SGS910 BU910
SGS911 BU911
SGS912 BU912

MULTIEPITAXIAL PLANAR NPN

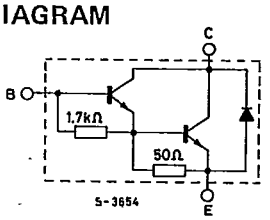
HIGH VOLTAGE POWER DARLINGTONS

The SGS910, SGS911, SGS912 and BU910, BU911, BU912 are silicon multiepitaxial planar NPN transistors in monolithic Darlington configuration respectively in Jedec SOT-82 and TO-220 plastic package. They are designed for applications such as electronic ignition, DC and AC motor controls, solenoid drivers, etc.

ABSOLUTE MAXIMUM RATINGS

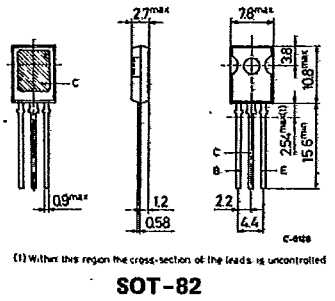
		SGS910 BU910	SGS911 BU911	SGS912 BU912
V_{CES}	Collector-emitter voltage ($V_{BE} = 0$)	400V	450V	500V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	350V	400V	450V
V_{EBO}	Emitter-base voltage ($I_C = 0$)		5V	
I_C	Collector current		6A	
I_{CM}	Collector peak current		10A	
I_B	Base current		1A	
P_{tot}	Total power dissipation at $T_{case} \leqslant 25°C$		60W	
T_{stg}	Storage temperature		-65 to 150 °C	
T_j	Junction temperature		150°C	

INTERNAL SCHEMATIC DIAGRAM

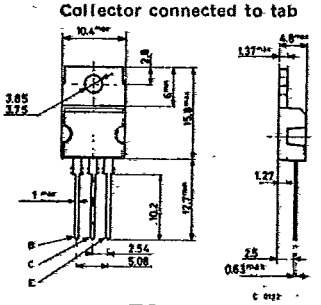


MECHANICAL DATA

Dimensions in mm



SOT-82



TO-220

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THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	2.08	°C/W

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

Parameter		Test conditions	Min.	Typ.	Max	Unit
I_{CES}	Collector cutoff current (V_{BE} = 0)	V_{CE} = rated V_{CES}			1	mA
		T_{case} = 125°C			5	mA
I_{CEO}	Collector cutoff current (I_B = 0)	V_{CE} = rated V_{CEO}			1	mA
I_{EBO}	Emitter-cutoff current (I_C = 0)	V_{EB} = 5V			5	mA
$V_{CEO(sus)}$*	Collector-emitter sustaining voltage (I_B = 0)	I_C = 100 mA				
		for SGS910/BU910	350			V
		for SGS911/BU911	400			V
		for SGS912/BU912	450			V
$V_{CE(sat)}$*	Collector-emitter saturation voltage	I_C = 2.5A I_B = 50 mA				
		for SGS910-911/BU910-911			1.8	V
		I_C = 2A I_B = 50 mA				
		for SGS912/BU912			1.8	V
		I_C = 4A I_B=0.2A(all types)			1.8	V
$V_{BE(sat)}$*	Base-emitter saturation voltage	I_C = 2.5A I_B = 50mA				
		for SGS910-911/BU910-911			2.2	V
		I_C = 2A I_B = 50mA				
		for SGS912/BU912			2.2	V
		I_C = 4A I_B=0.2A (all types)			2.5	V
V_F*	Diode forward voltage	I_F = 4A			2.5	V

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

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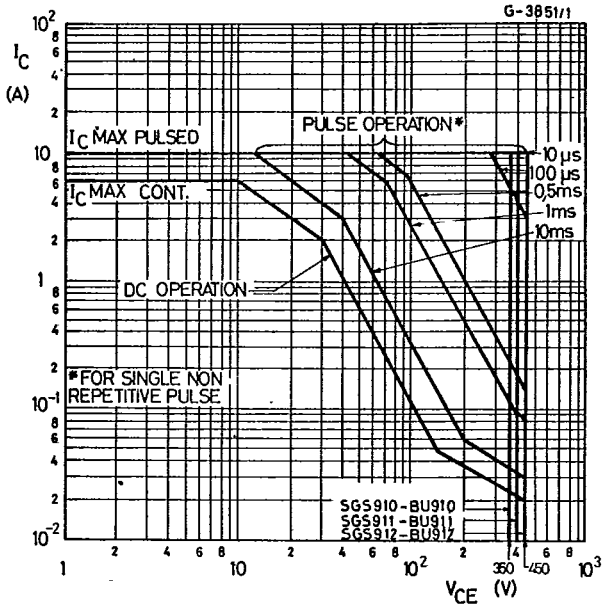
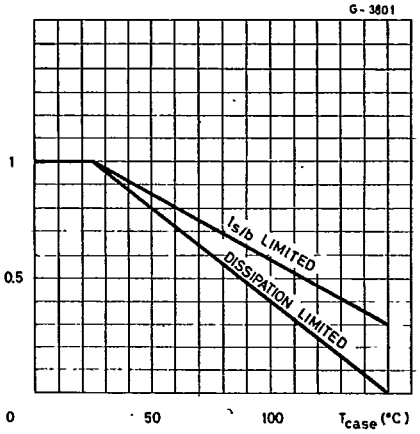
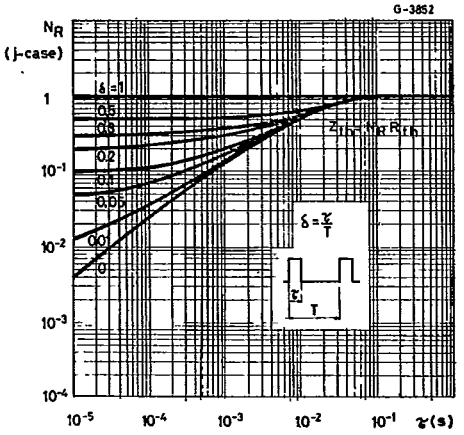
Safe operating areas



Derating curves



Thermal transient response



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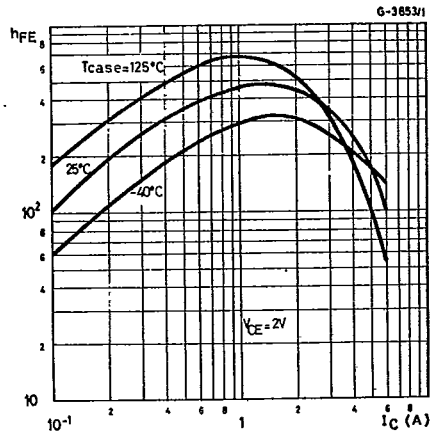
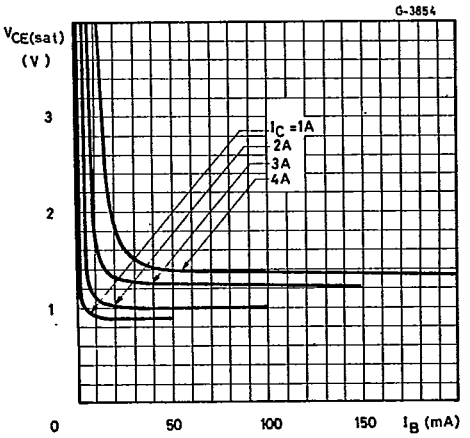
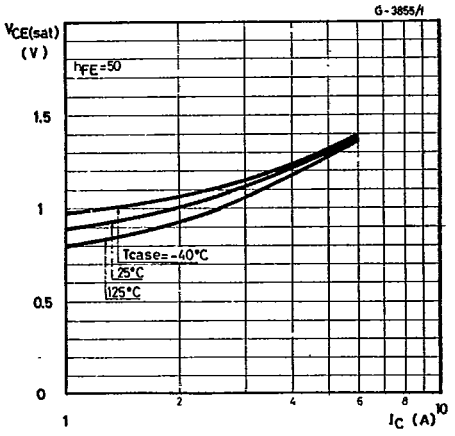
DC current gain



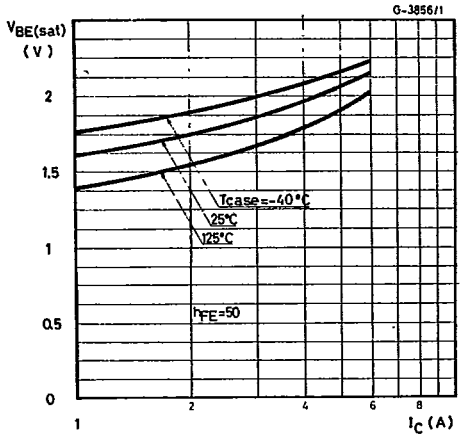
Collector-emitter saturation voltage



Collector-emitter saturation voltage



Base-emitter saturation voltage



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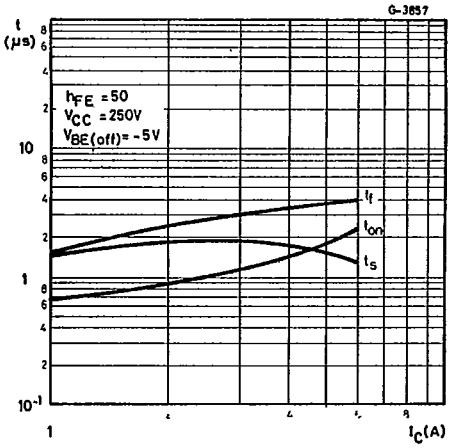
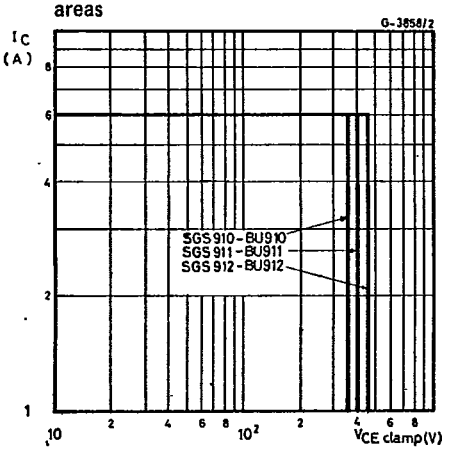
Saturated switching characteristics



Clamped reverse bias safe operating areas



Clamped $E_{s/b}$ test circuit