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# STN1802

## LOW VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

PRELIMINARY DATA

Ordering Code	Marking
STN1802	N1802

- VERY LOW COLLECTOR TO EMITTER SATURATION VOLTAGE
- HIGH CURRENT GAIN CHARACTERISTIC
- FAST-SWITCHING SPEED
- SURFACE-MOUNTING SOT-223 MEDIUM POWER PACKAGE IN TAPE & REEL

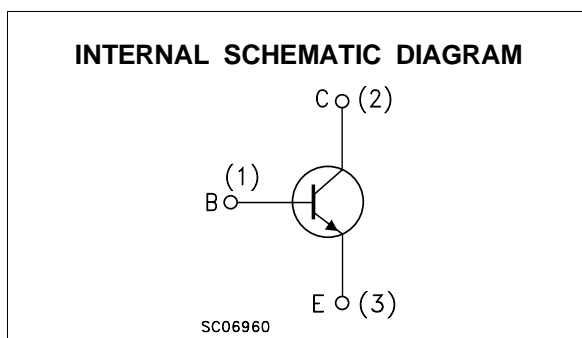
### APPLICATIONS:

- CCFL DRIVERS
- VOLTAGE REGULATORS
- RELAY DRIVERS
- HIGH EFFICIENCY LOW VOLTAGE SWITCHING APPLICATIONS

### DESCRIPTION

The device is manufactured in NPN Planar Technology by using a "Base Island" layout.

The resulting Transistor shows exceptional high gain performance coupled with very low saturation voltage.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	80	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	60	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	6	V
$I_C$	Collector Current	3	A
$I_{CM}$	Collector Peak Current ( $t_p < 5$ ms)	6	A
$I_B$	Base Current	1	A
$P_{tot}$	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	°C

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### THERMAL DATA

R <sub>thj-amb</sub>	Thermal Resistance Junction-Ambient	Max	78	°C/W
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• Device mounted on a PCB area of 1 cm<sup>2</sup>.

### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

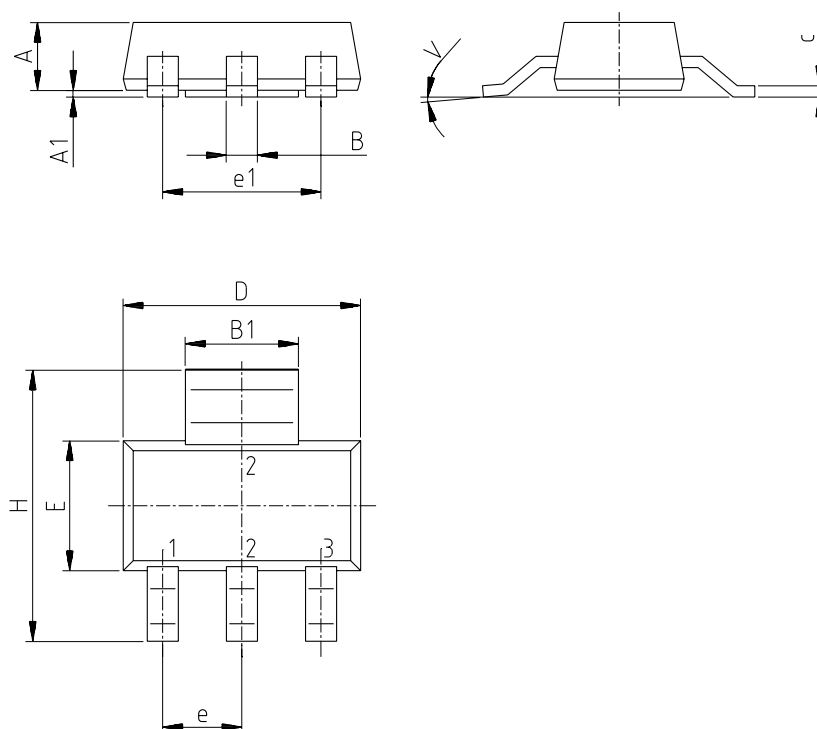
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = 40 V				0.1	μA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 4 V				0.1	μA
V <sub>(BR)CBO</sub> *	Collector-Base Breakdown Voltage (I <sub>E</sub> = 0)	I <sub>C</sub> = 10 μA		80			V
V <sub>(BR)CEO</sub> *	Collector-Emitter Breakdown Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 1 mA		60			V
V <sub>(BR)EBO</sub> *	Emitter-Base Breakdown Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 10 μA		6			V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 2 A I <sub>C</sub> = 3 A	I <sub>B</sub> = 100 mA I <sub>B</sub> = 150 mA		150 200	300 400	mV mV
V <sub>BE(sat)</sub> *	Base-Emitter Saturation Voltage	I <sub>C</sub> = 2 A	I <sub>B</sub> = 100 mA		0.9	1.2	V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 100 mA I <sub>C</sub> = 3 A	V <sub>CE</sub> = 2 V V <sub>CE</sub> = 2 V	200 100		400	
f <sub>T</sub>	Transition frequency	V <sub>CE</sub> = 10 V	I <sub>C</sub> = 50 mA		150		MHz
C <sub>CBO</sub>	Collector-Base Capacitance	V <sub>CB</sub> = 10 V	f = 1 MHz		50		pF
t <sub>ON</sub> t <sub>s</sub> t <sub>f</sub>	RESISTIVE LOAD Turn- on Time Storage Time Fall Time	I <sub>C</sub> = 1 A I <sub>B1</sub> = - I <sub>B2</sub> = 0.1 A	V <sub>CC</sub> = 30 V		50 1.35 120		ns ms ns

\* Pulsed: Pulse duration = 300μs, duty cycle = 1.5 %

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**SOT-223 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.80			0.071
B	0.60	0.70	0.80	0.024	0.027	0.031
B1	2.90	3.00	3.10	0.114	0.118	0.122
c	0.24	0.26	0.32	0.009	0.010	0.013
D	6.30	6.50	6.70	0.248	0.256	0.264
e		2.30			0.090	
e1		4.60			0.181	
E	3.30	3.50	3.70	0.130	0.138	0.146
H	6.70	7.00	7.30	0.264	0.276	0.287
V			10°			10°
A1		0.02				



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