



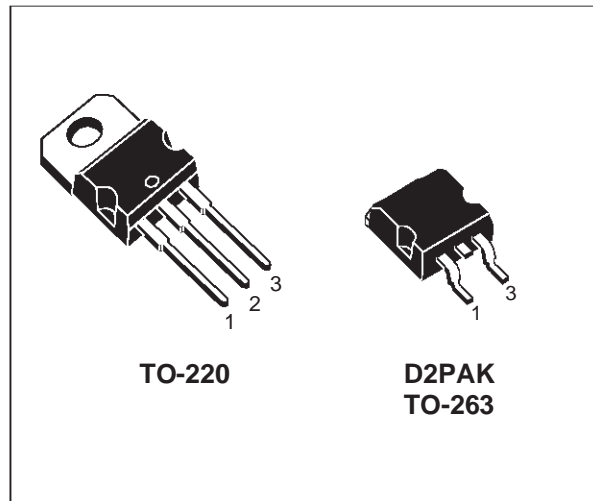
BU931T BUB931T

HIGH VOLTAGE IGNITION COIL DRIVER NPN POWER DARLINGTON

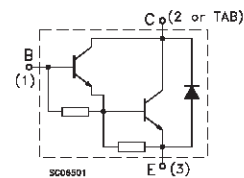
- VERY RUGGED BIPOLAR TECHNOLOGY
- HIGH OPERATING JUNCTION TEMPERATURE
- WIDE RANGE OF PACKAGES
- SURFACE-MOUNTING D2PAK (TO-263) POWER PACKAGE IN TUBE (NO SUFFIX) OR IN TAPE & REEL (SUFFIX "T4")

APPLICATIONS

- HIGH RUGGEDNESS ELECTRONIC IGNITIONS



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BU931T	BUB931T	
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	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 $T_C = 25^\circ\text{C}$	125		W
T_{stg}	Storage Temperature	-65 to 175		$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	175		$^\circ\text{C}$

BU931T/BUB931T

THERMAL DATA

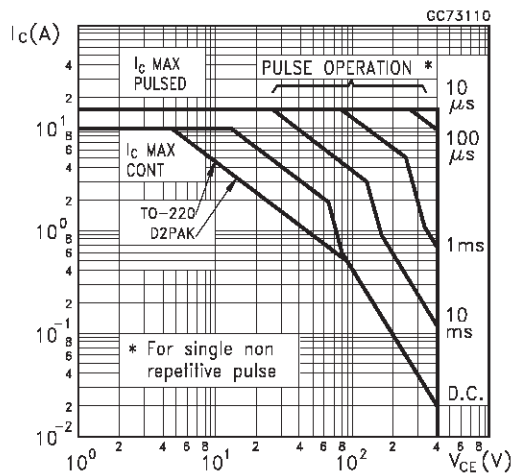
		TO-220 D2PAK	
R _{thj-case}	Thermal Resistance Junction-case Max	1.2	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

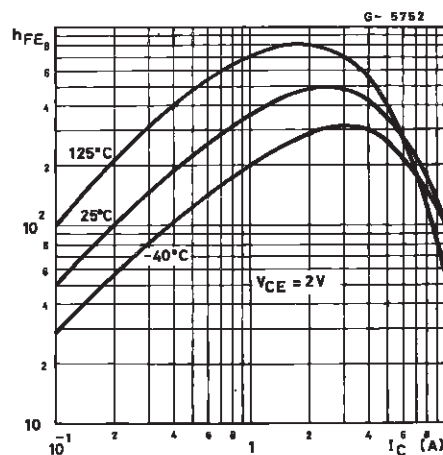
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	V _{CE} = 500 V V _{CE} = 500 V T _j = 125 °C			100 0.5	μA mA
I _{CEO}	Collector Cut-off Current (I _B = 0)	V _{CE} = 450 V V _{CE} = 450 V T _j = 125 °C			100 0.5	μA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			20	mA
V _{CEO(SUS)} *	Collector-Emitter Saturation Voltage	I _C = 100 mA L = 10 mH I _B = 0 V _{CLAMP} = RATED V _{CEO} (See FIG.4)	400			V
V _{CE(sat)} *	Collector-Emitter Saturation Voltage	I _C = 7 A I _B = 70 mA I _C = 8 A I _B = 100 mA			1.6 1.8	V V
V _{BE(sat)} *	Base-Emitter Saturation Voltage	I _C = 7 A I _B = 70 mA I _C = 8 A I _B = 100 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 (see fig. 1)	V _{CC} = 24 V V _{clamp} = 400 V L = 7 mH	8			A
•	INDUCTIVE LOAD	V _{CC} = 12 V V _{clamp} = 300 V L = 7 mH				
t _s	Storage Time	I _C = 7 A I _B = 70 mA		15		μs
t _f	Fall Time (see fig. 3)	V _{BE} = 0 R _{BE} = 47 Ω		0.5		μs

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

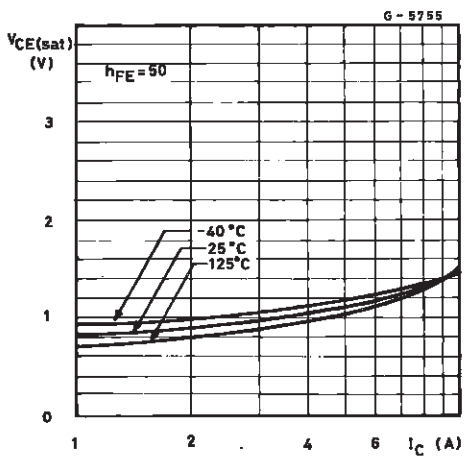
Safe Operating Area



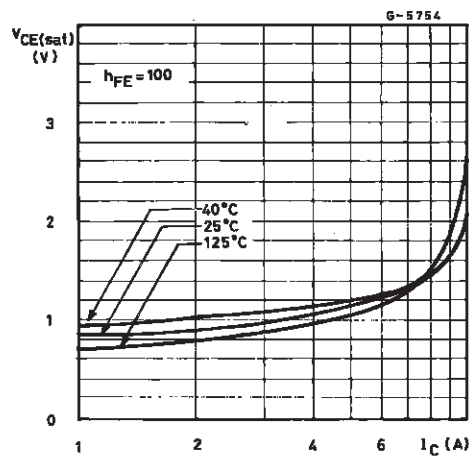
DC Current Gain



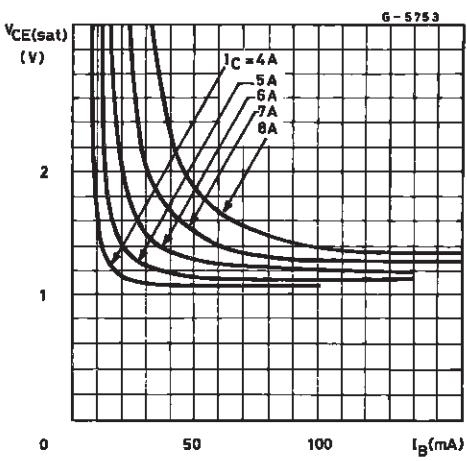
Collector Emitter Saturation Voltage



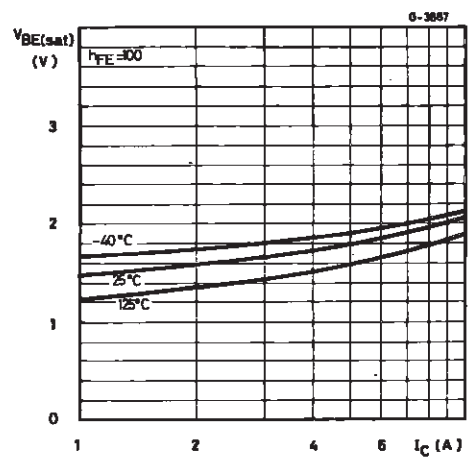
Collector Emitter Saturation Voltage



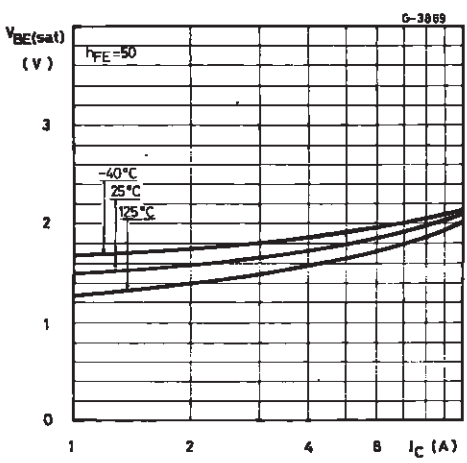
Collector Emitter Saturation Voltage



Base Emitter Saturation Voltage



Base Emitter Saturation Voltage



Switching Time Inductive Load

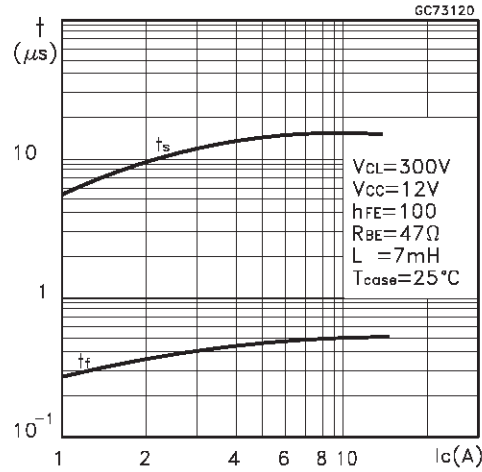


FIGURE 1: Functional Test Circuit

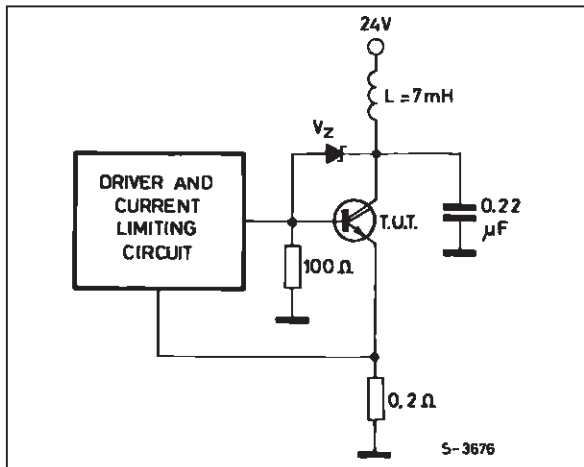


FIGURE 2: Functional Test Waveforms

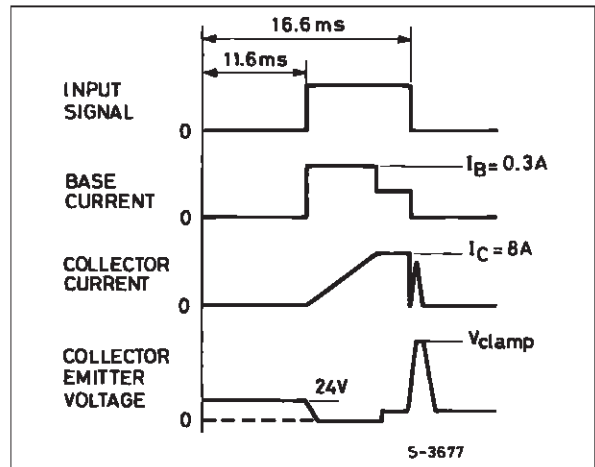


FIGURE 3: Switching Time Test Circuit

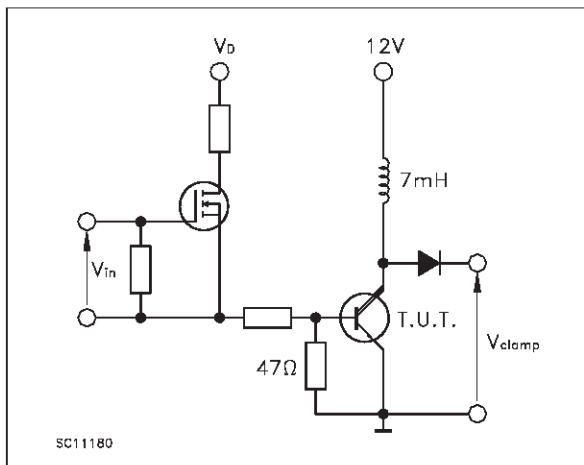
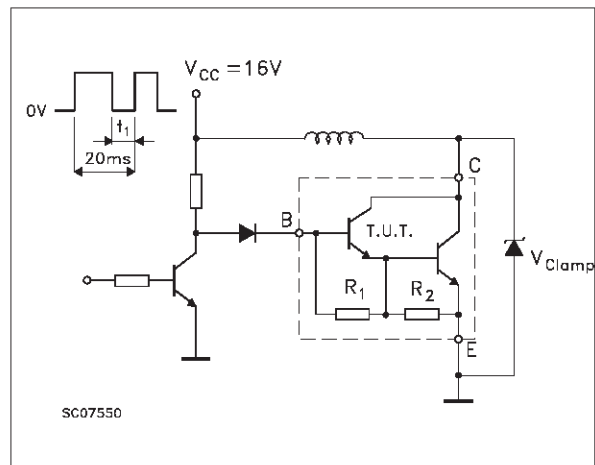
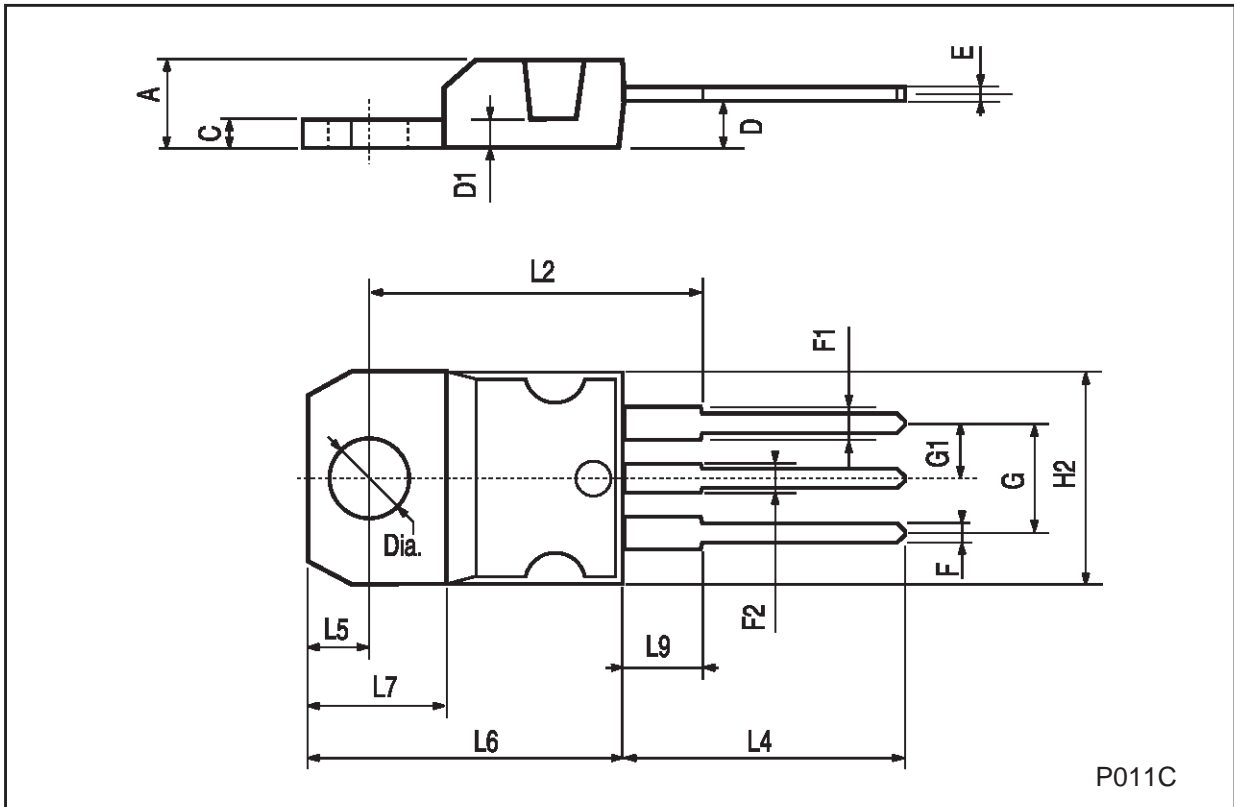


FIGURE 4: Sustaining Voltage Test Circuit



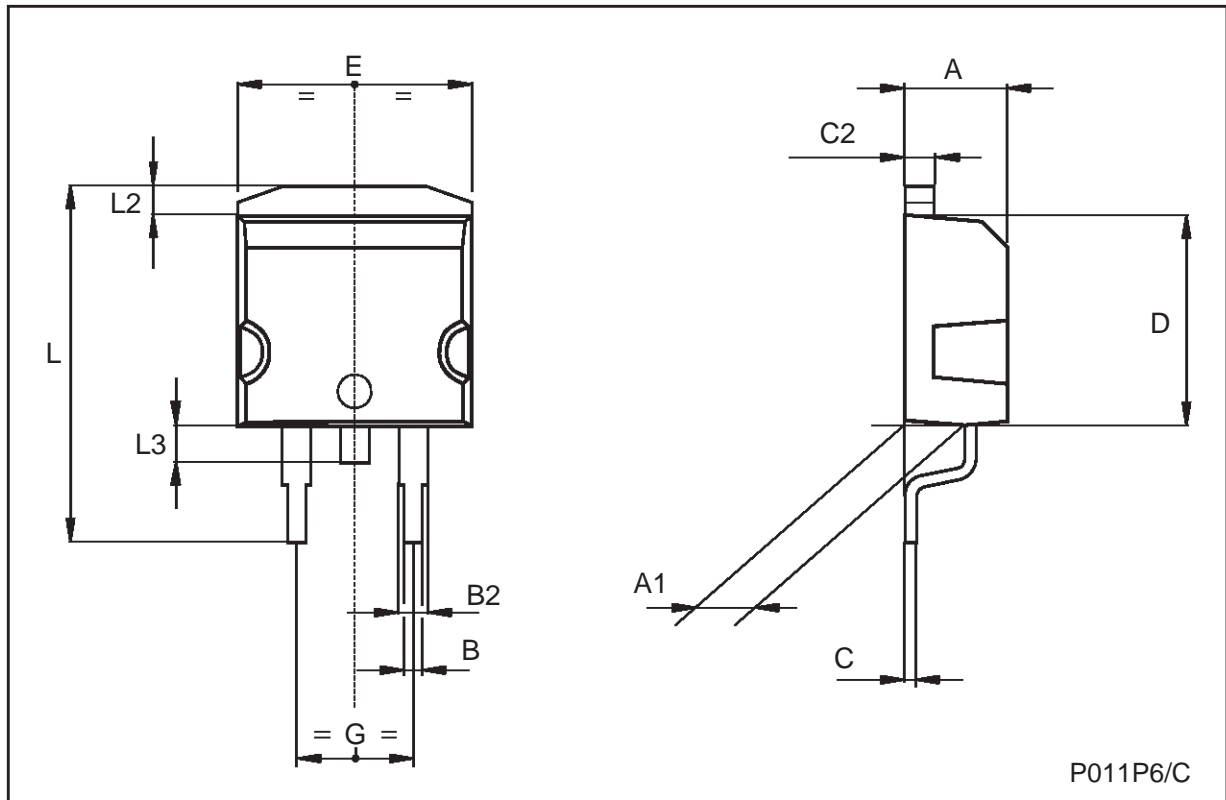
TO-220 MECHANICAL DATA

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		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
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		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



TO-263 (D2PAK) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.3		4.6	0.169		0.181
A1	2.49		2.69	0.098		0.106
B	0.7		0.93	0.027		0.036
B2	1.25		1.4	0.049		0.055
C	0.45		0.6	0.017		0.023
C2	1.21		1.36	0.047		0.053
D	8.95		9.35	0.352		0.368
E	10		10.28	0.393		0.404
G	4.88		5.28	0.192		0.208
L	15		15.85	0.590		0.624
L2	1.27		1.4	0.050		0.055
L3	1.4		1.75	0.055		0.068



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