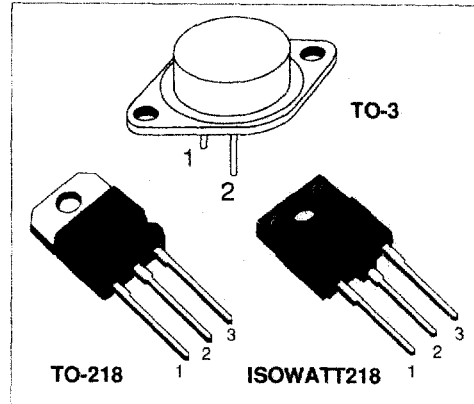


HIGH VOLTAGE IGNITION COIL DRIVER NPN POWER DARLINGTON

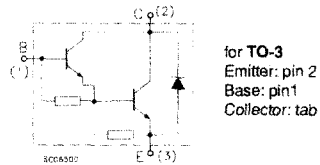
- SGS-THOMSON PREFERRED SALESTYPE
- NPN DARLINGTON
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE
- VERY RUGGED BIPOLAR TECHNOLOGY
- HIGH OPERATING JUNCTION TEMPERATURE
- WIDE RANGE OF PACKAGES

APPLICATIONS

- HIGH RUGGEDNESS ELECTRONIC IGNITIONS



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		BU941	BU941P	BU941PFI	
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	500			V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	400			V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	5			V
I_C	Collector Current	15			A
I_{CM}	Collector Peak Current	30			A
I_B	Base Current	1			A
I_{BM}	Base Peak Current	5			A
P_{tot}	Total Dissipation at $T_C = 25^\circ\text{C}$	180	155	65	W
T_{stg}	Storage Temperature	-65 to 200	-65 to 175	-65 to 175	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	200	175	175	$^\circ\text{C}$

THERMAL DATA

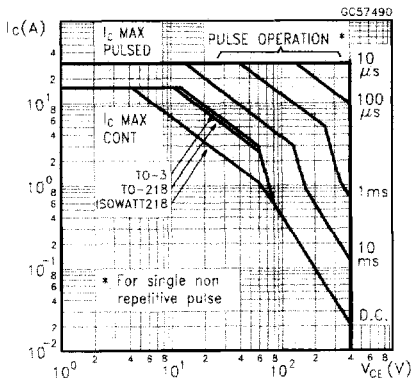
		TO-3	TO-218	ISOWATT218	
$R_{thj-case}$	Thermal Resistance Junction-case Max	0.97	0.97	2.3	$^{\circ}C/W$

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

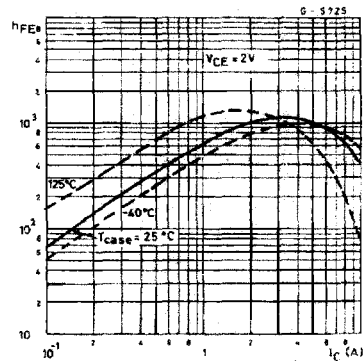
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 500 V$ $V_{CE} = 500 V \quad T_j = 125^{\circ}C$			100 0.5	μA mA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 450 V$ $V_{CE} = 450 V \quad T_j = 125^{\circ}C$			100 0.5	μA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			20	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage	$I_C = 100 mA \quad L = 10 mH \quad I_B = 0$ $V_{CLAMP} = RATED \ V_{CEO}$ (See FIG. 4)	400			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 8 A \quad I_B = 100 mA$ $I_C = 10 A \quad I_B = 250 mA$ $I_C = 12 A \quad I_B = 300 mA$			1.6 1.8 2	V V V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 8 A \quad I_B = 100 mA$ $I_C = 10 A \quad I_B = 250 mA$ $I_C = 12 A \quad I_B = 300 mA$			2.2 2.5 2.7	V V V
h_{FE*}	DC Current Gain	$I_C = 5 A \quad V_{CE} = 10 V$	300			
V_F	Diode Forward Voltage	$I_F = 10 A$			2.5	V
	Functional Test (see fig. 1)	$V_{CC} = 24 V \quad V_{clamp} = 400 V \quad L = 7 mH$	10			A
t_s	INDUCTIVE LOAD Storage Time	$V_{CC} = 12 V \quad V_{clamp} = 300 V \quad L = 7 mH$ $I_C = 7 A \quad I_B = 70 mA$		15		μs
t_f	Fall Time (see fig. 3)	$V_{BE} = 0 \quad R_{BE} = 47 \Omega$		0.5		μs

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

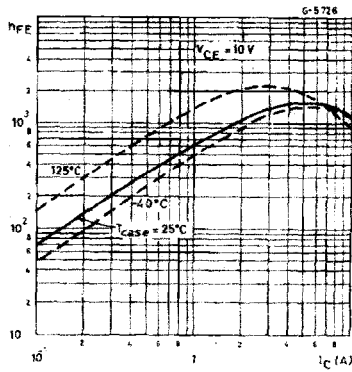
Safe Operating Area



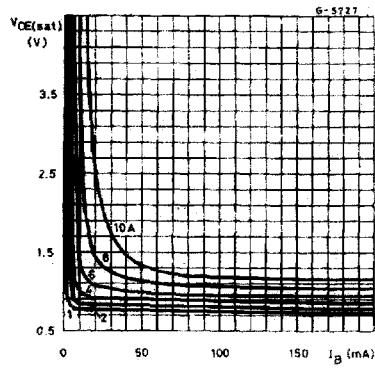
DC Current Gain



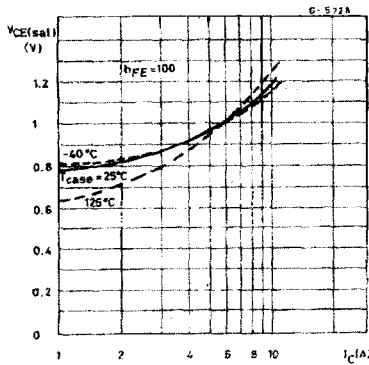
DC Current Gain



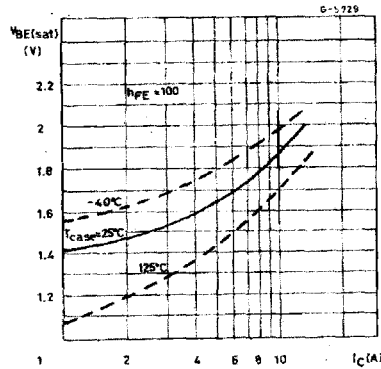
Collector-emitter Saturation Voltage



Collector-emitter Saturation Voltage



Base-emitter Saturation Voltage



Switching Time Inductive Load (see fig.3)

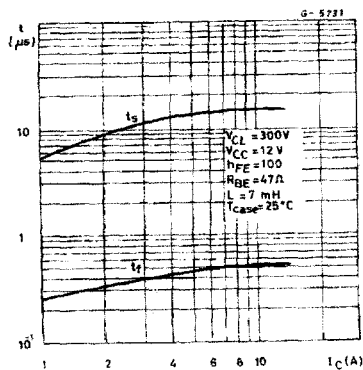


FIGURE 1: Functional Test Circuit

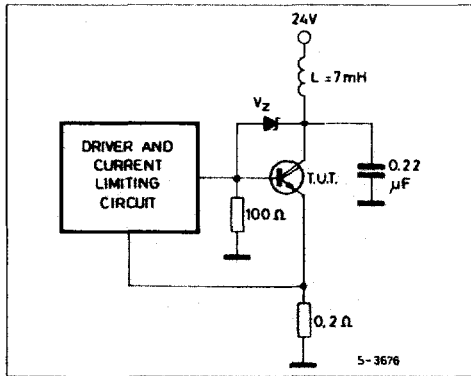


FIGURE 2: Functional Test Waveforms

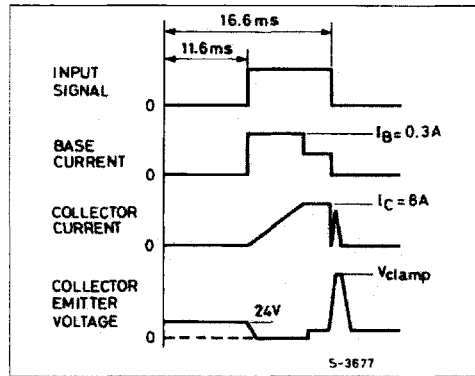


FIGURE 3: Switching Time Test Circuit

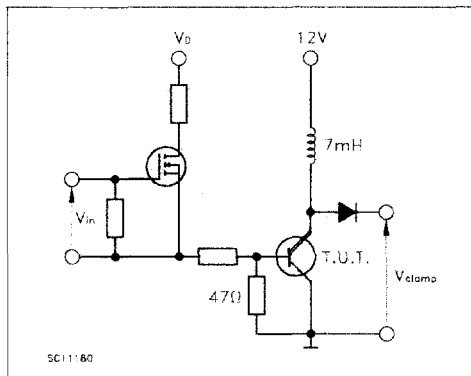


FIGURE 4: Sustaining Voltage Test Circuit

