



## 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

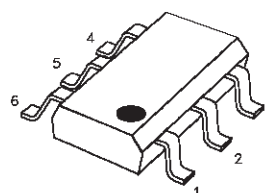
#### APPLICATIONS

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

#### DESCRIPTION

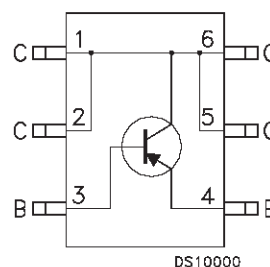
Using the latest low voltage Epitaxial Planar technology based on interdigitated layout, STMicroelectronics has introduced the new "High Gain" Power bipolar transistor family, with outstanding performances. Its very low saturation voltage combined with the "high gain" characteristics make it ideal for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

Marking : 818A



**SOT23-6L  
(TSOP6)**

#### INTERNAL SCHEMATIC DIAGRAM



#### 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	$^{\circ}\text{C/W}$
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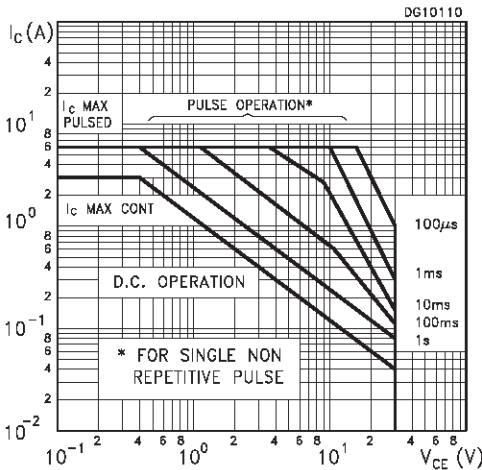
(1) Package mounted on FR4 pcb 25mm x 25mm.

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

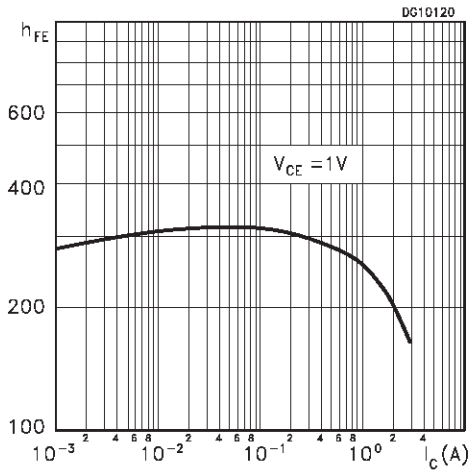
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{CB} = -30\text{ V}$ $V_{CB} = -30\text{ V}$ $T_C = 125^{\circ}\text{C}$			-0.1 -20	$\mu\text{A}$ $\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = -5\text{ V}$			-0.1	$\mu\text{A}$
$V_{(BR)CEO}^*$	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 %.

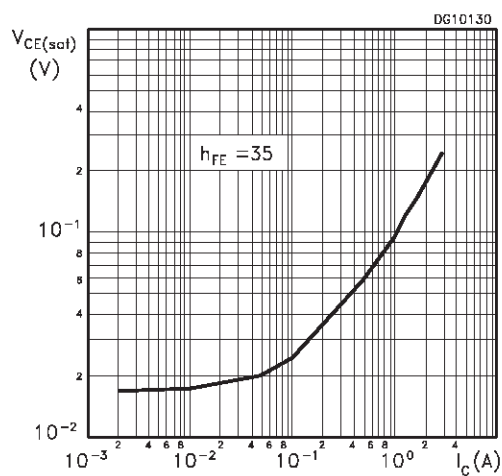
## Safe Operating Area



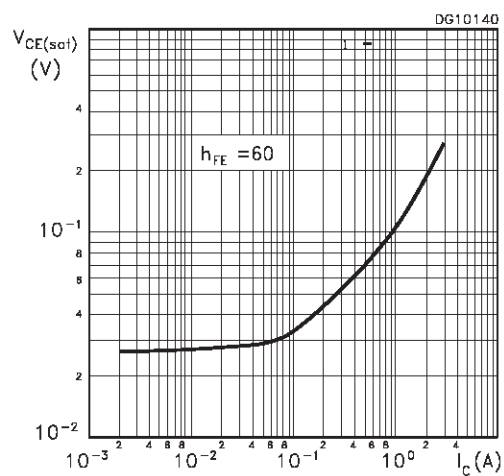
## DC Current Gain



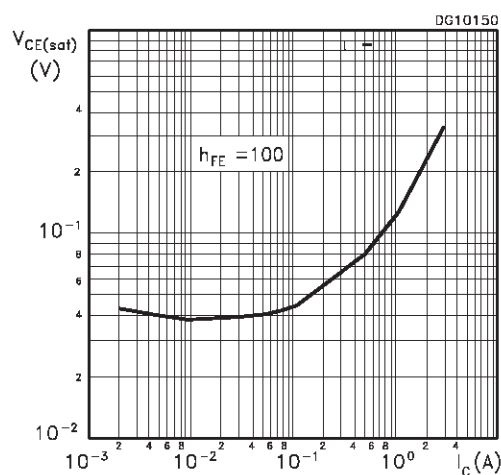
Collector Emitter Saturation Voltage



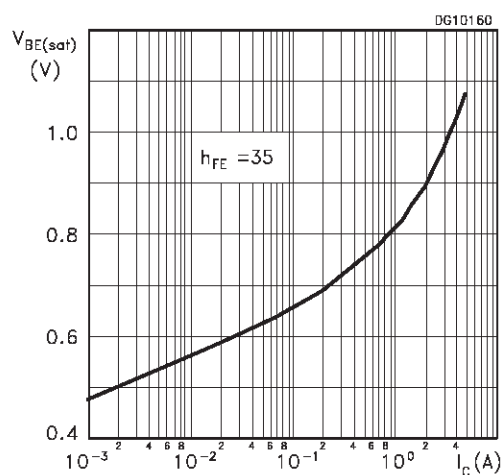
Collector Emitter Saturation Voltage



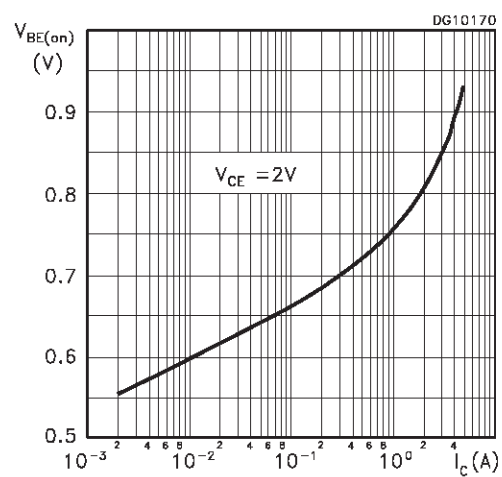
Collector Emitter Saturation Voltage



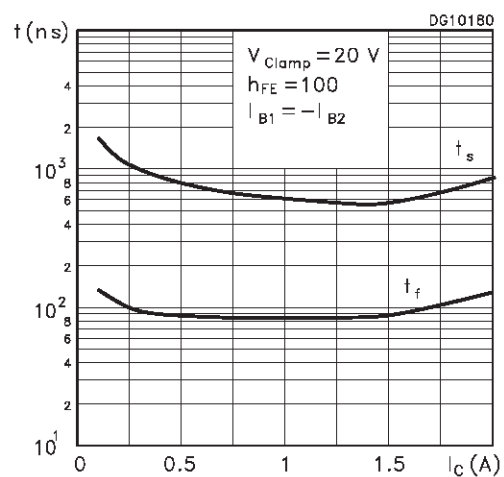
Base Emitter Saturation Voltage



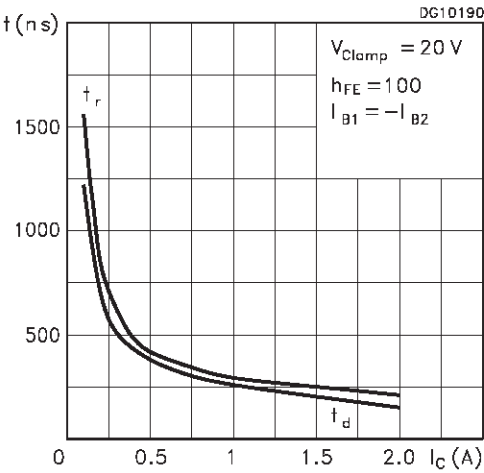
Base Emitter Voltage



Switching Times Inductive Load



Switching Times Resistive Load



Switching Times Resistive Load

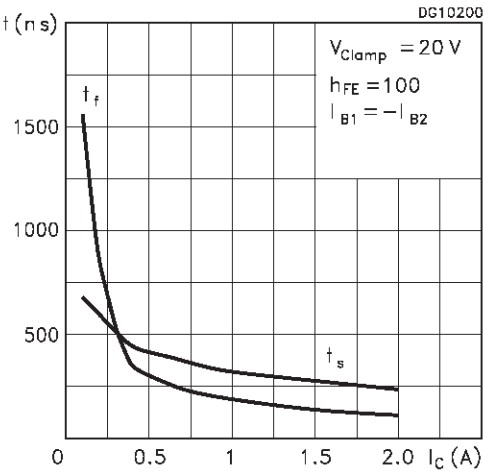


Figure 1: Inductive Load Switching Test Circuits.

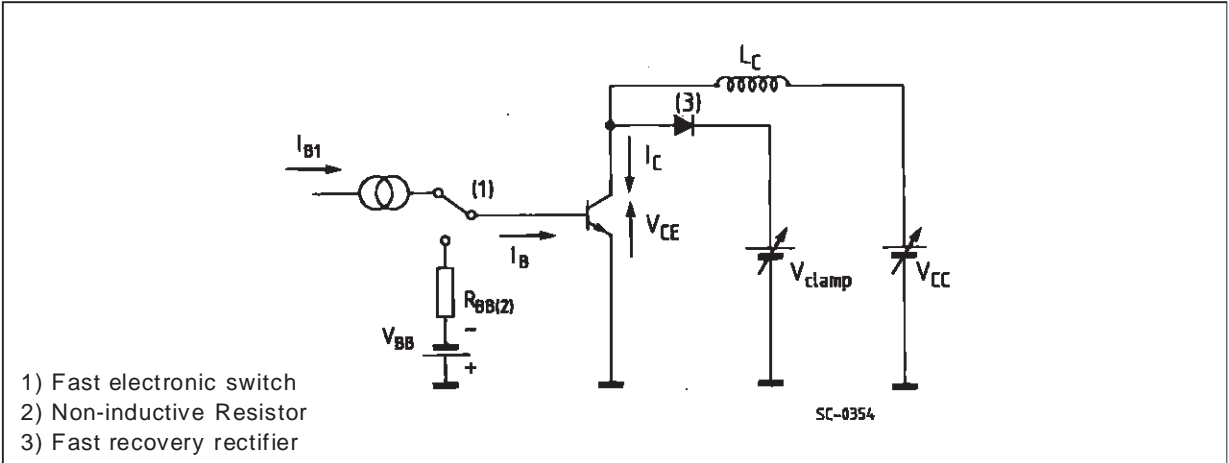
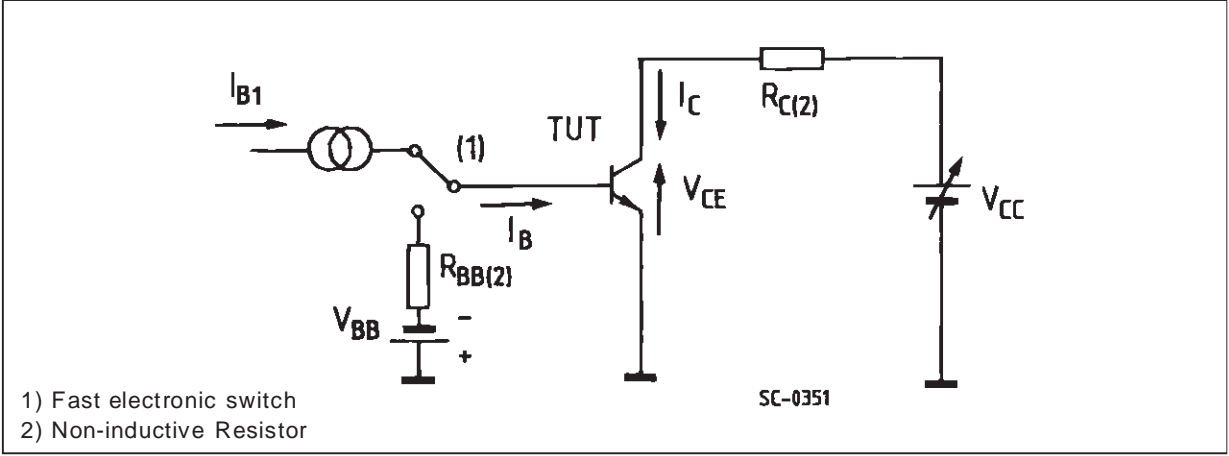
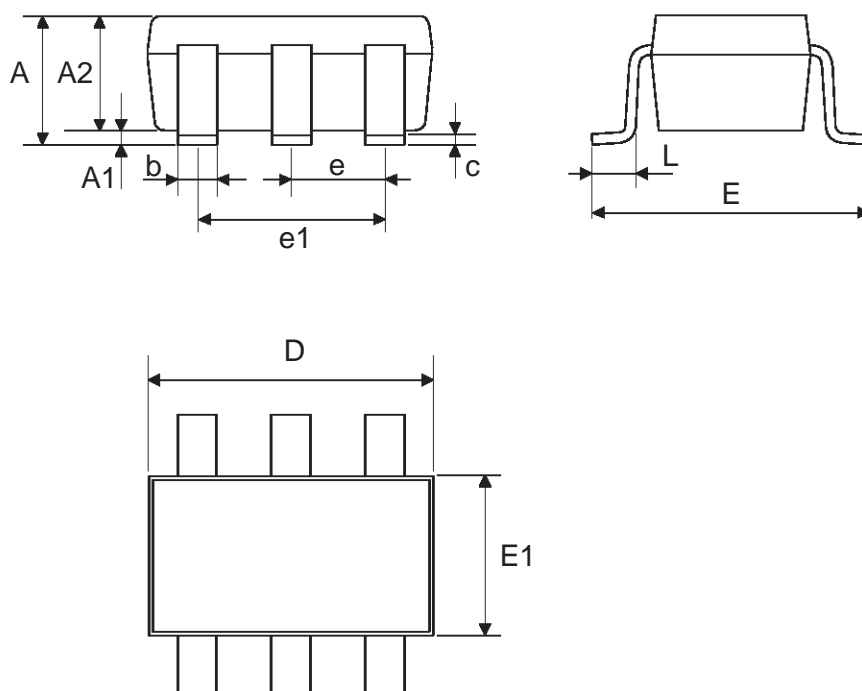


Figure 2: Resistive Load Switching Test Circuits.



## 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	



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