

## Very high voltage NPN power transistor

### Features

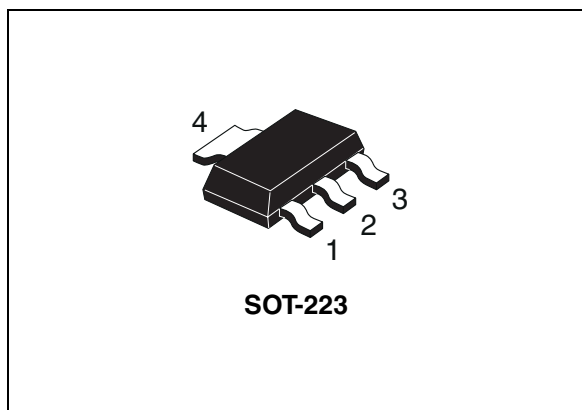
- High gain
- Very high voltage capability

### Applications

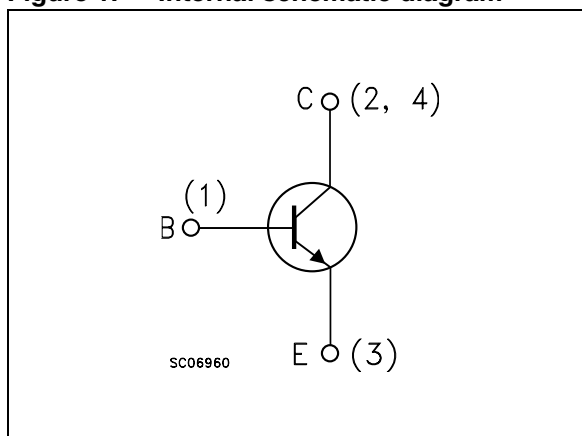
- Haptic
- High voltage solenoid driving

### 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 cm<sup>2</sup>,  $t < 10$  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	$\mu\text{A}$
$I_{EBO}$	Emitter cut-off current ( $I_B = 0$ )	$V_{EB} = 6\text{ V}$			10	$\mu\text{A}$
$V_{CEO(sus)}^{(1)}$	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  $\mu\text{s}$ , duty cycle  $\leq 1.5\%$

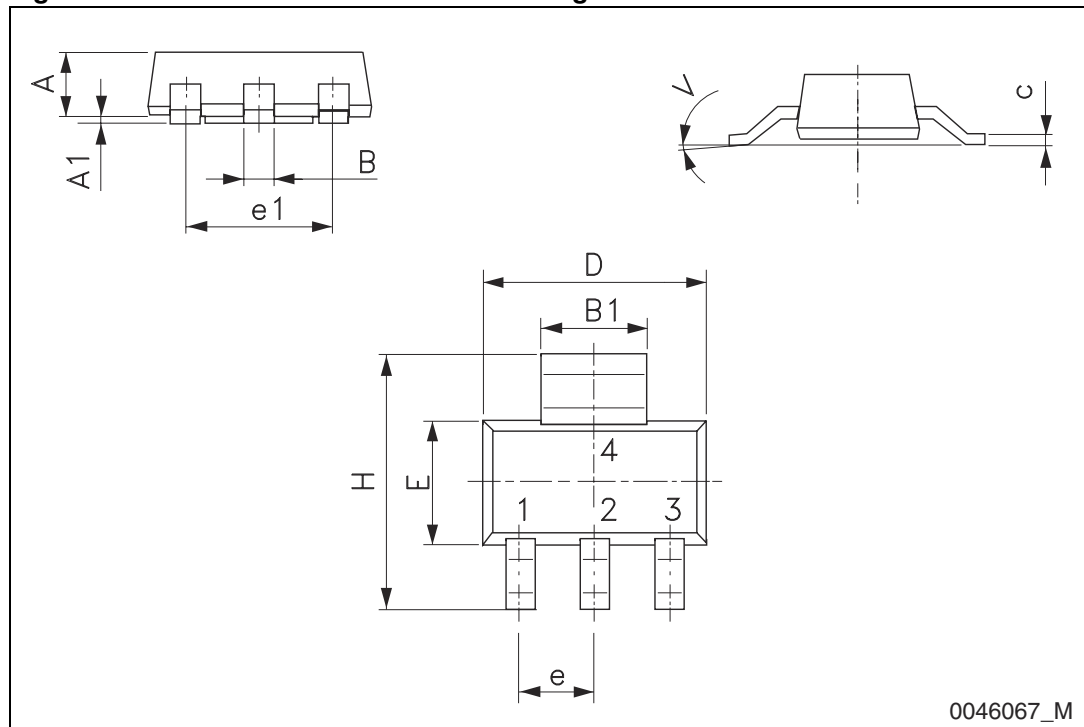
### 3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK<sup>®</sup> 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**



## 4 Revision history

**Table 6. Document revision history**

Date	Revision	Changes
02-Feb-2012	1	First release

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