



BULD1101ET4

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

PRELIMINARY DATA

Ordering Code	Marking	Shipment
BULD1101ET4	BULD1101E	Tape & Reel

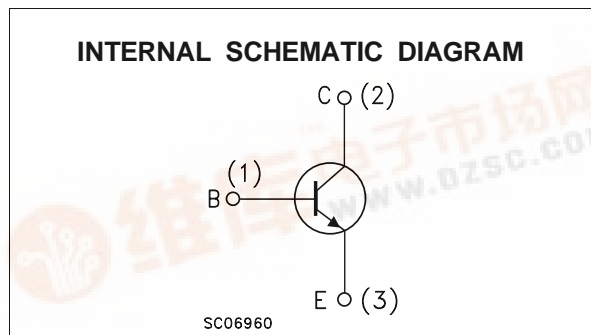
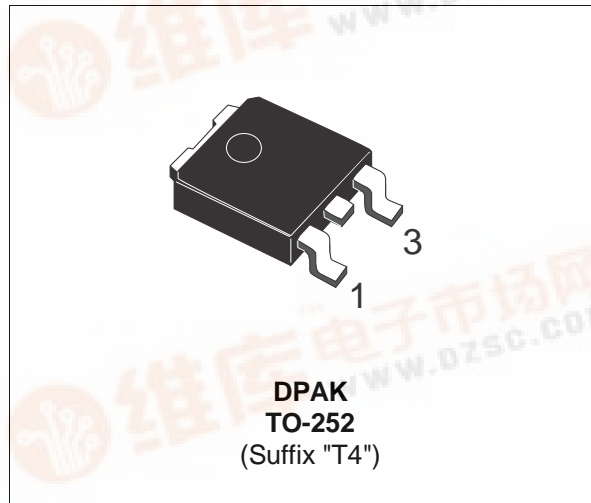
- HIGH VOLTAGE CAPABILITY
- LOW SPREAD OF DYNAMIC PARAMETERS
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- VERY HIGH SWITCHING SPEED
- LARGE RBSOA
- SURFACE-MOUNTING DPAK (TO-252) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")

APPLICATIONS

- ELECTRONIC BALLASTS FOR FLUORESCENT LIGHTING

DESCRIPTION

The device is manufactured using High Voltage Multi Epitaxial Planar technology for high switching speeds and high voltage capability. It uses a Cellular Emitter structure with planar edge termination to enhance switching speeds while maintaining a wide RBSOA.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	1100	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	450	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	12	V
I_C	Collector Current	3	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	6	A
I_B	Base Current	1.5	A
I_{BM}	Base Peak Current ($t_p < 5$ ms)	3	A
P_{tot}	Total Dissipation at $T_c = 25$ °C	35	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

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THERMAL DATA

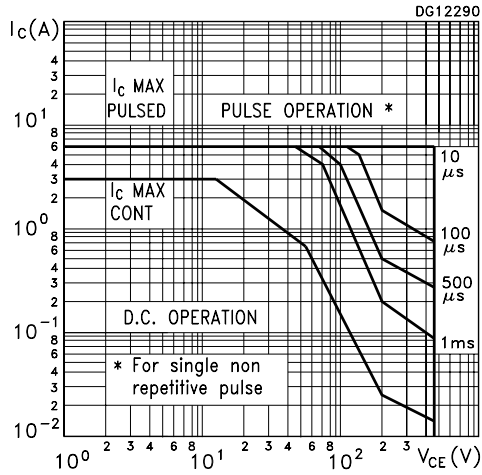
R _{thj-case}	Thermal Resistance Junction-Case	Max	3.57	°C/W
R _{thj-amb}	Thermal Resistance Junction-ambient	Max	100	°C/W

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

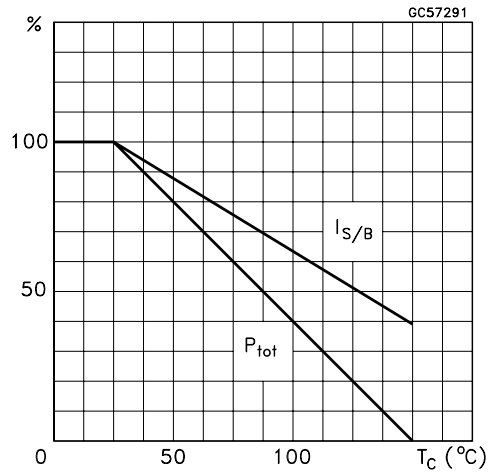
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	V _{CE} = 1100 V			100	μA
V _{(BR)EBO}	Emitter-Base Breakdown Voltage (I _C = 0)	I _E = 1 mA	12		24	V
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 100 mA	450			V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = 1 A I _B = 200 mA I _C = 1 A I _B = 200 mA T _j = 125°C		0.25 0.6	1 1.5	V V
V _{BE(sat)*}	Base-Emitter Saturation Voltage	I _C = 1 A I _B = 200 mA			1.5	V
h _{FE*}	DC Current Gain	I _C = 250 mA V _{CE} = 5 V I _C = 250 mA V _{CE} = 5 V T _j = 125°C I _C = 2 A V _{CE} = 5 V I _C = 2 A V _{CE} = 5 V T _j = 125°C	20 23 6 4	38 44 10 7	80 85 18 16	
t _s t _f	RESISTIVE LOAD Storage Time Fall Time	I _C = 2.5 A V _{CC} = 125 V V _{BB(off)} = -5 V t _P = 300 μs I _{B1} = -I _{B2} = 0.5 A (see figure 1)		400	2 700	μs ns
E _{ar}	Repetitive Avalanche Energy	L = 2 mH C = 1.8 nF I _{BR} ≤ 2.5 A (see figure 2)	6			mJ

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

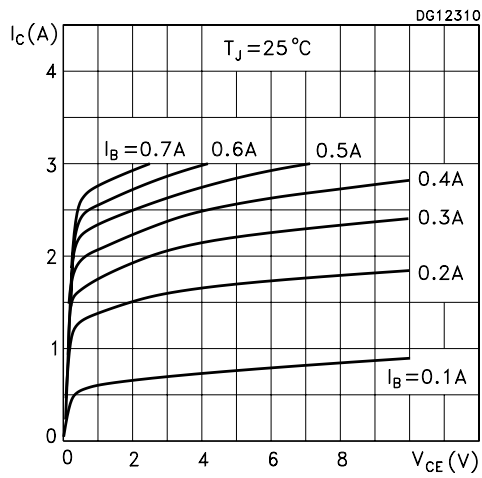
Safe Operating Area



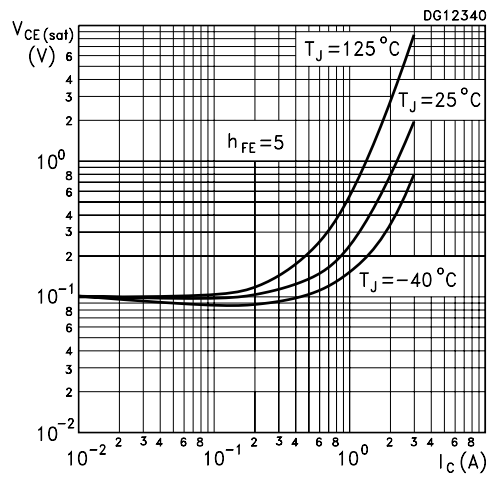
Derating Curve



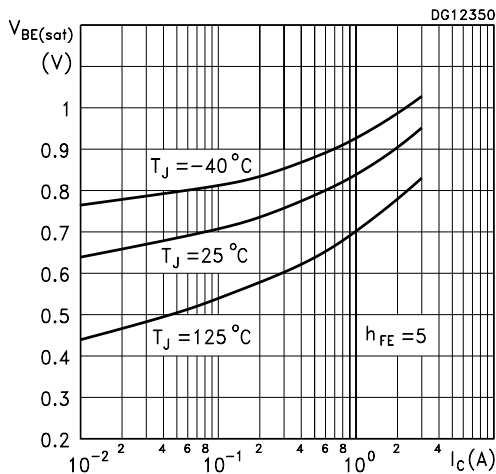
Output Characteristics



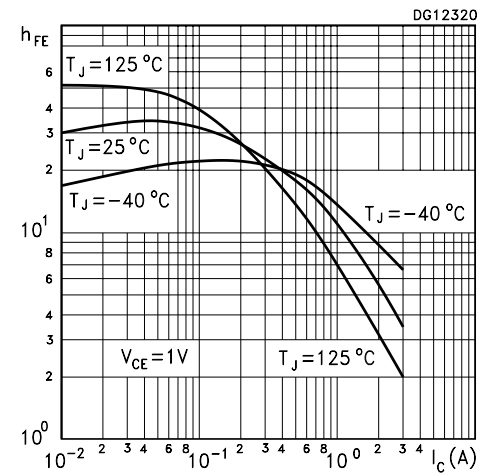
Collector-Emitter Saturation Voltage



Base-Emitter Saturation Voltage

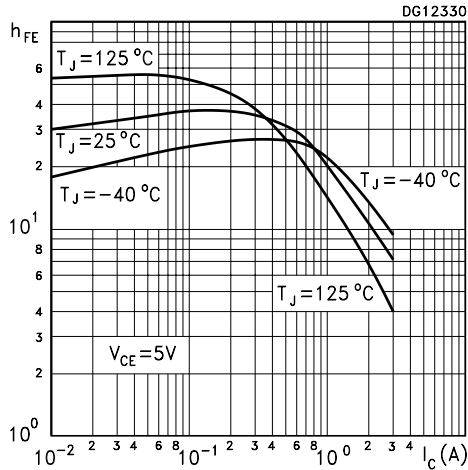


DC Current Gain

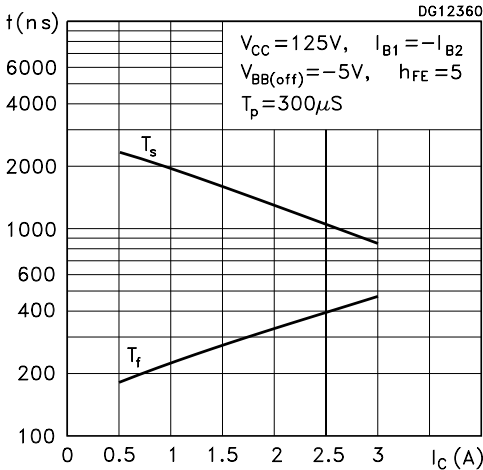


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DC Current Gain



Resistive Load Switching Times



Reverse Biased Safe Operating Area

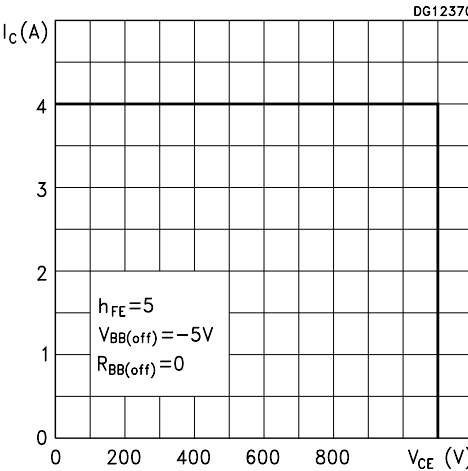


Figure 1: Resistive Load Switching Test Circuit

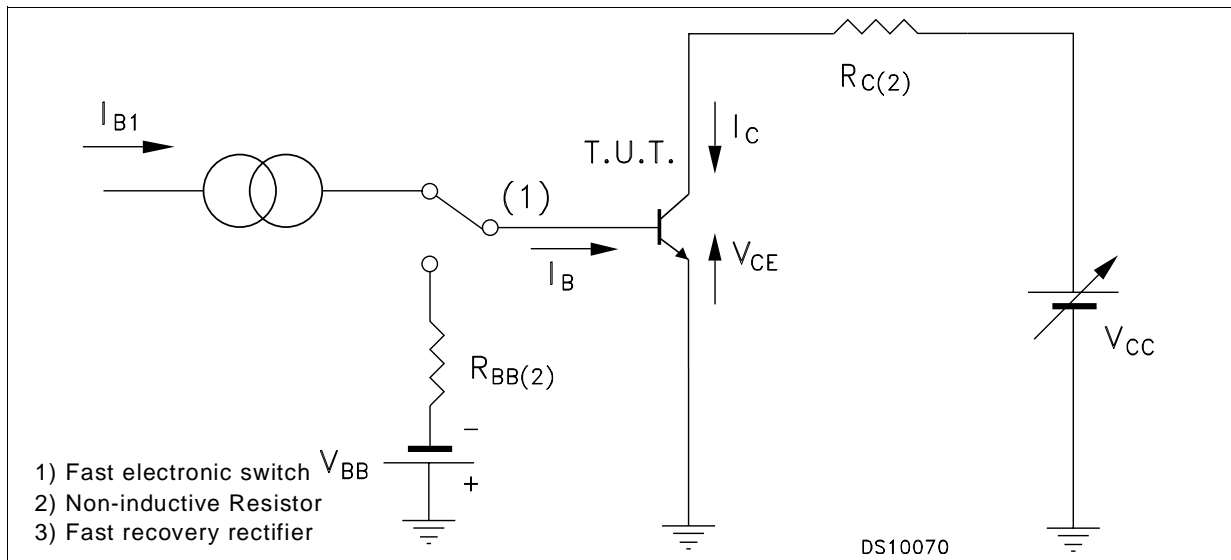
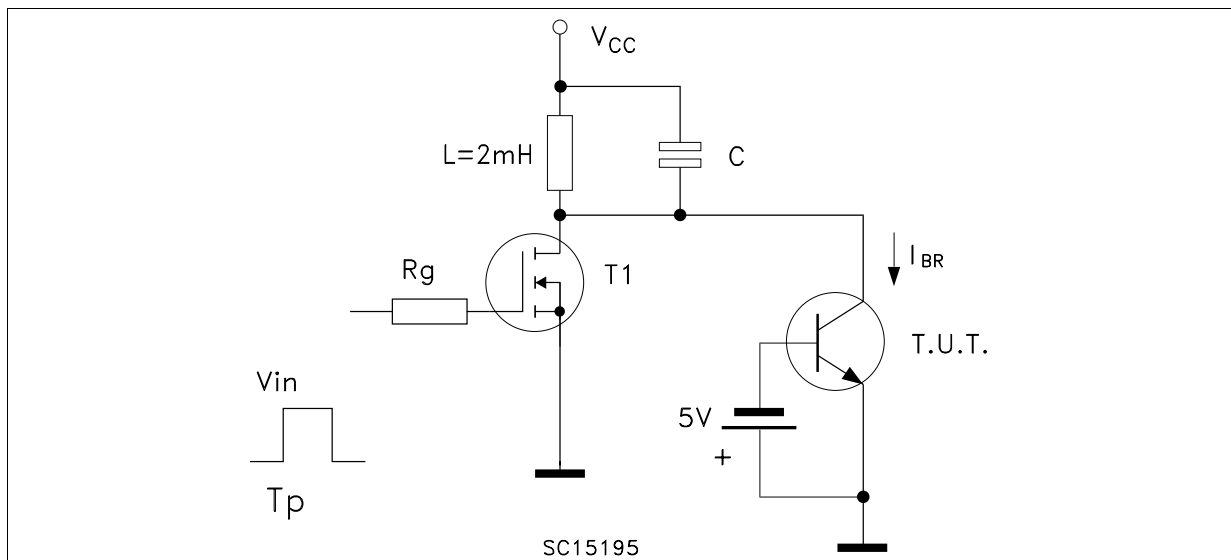
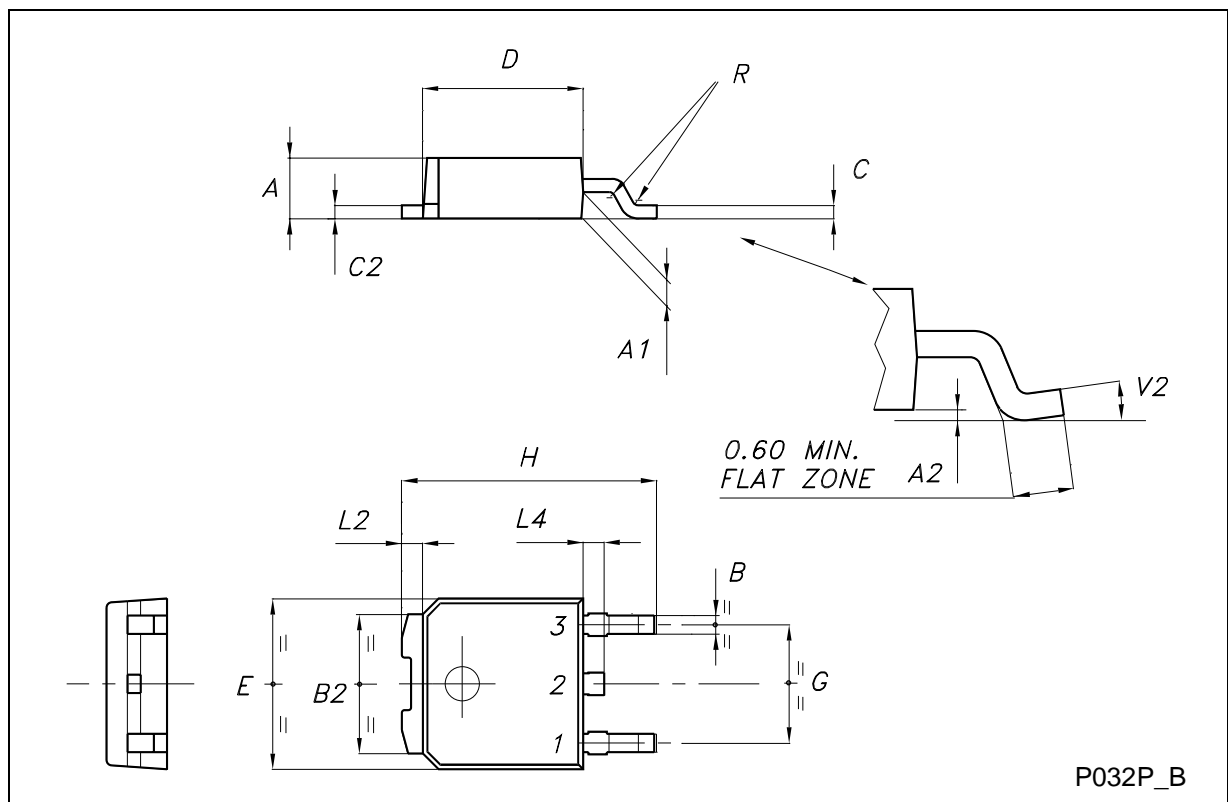


Figure 2: Energy Rating Test Circuit



TO-252 (DPAK) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.20		2.40	0.087		0.094
A1	0.90		1.10	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.90	0.025		0.035
B2	5.20		5.40	0.204		0.213
C	0.45		0.60	0.018		0.024
C2	0.48		0.60	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.252		0.260
G	4.40		4.60	0.173		0.181
H	9.35		10.10	0.368		0.398
L2		0.8			0.031	
L4	0.60		1.00	0.024		0.039
V2	0°		8°	0°		0°



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