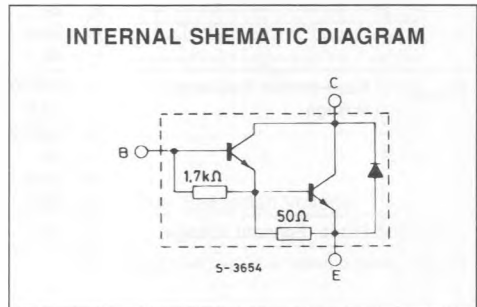
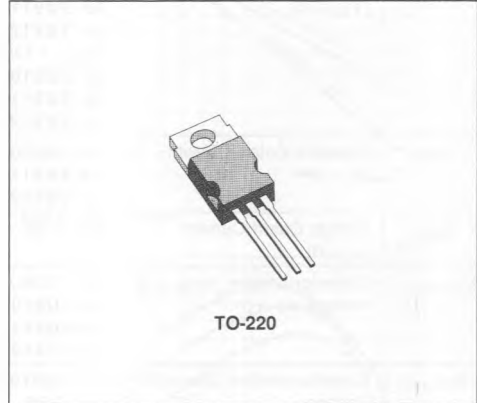


## HIGH VOLTAGE POWER DARLINGTON

### 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.



### 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
$P_{101}$	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$	60			W
$T_{sig}$	Storage Temperature	- 65 to 150			$^\circ\text{C}$
$T_J$	Junction Temperature	150			$^\circ\text{C}$

**THERMAL DATA**

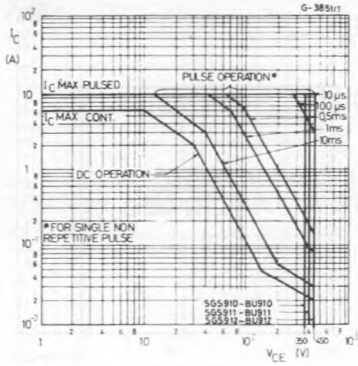
$R_{th\ j\ case}$	Thermal Resistance Junction-case	Max	2.08	$^{\circ}C/W$
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**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise specified)

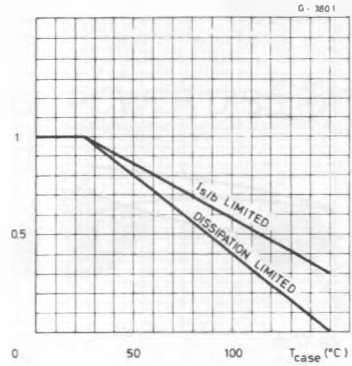
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CES}$	Collector Cutoff Current ( $V_{BE} = 0$ )	for <b>BU910</b> $V_{CE} = 400V$ for <b>BU911</b> $V_{CE} = 450V$ for <b>BU912</b> $V_{CE} = 500V$ $T_{case} = 125^{\circ}C$ for <b>BU910</b> $V_{CE} = 400V$ for <b>BU911</b> $V_{CE} = 450V$ for <b>BU912</b> $V_{CE} = 500V$			1 1 1 5 5 5	mA mA mA mA mA mA
$I_{CEO}$	Collector Cutoff Current ( $I_B = 0$ )	for <b>BU910</b> $V_{CE} = 350V$ for <b>BU911</b> $V_{CE} = 400V$ for <b>BU912</b> $V_{CE} = 450V$			1 1 1	mA mA 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 <b>BU910</b> for <b>BU911</b> for <b>BU912</b>	350 400 450			V V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	for <b>BU910</b> and <b>BU911</b> $I_C = 2.5A$ $I_B = 50mA$ for <b>BU912</b> $I_C = 2A$ $I_B = 50mA$ All Types $I_C = 4A$ $I_B = 200mA$			1.8 1.8 1.8	V V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	for <b>BU910</b> and <b>BU911</b> $I_C = 2.5A$ $I_B = 50mA$ for <b>BU912</b> $I_C = 2A$ $I_B = 50mA$ All Types $I_C = 4A$ $I_B = 200mA$			2.2 2.2 2.5	V V V
$V_F^*$	Diode Forward Voltage	$I_F = 4A$			2.5	V

\* Pulsed : pulse duration = 300 $\mu$ s, duty cycle = 1.5%

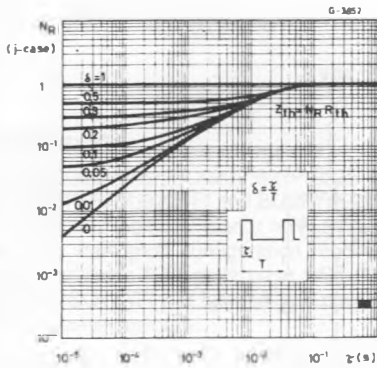
Safe Operating Area.



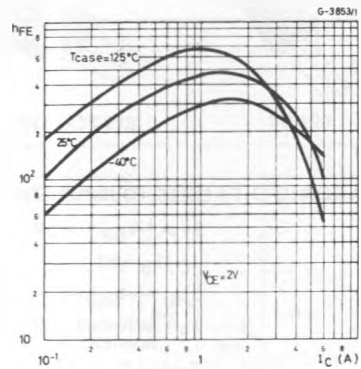
Derating Curves.



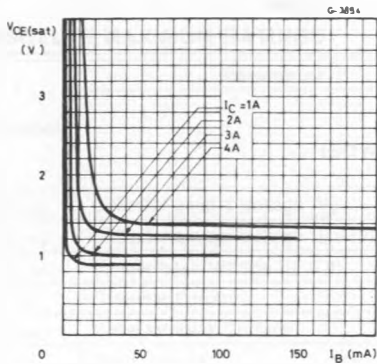
Thermal Transient Response.



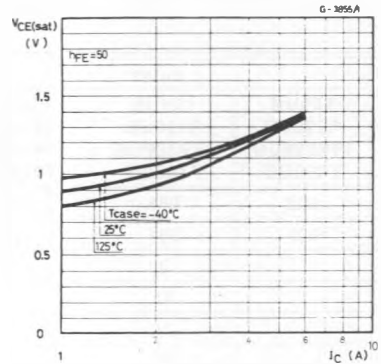
DC Current Gain.



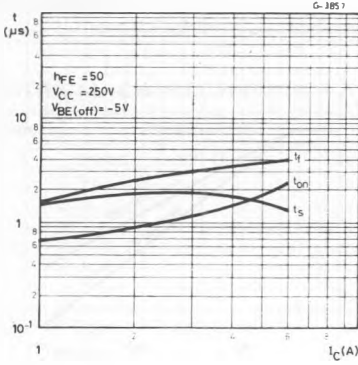
Collector-emitter Saturation Voltage.



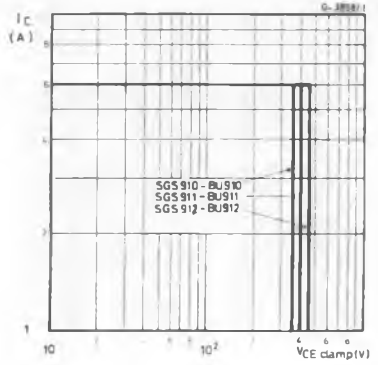
Collector-emitter Saturation Voltage.



Saturated Switching Characteristics.



Clamped Reverse bias Safe Operating Areas.



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

