PZTA92-Q

PNP high-voltage transistor

14 July 2023 **Product data sheet**

1. General description

PNP high-voltage transistor in a small SOT223 (SC-73) Surface-Mounted Device (SMD) plastic package.

NPN complement: PZTA42-Q

2. Features and benefits

- Low current (max. 100 mA)
- High voltage (max. 300 V)
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- Video equipment
- Telephony
- Professional communication equipment

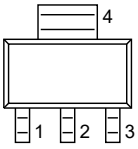
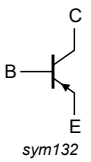
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_{CEO}	collector-emitter voltage	open base		-	-	-300	V
I_C	collector current			-	-	-100	mA
h_{FE}	DC current gain	V_{CE} = -10 V; I_C = -30 mA; pulsed; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; T_{amb} = 25 °C		25	-	-	

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	B	base		
2	C	collector		
3	E	emitter		
4	C	collector		

SC-73 (SOT223)

sym132

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PZTA92-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
PZTA92-Q	PZTA92

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		-	-300	V
V_{CEO}	collector-emitter voltage	open base		-	-300	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	$T_{amb} \leq 25$ °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 cm^2.

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]	-	-	104	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point			-	-	23	K/W

[1] Device mounted on an FR4 Printed-Circuit-Board (PCB); single-sided copper; tin-plated; mounting pad for collector 1 cm^2.

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_{CBO}	collector-base cut-off current	V_{CB} = -200 V; I_E = 0 A; T_{amb} = 25 °C		-	-	-20	nA
I_{EBO}	emitter-base cut-off current	V_{EB} = -5 V; I_C = 0 A; T_{amb} = 25 °C		-	-	-100	nA
h_{FE}	DC current gain	V_{CE} = -10 V; I_C = -1 mA; pulsed; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; T_{amb} = 25 °C		25	-	-	
		V_{CE} = -10 V; I_C = -10 mA; pulsed; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; T_{amb} = 25 °C		40	-	-	
		V_{CE} = -10 V; I_C = -30 mA; pulsed; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; T_{amb} = 25 °C		25	-	-	
V_{CEsat}	collector-emitter saturation voltage	I_C = -20 mA; I_B = -2 mA; T_{amb} = 25 °C		-	-	-500	mV
V_{BEsat}	base-emitter saturation voltage			-	-	-900	mV
C_c	collector capacitance	V_{CB} = -20 V; I_E = 0 A; i_e = 0 A; f = 1 MHz; T_{amb} = 25 °C		-	-	6	pF
f_T	transition frequency	V_{CE} = -20 V; I_C = -10 mA; f = 100 MHz; T_{amb} = 25 °C		50	-	-	MHz

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

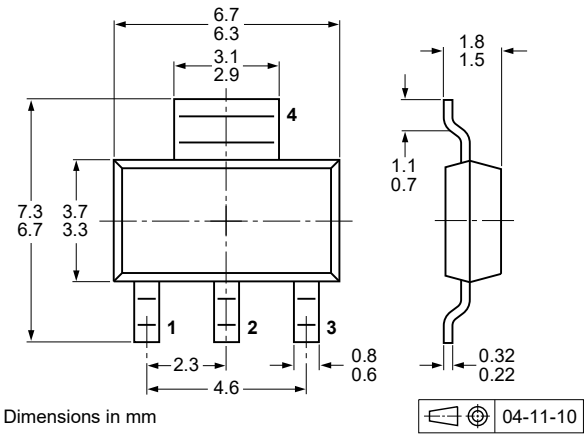


Fig. 1. Package outline SC-73 (SOT223)

13. Soldering

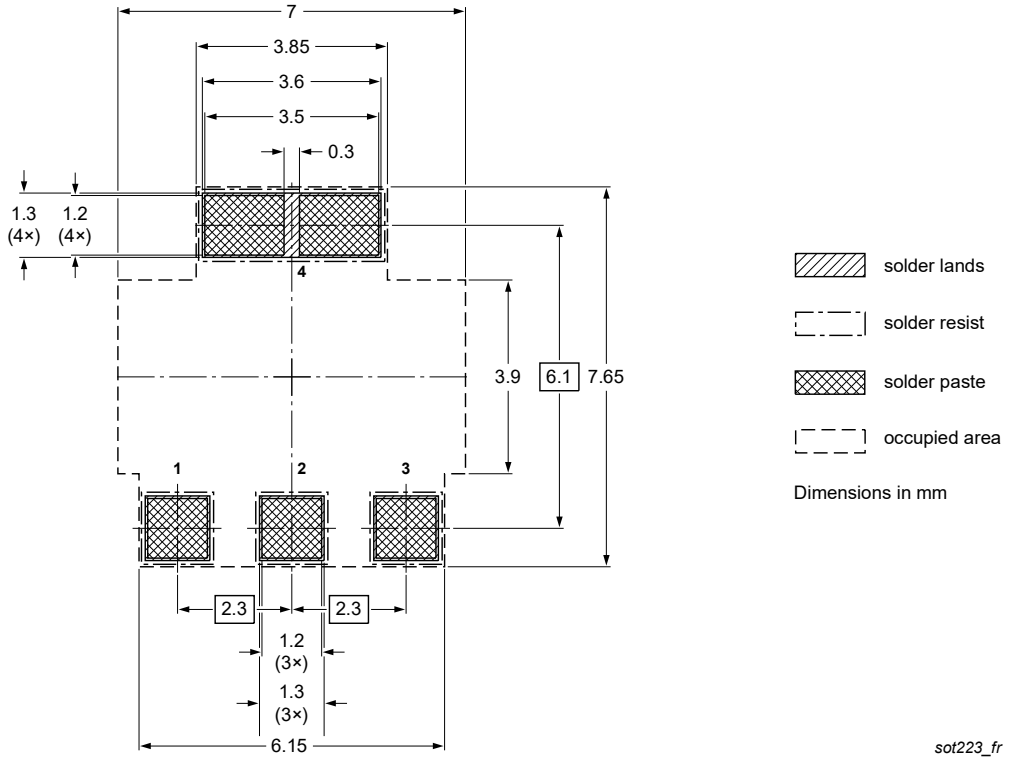


Fig. 2. Reflow soldering footprint for SC-73 (SOT223)

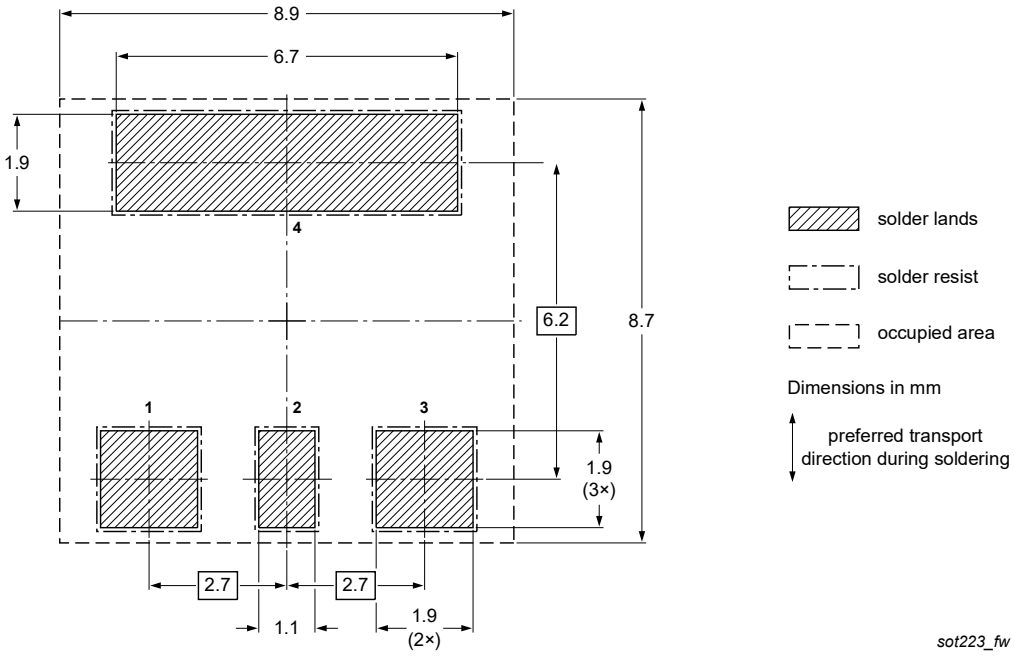


Fig. 3. Wave soldering footprint for SC-73 (SOT223)

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PZTA92-Q v.1	20230714	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.

[1] Please consult the most recently issued document before initiating or completing a design.
[2] The term 'short data sheet' is explained in section "Definitions".
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