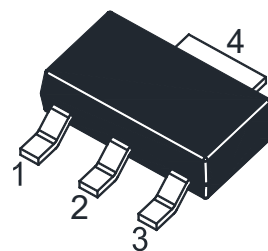


BSP52Q-HAF

NPN Silicon Darlington Transistor

Features

- Halogen and Antimony Free(HAF),
RoHS compliant



Application

- Switching and amplifier applications

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

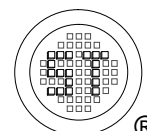
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	90	V
Collector Emitter Voltage	V_{CEO}	80	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Power Dissipation	P_D	0.8	W
Operating Junction and Storage Temperature Range	T_j, T_{stg}	- 65 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient ¹⁾	$R_{\theta JA}$	156	$^\circ\text{C/W}$

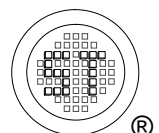
¹⁾ Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.



BSP52Q-HAF

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 10\text{ V}$, $I_C = 150\text{ mA}$ at $V_{CE} = 10\text{ V}$, $I_C = 500\text{ mA}$	h_{FE} h_{FE}	1000 2000	- -	- -	- -
Collector Emitter Cutoff Current at $V_{CE} = 80\text{ V}$	I_{CEO}	-	-	10	μA
Emitter Base Cutoff Current at $V_{EB} = 4\text{ V}$	I_{EBO}	-	-	1	mA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	90	-	-	V
Emitter Base Breakdown Voltage at $I_E = 1\text{ mA}$	$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 0.5\text{ mA}$	$V_{CE(sat)}$	-	-	1.3	V
Base Emitter Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 0.5\text{ mA}$	$V_{BE(sat)}$	-	-	1.9	V
Rise Time at $V_{CC} = 10\text{ V}$, $I_C = 150\text{ mA}$, $I_{B1} = 0.15\text{ mA}$	t_r	-	155	-	ns
Delay Time at $V_{CC} = 10\text{ V}$, $I_C = 150\text{ mA}$, $I_{B1} = 0.15\text{ mA}$	t_d	-	205	-	ns
Storage Time at $V_{CC} = 10\text{ V}$, $I_C = 150\text{ mA}$, $I_{B1} = 0.15\text{ mA}$, $I_{B2} = 0.15\text{ mA}$	t_s	-	420	-	ns
Fall Time at $V_{CC} = 10\text{ V}$, $I_C = 150\text{ mA}$, $I_{B1} = 0.15\text{ mA}$, $I_{B2} = 0.15\text{ mA}$	t_f	-	365	-	ns



BSP52Q-HAF

Electrical Characteristics Curves

Fig 1. Output Characteristics

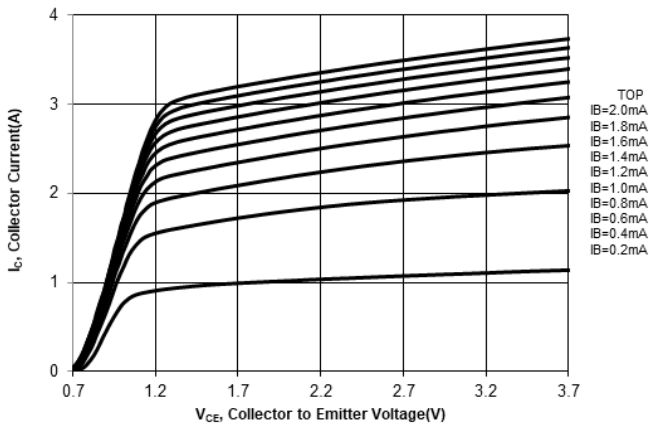


Fig 2. Collector Current vs. V_{BE}

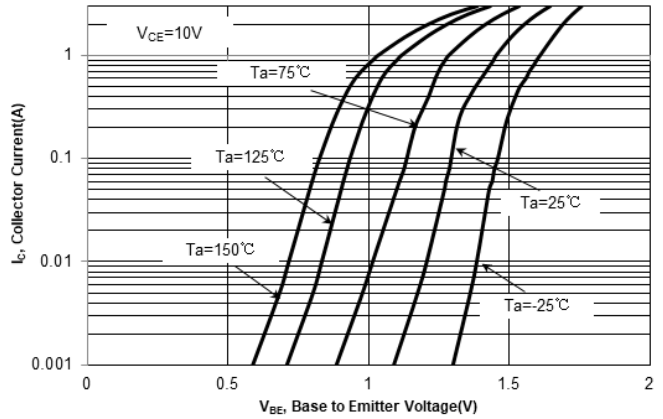


Fig 3. DC Current Gain vs. Collector Current

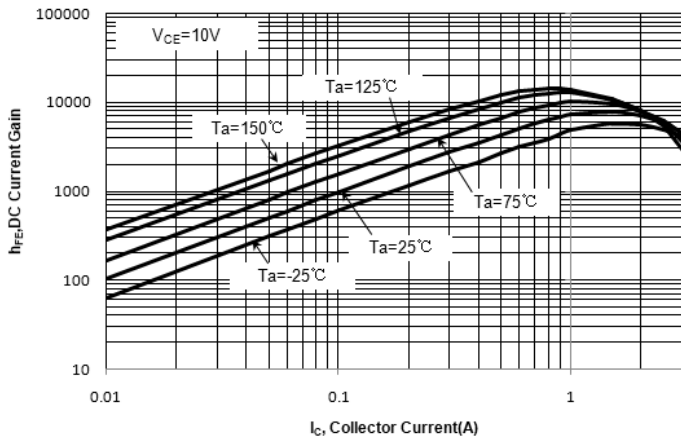


Fig 4. $V_{BE(sat)}$ vs. Collector Current

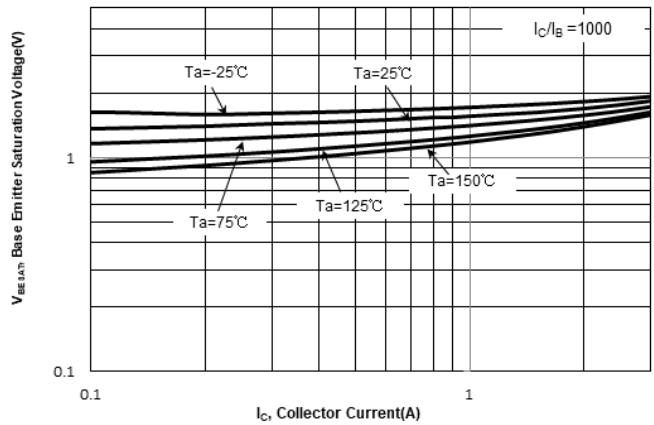


Fig 5. $V_{CE(sat)}$ vs. Collector Current

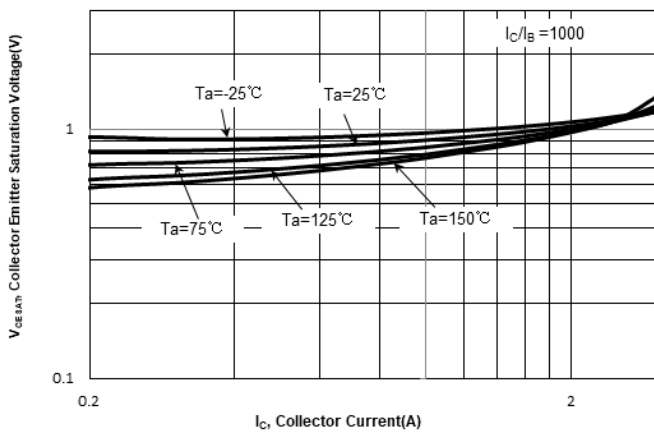
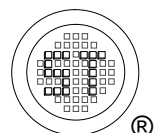
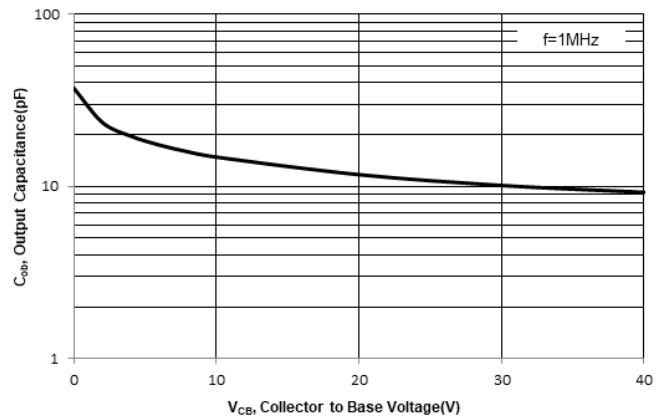


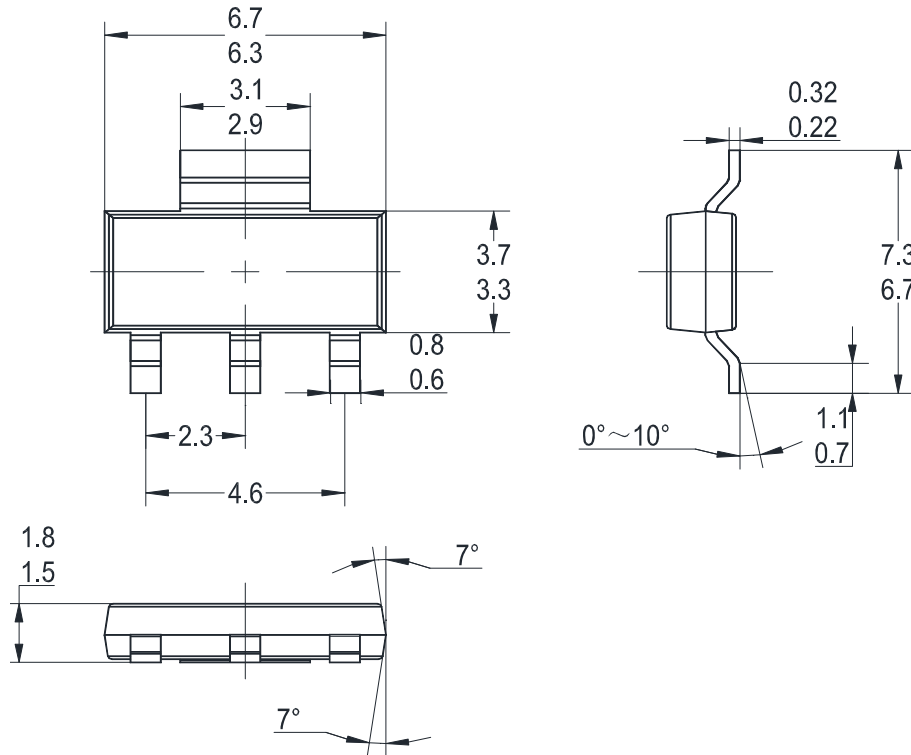
Fig 6. Capacitance



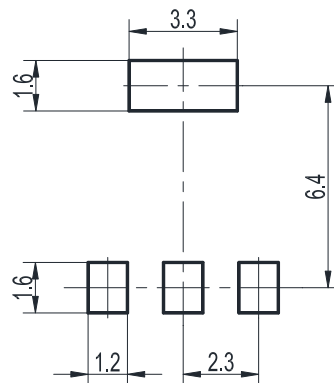
BSP52Q-HAF

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

" BSP52Q " = Part No.

" ***** " = Date Code Marking

Font type: Arial

