



PZTA14

NPN Darlington transistor

1 October 2025

Product data sheet

1. General description

NPN Darlington transistor in an SOT223 Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- High current (max. 500 mA)
- Low voltage (max. 30 V)

3. Applications

- Pre-amplifiers requiring high input impedance

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_C	collector current		-	-	500	mA
h_{FE}	DC current gain	$V_{CE} = 5\text{ V}$; $I_C = 10\text{ mA}$; $T_j = 25\text{ °C}$	10000	-	-	

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	B	base	 SC-73 (SOT223)	 aaa-037565
2	C	collector		
3	E	emitter		
4	C	collector		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PZTA14	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
PZTA14	PZTA14

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		-	30	V
V _{CES}	collector-emitter voltage	V _{BE} = 0 V		-	30	V
V _{EBO}	emitter-base voltage	open collector		-	10	V
I _C	collector current			-	500	mA
I _{CM}	peak collector current			-	800	mA
I _B	base current			-	200	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	1.25	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

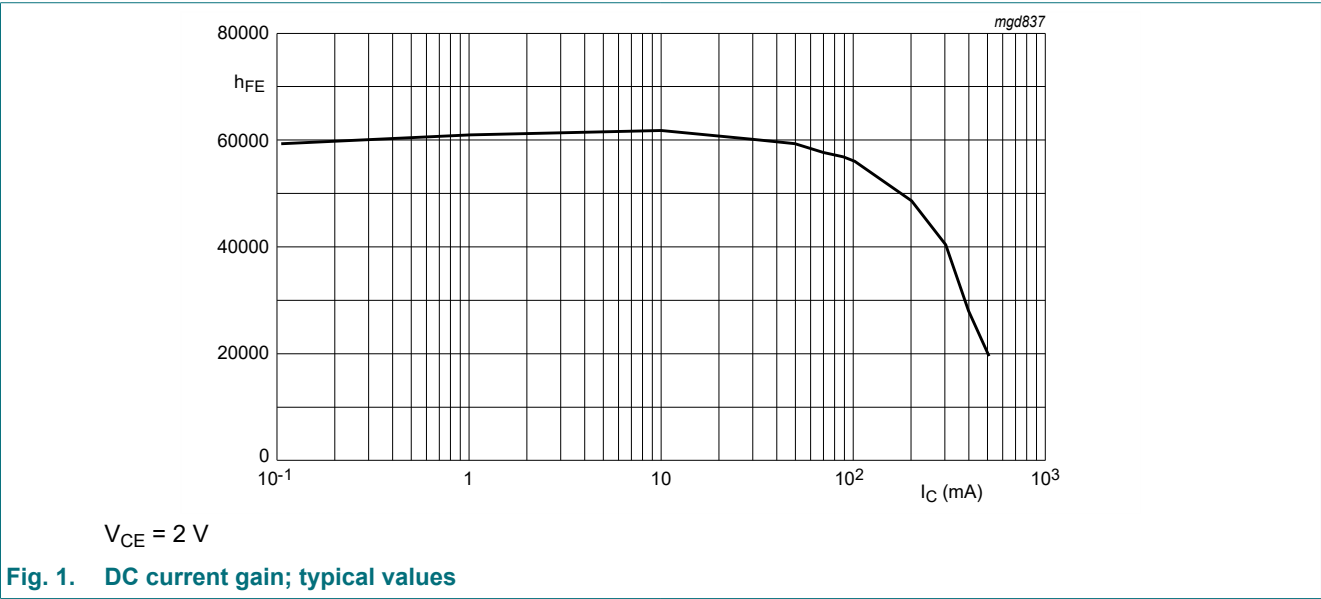
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient		[1]	-	-	100	K/W
R _{th(j-sp)}	thermal resistance from junction to solder point			-	-	19	K/W

[1] Device mounted on a Printed-Circuit Board (PCB), 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	$V_{CB} = 30\text{ V}; I_E = 0\text{ A}; T_j = 25\text{ }^{\circ}\text{C}$	-	-	100	nA
I_{CES}	collector-emitter cut-off current	$V_{CE} = 30\text{ V}; V_{BE} = 0\text{ V}; T_j = 25\text{ }^{\circ}\text{C}$	-	-	100	A
I_{EBO}	emitter-base cut-off current	$V_{EB} = 10\text{ V}; I_C = 0\text{ A}; T_j = 25\text{ }^{\circ}\text{C}$	-	-	100	nA
h_{FE}	DC current gain	$V_{CE} = 5\text{ V}; I_C = 10\text{ mA}; T_j = 25\text{ }^{\circ}\text{C}$	10000	-	-	
		$V_{CE} = 5\text{ V}; I_C = 100\text{ mA}; T_j = 25\text{ }^{\circ}\text{C}$	20000	-	-	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 0.1\text{ mA}; T_j = 25\text{ }^{\circ}\text{C}$	-	-	1.5	V
V_{BEon}	base-emitter turn-on voltage	$I_C = 100\text{ mA}; V_{CE} = 5\text{ V}; T_j = 25\text{ }^{\circ}\text{C}$	-	-	2	V
C_{re}	feedback capacitance	$V_{CB} = 20\text{ V}; I_C = 0\text{ A}; i_c = 0\text{ A}; f = 1\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$	-	-	3	pF
f_T	transition frequency	$V_{CE} = 5\text{ V}; I_C = 10\text{ mA}; f = 100\text{ MHz}; T_j = 25\text{ }^{\circ}\text{C}$	125	-	-	MHz



11. Package outline

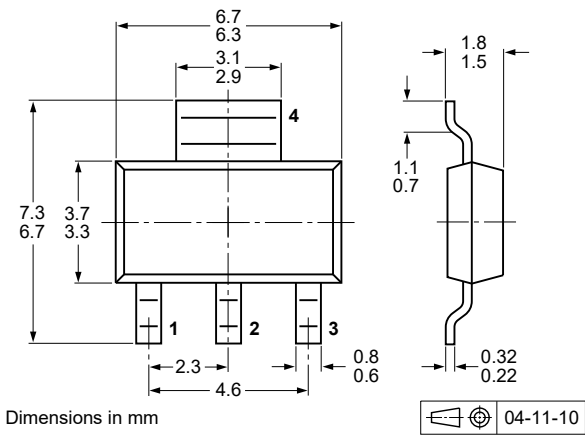


Fig. 2. Package outline SC-73 (SOT223)

12. Soldering

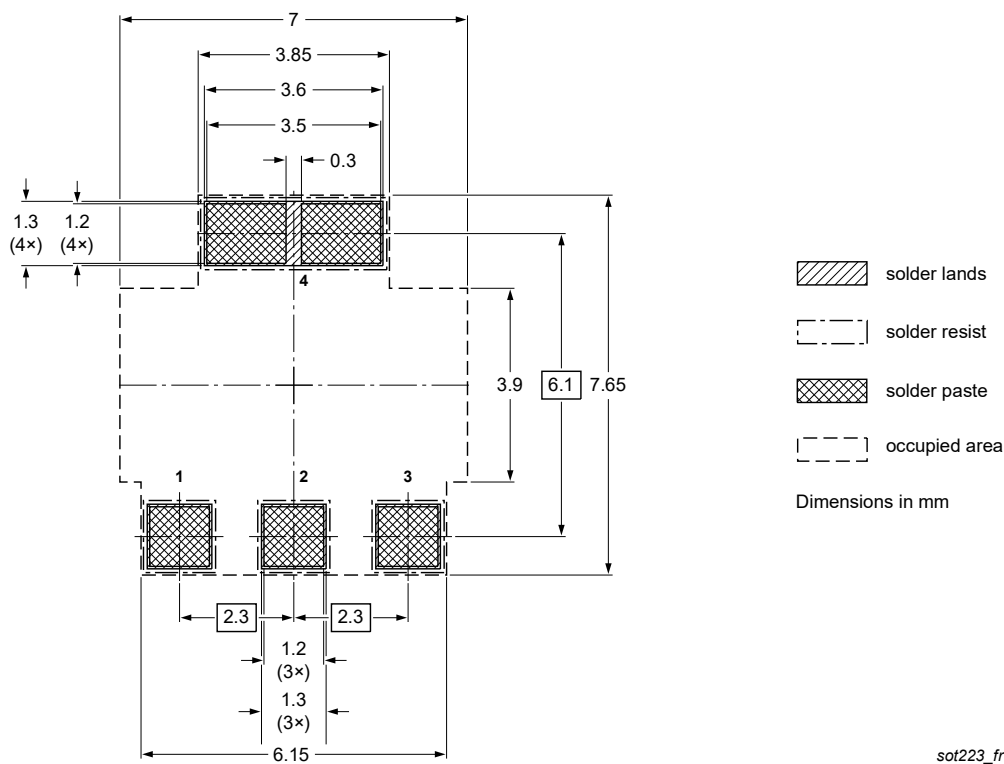


Fig. 3. Reflow soldering footprint for SC-73 (SOT223)

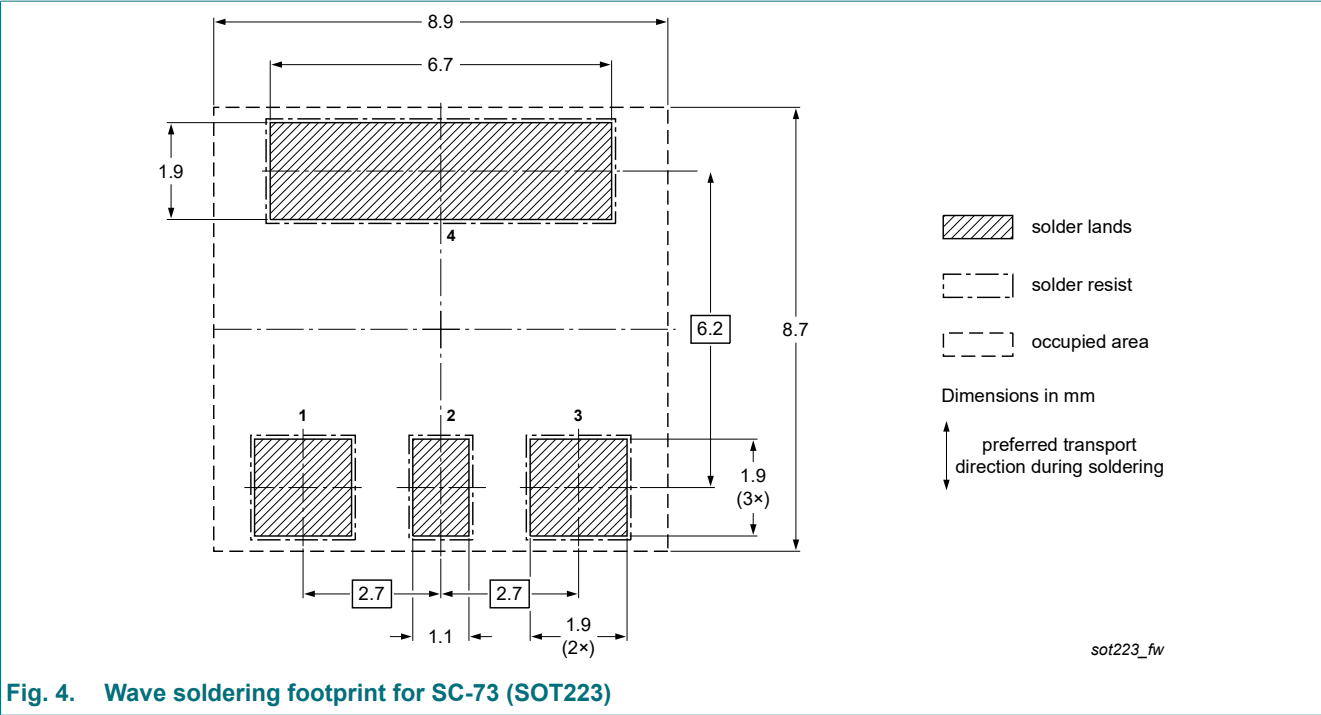


Fig. 4. Wave soldering footprint for SC-73 (SOT223)

13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PZTA14 v.4	20251001	Product data sheet	-	PZTA14 v.3
Modifications:	Product(s) changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s).			
PZTA14 v.3	20230919	Product data sheet	-	PZTA14 v.2
PZTA14 v.2	19990414	Product data sheet	-	PZTA14 v.1
PZTA14 v.1	19970904	Product data sheet	-	-

14. 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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Date of release: 1 October 2025