

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.

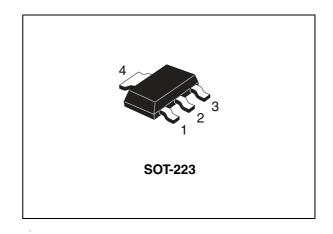


Figure 1. Internal schematic diagram

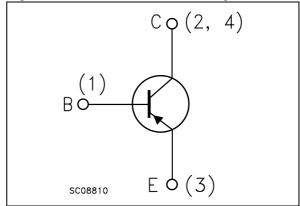


Table 1. Device summary

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

Electrical ratings STN9260

1 Electrical ratings

Table 2. Absolute maximum ratings

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
I _C	Collector current	-0.5	Α
I _{CM}	Collector peak current (t _P < 5 ms)	-1	Α
I _B	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 °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.

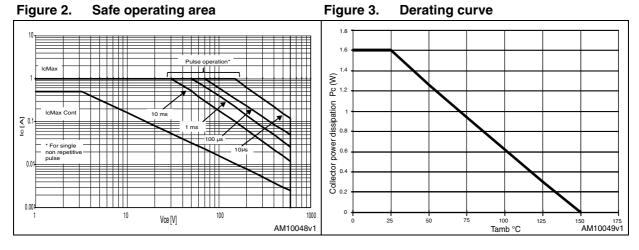
Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Тур.	Max.	Unit
I _{CES}	Collector cut-off current (V _{BE} = 0)	V _{CE} = -600 V			-10	μΑ
I _{EBO}	Emitter cut-off current (I _C = 0)	V _{EB} = -7 V			-1	μΑ
V _{CE(sus)} (1)	Collector-emitter sustaining voltage (I _B = 0)	I _C = -10 mA	-600			٧
V _{CE(sat)} (1)	Collector-emitter saturation voltage	$I_C = -100 \text{ mA}$ $I_B = -10 \text{ mA}$			-1	V
V _{BE(sat)} (1)	Base-emitter saturation voltage	$I_C = -100 \text{ mA}$ $I_B = -10 \text{ mA}$			-1	٧
h _{FE}	DC current gain	I_C = -10 mA V_{CE} = -5 V I_C = -20 mA V_{CE} = -5 V	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	T _p =30 μs		150		ns

^{1.} Pulse test: pulse duration \leq 300 μ s, duty cycle \leq 2 %.

Electrical characteristics STN9260

2.1 Electrical characteristics (curves)



Output curves up to V_{CE} = -1 VOutput curves up to V_{CE}= -2 V Figure 4. Figure 5. I_B=160 mA I_B=120 mA 0.35 0.3 0.25 0.3 0.25 oto 0.2 0.2 0.15 I_B=20 mA I_B=20 mA 0.1 0.3 0.4 0.9 0.5 0.6 Collector - emitter voltage Vce [V] Collector - emitter voltage Vce [V]

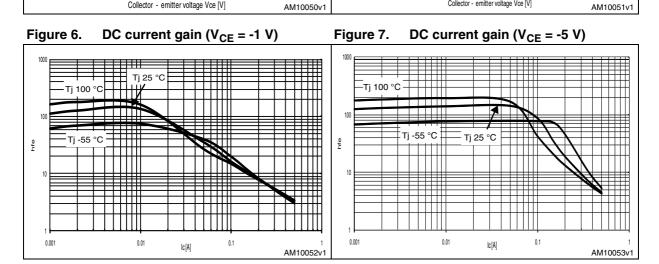


Figure 8. Collector-emitter saturation voltage Figure 9. **Base-emitter saturation voltage**

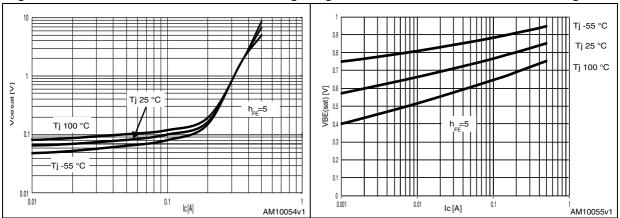
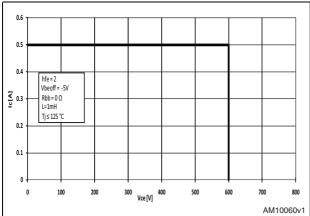


Figure 10. Base-emitter on voltage

Figure 11. **Capacitance variation** Tj -55 °C 0.9 Tj 25 °C Ш 0.8 0.7 ∏tj 100 °C 100 0.6 ≥0.5 0.4 (out of 0.4) 0.3 10 Vce=5 V 0.2 0.1 10 VR, reverse voltage [V] 1000 0.01 lc[A] AM10056v1 AM10057v1

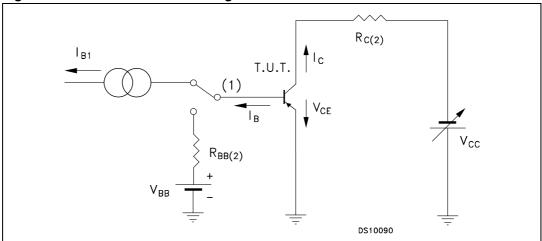
Figure 12. Reverse biased safe operating area



Electrical characteristics STN9260

2.2 Test circuits

Figure 13. Resistive load switching test circuit

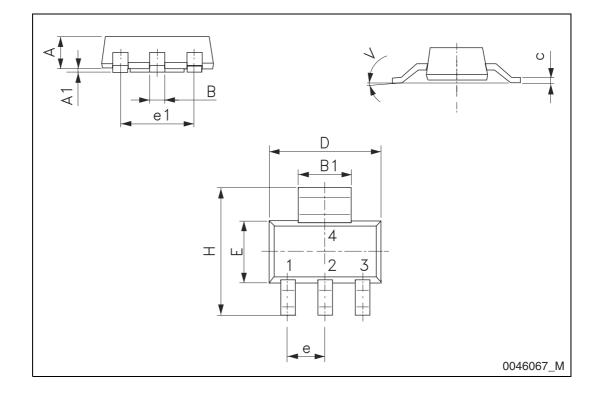


- 1. Fast electronic switching
- 2. Non-inductive resistor

3 Package mechanical data

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Dim.	mm				
Dilli.	Min.	Тур.	Max.		
Α			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		
е		2.30			
e1		4.60			
E	3.30	3.50	3.70		
Н	6.70	7.00	7.30		
V			10°		



STN9260 Revision history

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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