


SGS-THOMSON
 MICROELECTRONICS

BU910/911
BU912

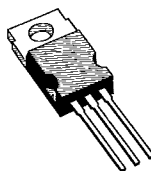
S G S-THOMSON

30E D

HIGH VOLTAGE POWER DARLINGTON

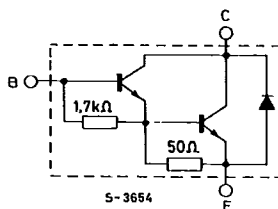
DESCRIPTION

The BU910, BU911, and BU912 are high voltage, silicon NPN transistors in monolithic Darlington configuration in JEDEC TO-220 plastic package, designed for applications such as electronic ignition, DC and AC motor controls, solenoid drivers, etc.



TO-220

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		BU910	BU911	BU912	
V_{CES}	Collector-emitter Voltage ($V_{BE} = 0$)	400	450	500	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	350	400	450	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	5			V
I_C	Collector Current	6			A
I_{CM}	Collector Peak Current	10			A
I_B	Base Current	1			A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$	60			W
T_{slg}	Storage Temperature	- 65 to 150			$^\circ\text{C}$
T_J	Junction Temperature	150			$^\circ\text{C}$

THERMAL DATA

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3QE D

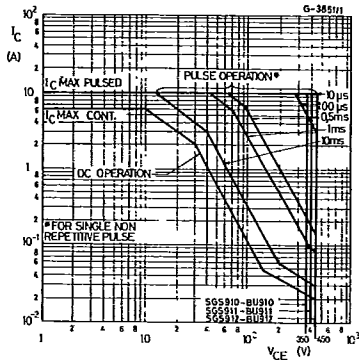
R _{th j-case}	Thermal Resistance Junction-case	Max	2.08	°C/W
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ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

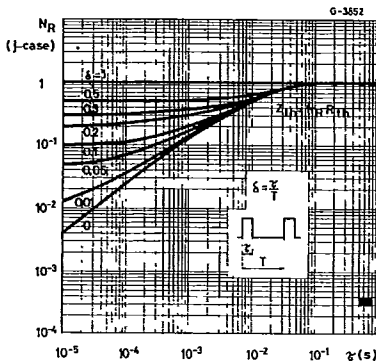
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CES}	Collector Cutoff Current (V _{BE} = 0)	for BU910 V _{CE} = 400V			1	mA
		for BU911 V _{CE} = 450V			1	mA
		for BU912 V _{CE} = 500V			1	mA
		T _{case} = 125°C				
		for BU910 V _{CE} = 400V			5	mA
		for BU911 V _{CE} = 450V			5	mA
I _{CEO}	Collector Cutoff Current (I _B = 0)	for BU910 V _{CE} = 350V			1	mA
		for BU911 V _{CE} = 400V			1	mA
		for BU912 V _{CE} = 450V			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 = 100mA for BU910 for BU911 for BU912	350 400 450			V V V
V _{CE(sat)} *	Collector-emitter Saturation Voltage	for BU910 and BU911 I _C = 2.5A I _B = 50mA			1.8	V
		for BU912 I _C = 2A I _B = 50mA			1.8	V
		All Types				
		I _C = 4A I _B = 200mA			1.8	V
V _{BE(sat)} *	Base-emitter Saturation Voltage	for BU910 and BU911 I _C = 2.5A I _B = 50mA			2.2	V
		for BU912 I _C = 2A I _B = 50mA			2.2	V
		All Types				
		I _C = 4A I _B = 200mA			2.5	V
V _F *	Diode Forward Voltage	I _F = 4A			2.5	V

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

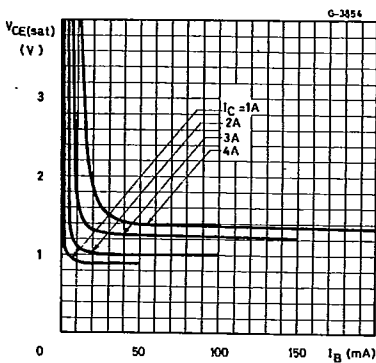
Safe Operating Area.



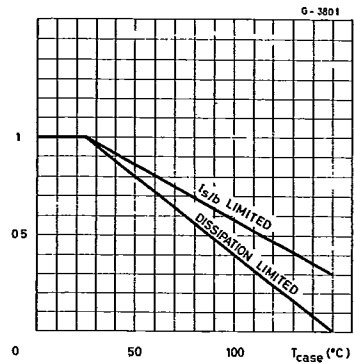
Thermal Transient Response.



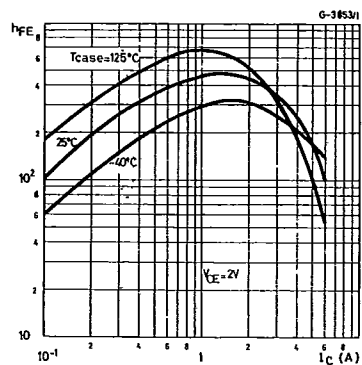
Collector-emitter Saturation Voltage.



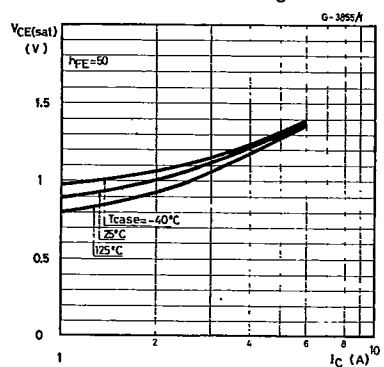
Derating Curves.



DC Current Gain.



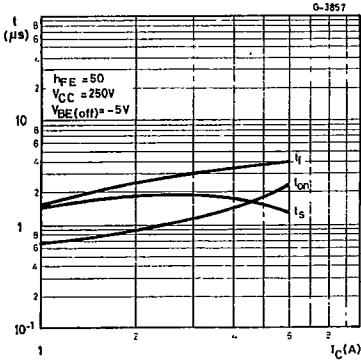
Collector-emitter Saturation Voltage.



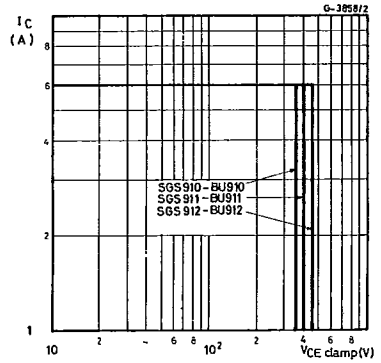
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30E D

Saturated Switching Characteristics.



Clamped Reverse bias Safe Operating Areas.

Clamped $E_{a/b}$ Test Circuit.

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30E D

TEST CONDITIONS:

$$5V > |V_{BB}| > 0V$$

$$I_C / I_B = 50$$

$$2I_{B1} > |I_{B2}| > I_{B1}$$

 $t_p = \text{adjusted for nominal } I_C$

$$R_{BB} = 1\Omega$$

