



# STT818A

## HIGH GAIN LOW VOLTAGE PNP POWER TRANSISTOR

- VERY LOW SATURATION VOLTAGE
- DC CURRENT GAIN  $> 100$  ( $h_{FE}$ )
- 3 A CONTINUOUS COLLECTOR CURRENT ( $I_C$ )
- SURFACE-MOUNTING SOT23-6L PACKAGE IN TAPE & REEL

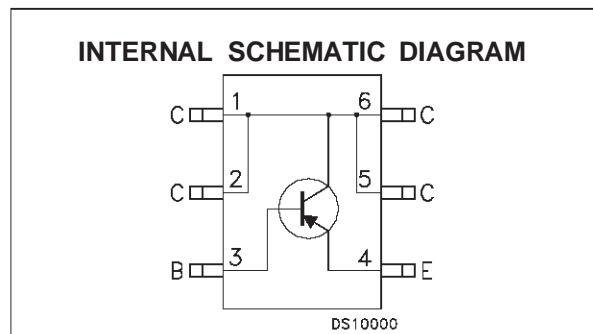
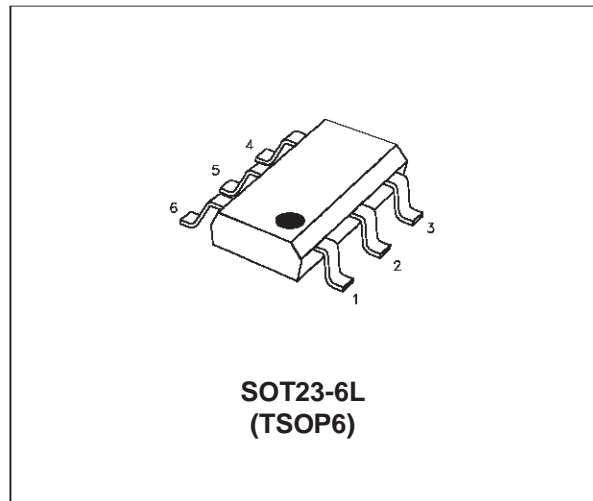
### APPLICATIONS

- POWER MANAGEMENT IN PORTABLE EQUIPMENTS
- SWITCHING REGULATOR IN BATTERY CHARGER APPLICATIONS

### DESCRIPTION

Using the latest low voltage Epitaxial Planar technology based on interdigitated layout, STMicroelectronics has introduced the new "High Gain" Power bipolar transistor family, with outstanding performances. Its very low saturation voltage combined with the "high gain" characteristics make it ideal for all high efficiency low voltage switching applications.

Marking : 818A



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	-30	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	-30	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	-5	V
$I_C$	Collector Current	-3	A
$I_{CM}$	Collector Peak Current	-6	A
$I_B$	Base Current	-0.2	A
$I_{BM}$	Base Peak Current	-0.5	A
$P_{tot}$	Total Dissipation at $T_C = 25^\circ\text{C}$	1.2	W
$T_{stg}$	Storage Temperature	-65 to 150	$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	150	$^\circ\text{C}$

# STT818A

## THERMAL DATA

$R_{thj-amb}^{(1)}$	Thermal Resistance Junction-ambient	Max	105	$^{\circ}\text{C}/\text{W}$
---------------------	-------------------------------------	-----	-----	-----------------------------

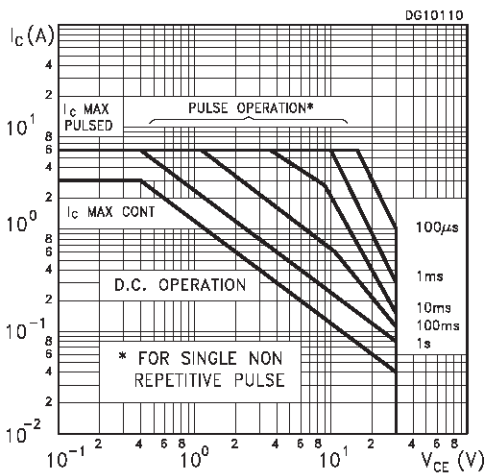
(1) Package mounted on FR4 pcb 25mm x 25mm.

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

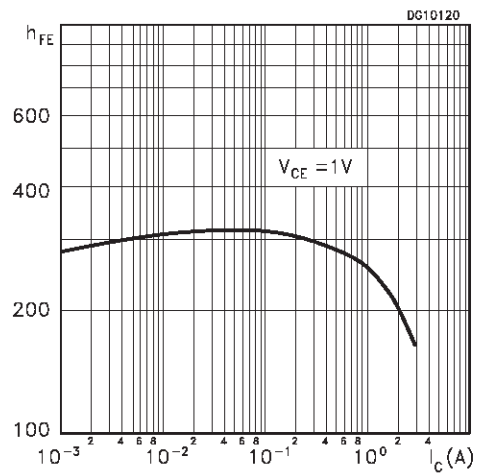
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{CB} = -30\text{ V}$ $V_{CB} = -30\text{ V}$ $T_C = 125^{\circ}\text{C}$			-0.1 -20	$\mu\text{A}$ $\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = -5\text{ V}$			-0.1	$\mu\text{A}$
$V_{(BR)CEO}^*$	Collector-Emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = -10\text{ mA}$	-30			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = -0.7\text{ A}$ $I_B = -20\text{ mA}$ $I_C = -1.2\text{ A}$ $I_B = -20\text{ mA}$ $I_C = -2\text{ A}$ $I_B = -20\text{ mA}$		-0.07 -0.12 -0.25	-0.12 -0.25 -0.5	V V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = -0.7\text{ A}$ $I_B = -20\text{ mA}$			-1.1	V
$V_{BE(ON)}^*$	Base-Emitter Voltage	$I_C = -2\text{ A}$ $V_{CE} = -2\text{ V}$			-1.1	V
$h_{FE}^*$	DC Current Gain	$I_C = -0.5\text{ A}$ $V_{CE} = -1\text{ V}$ $I_C = -2.5\text{ A}$ $V_{CE} = -3\text{ V}$	100 100	300		

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

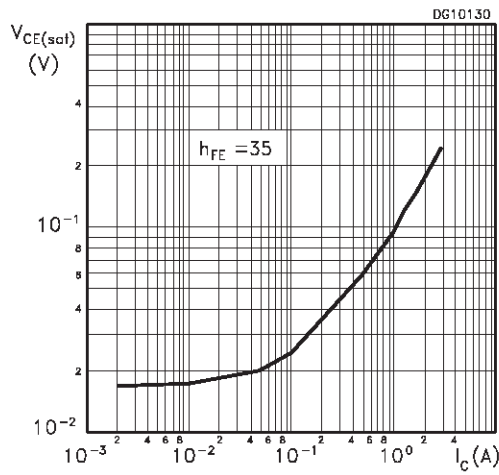
### Safe Operating Area



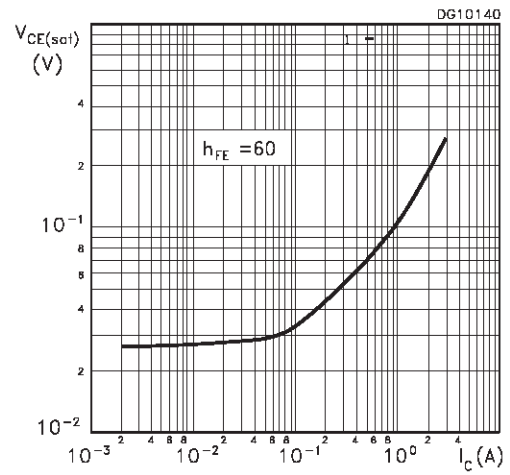
### DC Current Gain



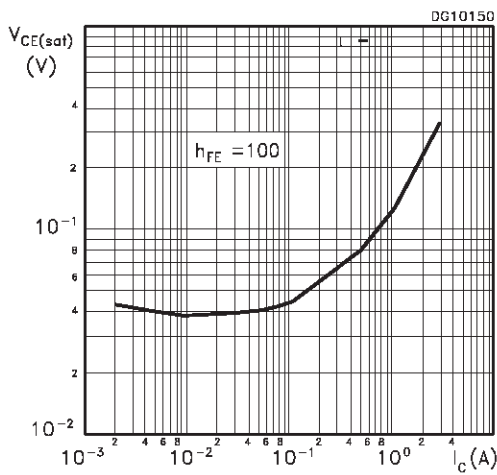
Collector Emitter Saturation Voltage



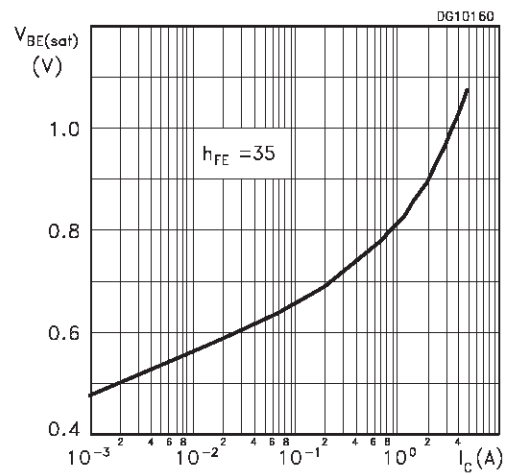
Collector Emitter Saturation Voltage



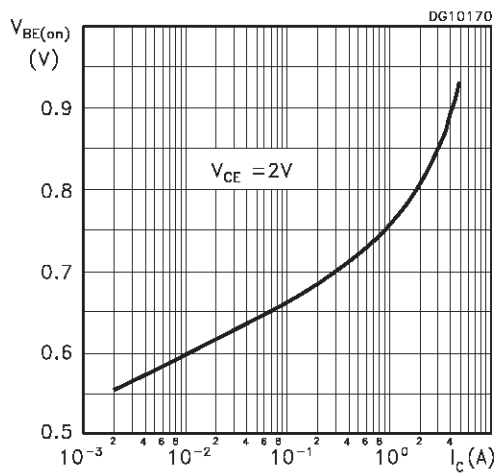
Collector Emitter Saturation Voltage



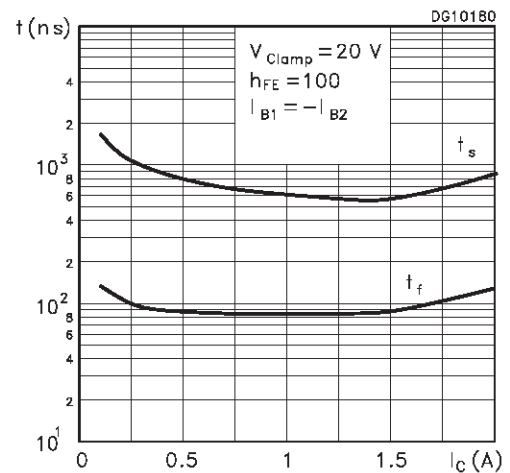
Base Emitter Saturation Voltage



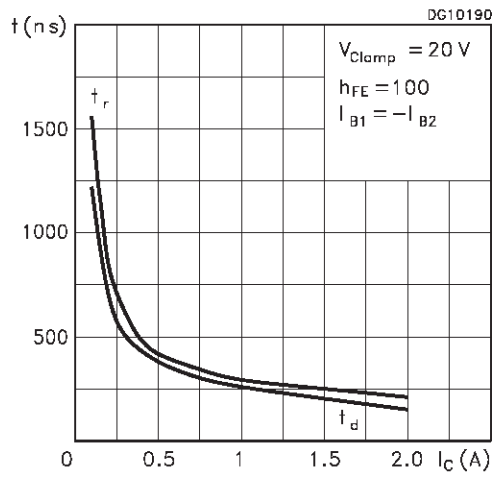
Base Emitter Voltage



Switching Times Inductive Load



Switching Times Resistive Load



Switching Times Resistive Load

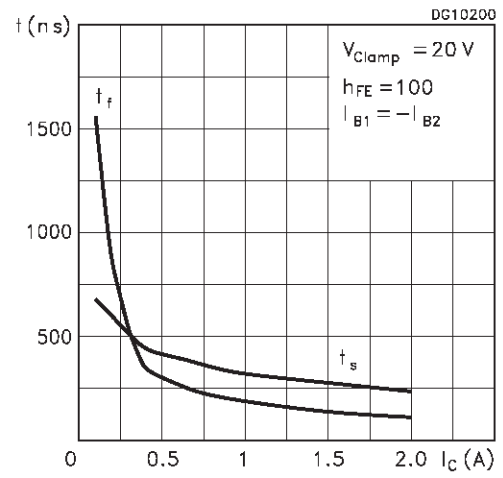


Figure 1: Inductive Load Switching Test Circuits.

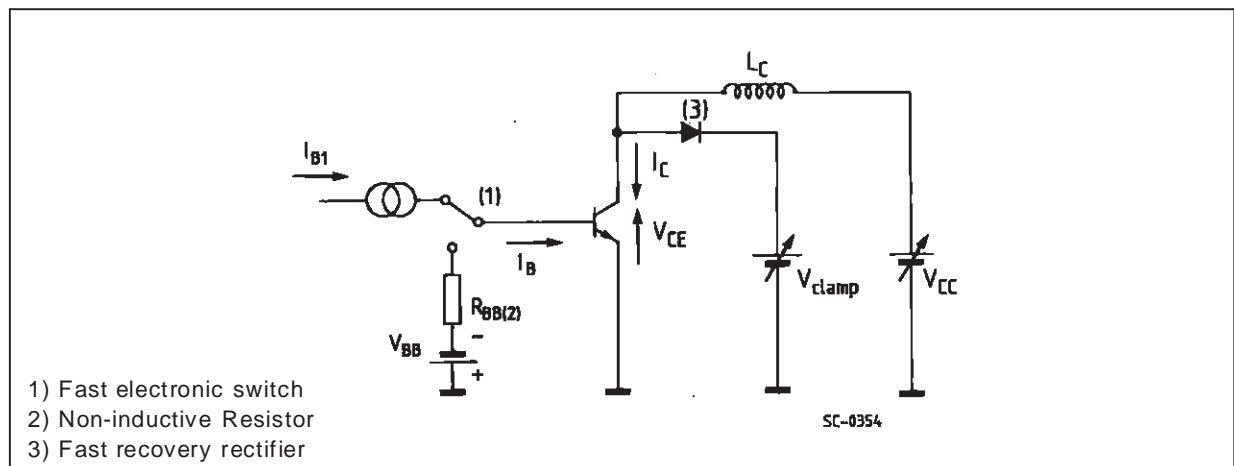
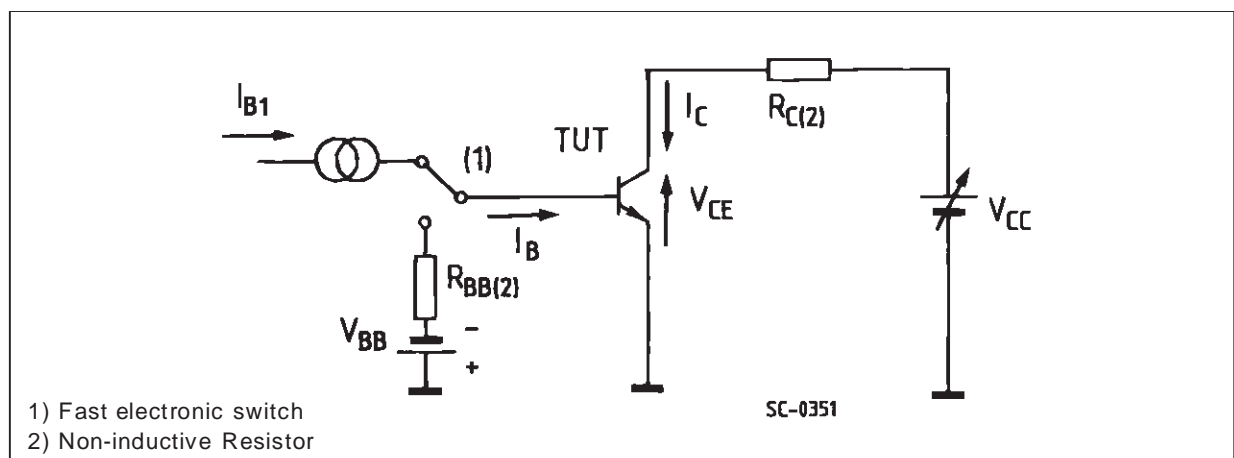
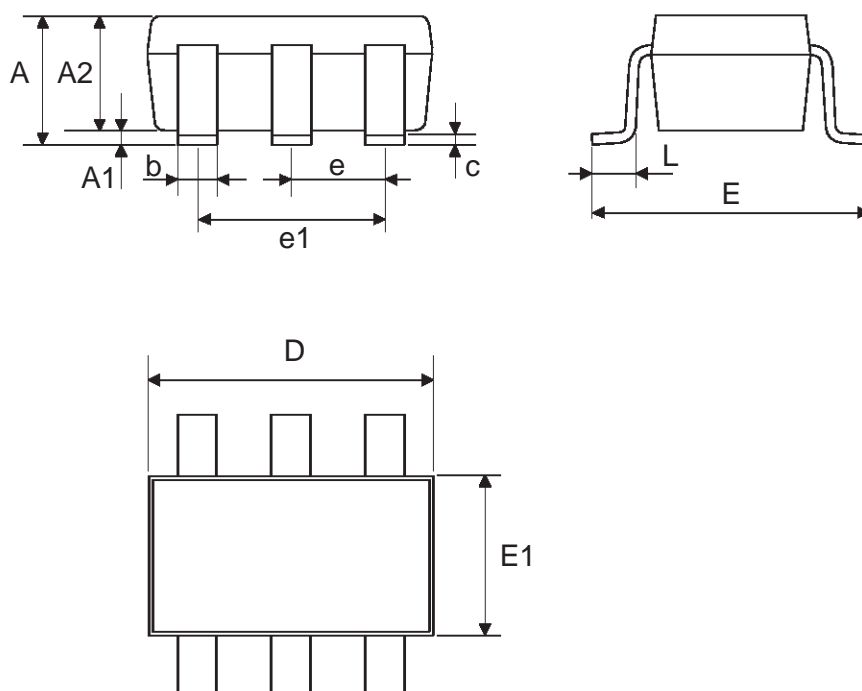


Figure 2: Resistive Load Switching Test Circuits.



## SOT23-6L MECHANICAL DATA

DIM.	mm			mils		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	0.90		1.45	0.035		0.057
A1	0.00		0.15	0.000		0.006
A2	0.90		1.30	0.035		0.051
b	0.25		0.50	0.010		0.020
C	0.09		0.20	0.004		0.008
D	2.80		3.10	0.110		0.122
E	2.60		3.00	0.102		0.118
E1	1.50		1.75	0.059		0.069
L	0.35		0.55	0.014		0.022
e		0.95			0.037	
e1		1.90			0.075	



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

© 2001 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>