



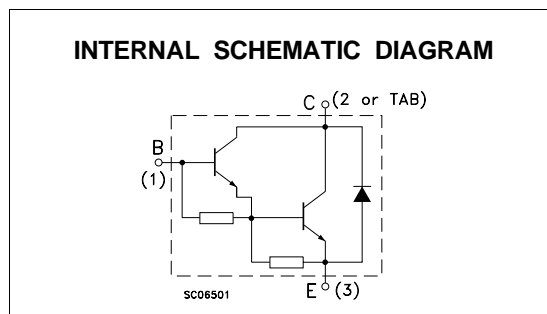
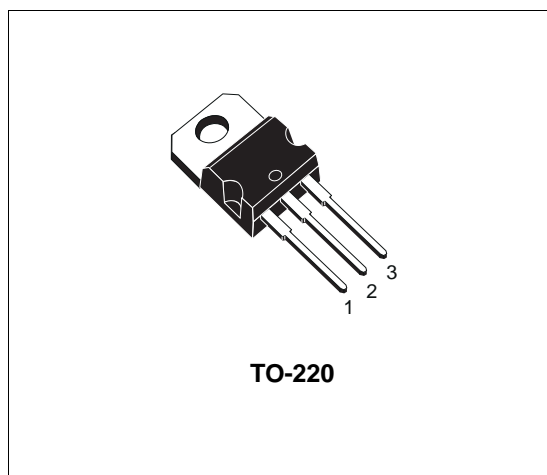
BU931T

HIGH VOLTAGE IGNITION COIL DRIVER NPN POWER DARLINGTON TRANSISTOR

- VERY RUGGED BIPOLAR TECHNOLOGY
- HIGH OPERATING JUNCTION TEMPERATURE

APPLICATIONS

- HIGH RUGGEDNESS ELECTRONIC IGNITIONS



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	500	V
V_{CEO}	Emitter-Base Voltage ($I_B = 0$)	400	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	5	V
I_C	Collector Current	10	A
I_{CM}	Collector Peak Current	15	A
I_B	Base Current	1	A
I_{BM}	Base Peak Current	5	A
P_{tot}	Total Dissipation at $T_c = 25\text{ }^\circ\text{C}$	125	W
T_{stg}	Storage Temperature	-65 to 175	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	175	$^\circ\text{C}$

BU931T

THERMAL DATA

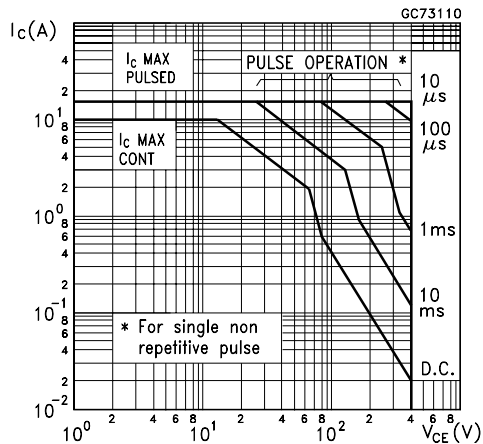
$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.2	$^{\circ}C/W$
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

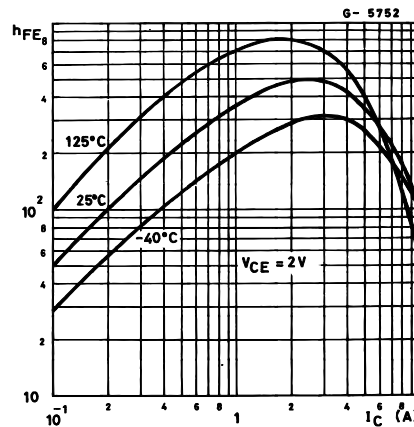
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 500 V$ $V_{CE} = 500 V \quad T_C = 125^{\circ}C$			100 0.5	μA mA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 450 V$ $V_{CE} = 450 V \quad T_C = 125^{\circ}C$			100 0.5	μA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			20	mA
$V_{CEO(SUS)*}$	Collector-Emitter Saturation Voltage ($I_B = 0$)	$I_C = 100 mA \quad L = 10 mH \quad I_B = 0$ $V_{CLAMP} = 400 V$ (see fig.4)	400			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 7 A \quad I_B = 70 mA$ $I_C = 8 A \quad I_B = 100 mA$			1.6 1.8	V V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 7 A \quad I_B = 70 mA$ $I_C = 8 A \quad I_B = 100 mA$			2.2 2.4	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	$V_{CC} = 24 V \quad V_{clamp} = 400 V \quad L = 7 mH$ (see fig. 1)	8			A
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$V_{CC} = 12 V \quad V_{clamp} = 300 V \quad L = 7 mH$ $I_C = 7 A \quad I_B = 70 mA$ $V_{BE} = 0 \quad R_{BE} = 47 \Omega$ (see fig. 3)		15 0.5		μs μs

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

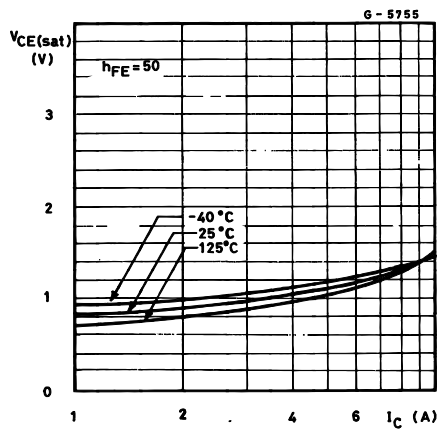
Safe Operating Area



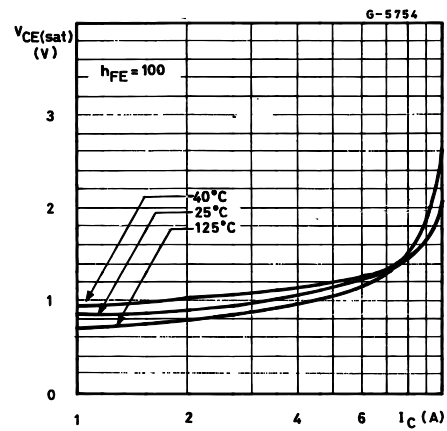
DC Current Gain



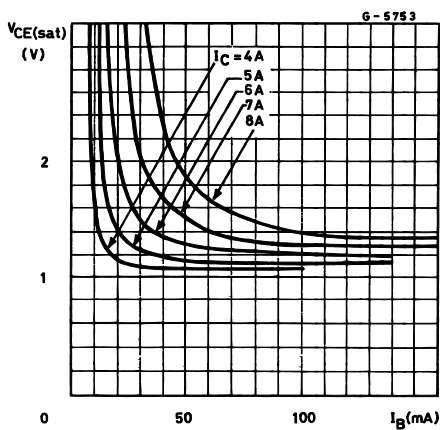
Collector Emitter Saturation Voltage



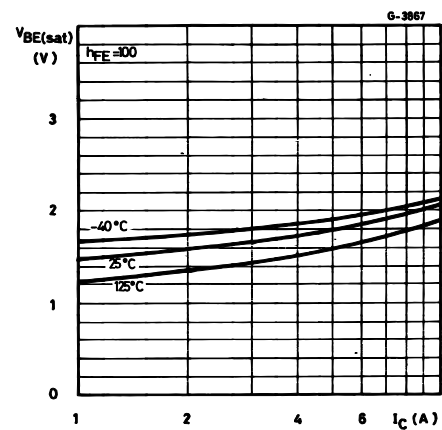
Collector Emitter Saturation Voltage



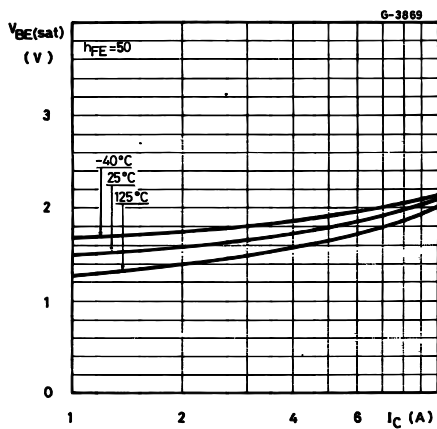
Collector Emitter Saturation Voltage



Base Emitter Saturation Voltage



Base Emitter Saturation Voltage



Switching Time Inductive Load

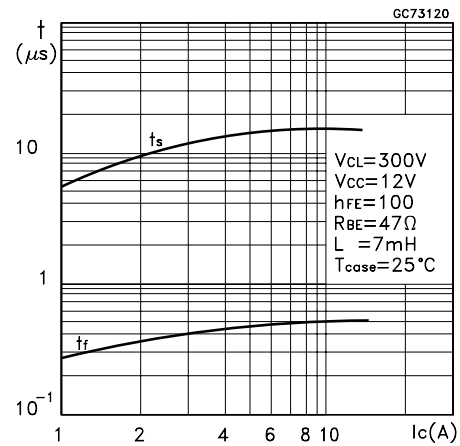


FIGURE 1: Functional Test Circuit

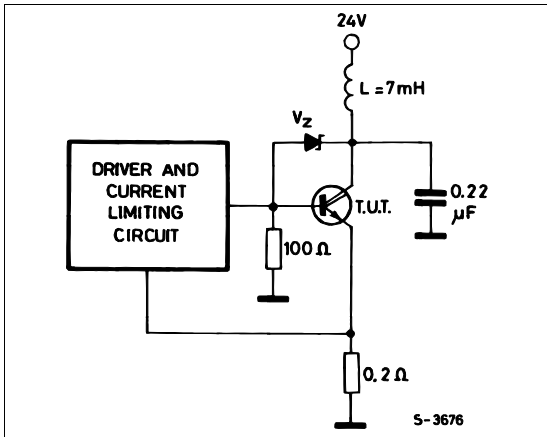


FIGURE 2: Functional Test Waveforms

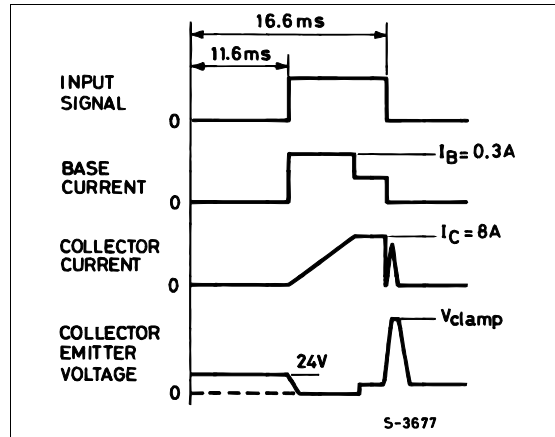


FIGURE 3: Switching Time Test Circuit

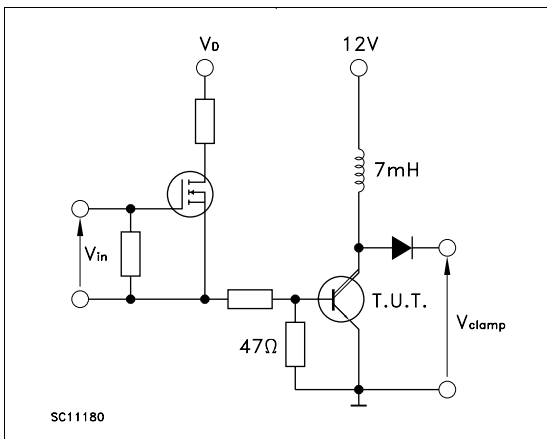
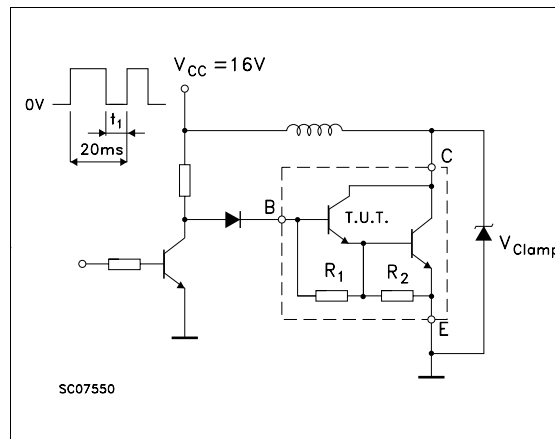
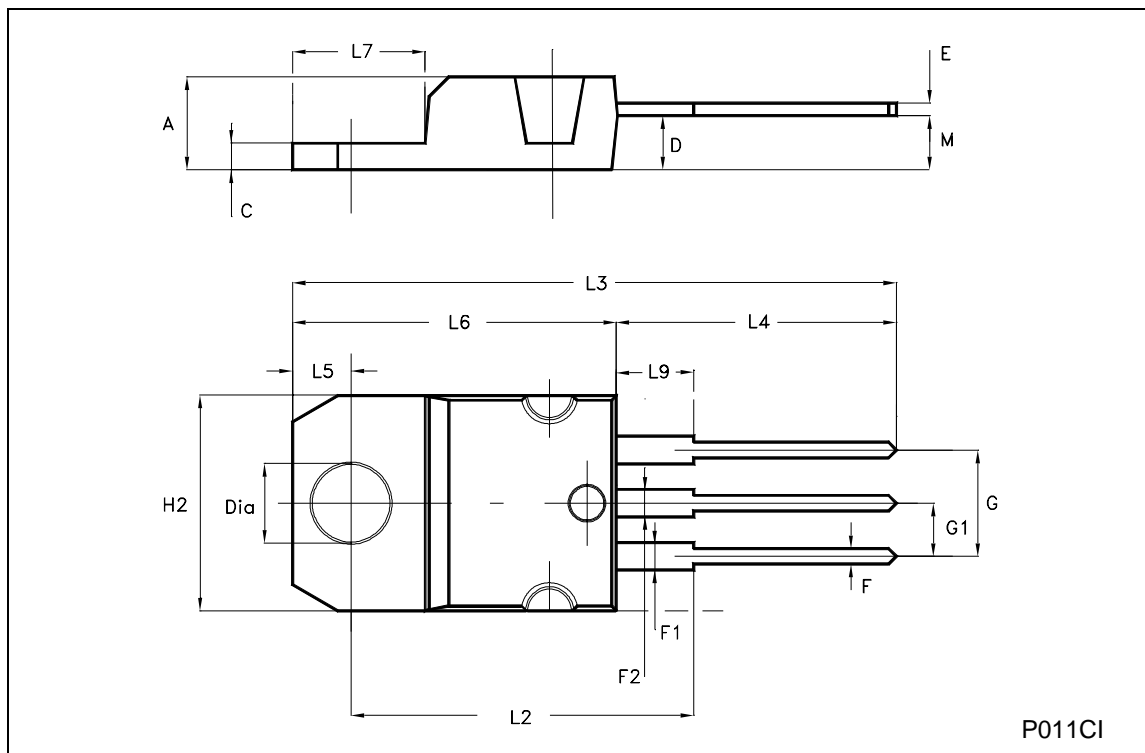


FIGURE 4: Sustaining Voltage Test Circuit



TO-220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.052
D	2.40		2.72	0.094		0.107
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.202
G1	2.40		2.70	0.094		0.106
H2	10.00		10.40	0.394		0.409
L2		16.40			0.645	
L4	13.00		14.00	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.20		6.60	0.244		0.260
L9	3.50		3.93	0.137		0.154
M		2.60			0.102	
DIA.	3.75		3.85	0.147		0.151



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