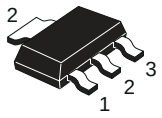
STN1802

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



SOT-223

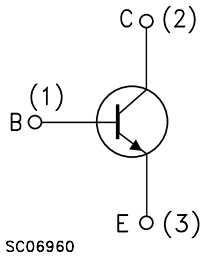
APPLICATIONS:
- CCFL DRIVERS
- VOLTAGE REGULATORS
- RELAY DRIVERS
- HIGH EFFICIENCY LOW VOLTAGE SWITCHING APPLICATIONS

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.

INTERNAL SCHEMATIC DIAGRAM



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 ^oC	1.6	W
T_{stg}	Storage Temperature	-65 to 150	^oC
T_j	Max. Operating Junction Temperature	150	^oC

THERMAL DATA

$R_{thj\text{-}amb}$	Thermal Resistance Junction-Ambient	Max	78	$^oC/W$

• Device mounted on a PCB area of 1 cm^2 .

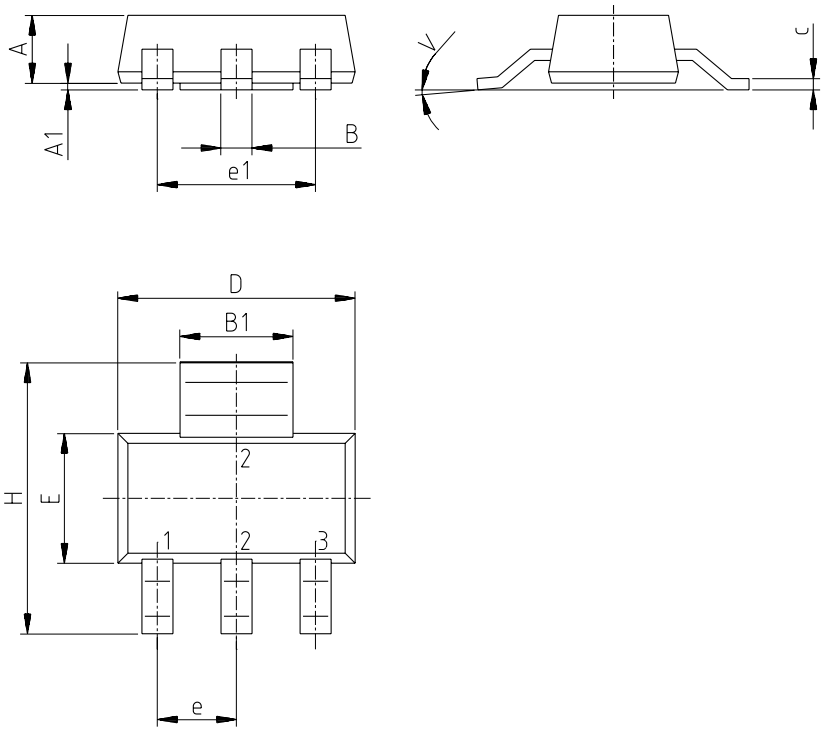
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 40 V				0.1	µA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 4 V				0.1	µA
$V_{(BR)CBO}$*	Collector-Base Breakdown Voltage (I_E = 0)	I_C = 10 µA		80			V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = 1 mA		60			V
$V_{(BR)EBO}$*	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = 10 µA		6			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 2 A I_C = 3 A	I_B = 100 mA I_B = 150 mA		150 200	300 400	mV mV
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 2 A	I_B = 100 mA		0.9	1.2	V
h_{FE}*	DC Current Gain	I_C = 100 mA I_C = 3 A	V_{CE} = 2 V V_{CE} = 2 V	200 100		400	
f_T	Transition frequency	V_{CE} = 10 V	I_C = 50 mA		150		MHz
C_{CBO}	Collector-Base Capacitance	V_{CB} = 10 V	f = 1 MHz		50		pF
	RESISTIVE LOAD						
t_{ON} t_s t_f	Turn- on Time Storage Time Fall Time	I_C = 1 A I_{B1} = - I_{B2} = 0.1 A	V_{CC} = 30 V		50 1.35 120		ns ms ns

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

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^o			10^o
A1		0.02				



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