



# STN888

## HIGH CURRENT, HIGH PERFORMANCE, LOW VOLTAGE PNP TRANSISTOR

Ordering Code	Marking
STN888	N888

- VERY LOW COLLECTOR TO EMITTER SATURATION VOLTAGE
- D.C CURRENT GAIN,  $h_{FE} > 100$
- 5 A CONTINUOUS COLLECTOR CURRENT
- SOT-223 PLASTIC PACKAGE FOR SURFACE MOUNTING CIRCUITS
- AVAILABLE IN TAPE AND REEL PACKING

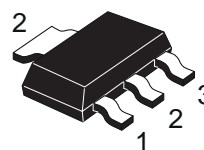
### APPLICATIONS

- POWER MANAGEMENT IN PORTABLE EQUIPMENT
- VOLTAGE REGULATION IN BIAS SUPPLY CIRCUITS
- SWITCHING REGULATOR IN BATTERY CHARGER APPLICATIONS
- HEAVY LOAD DRIVER

### DESCRIPTION

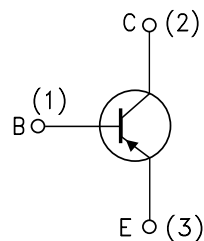
The device is manufactured in low voltage PNP Planar Technology by using a "Base Island" layout.

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



**SOT-223**

### INTERNAL SCHEMATIC DIAGRAM



SC08810

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	-60	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	-30	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	-6	V
$I_C$	Collector Current	-5	A
$I_{CM}$	Collector Peak Current ( $t_p < 5$ ms)	-10	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

## THERMAL DATA

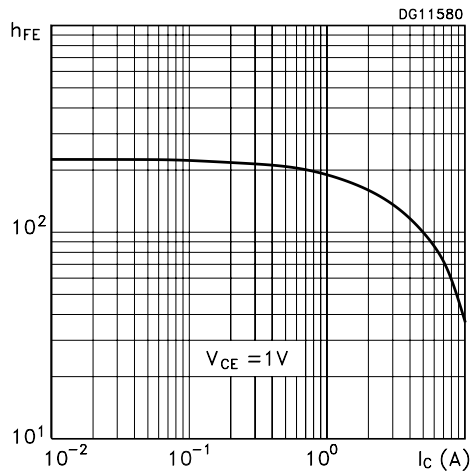
$R_{thj-amb}$ •	Thermal Resistance Junction-Ambient	Max	78	°C/W
-----------------	-------------------------------------	-----	----	------

ELECTRICAL CHARACTERISTICS ( $T_{case} = 25\text{ °C}$  unless otherwise specified)

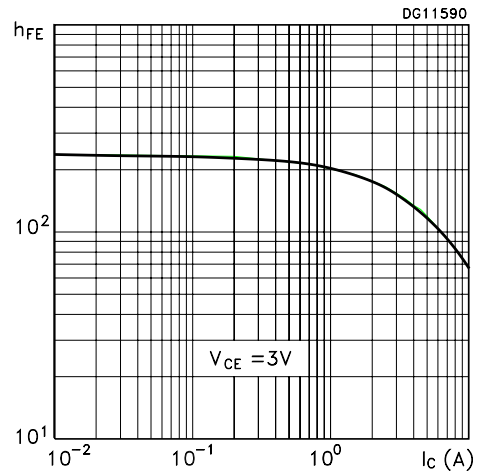
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{CB} = -30\text{ V}$ $V_{CB} = -30\text{ V}$ $T_j = 100\text{ °C}$			-10 -1	nA $\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = -6\text{ V}$			-10	nA
$V_{(BR)CEO}^*$	Collector-Emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = -10\text{ mA}$	-30			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_E = 0$ )	$I_C = -100\text{ }\mu\text{A}$	-60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_C = 0$ )	$I_E = -100\text{ }\mu\text{A}$	-6			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = -500\text{ mA}$ $I_B = -5\text{ mA}$ $I_C = -2\text{ A}$ $I_B = -50\text{ mA}$ $I_C = -5\text{ A}$ $I_B = -250\text{ mA}$ $I_C = -6\text{ A}$ $I_B = -250\text{ mA}$ $I_C = -8\text{ A}$ $I_B = -400\text{ mA}$ $I_C = -10\text{ A}$ $I_B = -500\text{ mA}$			-0.15 -0.25 -0.70 -0.70 -1 -1.5	V V V V V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = -2\text{ A}$ $I_B = -50\text{ mA}$ $I_C = -6\text{ A}$ $I_B = -250\text{ mA}$			-1.1 -1.4	V V
$h_{FE}^*$	DC Current Gain	$I_C = -10\text{ mA}$ $V_{CE} = -1\text{ V}$ $I_C = -500\text{ mA}$ $V_{CE} = -1\text{ V}$ $I_C = -5\text{ A}$ $V_{CE} = -1\text{ V}$ $I_C = -5\text{ A}$ $V_{CE} = -1\text{ V}$ $T_j = 100\text{ °C}$ $I_C = -8\text{ A}$ $V_{CE} = -1\text{ V}$ $I_C = -10\text{ A}$ $V_{CE} = -1\text{ V}$	150 150 75 75 40 15	200 200 100 100 55 35	300	
$t_d$ $t_r$ $t_s$ $t_f$	RESISTIVE LOAD Delay Time RiseTime StorageTime Fall Time	$I_C = -3\text{ A}$ $I_{B1} = -I_{B2} = -60\text{ mA}$ $V_{CC} = -20\text{ V}$ (see figure 1)		180 160 250 80	220 210 300 100	ns ns ns ns

\* Pulsed: Pulse duration = 300  $\mu\text{s}$ , duty cycle  $\leq 1.5\%$

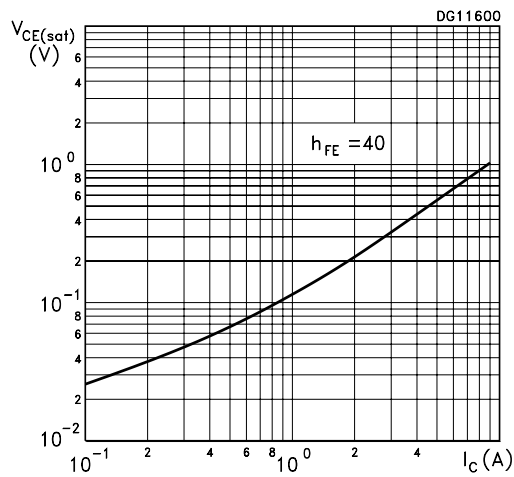
DC Current Gain



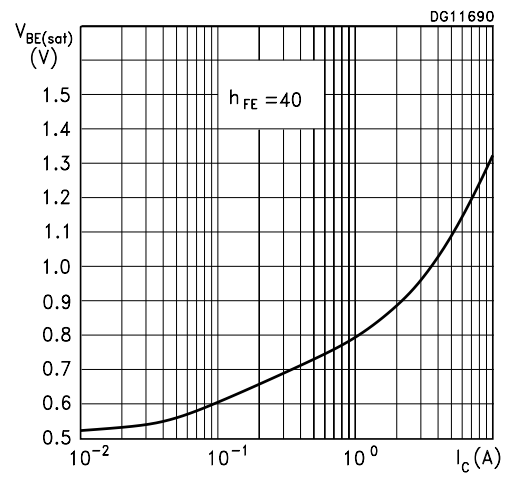
DC Current Gain



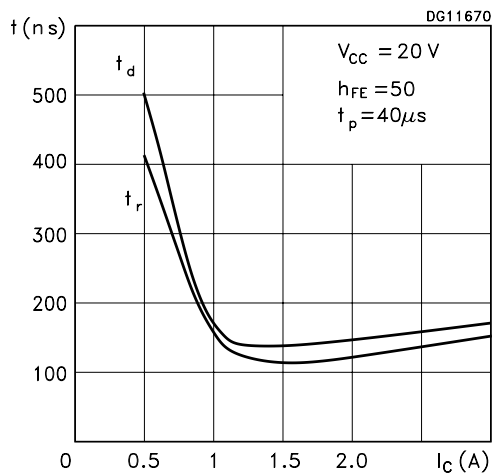
Collector-Emitter Saturation Voltage



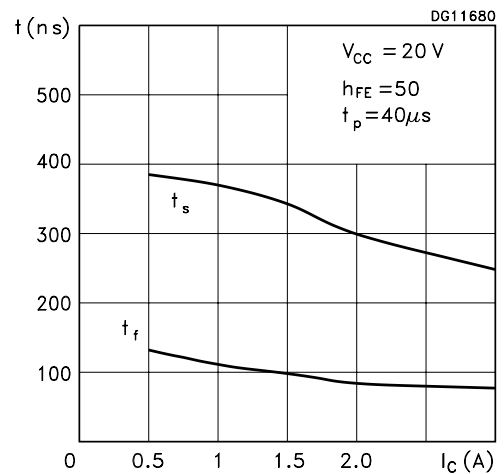
Base-Emitter Saturation Voltage

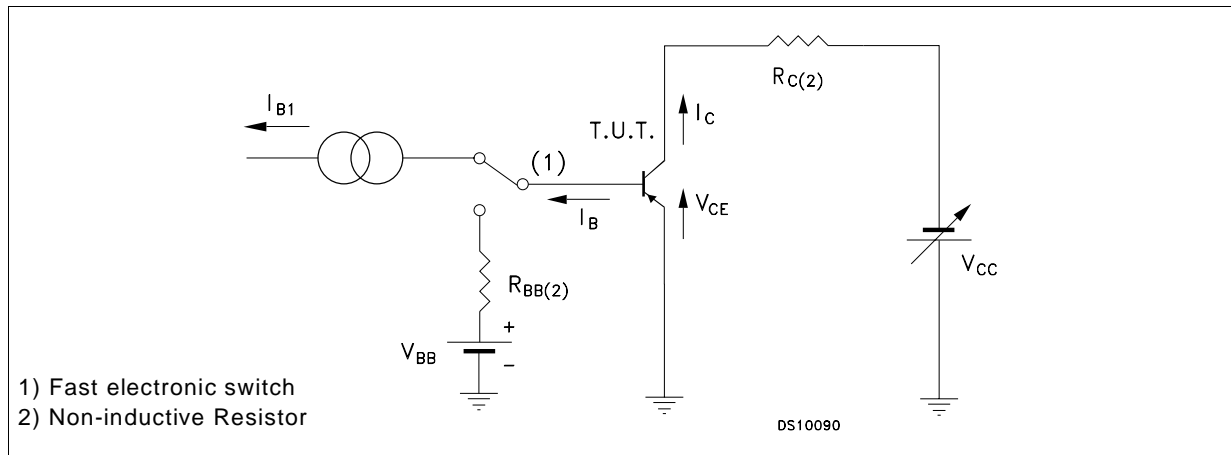


Switching Times Resistive Load



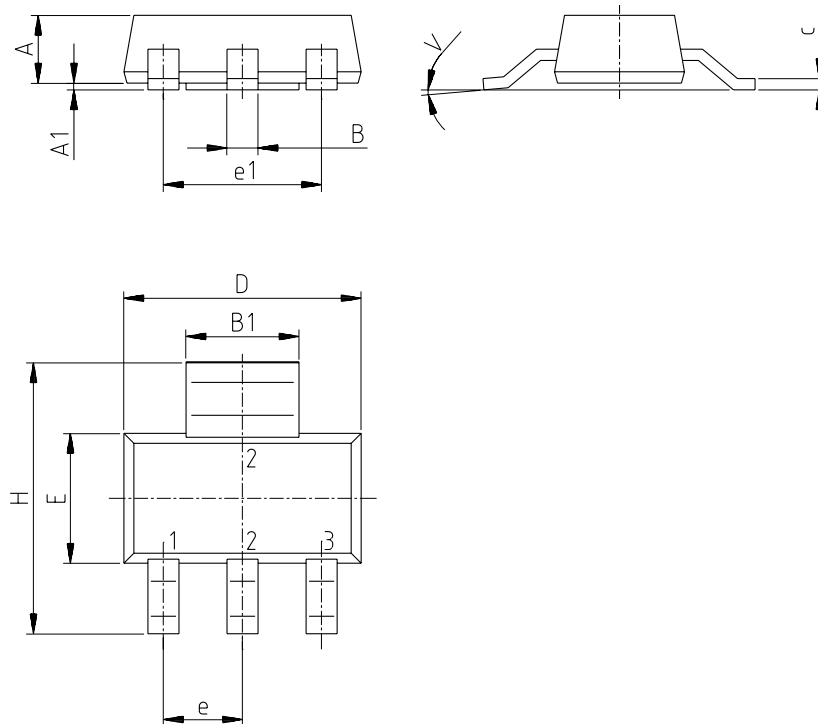
Switching Times Resistive Load



**Figure 1:** Resistive Load Switching Test Circuits.

# 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				



P008B

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 2003 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>