

STN9260

High voltage fast-switching PNP power transistor

Features

- High voltage capability
- Fast switching speed

Applications

- Lighting
- Switch mode power supply

Description

This device is a high voltage fast-switching PNP power transistor. It is manufactured using high voltage multi epitaxial planar technology for high switching speeds and medium voltage capability. It uses a cellular emitter structure with planar edge termination to enhance switching speeds while maintaining a wide RBSOA. The device is designed for use in lighting applications and low cost switch-mode power supplies.

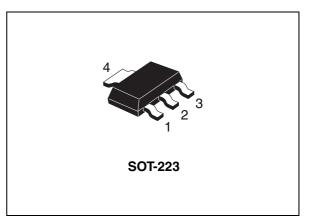


Figure 1. Internal schematic diagram

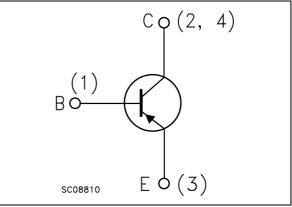


Table 1. Device summary

Part number	Marking	Package	Packaging
STN9260	N9260	SOT-223	Tape and reel

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1 Electrical ratings

Table 2.	Absolute	maximum	ratings
	ADSUILLE	maximum	raungs

Symbol	Parameter	Value	Unit
V_{CES}	Collector-emitter voltage (V _{BE} = 0)	-600	V
V_{CEO}	Collector-emitter voltage $(I_B = 0)$	-600	V
V_{EBO}	Emitter-base voltage (I _C = 0)	-7	V
Ι _C	Collector current	-0.5	Α
I _{CM}	Collector peak current (t _P < 5 ms)	-1	Α
Ι _Β	Base current	-0.25	Α
I _{BM}	Base peak current (t _P < 5 ms)	-0.5	Α
P_{TOT} Total dissipation at $T_a = 25 \text{ °C}$		1.6	W
T _{STG}	Storage temperature	-65 to 150	°C
T _J Max. operating junction temperature		150	°C

Table 3. Thermal data

Symbol	Parameter	Value	Unit
R _{thJA}	Thermal resistance junction-ambient ⁽¹⁾ max	78	°C/W

1. Device mounted on PCB area of 1 cm².



2 Electrical characteristics

 T_{case} = 25 °C unless otherwise specified.

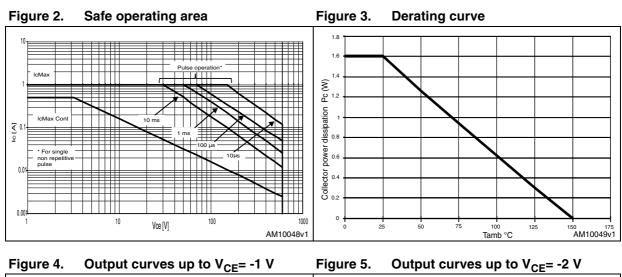
Symbol	Parameter	Test conditions	Min.	Тур.	Max.	Unit
I _{CES}	Collector cut-off current $(V_{BE} = 0)$	V _{CE} = -600 V			-10	μA
I _{EBO}	Emitter cut-off current $(I_{C} = 0)$	V _{EB} = -7 V			-1	μA
V _{CE(sus)} ⁽¹⁾	Collector-emitter sustaining voltage $(I_B = 0)$	I _C = -10 mA	-600			V
V _{CE(sat)} ⁽¹⁾	Collector-emitter saturation voltage	I _C = -100 mA I _B = -10 mA			-1	V
V _{BE(sat)} ⁽¹⁾	Base-emitter saturation voltage	I _C = -100 mA I _B = -10 mA			-1	۷
h _{FE}	DC current gain		50	140		
	Resistive load					
t _r	Rise time	V _{CC} =-200 V, I _C =-0.1 A		200		ns
t _s	Storage time	I _{B1} =-10 mA, I _{B2} =20 mA		3.2		μs
t _f	Fall time	Τ _p =30 μs		150		ns

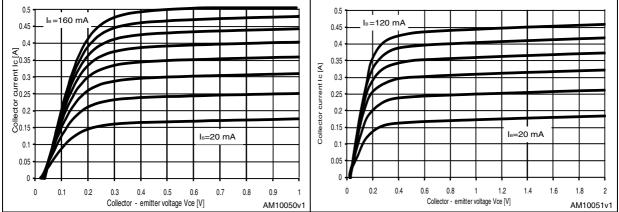
 Table 4.
 Electrical characteristics

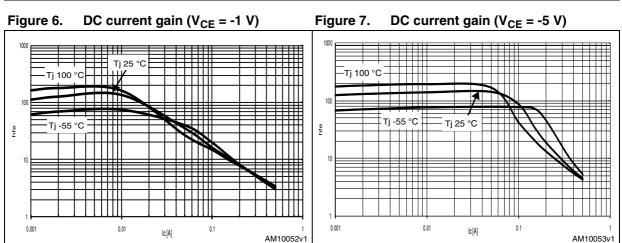
1. Pulse test: pulse duration \leq 300 µs, duty cycle \leq 2 %.



2.1 Electrical characteristics (curves)







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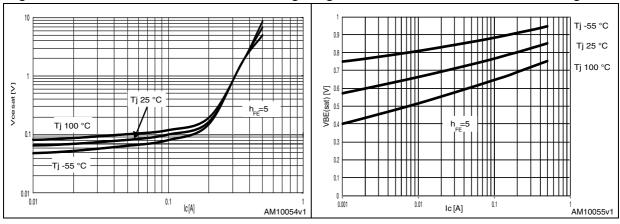
Ш

10 VR, reverse voltage [V]

100

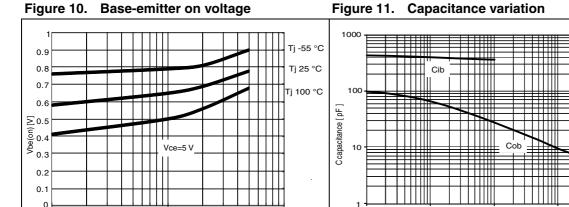
1000

AM10057v1



1 + 0.1

Figure 8. Collector-emitter saturation voltage Figure 9. **Base-emitter saturation voltage**

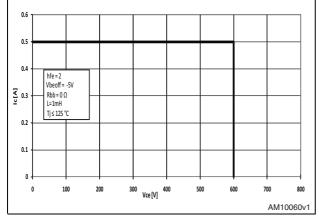


AM10056v1

Figure 12. Reverse biased safe operating area

0.1

lc[A]



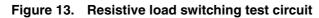
0.2

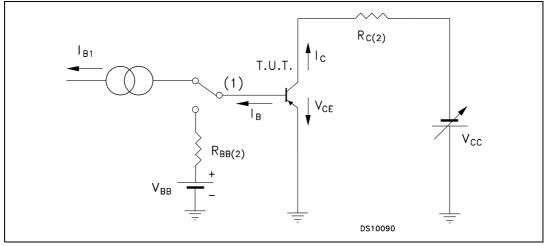
0.1

0

0.01

2.2 Test circuits





1. Fast electronic switching

2. Non-inductive resistor

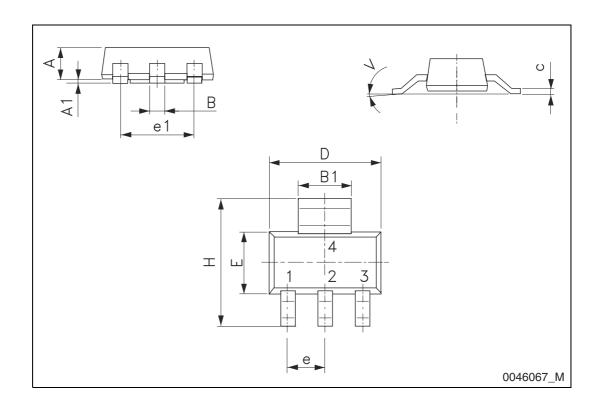


3 Package mechanical data

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.



Dim.	mm					
Dini.	Min.	Тур.	Max.			
A			1.80			
A1	0.02		0.1			
В	0.60	0.70	0.85			
B1	2.90	3.00	3.15			
с	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			
н	6.70	7.00	7.30			
V			10°			





4 Revision history

Table 6.Document revision history

Date	Revision	Changes
13-Dec-2010	1	Initial release.
03-Aug-2011	2	Curves insertedMinor text changes



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