1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CES}	Collector-emitter voltage (V_{BE} = 0)	700	V
V_{CEO}	Collector-emitter voltage (I_B = 0)	400	V
V_{EBO}	Emitter-base voltage (I_C = 0, I_B = 0.5 A, t_P < 10 ms)	$V_{(BR)EBO}$	V
I_C	Collector current	1	A
I_{CM}	Collector peak current (t_P < 5 ms)	3	A
I_B	Base current	0.5	A
I_{BM}	Base peak current (t_P < 5 ms)	1.5	A
P_{TOT}	Total dissipation at T_c = 25 °C	1.5	W
T_{stg}	Storage temperature	-65 to 150	°C
T_J	Max. operating junction temperature	150	

Table 3. Thermal data

Symbol	Parameter		Value	Unit
R_{thJC}	Thermal resistance junction-case	max	83	°C/W

2 Electrical characteristics

T_{case} = 25 °C unless otherwise specified.

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector cut-off current (V_{BE} = 0)	V_{CE} = 700 V V_{CE} = 700 V T_C = 125 °C			1 5	mA mA
$V_{(BR)EBO}$	Emitter-base breakdown voltage (I_C = 0)	I_E = 10 mA	9		18	V
$V_{CEO(sus)}$ (1)	Collector-emitter sustaining voltage (I_B = 0)	I_C = 10 mA	400			V
$V_{CE(sat)}$ (1)	Collector-emitter saturation voltage	I_C = 0.5 A I_B = 100 mA I_C = 1 A I_B = 250 mA I_C = 1.5 A I_B = 500 mA			0.5 1 1.5	V V V
$V_{BE(sat)}$ (1)	Base-emitter saturation voltage	I_C = 0.5 A I_B = 100 mA I_C = 1 A I_B = 250 mA			1 1.2	V V
h_{FE}	DC current gain	I_C = 0.5 A V_{CE} = 2 V I_C = 1 A V_{CE} = 2 V	8 5		25 25	
t_r t_s t_f	Resistive load Rise time Storage time Fall time	I_C = 1 A t_p = 25 µs I_{B1} = -I_{B2} = 200 mA V_{CC} = 125 V *Figure 12*			1 4 0.7	µs µs µs
t_s	Inductive Load Storage time	I_C = 1 A V_{clamp} = 300 V I_{B1} = 200 mA $V_{BE(off)}$ = -5 V L = 50 mH R_{BB} = 0 *Figure 13*		0.8		µs

1. Pulse test: pulse duration ≤ 300 µs, duty cycle ≤ 2 %.

2.1 Electrical characteristics (curves)

Figure 2. Safe operating area

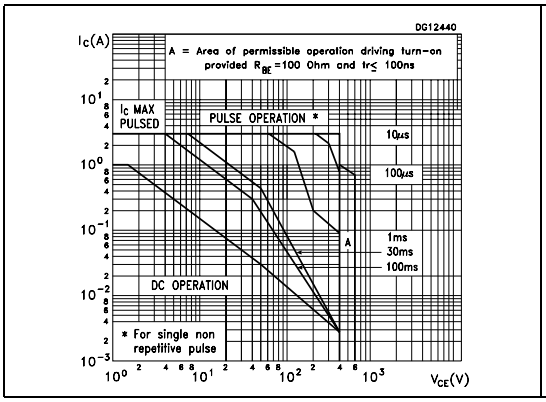


Figure 3. Derating curve

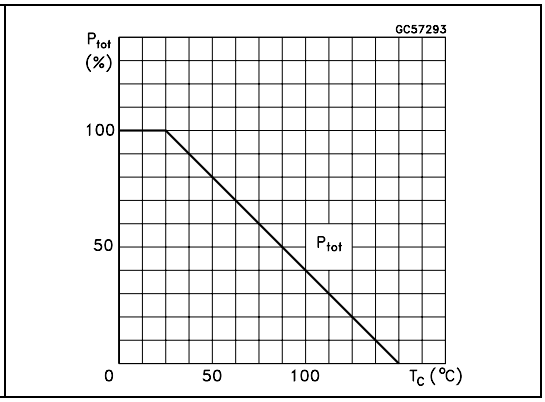


Figure 4. Output characteristics

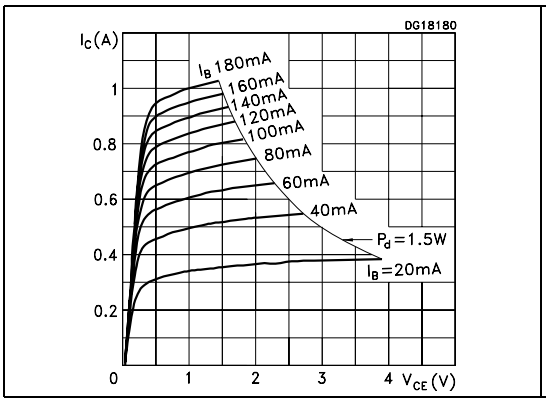


Figure 5. Reverse biased safe operating area

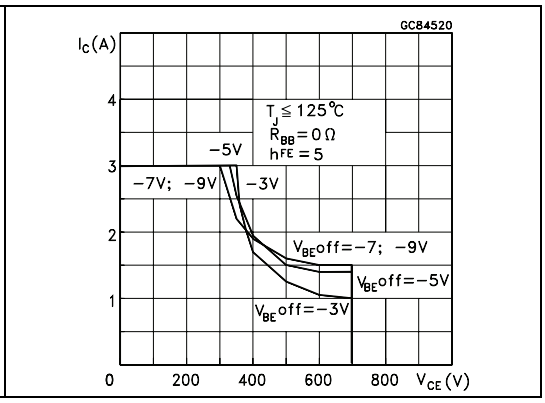


Figure 6. DC current gain (V_{CE} = 1 V)

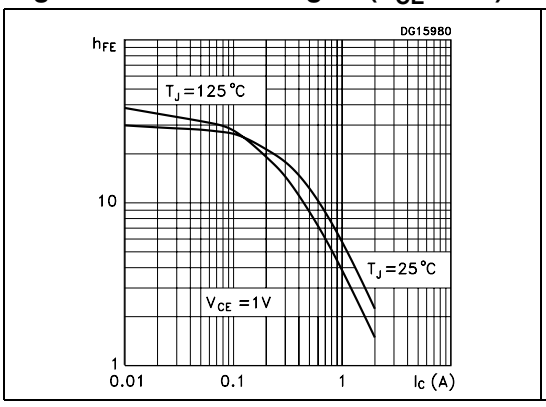


Figure 7. DC current gain (V_{CE} = 5 V)

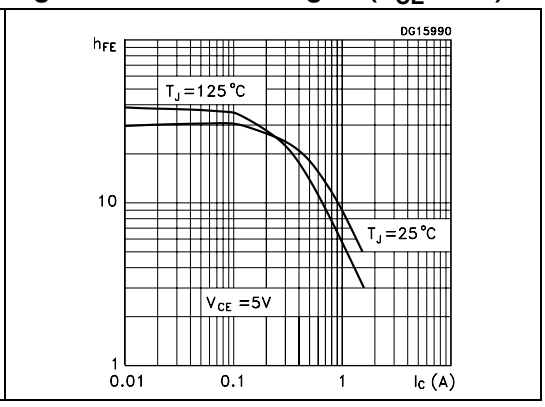


Figure 8. Collector-emitter saturation voltage

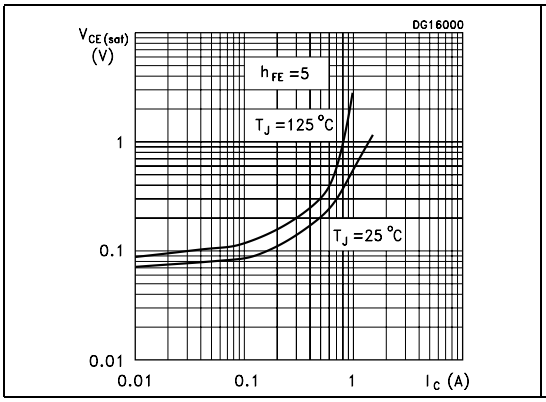


Figure 9. Base-emitter saturation voltage

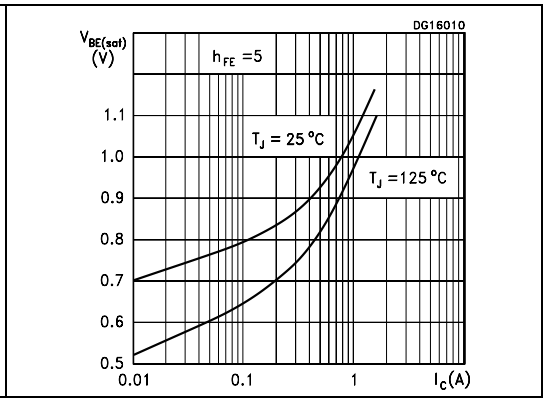


Figure 10. Inductive load switching time

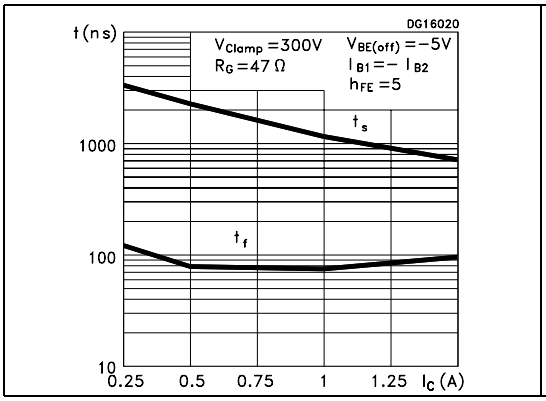
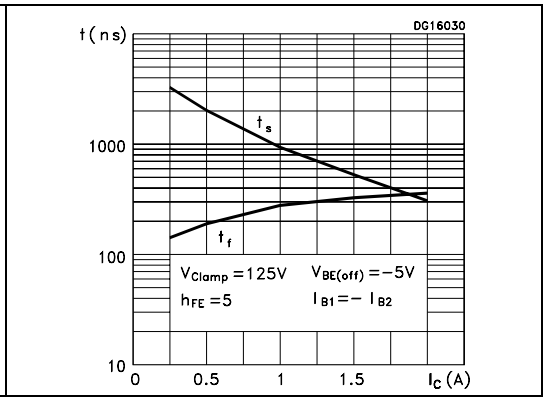
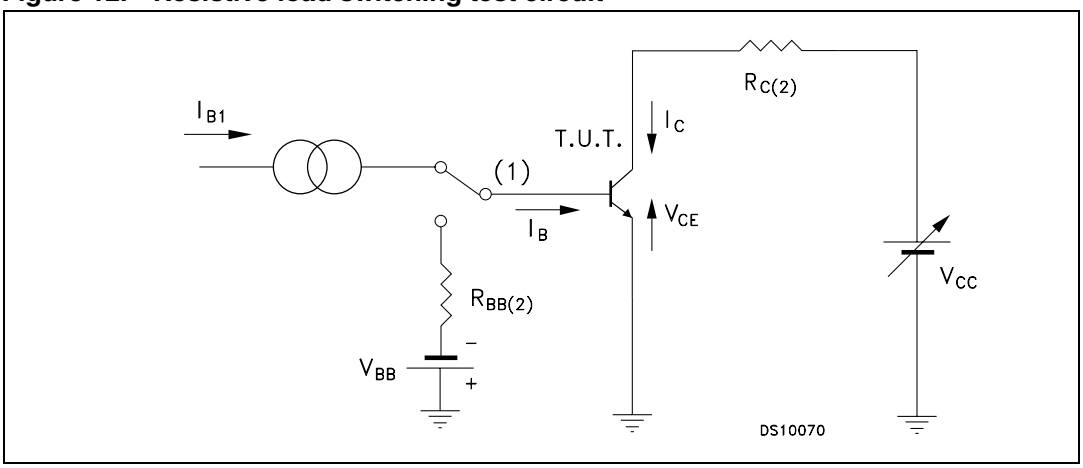


Figure 11. Resistive load switching time



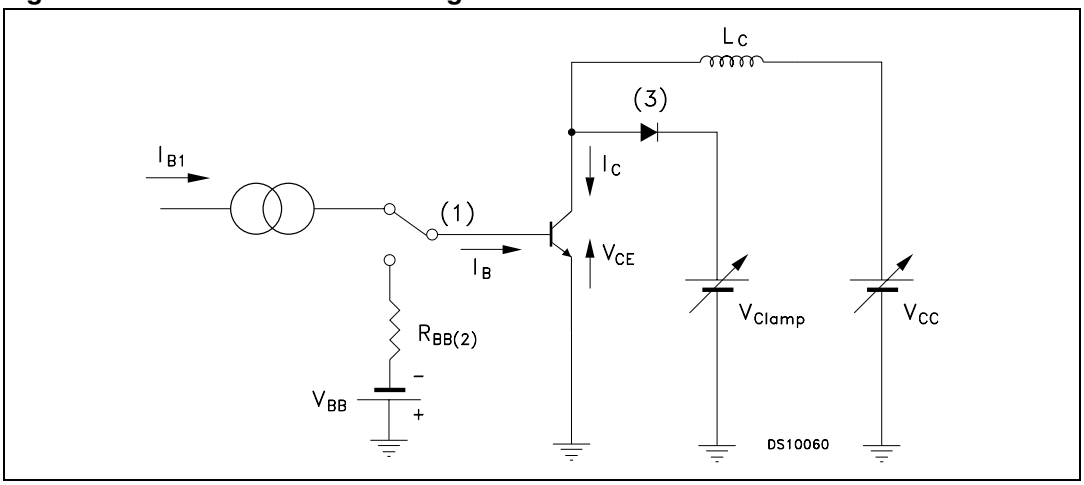
2.2 Test circuits

Figure 12. Resistive load switching test circuit



1. Fast electronic switch
2. Non-inductive resistor

Figure 13. Inductive load switching test circuit



1. Fast electronic switch
2. Non-inductive resistor
3. Fast recovery rectifier

3 Package mechanical data

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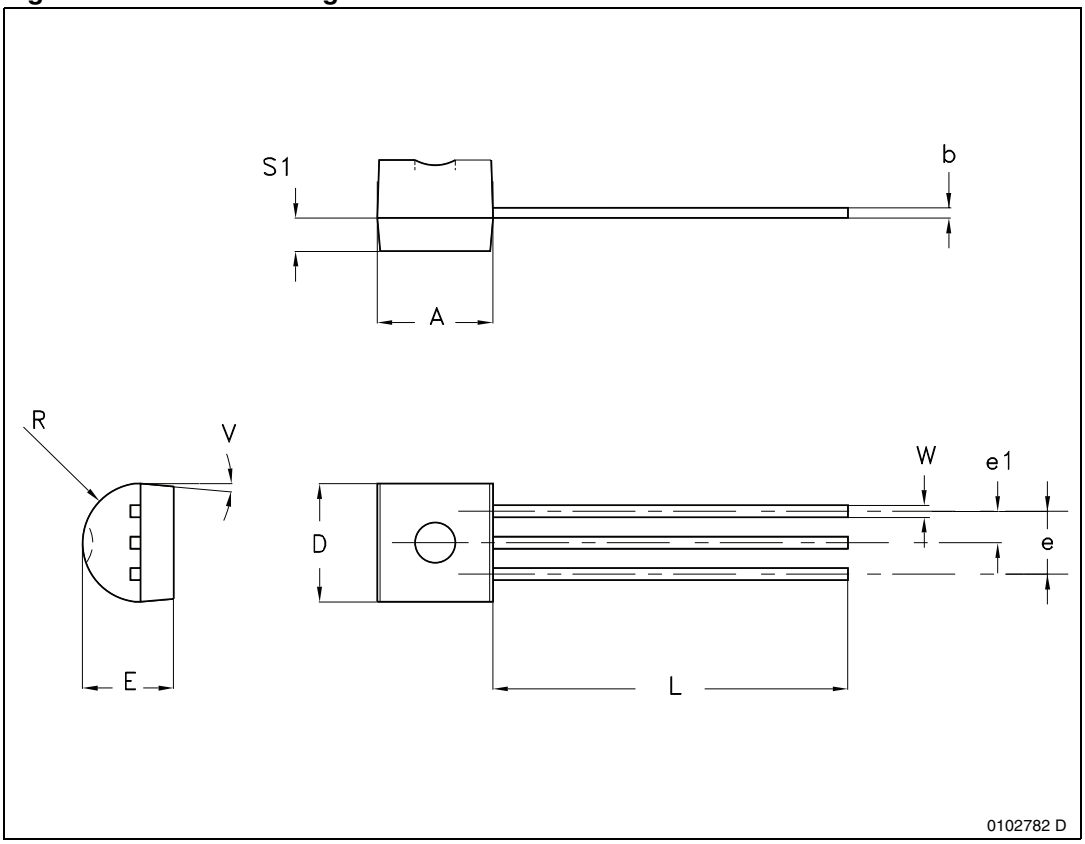
Table 5. TO-92 mechanical data

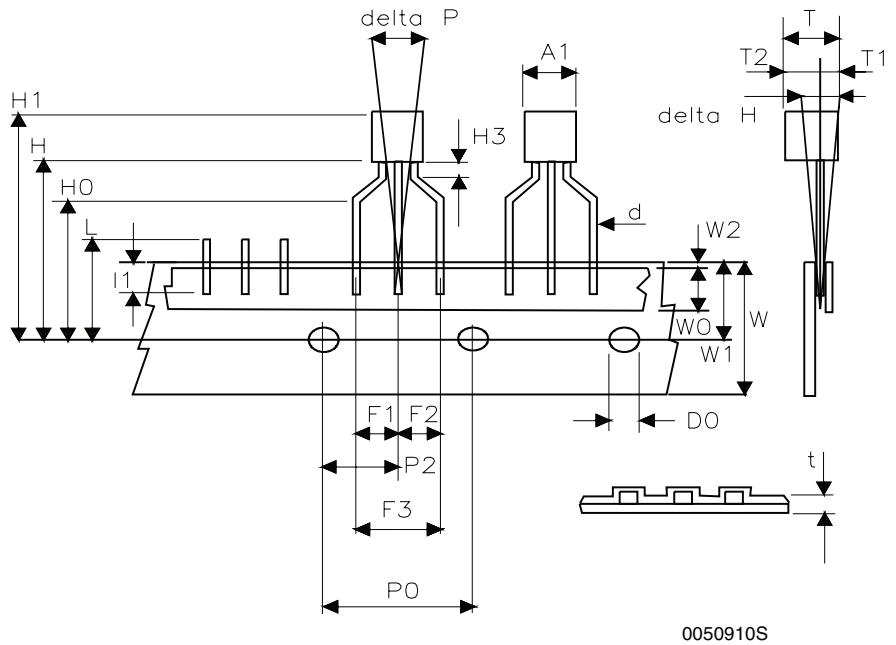
Dim.	mm.		
	Min.	Typ.	Max.
A	4.32		4.95
b	0.36		0.51
D	4.45		4.95
E	3.30		3.94
e	2.41		2.67
e1	1.14		1.40
L	12.70		15.49
R	2.16		2.41
S1	0.92		1.52
W	0.41		0.56
V		5°	

Figure 14. TO-92 drawing



TO-92 ammopack shipment (suffix"-AP") mechanical data

Dim.	mm		
	Min	Typ	Max
A1			4.80
T			3.80
T1			1.60
T2			2.30
d			0.48
P0	12.50	12.70	12.90
P2	5.65	6.35	7.05
F1,F2	2.44	2.54	2.94
F3	4.98	5.08	5.48
delta H	-2.00		2.00
W	17.50	18.00	19.00
W0	5.70	6.00	6.30
W1	8.50	9.00	9.25
W2			0.50
H	18.50		20.50
H3	0.5	1	1.5
H0	15.50	16.00	16.50
H1			25.00
D0	3.80	4.00	4.20
t			0.90
L			11.00
I1	3.00		
delta P	-1.00		1.00



4 Revision history

Table 6. Document revision history

Date	Revision	Changes
02-Jul-2008	5	Added halogen-free molding compound package.
06-Dec-2010	6	Added note *Table 1 on page 1*.

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