

THERMAL DATA

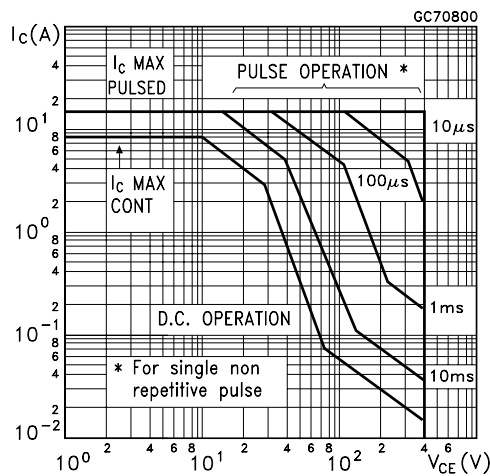
| | | | | |
|-----------------------|-------------------------------------|-----|------|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 1.56 | °C/W |
| R _{thj-amb} | Thermal Resistance Junction-ambient | Max | 62.5 | °C/W |

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

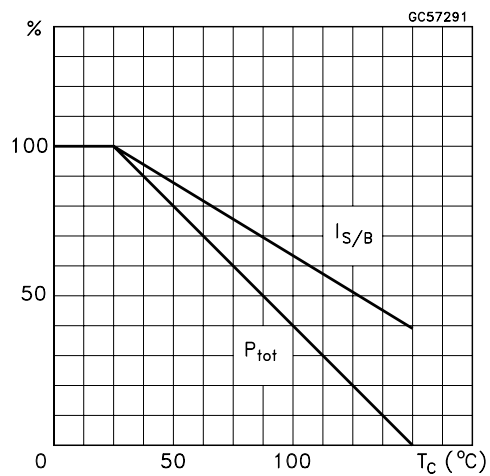
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------------------------------|---|---|---------|------------|----------------------|------------------|
| I _{CES} | Collector Cut-off Current (V _{BE} = 0) | V _{CE} = 700 V V _{CE} = 700 V T _c = 100 °C | | | 10 0.5 | μA mA |
| I _{CEO} | Collector Cut-off Current (I _B = 0) | V _{CE} = 400 V | | | 100 | μA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 9 V | | | 100 | μA |
| V _{CEO(sus)} * | Collector-Emitter Sustaining Voltage (I _B = 0) | I _C = 10 mA | 400 | | | V |
| V _{CE(sat)} * | Collector-Emitter Saturation Voltage | I _C = 2 A I _B = 0.4 A I _C = 5 A I _B = 1 A I _C = 8 A I _B = 2 A I _C = 5 A I _B = 1 A T _c = 100 °C | | | 0.8 1.5 2 3 | V V V V |
| V _{BE(sat)} * | Base-Emitter Saturation Voltage | I _C = 2 A I _B = 0.4 A I _C = 5 A I _B = 1 A I _C = 5 A I _B = 1 A T _c = 100 °C | | | 1.2 1.6 1.5 | V V V |
| h _{FE} * | DC Current Gain | I _C = 2 A V _{CE} = 5 V I _C = 5 A V _{CE} = 5 V | 18 8 | | 40 25 | |
| V _f | Diode Forward Voltage | I _C = 3 A | | | 2.5 | V |
| t _s t _f | INDUCTIVE LOAD Storage Time Fall Time | I _C = 5 A V _{CL} = 250 V R _{BB} = 0 Ω I _{B1} = 1 A V _{BE(off)} = -5 V L = 200 μH (see figure 1) | | 1.7 90 | 2.3 150 | μs ns |
| t _s t _f | INDUCTIVE LOAD Storage Time Fall Time | I _C = 5 A V _{CL} = 250 V R _{BB} = 0 Ω I _{B1} = 1 A V _{BE(off)} = -5 V L = 200 μH T _C = 125 °C (see figure 1) | | 2.2 150 | | μs ns |

* Pulsed: Pulse duration = 300 μs, duty cycle 2 %.

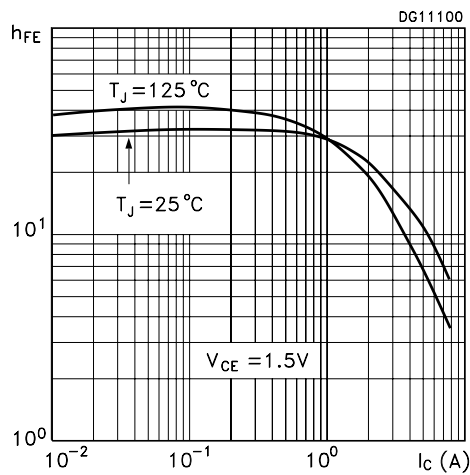
Safe Operating Area



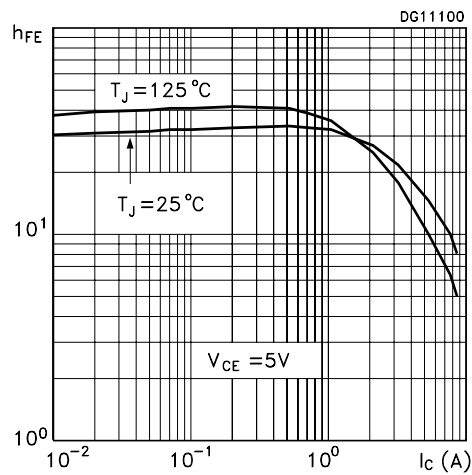
Derating Curve



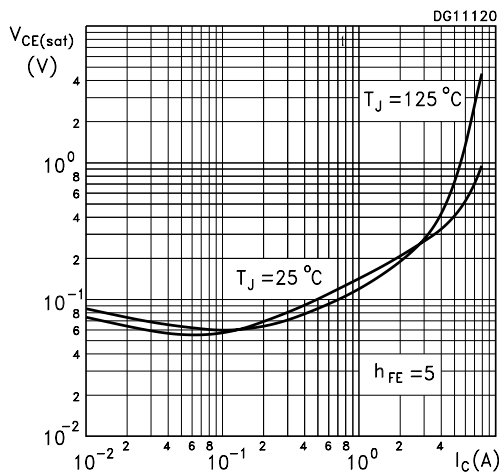
DC Current Gain



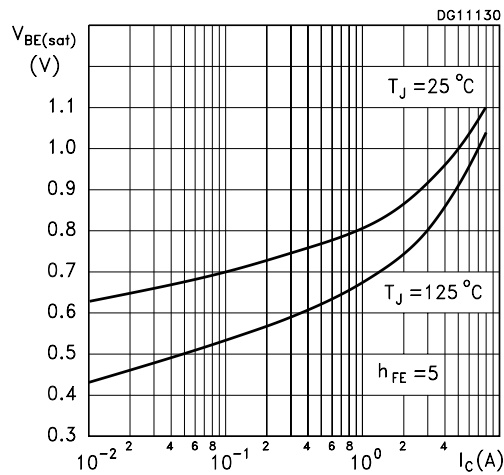
DC Current Gain



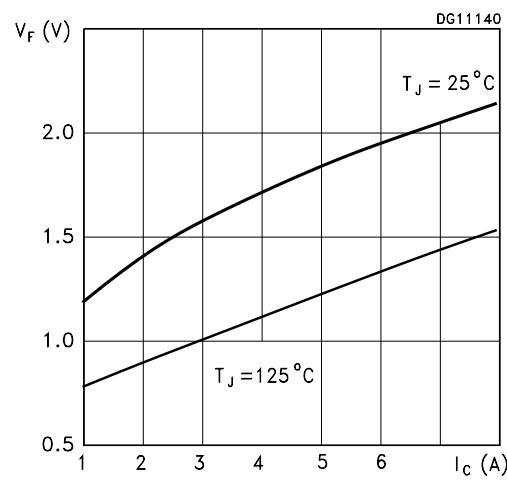
Collector Emitter Saturation Voltage



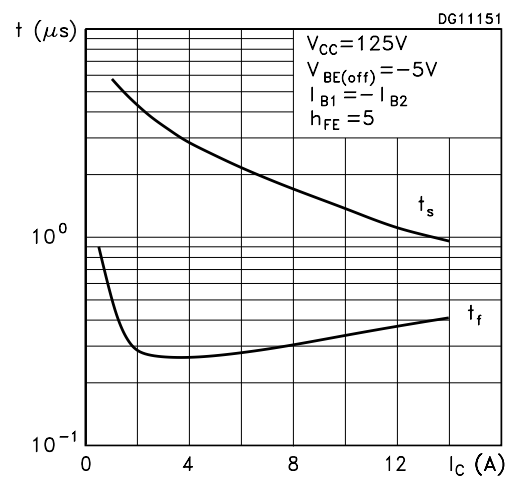
Base Emitter Saturation Voltage



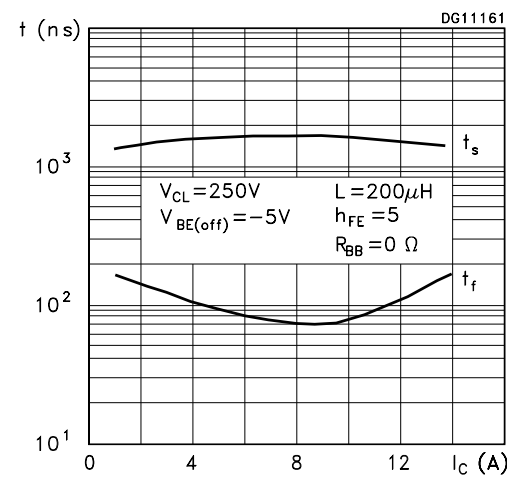
Diode Forward Voltage



Switching Time Resistive Load



Switching Time Inductive Load



Reverse Biased SOA

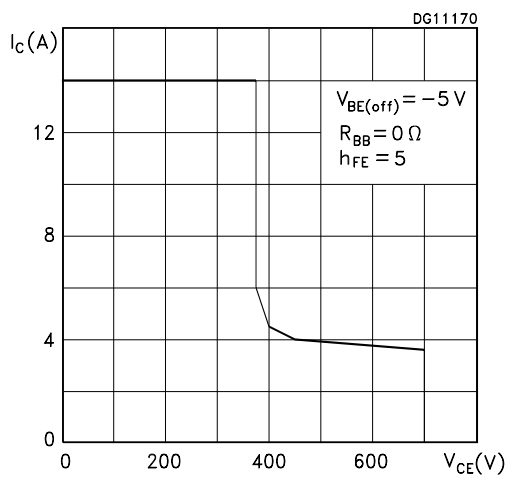
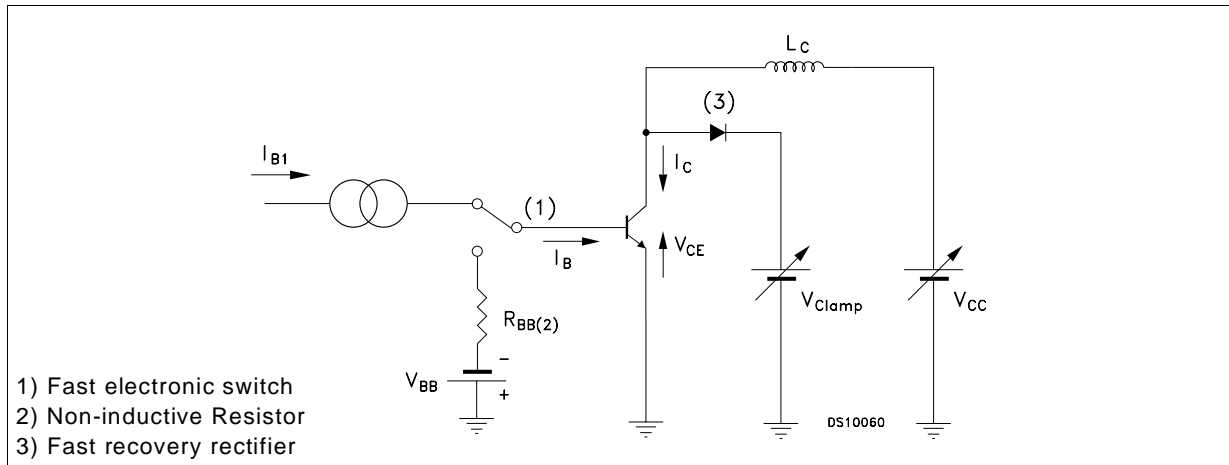
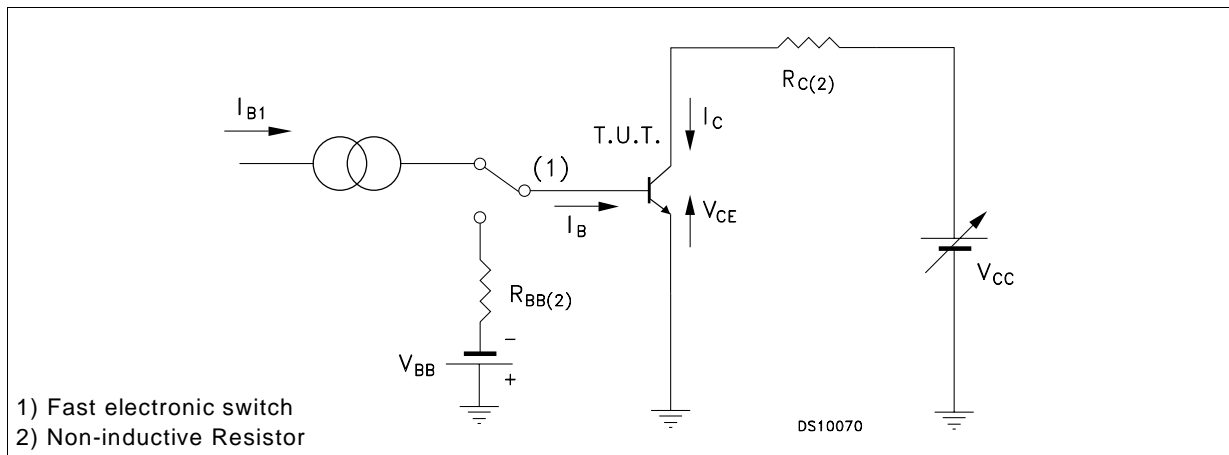
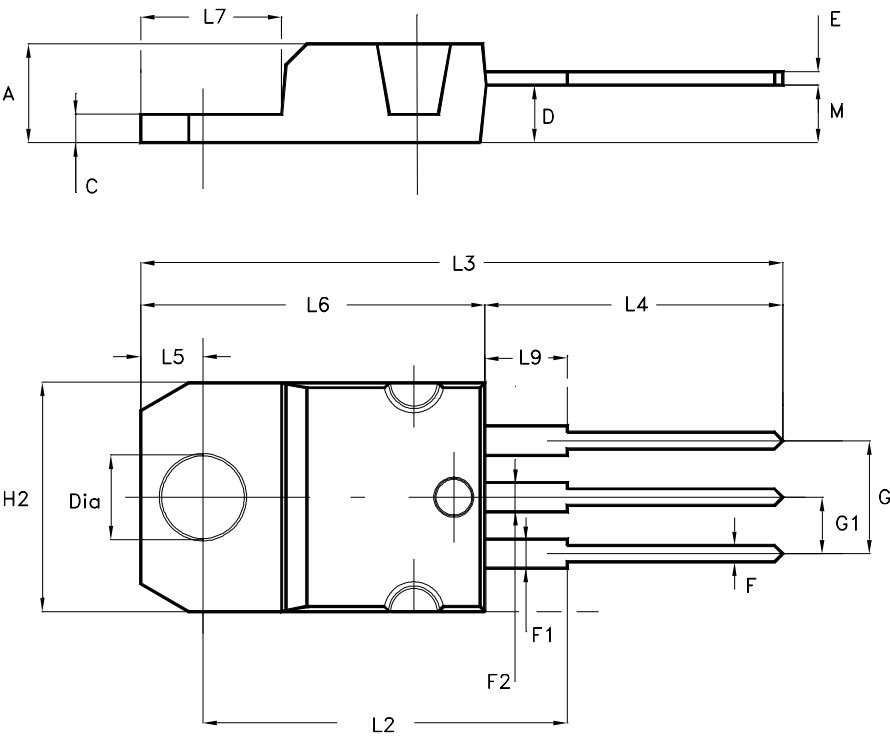


Figure 1: Inductive Load Switching Test Circuit.**Figure 2: Resistive Load Switching Test Circuit.**

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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