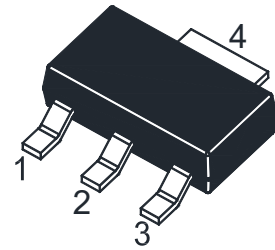


2SC401Q-HAF

NPN Silicon Epitaxial Planar Power Transistor

Features

- Low saturation switching application
- High Voltage
- Halogen and Antimony Free(HAF),
RoHS compliant



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

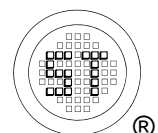
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	80	V
Collector Emitter Voltage	V_{CEO}	60	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Peak Collector Current ($t_p = 300 \mu\text{s}$)	I_{CM}	2	A
Total Power Dissipation	P_{tot}	1.1	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient ¹⁾	$R_{\theta JA}$	114	$^\circ\text{C/W}$

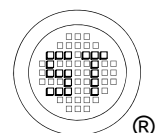
¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.



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Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 2\text{ V}$, $I_C = 100\text{ mA}$	h_{FE}	200	-	400	-
at $V_{CE} = 2\text{ V}$, $I_C = 1\text{ A}$	h_{FE}	50	-	-	-
at $V_{CE} = 5\text{ V}$, $I_C = 1\text{ A}$	h_{FE}	80	-	-	-
Collector Base Cutoff Current at $V_{CB} = 60\text{ V}$	I_{CBO}	-	-	0.1	μA
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$	I_{EBO}	-	-	0.1	μA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	80	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	60	-	-	V
Emitter Base Breakdown Voltage at $I_E = 10\text{ mA}$	$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	$V_{CE(sat)}$	-	-	0.4	V
Base Emitter Turn-On Voltage at $V_{CE} = 2\text{ V}$, $I_B = 500\text{ mA}$	$V_{BE(on)}$	-	-	1.2	V
Gain Bandwidth Product at $V_{CE} = 10\text{ V}$, $I_C = 50\text{ mA}$	f_T	-	160	-	MHz
Output Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	18	-	pF



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Electrical Characteristics Curves

Fig.1 Output Curve

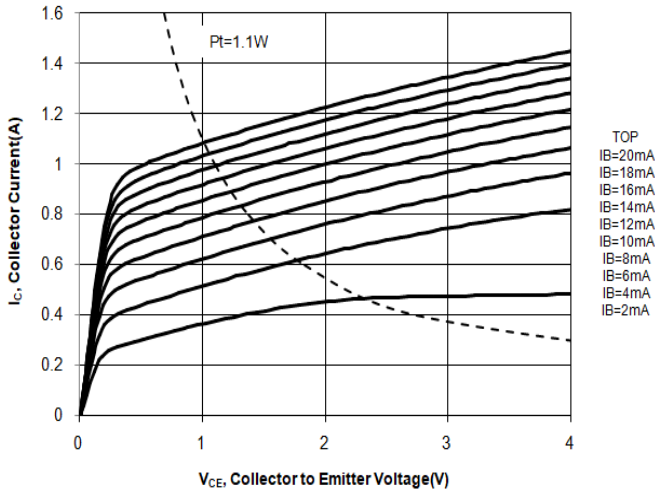


Fig.2 Output Curve

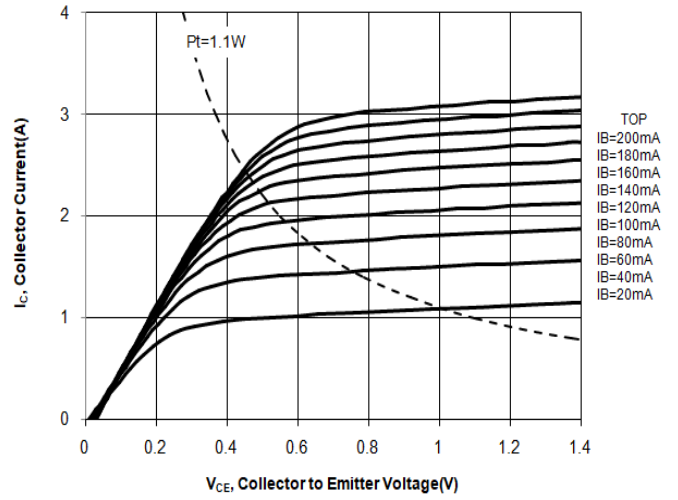


Fig.3 Collector Current vs. V_{BE}

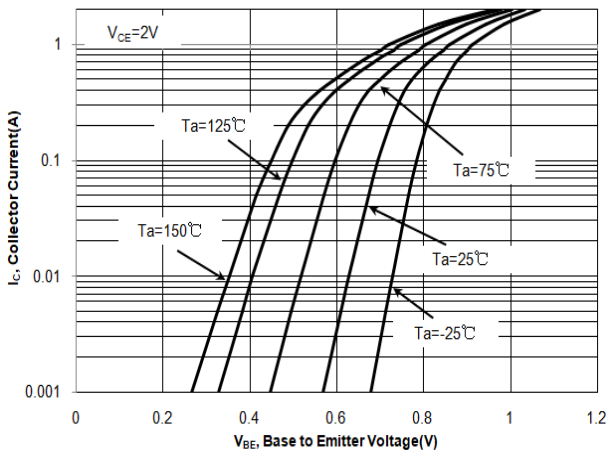
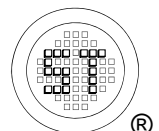
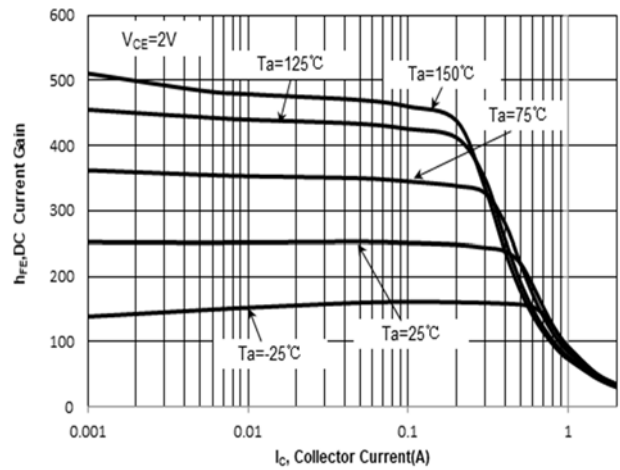


Fig.4 DC Current Gain



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Electrical Characteristics Curves

Fig 5. V_{BESAT} vs. Collector Current

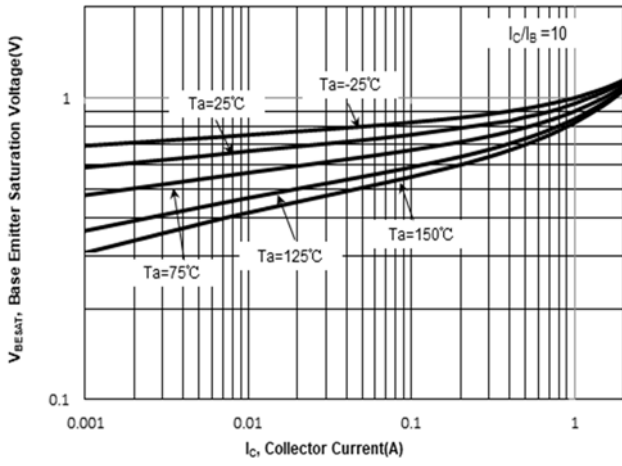


Fig 6. V_{CESAT} vs. Collector Current

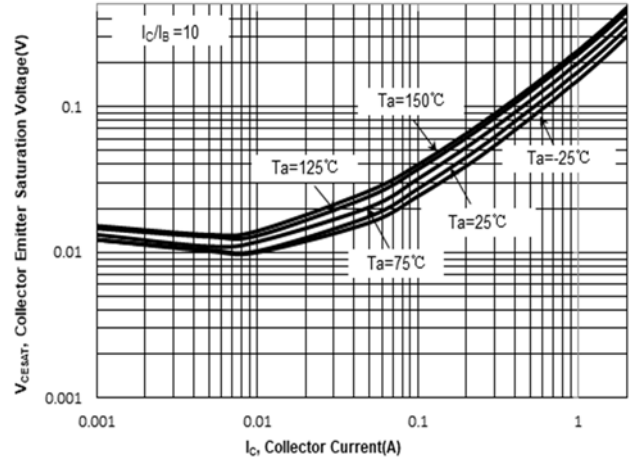
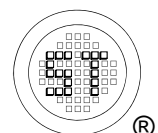
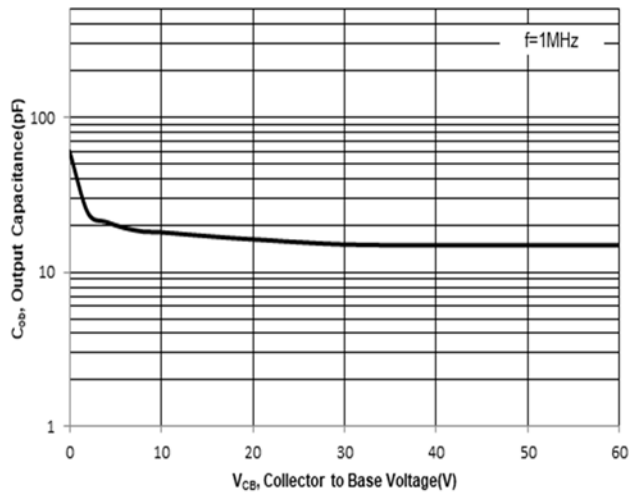


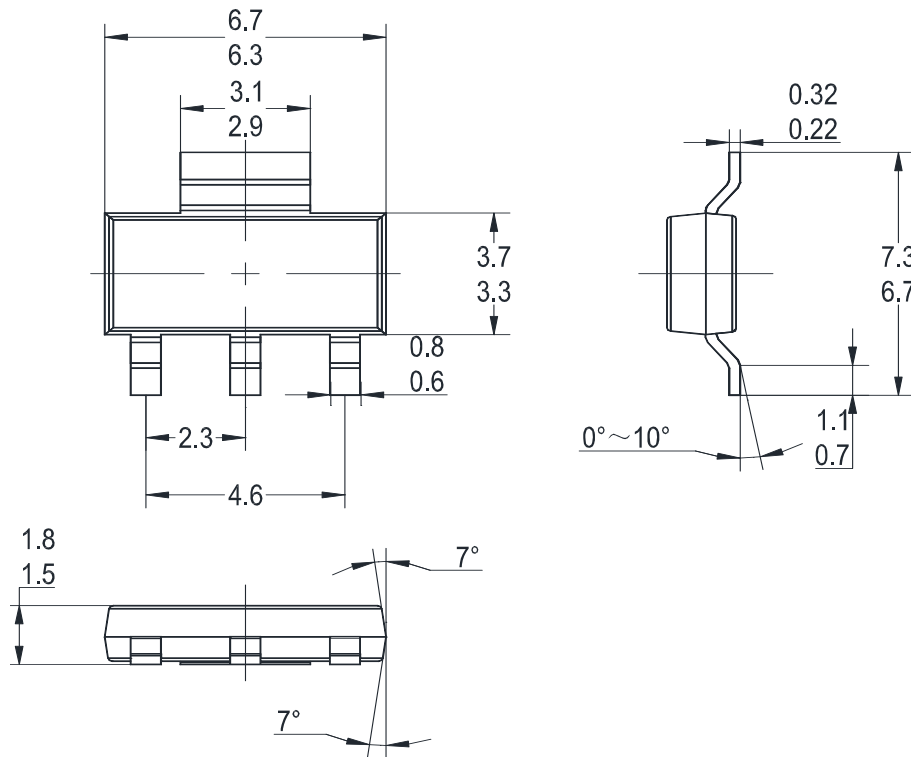
Fig 7. Capacitance



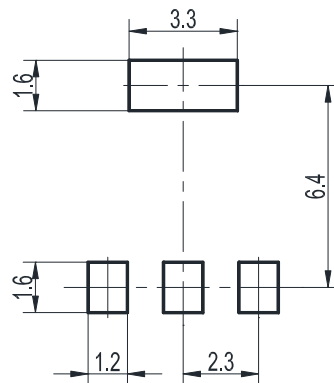
2SC401Q-HAF

Package Outline (Dimensions in mm)

SOT-223



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

" 2SC401Q " = Part No.

" ***** " = Date Code Marking

Font type: Arial

