

High voltage fast-switching PNP power transistor

Preliminary data

Features

- Miniature SOT-23 plastic package for surface mounting circuits
- Tape and reel packaging
- The NPN complementary type is STR1550

Applications

- LED driving

Description

This device is a high voltage fast-switching PNP power transistor, manufactured using high voltage multi-epitaxial planar technology for high switching speeds.

It employs a cellular emitter structure with planar edge termination to enhance switching speeds, while maintaining a wide RBSOA.

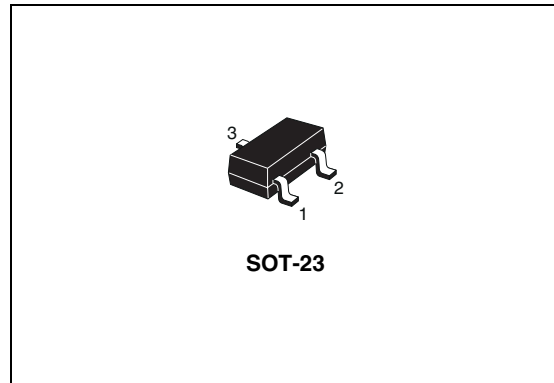


Figure 1. Internal schematic diagram

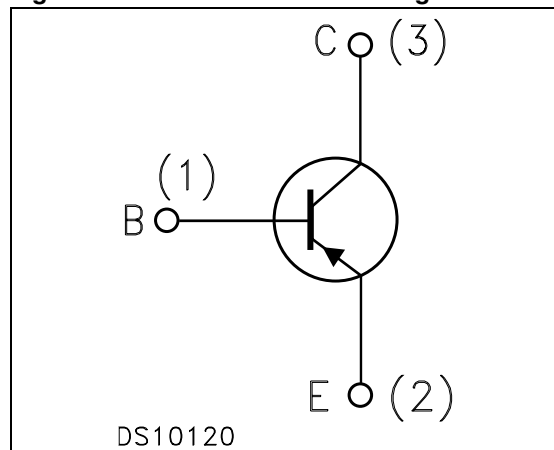


Table 1. Device summary

Order code	Marking	Package	Packing
STR2550	R2550	SOT-23	Tape and reel

1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base voltage ($I_E = 0$)	-500	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	-500	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	-7	V
I_C	Collector current	-0.5	A
I_{CM}	Collector peak current ($t_P < 5$ ms)	-1	A
P_{TOT}	Total dissipation at $T_{amb} = 25$ °C	500	mW
T_{STG}	Storage temperature	-65 to 150	°C
T_J	Max. operating junction temperature	150	°C

Table 3. Thermal data

Symbol	Parameter	Value	Unit
$R_{thJA}^{(1)}$	Thermal resistance junction-ambient max	250	°C/W

1. Device mounted on PCB area of 1 cm².

2 Electrical characteristics

$T_{\text{case}} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current ($I_{\text{E}} = 0$)	$V_{\text{CB}} = -500\text{ V}$			-10	μA
$V_{(\text{BR})\text{CBO}}$	Collector-base breakdown voltage ($I_{\text{E}} = 0$)	$I_{\text{C}} = -100\text{ }\mu\text{A}$	-500			V
$V_{(\text{BR})\text{CEO}}^{(1)}$	Collector-emitter breakdown voltage ($I_{\text{B}} = 0$)	$I_{\text{C}} = -1\text{ mA}$	-500			V
$V_{(\text{BR})\text{EBO}}$	Emitter-base breakdown voltage ($I_{\text{C}} = 0$)	$I_{\text{E}} = -100\text{ }\mu\text{A}$	-7			V
$V_{\text{CE}(\text{sat})}^{(1)}$	Collector-emitter saturation voltage	$I_{\text{C}} = -20\text{ mA}$ $I_{\text{B}} = -2\text{ mA}$ $I_{\text{C}} = -50\text{ mA}$ $I_{\text{B}} = -10\text{ mA}$			0.2 0.5	mV mV
$V_{\text{BE}(\text{sat})}^{(1)}$	Base-emitter saturation voltage	$I_{\text{C}} = -20\text{ mA}$ $I_{\text{B}} = -2\text{ mA}$ $I_{\text{C}} = -50\text{ mA}$ $I_{\text{B}} = -10\text{ mA}$			TBD TBD	V V
$h_{\text{FE}}^{(1)}$	DC current gain	$I_{\text{C}} = -50\text{ mA}$ $V_{\text{CE}} = 10\text{ V}$	100		300	

1. Pulse test: pulse duration = 300 μs , duty cycle $\leq 1.5\%$

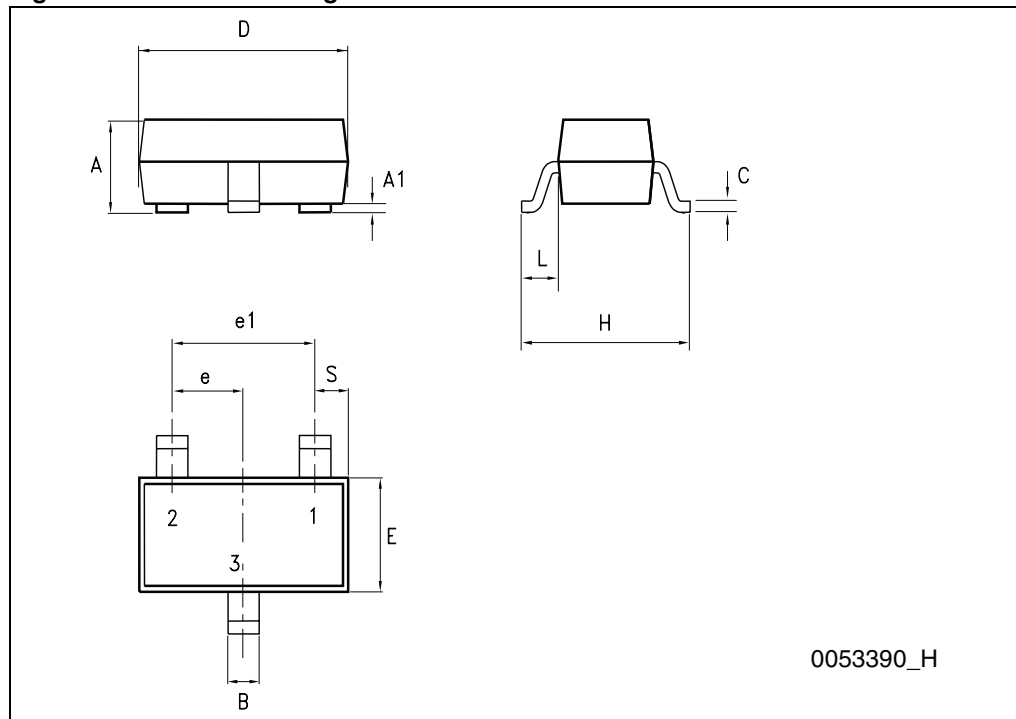
3 Package mechanical data

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Table 5. SOT-23 mechanical data

Dim.	mm.		
	Min.	Typ.	Max.
A	0.89		1.4
A1	0		0.1
B	0.3		0.51
C	0.085		0.18
D	2.75		3.04
e	0.85		1.05
e1	1.7		2.1
E	1.2		1.6
H	2.1		2.75
L		0.6	
S	0.35		0.65

Figure 2. SOT-23 drawings



4 Revision history

Table 6. Document revision history

Date	Revision	Changes
17-Oct-2011	1	Initial release

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