



STBV32

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

- MEDIUM VOLTAGE CAPABILITY
- LOW SPREAD OF DYNAMIC PARAMETERS
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- VERY HIGH SWITCHING SPEED

APPLICATIONS:

- ELECTRONIC BALLASTS FOR FLUORESCENT LIGHTING

DESCRIPTION

The device is manufactured using high voltage Multi Epitaxial Planar technology for high switching speeds and medium voltage capability.

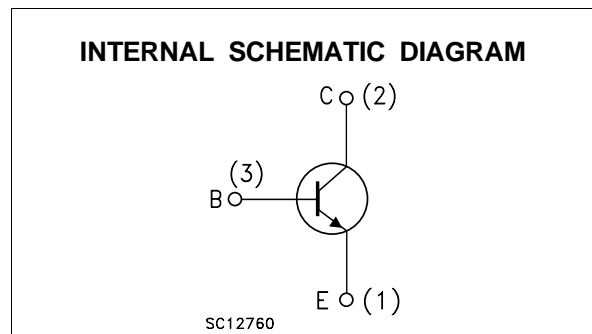
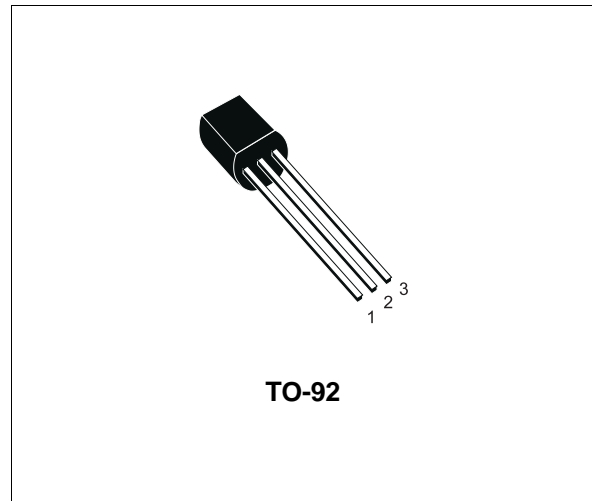
It uses a Cellular Emitter structure with planar edge termination to enhance switching speeds while maintaining the wide RBSOA.

The STBV32 is designed for use in compact fluorescent lamp application.

Ordering codes:

STBV32 (shipment in bulk)

STBV32-AP (shipment in ammpack)



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, $t_p < 10\mu s$, $T_j < 150^\circ C$) | BV_{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 $T_{amb} = 25^\circ C$ | 1.1 | W |
| T_{stg} | Storage Temperature | -65 to 150 | $^\circ C$ |
| T_j | Max. Operating Junction Temperature | 150 | $^\circ C$ |

STBV32

THERMAL DATA

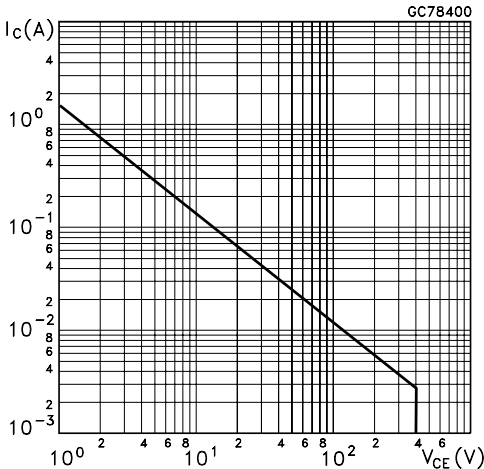
| | | | | |
|--------------------|-------------------------------------|-----|-----|------|
| R _{thj-a} | Thermal Resistance Junction-ambient | Max | 112 | °C/W |
|--------------------|-------------------------------------|-----|-----|------|

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

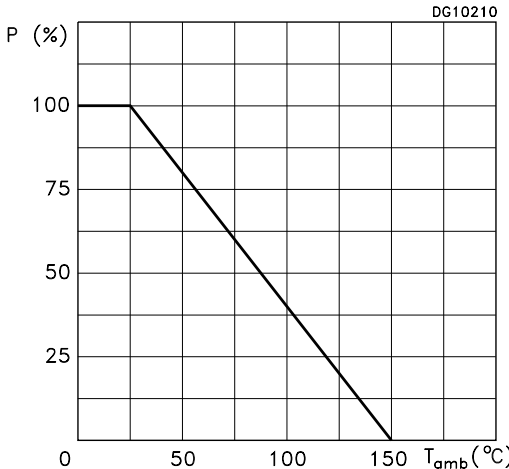
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--|---|--|--------|------|---------------|----------------|
| I _{CEV} | Collector Cut-off Current (V _{BE} = -1.5V) | V _{CE} = 700V V _{CE} = 700V T _J = 125°C | | | 1 5 | mA mA |
| BV _{EBO} | Emitter-Base Breakdown Voltage (I _C = 0) | I _E = 10 mA | 9 | | 18 | V |
| V _{CEO(sus)*} | Collector-Emitter Sustaining Voltage (I _B = 0) | I _C = 10 mA L = 25mH | 400 | | | V |
| V _{CE(sat)*} | Collector-Emitter Saturation Voltage | I _C = 0.5 A I _C = 1 A I _C = 1.5 A | | | 0.5 1 3 | V V V |
| V _{BE(sat)*} | Base-Emitter Saturation Voltage | I _C = 0.5 A I _C = 1 A | | | 1 1.2 | V V |
| h _{FE} | DC Current Gain | I _C = 0.5 A I _C = 1 A | 8 5 | | 35 25 | |
| t _r t _s t _f | RESISTIVE LOAD Rise Time Storage Time Fall Time | I _C = 1 A I _{B1} = 0.2 A T _p = 25 μs | | | 1 4 0.7 | μs μs μs |
| t _s | INDUCTIVE LOAD Storage Time | I _C = 1 A V _{BE} = -5 V V _{clamp} = 300 V | | 0.8 | | μs |

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

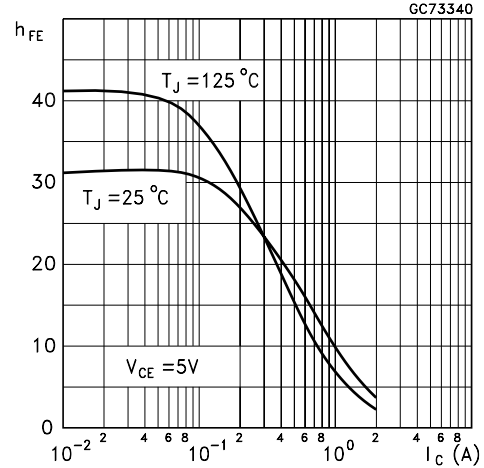
Safe Operating Areas



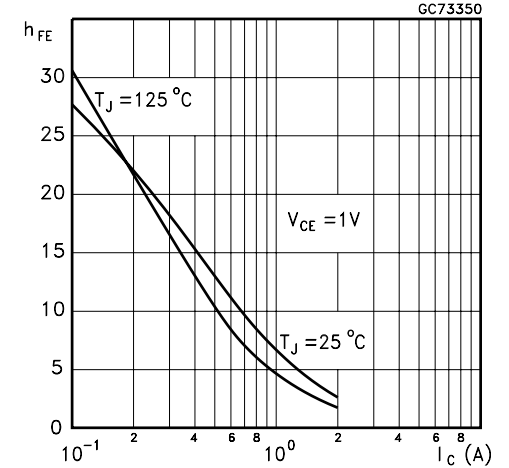
Derating Curve



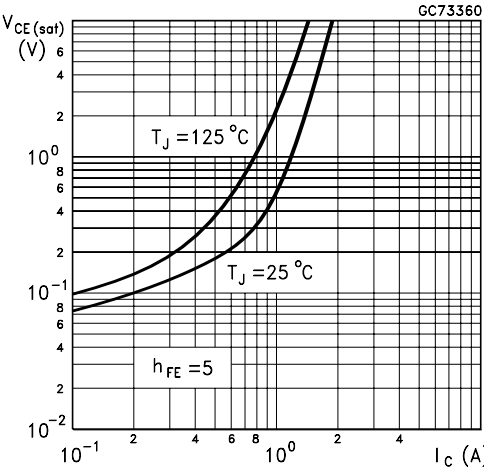
DC Current Gain



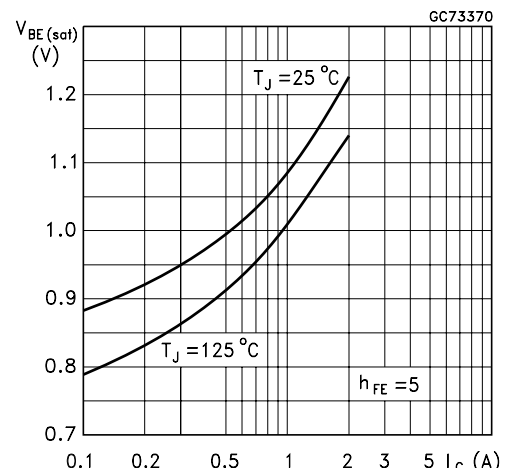
DC Current Gain



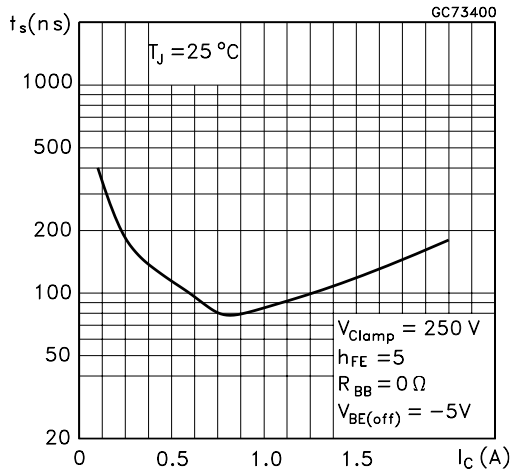
Collector Emitter Saturation Voltage



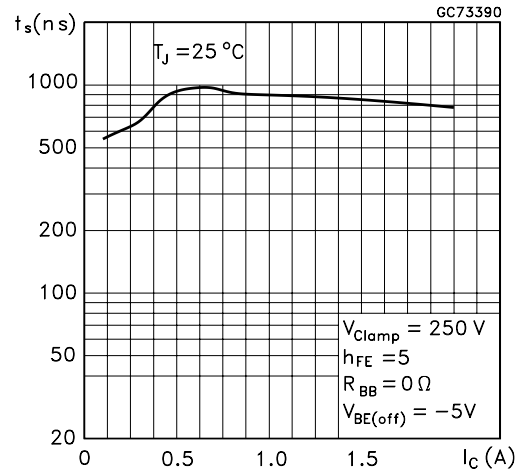
Base Emitter Saturation Voltage



Inductive Fall Time



Inductive Storage Time



Reverse Biased SOA

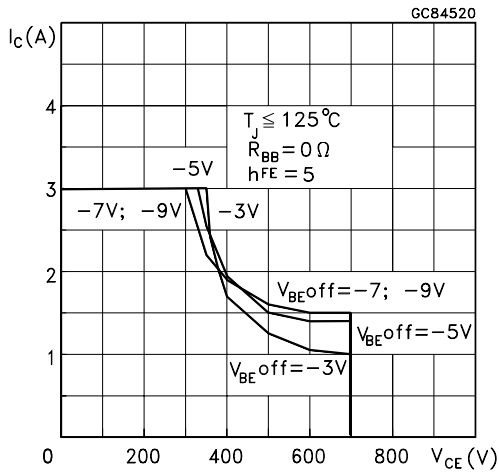


Figure 1: Inductive Load Switching Test Circuits.

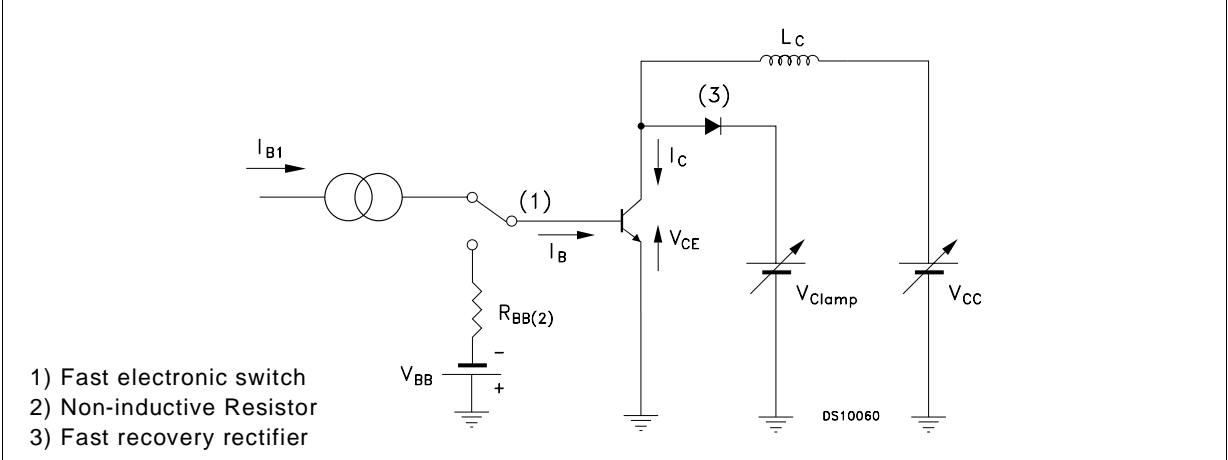
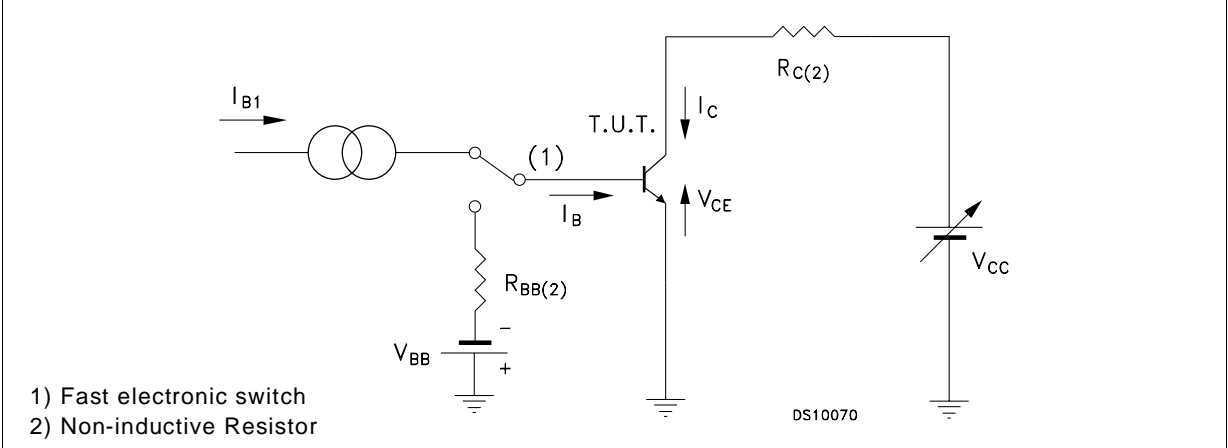
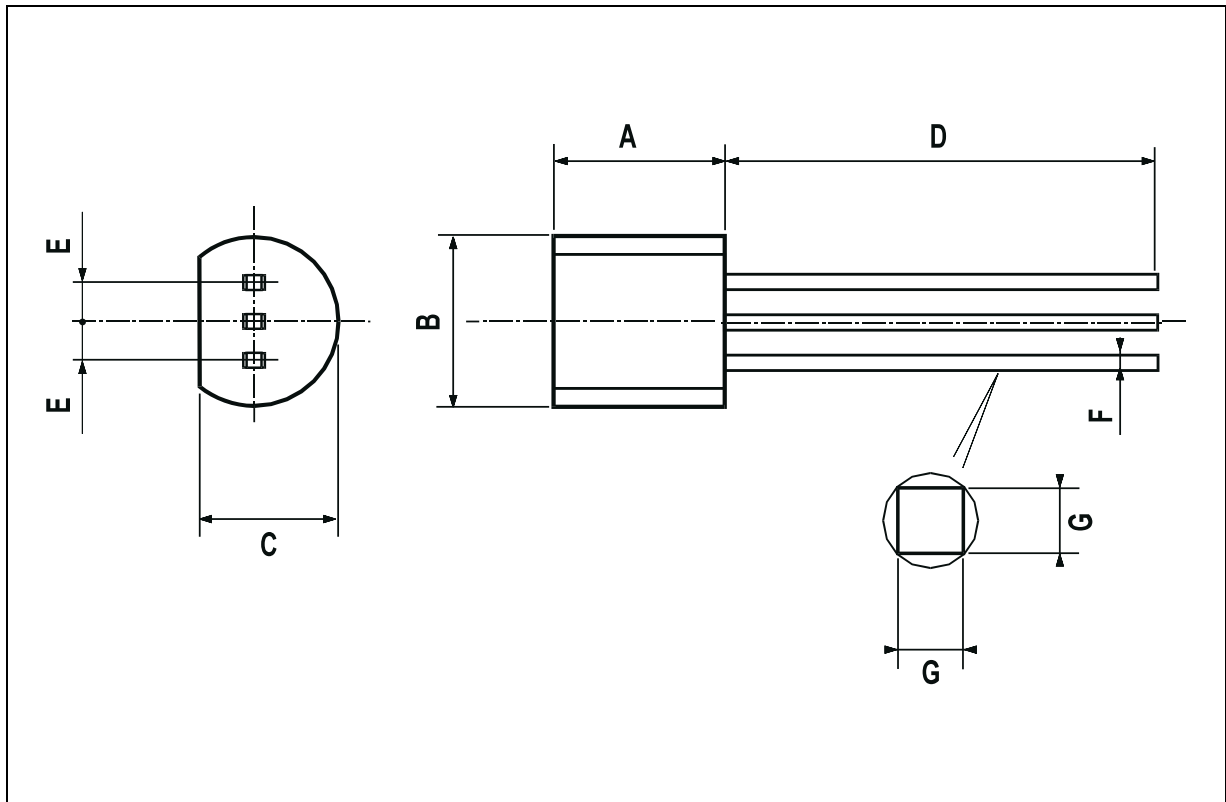


Figure 2: Resistive Load Switching Test Circuits.



TO-92 MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|------|------|------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 4.58 | | 5.33 | 0.180 | | 0.210 |
| B | 4.45 | | 5.2 | 0.175 | | 0.204 |
| C | 3.2 | | 4.2 | 0.126 | | 0.165 |
| D | 12.7 | | | 0.500 | | |
| E | | 1.27 | | | 0.050 | |
| F | 0.4 | | 0.51 | 0.016 | | 0.020 |
| G | 0.35 | | | 0.14 | | |



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