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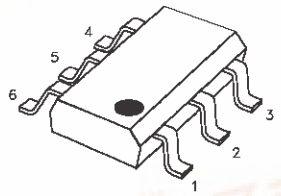
STT818A

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



SOT23-6L (TSOP6)

APPLICATIONS

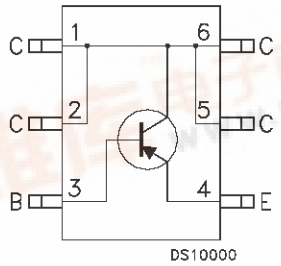
- POWER MANAGEMENT IN PORTABLE EQUIPMENTS
- SWITCHING REGULATOR IN BATTERY CHARGER APPLICATIONS

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

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 °C	1.2	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

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THERMAL DATA

$R_{thj-amb}$ (1)	Thermal Resistance Junction-ambient	Max	105	°C/W

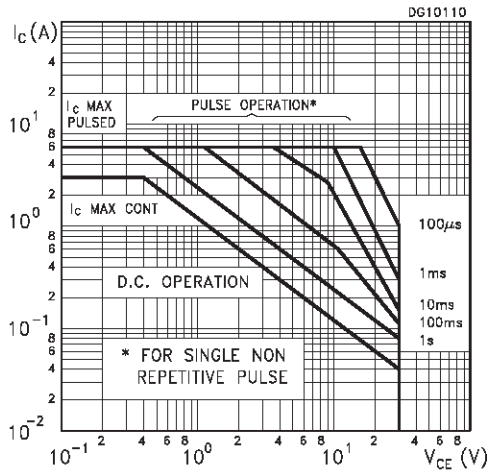
(1) Package mounted on FR4 pcb 25mm x 25mm.

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

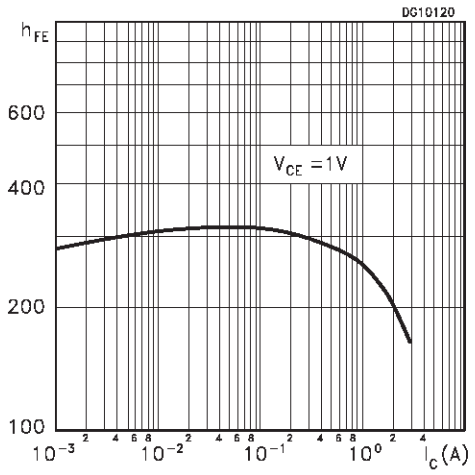
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = -30 V V_{CB} = -30 V	 T_C = 125 °C			-0.1 -20	µA µA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = -5 V				-0.1	µA
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = -10 mA	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

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

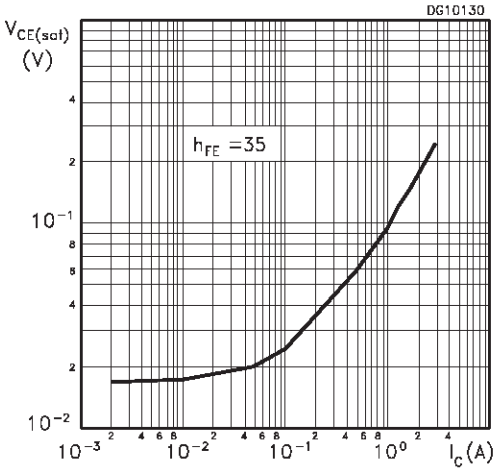
Safe Operating Area



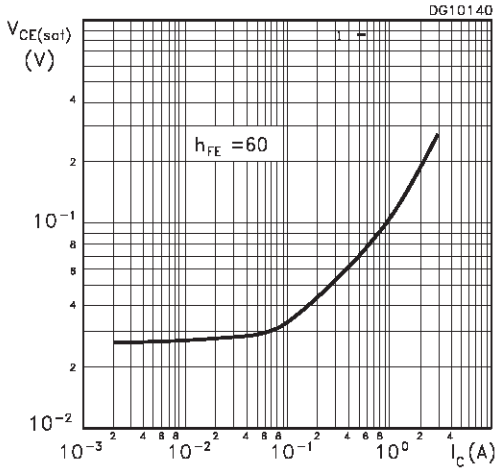
DC Current Gain



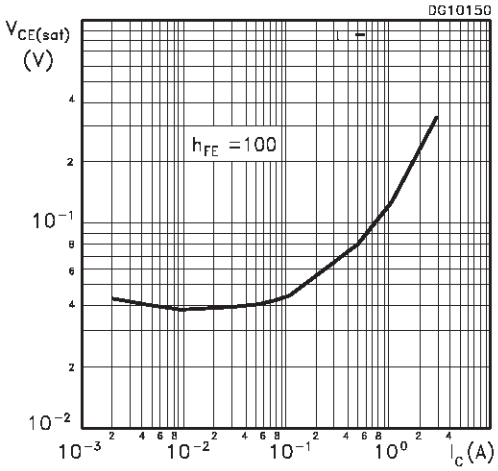
Collector Emitter Saturation Voltage



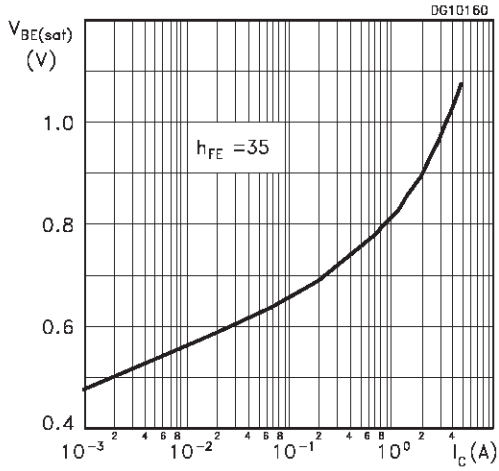
Collector Emitter Saturation Voltage



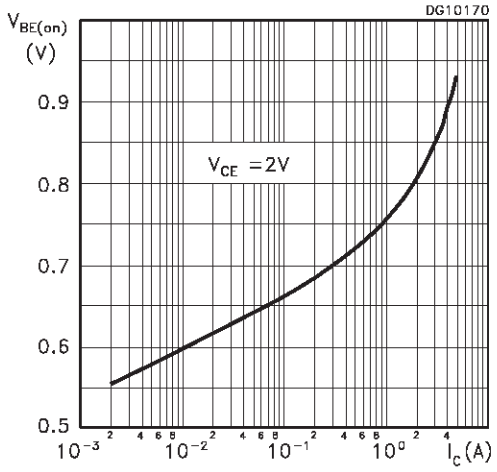
Collector Emitter Saturation Voltage



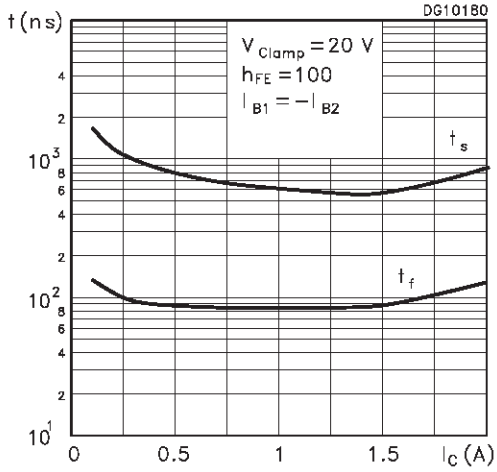
Base Emitter Saturation Voltage



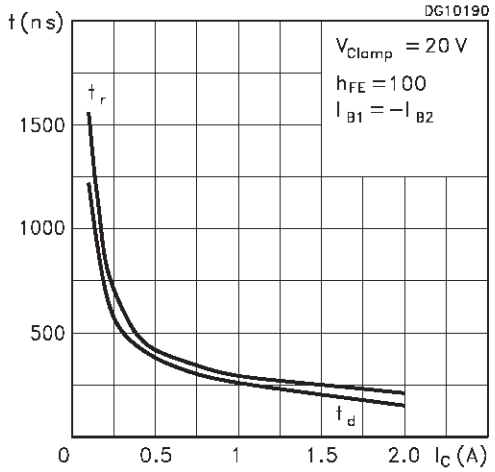
Base Emitter Voltage



Switching Times Inductive Load



Switching Times Resistive Load



Switching Times Resistive Load

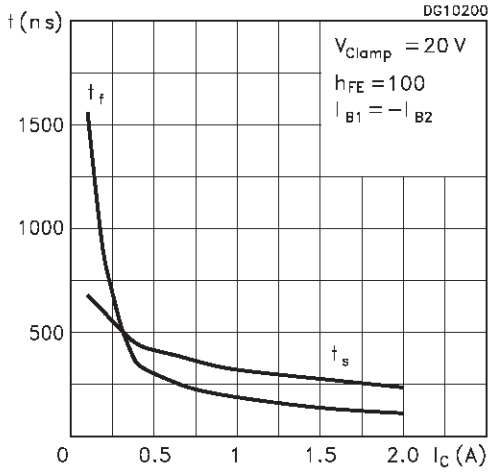
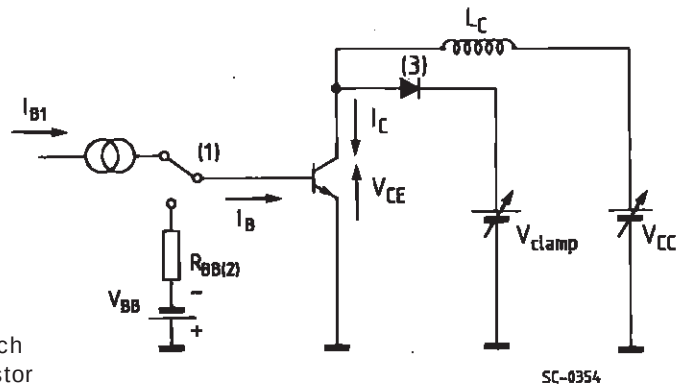
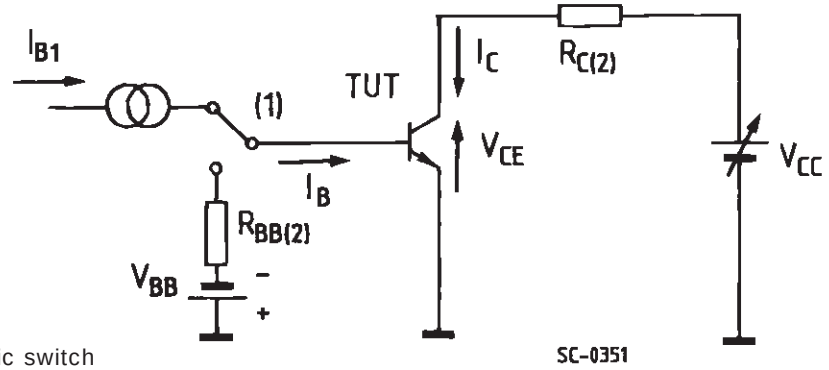


Figure 1: Inductive Load Switching Test Circuits.



1) Fast electronic switch
2) Non-inductive Resistor
3) Fast recovery rectifier

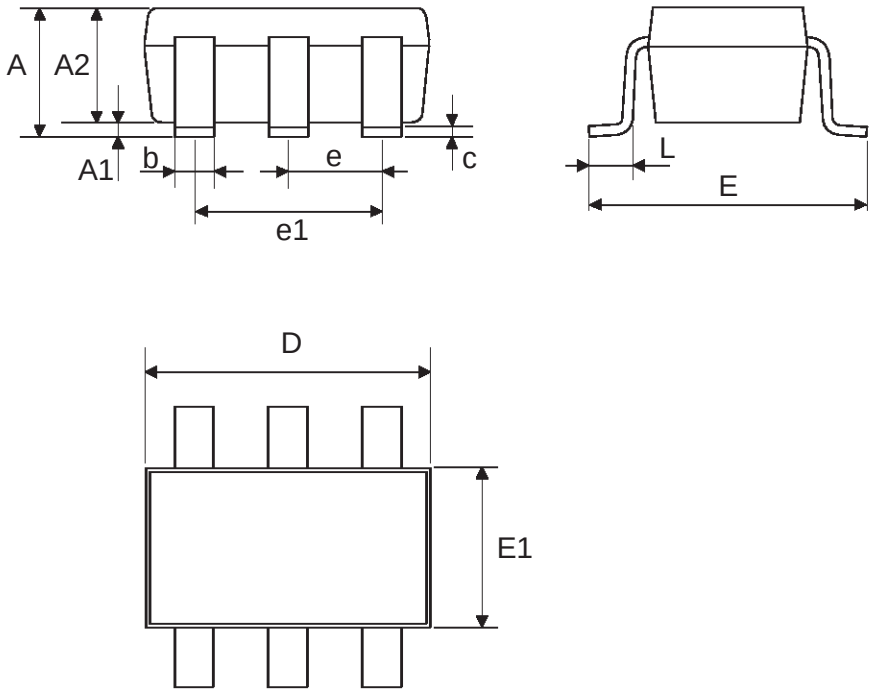
Figure 2: Resistive Load Switching Test Circuits.



1) Fast electronic switch
2) Non-inductive Resistor

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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