

Very high voltage NPN power transistor

Features

- High gain
- Very high voltage capability

Applications

- Haptic
- High voltage solenoid driving

Description

The device is an NPN power bipolar transistor manufactured using the latest high-voltage diffused collector technology.

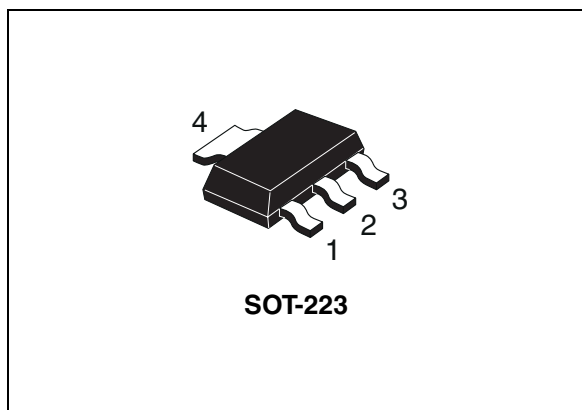


Figure 1. Internal schematic diagram

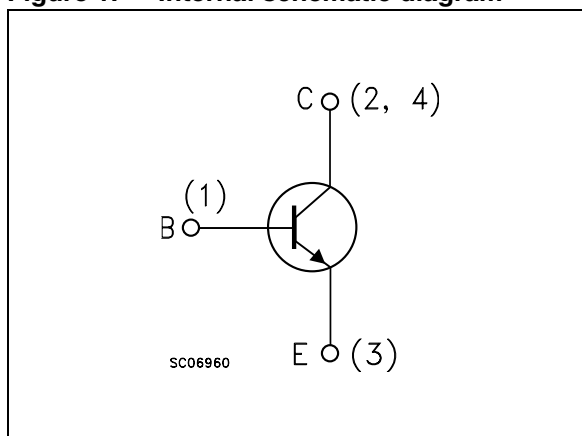


Table 1. Device summary

Order code	Marking	Package	Packaging
STN0214	N0214	SOT-223	Tape and reel

1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CES}	Collector-emitter voltage ($V_{BE} = 0$)	1400	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	1200	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	6	V
I_C	Collector current	200	mA
I_{CM}	Collector peak current ($t_p < 5$ ms)	400	mA
I_B	Base current	100	mA
I_{BM}	Base peak current ($t_p < 1$ ms)	200	mA
P_{TOT}	Total dissipation at $T_{amb} = 25$ °C	1.6	W
T_{stg}	Storage temperature	-65 to 150	°C
T_J	Max. operating junction temperature	150	

Table 3. Thermal data

Symbol	Parameter	Value	Unit
$R_{thj-amb}^{(1)}$	Thermal resistance junction-ambient	78	°C/W

1. When mounted on PCB area of 1 cm², $t < 10$ sec

2 Electrical characteristics

($T_{CASE} = 25\text{ °C}$; unless otherwise specified)

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector cut-off current ($V_{BE} = 0$)	$V_{CE} = 1400\text{ V}$			10	μA
I_{EBO}	Emitter cut-off current ($I_B = 0$)	$V_{EB} = 6\text{ V}$			10	μA
$V_{CEO(sus)}^{(1)}$	Collector-emitter sustaining voltage ($I_B = 0$)	$I_C = 1\text{ mA}$	1200			V
$V_{CE(sat)}^{(1)}$	Collector-emitter saturation voltage	$I_C = 10\text{ mA}$ $I_B = 2\text{ mA}$ $I_C = 100\text{ mA}$ $I_B = 20\text{ mA}$		0.1 0.3		V V
$V_{BE(sat)}^{(1)}$	Base-emitter saturation voltage	$I_C = 100\text{ mA}$ $I_B = 20\text{ mA}$		0.8		V
$h_{FE}^{(1)}$	DC current gain	$I_C = 1\text{ mA}$ $V_{CE} = 2\text{ V}$ $I_C = 200\text{ mA}$ $V_{CE} = 2\text{ V}$		20 3		

1. Pulsed duration = 300 μs , duty cycle $\leq 1.5\%$

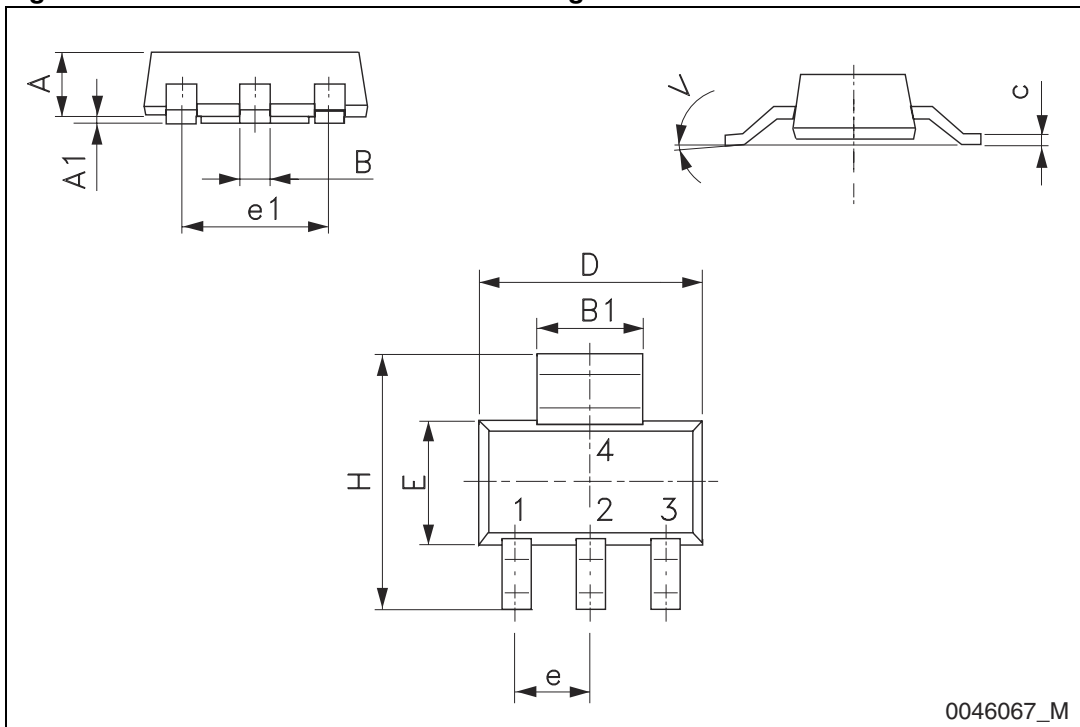
3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK[®] packages, depending on their level of environmental compliance. ECOPACK[®] specifications, grade definitions and product status are available at: www.st.com. ECOPACK[®] is an ST trademark.

Table 5. SOT-223 mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A			1.80
A1	0.02		0.1
B	0.60	0.70	0.85
B1	2.90	3.00	3.15
c	0.24	0.26	0.35
D	6.30	6.50	6.70
e		2.30	
e1		4.60	
E	3.30	3.50	3.70
H	6.70	7.00	7.30
V			10°

Figure 2. SOT-223 mechanical data drawing



0046067_M

4 Revision history

Table 6. Document revision history

Date	Revision	Changes
02-Feb-2012	1	First release

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