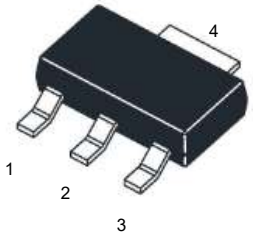
BCP69Q-HAF

PNP Silicon Epitaxial Power Transistor



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

Features

• Halogen and Antimony Free(HAF), RoHS compliant

Absolute Maximum Ratings (T_a = 25℃)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	32	V
Collector Emitter Voltage	$-V_{CEO}$	20	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	2	A
Peak Collector Current, Pulsed (t_p ≤ 1ms)	$-I_{CM}$	3	A
Peak Base Current, Pulsed (t_p ≤ 1ms)	$-I_{BM}$	400	mA
Total Power Dissipation	P_{tot}	1 [1)] 2 [2)]	W
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	- 65 to + 150	℃

Thermal Resistance Ratings

Parameter	Symbol	Max.	Unit
Maximum Junction to Ambient	$R_{\theta JA}$	125 [1)] 62.5 [2)]	℃/W

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

Dated: 27/07/2023 Rev: 02

Characteristics at T_a = 25℃

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain						
at $-V_{CE}$ = 10 V, $-I_C$ = 5 mA		h_{FE}	50	-	-	-
at $-V_{CE}$ = 1 V, $-I_C$ = 500 mA	BCP69-16Q	h_{FE}	100	-	250	-
	BCP69-25Q	h_{FE}	160	-	375	-
at $-V_{CE}$ = 1 V, $-I_C$ = 1 A		h_{FE}	60	-	-	-
at $-V_{CE}$ = 1 V, $-I_C$ = 2 A		h_{FE}	40	-	-	-
Collector Base Cutoff Current						
at $-V_{CB}$ = 25 V		$-I_{CBO}$	-	-	100	nA
at $-V_{CB}$ = 25 V, T_J = 150˚C			-	-	10	µA
Emitter Base Cutoff Current						
at $-V_{EB}$ = 5 V		$-I_{EBO}$	-	-	100	nA
Collector Emitter Saturation Voltage						
at $-I_C$ = 1 A, $-I_B$ = 100 mA		$-V_{CE(sat)}$	-	-	0.5	V
at $-I_C$ = 2 A, $-I_B$ = 200 mA			-	-	0.6	
Base Emitter Voltage						
at $-V_{CE}$ = 10 V, $-I_C$ = 5 mA		$-V_{BE}$	-	-	0.7	V
at $-V_{CE}$ = 1 V, $-I_C$ = 1 A			-	-	1	
Transition Frequency						
at $-V_{CE}$ = 5 V, $-I_C$ = 50 mA, f = 100 MHz		f_T	-	140	-	MHz
Collector Capacitance						
at $-V_{CB}$ = 10 V, f = 1 MHz		C_c	-	28	-	pF

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

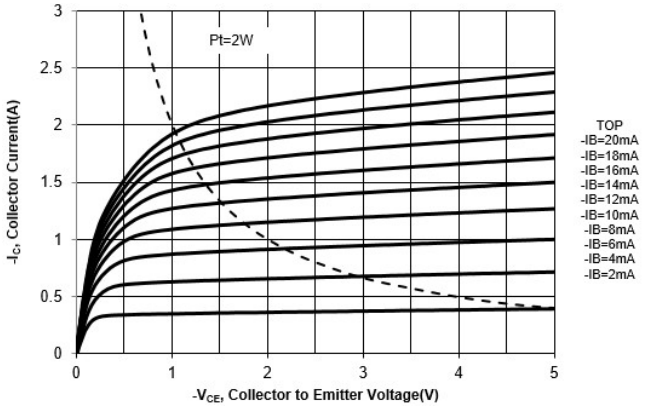


Fig. 2 Collector Current vs. Base to Emitter Voltage

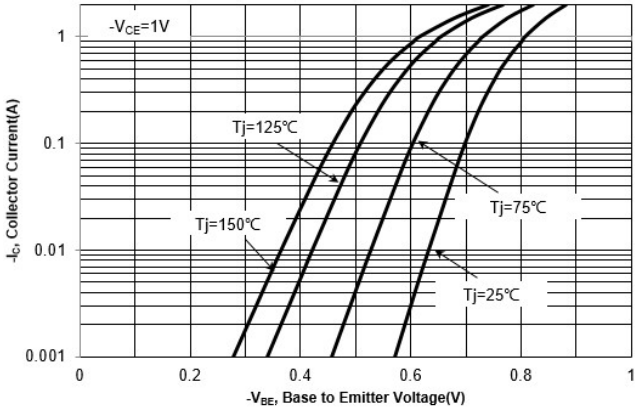


Fig. 3 DC Current Gain vs. Collector Current

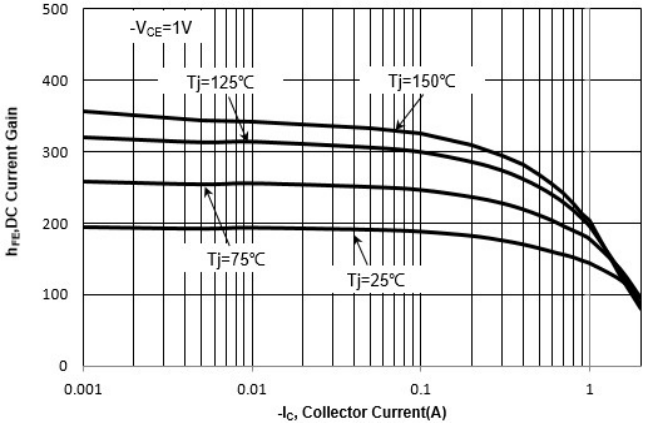


Fig. 4 V_{BESAT} vs. Collector Current

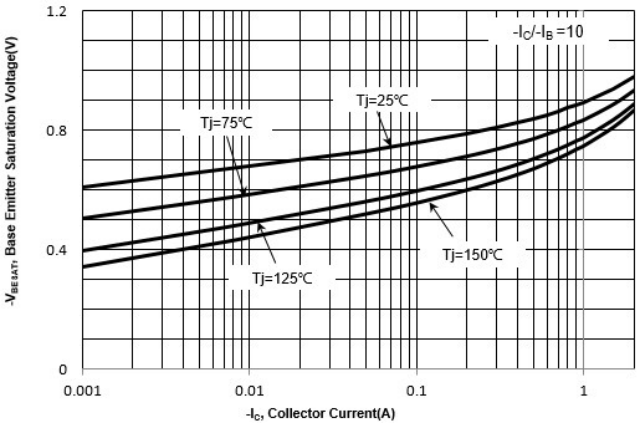


Fig. 5 V_{CESAT} vs. Collector Current

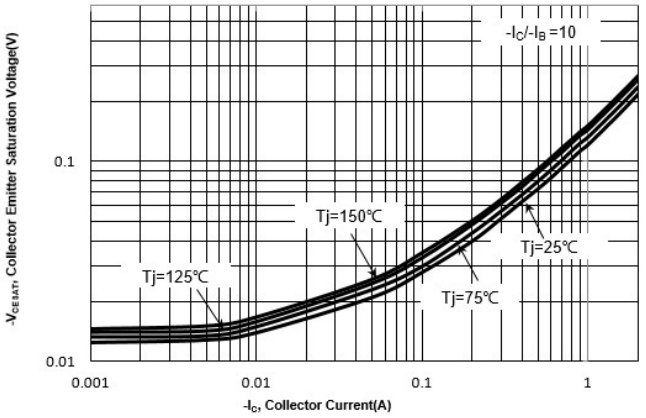
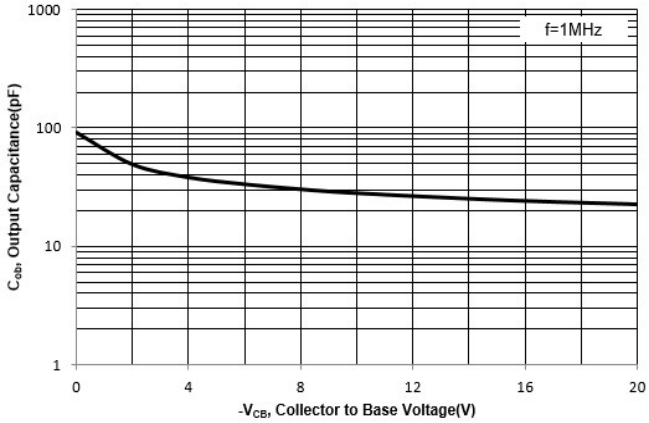
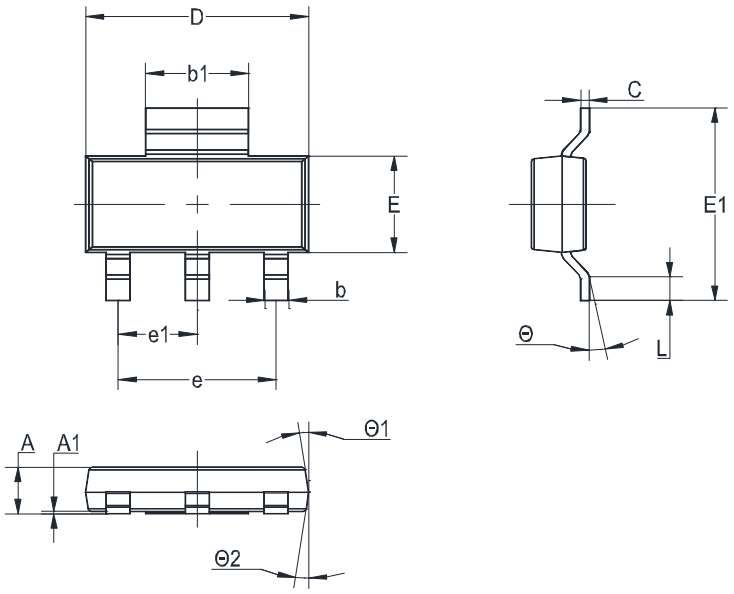


Fig. 6 Output Capacitance

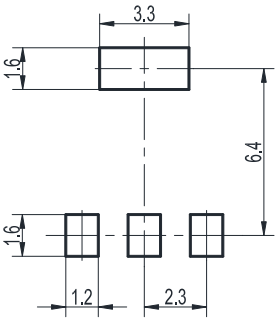


Package Outline (Dimensions in mm) SOT-223



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

" BCP69-**Q " = Part No. (" * " = HFE grouping Code)

" ****** " = Date Code Marking

Font type: Arial