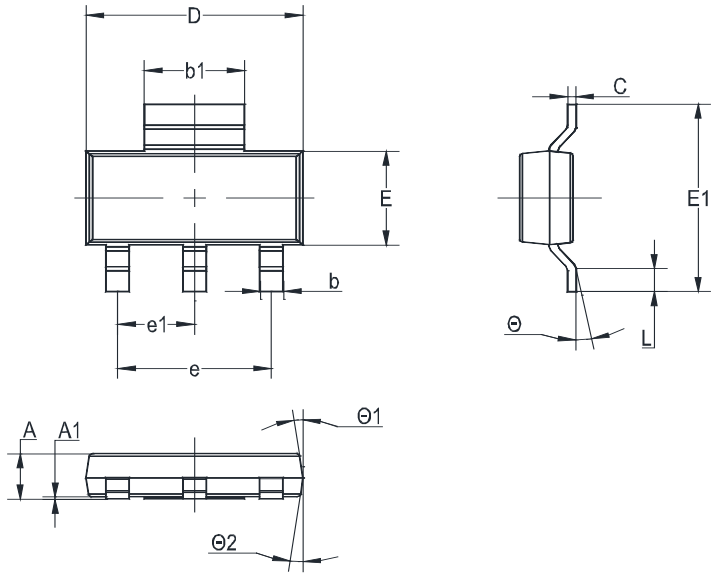


Fig. 7 Power Derating Curve

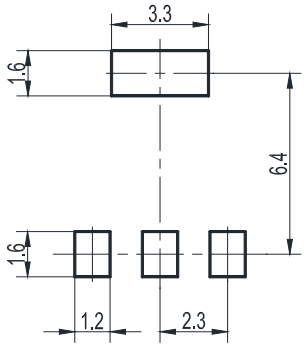


Package Outline (Dimensions in mm) SOT-223



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

" BCP53-*Q " = Part No. ("*"=HFE grouping Code)

" **** " = Date Code Marking

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