

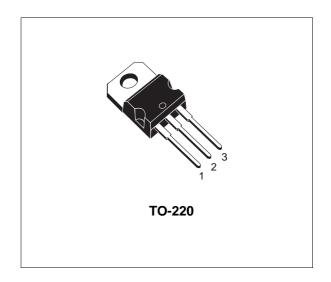
BU931T

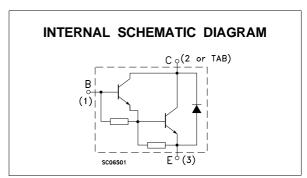
HIGH VOLTAGE IGNITION COIL DRIVER NPN POWER DARLINGTON TRANSISTOR

- 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
Ic	Collector Current	10	A
I _{CM}	Collector Peak Current	15	А
I _B	Base Current	1	А
I _{BM}	Base Peak Current	5	А
P _{tot}	Total Dissipation at T _c = 25 °C	125	W
T _{stg}	Storage Temperature	-65 to 175	°C
Tj	Max. Operating Junction Temperature	175	°C

October 2003 1/6

THERMAL DATA

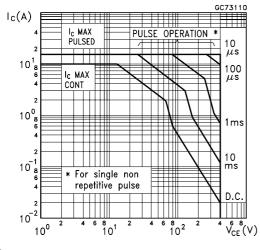
R _{thj-case} Thermal Resistance Junction-case Max 1.2	°C/W	
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

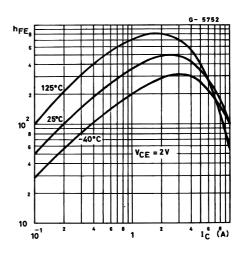
Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	V _{CE} = 500 V V _{CE} = 500 V T _C = 125 °C			100 0.5	μA mA
I _{CEO}	Collector Cut-off Current (I _B = 0)	V _{CE} = 450 V V _{CE} = 450 V T _C = 125 °C			100 0.5	μA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			20	mA
V _{CEO(SUS)} *	Collector-Emitter Saturation Voltage (I _B = 0)	$I_C = 100 \text{ mA}$ $L = 10 \text{ mH}$ $I_B = 0$ $V_{CLAMP} = 400 \text{ V (see fig.4)}$	400			V
$V_{CE(sat)^*}$	Collector-Emitter Saturation Voltage	$I_C = 7 \text{ A}$ $I_B = 70 \text{ mA}$ $I_C = 8 \text{ A}$ $I_B = 100 \text{ mA}$			1.6 1.8	V V
$V_{BE(sat)^*}$	Base-Emitter Saturation Voltage	$I_C = 7 \text{ A}$ $I_B = 70 \text{ mA}$ $I_C = 8 \text{ A}$ $I_B = 100 \text{ mA}$			2.2 2.4	V V
h _{FE} *	DC Current Gain	I _C = 5 A V _{CE} = 10 V	300			
V_{F}	Diode Forward Voltage	I _F = 10 A			2.5	V
	Functional Test	$V_{CC} = 24 \text{ V } V_{clamp} = 400 \text{ V } L=7 \text{ mH}$ (see fig. 1)	8			Α
t _s t _f	INDUCTIVE LOAD Storage Time Fall Time	$V_{CC} = 12 \text{ V } V_{clamp} = 300 \text{ V } L= 7 \text{ mH}$ $I_{C} = 7 \text{ A } I_{B} = 70 \text{ mA}$ $V_{BE} = 0 R_{BE} = 47 \Omega$ (see fig. 3)		15 0.5		μs μs

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

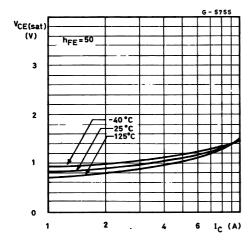
Safe Operating Area



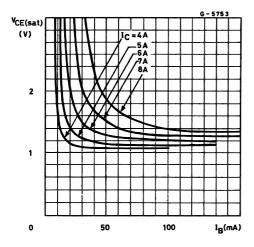
DC Current Gain



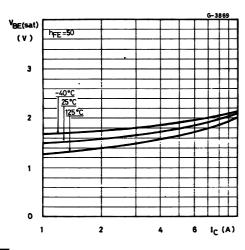
Collector Emitter Saturation Voltage



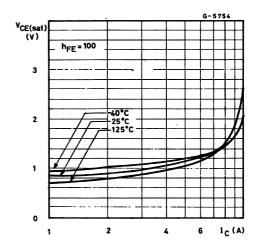
Collector Emitter Saturation Voltage



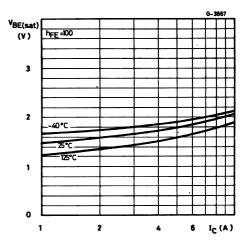
Base Emitter Saturation Voltage



Collector Emitter Saturation Voltage



Base Emitter Saturation Voltage



Switching Time Inductive Load

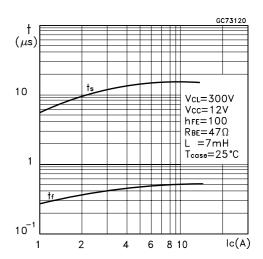


FIGURE 1: Functional Test Circuit

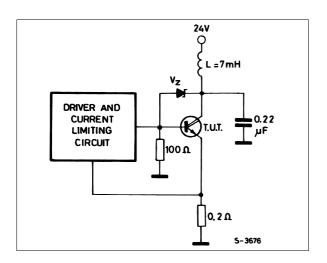


FIGURE 3: Switching Time Test Circuit

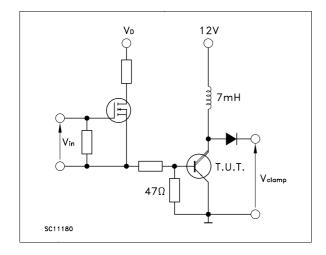


FIGURE 2: Functional Test Waveforms

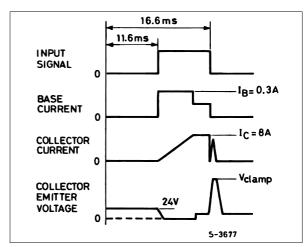
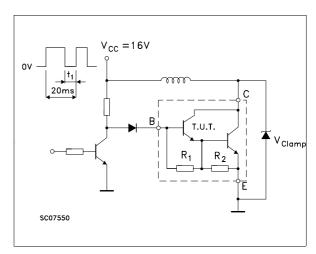
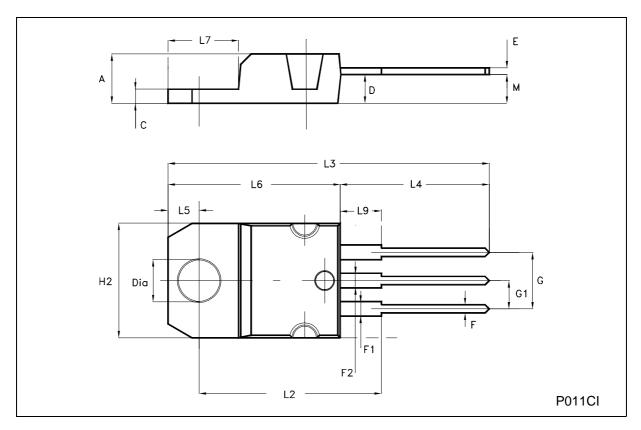


FIGURE 4: Sustaining Voltage Test Circuit



TO-220 MECHANICAL DATA

DIM	mm		inch			
DIM.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
Α	4.40		4.60	0.173		0.181
С	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
М		2.60			0.102	
DIA.	3.75		3.85	0.147		0.151



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