

BF723-Q

PNP high voltage transistor

9 May 2023

Product data sheet

1. General description

PNP high-voltage transistor in a SOT223 Surface-Mounted Device (SMD) plastic package.

NPN complement: BF722-Q

2. Features and benefits

- Low feedback capacitance
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- General purpose high voltage circuits

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{CEO}	collector-emitter voltage	open base	-	-	-250	V
I_C	collector current		-	-	-100	mA
h_{FE}	DC current gain	$V_{CE} = -20\text{ V}$; $I_C = -25\text{ mA}$; $T_{amb} = 25\text{ °C}$	-50	-	-	

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	B	base	 SC-73 (SOT223)	 sym132
2	C	collector		
3	E	emitter		
4	C	collector		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BF723-Q	SC-73	plastic, surface-mounted package with increased heatsink; 4 leads; 2.3 mm pitch; 6.5 mm x 3.5 mm x 1.65 mm body	SOT223

7. Marking

Table 4. Marking codes

Type number	Marking code
BF723-Q	BF723

8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions		Min	Max	Unit
V _{CBO}	collector-base voltage	open emitter		-	-250	V
V _{CEO}	collector-emitter voltage	open base		-	-250	V
V _{EBO}	emitter-base voltage	open collector		-	-5	V
I _C	collector current			-	-100	mA
I _{CM}	peak collector current			-	-200	mA
I _{BM}	peak base current			-	-100	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	1.2	W
T _j	junction temperature			-	150	°C
T _{amb}	ambient temperature			-65	150	°C
T _{stg}	storage temperature			-65	150	°C

[1] Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm².

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient		[1]	-	-	106	K/W
R _{th(j-sp)}	thermal resistance from junction to solder point		[1]	-	-	25	K/W

[1] Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm².

10. Characteristics

Table 7. Characteristics

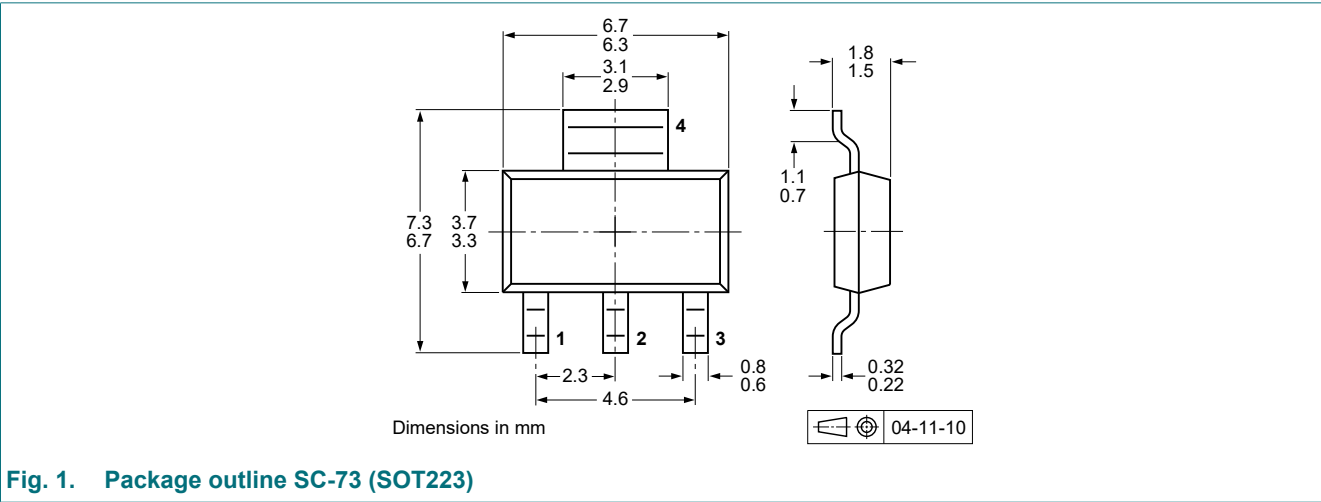
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{CBO}	collector-base cut-off current	$V_{CB} = -200\text{ V}; I_E = 0\text{ A}; T_{amb} = 25\text{ }^{\circ}\text{C}$	-	-	-10	nA
		$V_{CB} = -200\text{ V}; I_E = 0\text{ A}; T_j = 150\text{ }^{\circ}\text{C}$	-	-	-10	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = -5\text{ V}; I_C = 0\text{ A}; T_{amb} = 25\text{ }^{\circ}\text{C}$	-	-	-50	nA
h_{FE}	DC current gain	$V_{CE} = -20\text{ V}; I_C = -25\text{ mA}; T_{amb} = 25\text{ }^{\circ}\text{C}$	-50	-	-	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -30\text{ mA}; I_B = -5\text{ mA}; T_{amb} = 25\text{ }^{\circ}\text{C}$	-	-	-0.6	V
f_T	transition frequency	$V_{CE} = -10\text{ V}; I_C = -10\text{ mA}; f = 100\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$	60	-	-	MHz
C_{re}	feedback capacitance	$i_c = 0\text{ A}; f = 1\text{ MHz}; V_{CE} = -30\text{ V}; I_C = 0\text{ A}; T_{amb} = 25\text{ }^{\circ}\text{C}$	-	-	2.5	pF

11. Test information

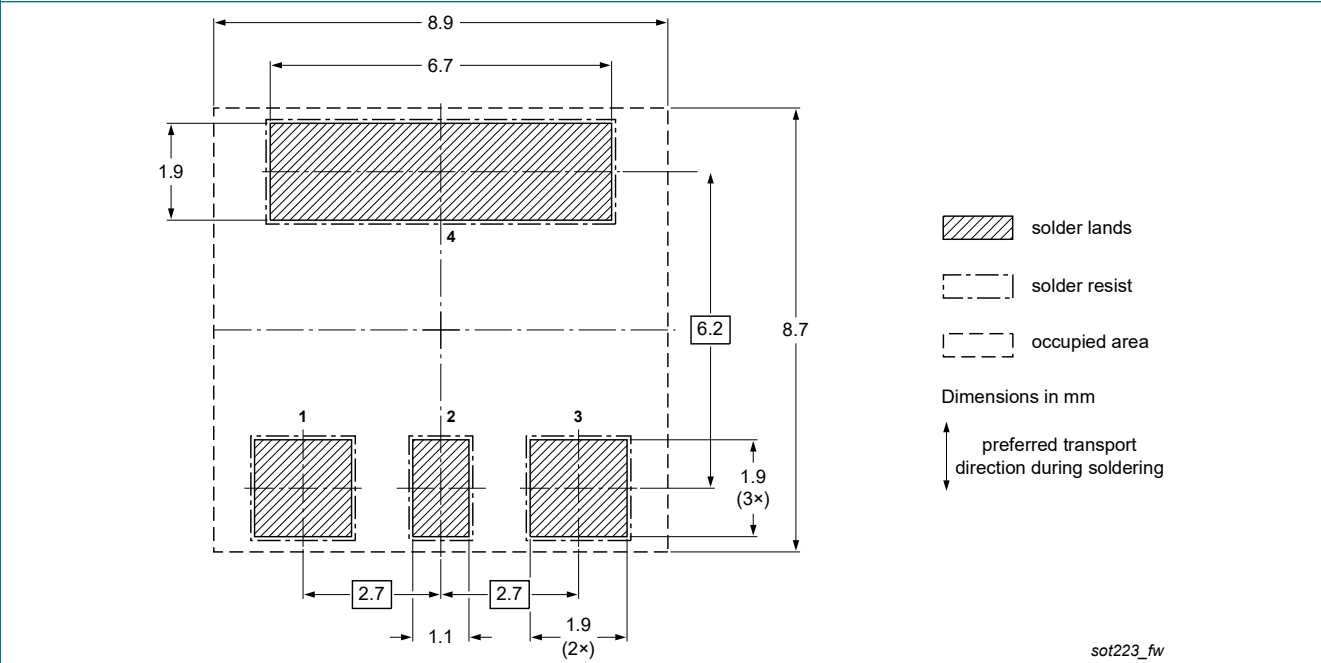
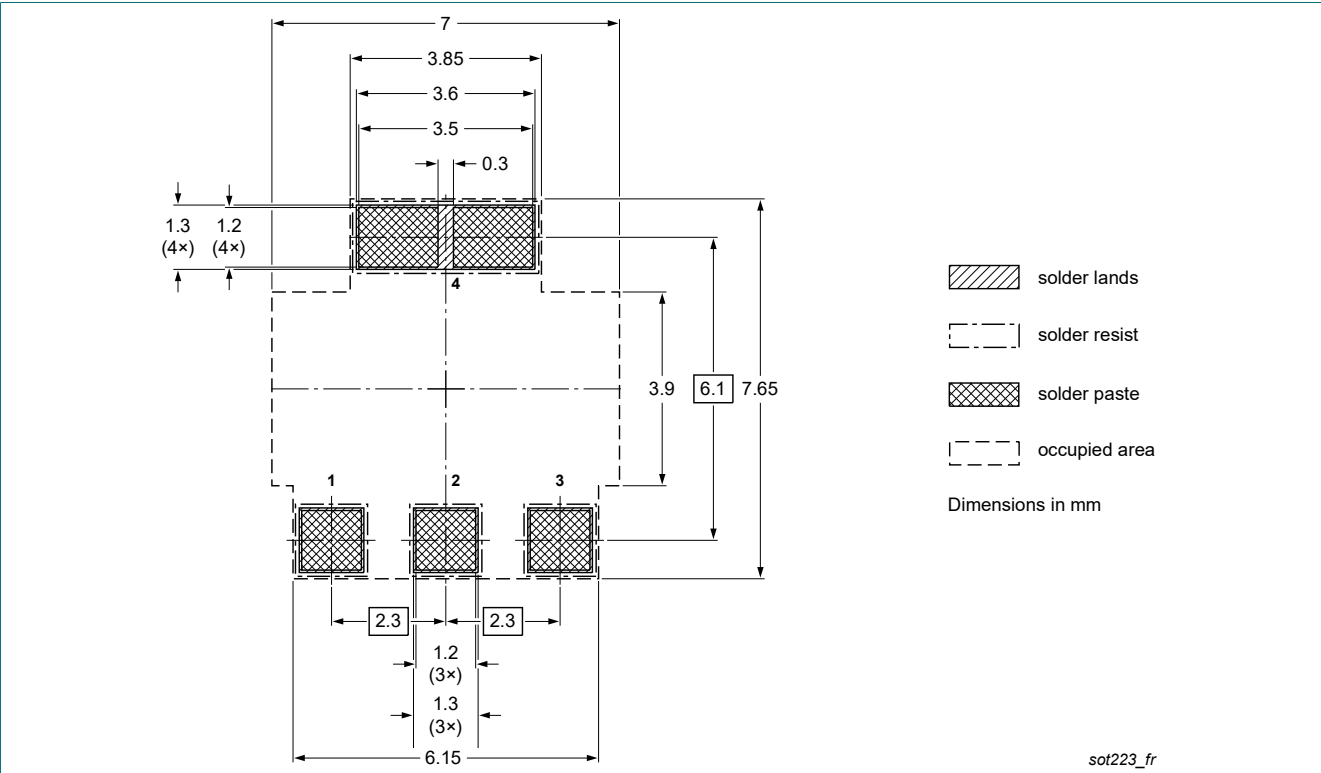
Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard *Q101 - Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

12. Package outline



13. Soldering



14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BF723-Q v.1	20230509	Product data sheet	-	-

15. Legal information

Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

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- [2] The term 'short data sheet' is explained in section "Definitions".
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