



BU508DFI

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

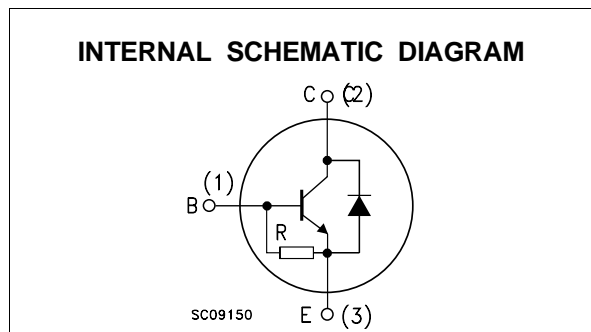
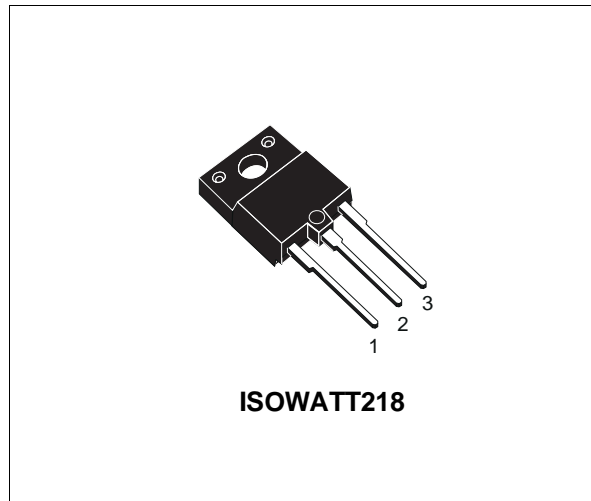
- STMicroelectronics PREFERRED SALESTYPE
- HIGH VOLTAGE CAPABILITY ($> 1500\text{ V}$)
- NPN TRANSISTOR WITH INTEGRATED FREEWHEELING DIODE
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING

APPLICATIONS:

- HORIZONTAL DEFLECTION FOR COLOUR TV UP TO 25"

DESCRIPTION

The BU508DFI is manufactured using Multi-epitaxial Mesa technology for cost-effective high performance and uses a Hollow Emitter structure to enhance switching speeds.



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|------------|--|------------|------------------|
| V_{CES} | Collector-Emitter Voltage ($V_{BE} = 0$) | 1500 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 700 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 10 | V |
| I_C | Collector Current | 8 | A |
| I_{CM} | Collector Peak Current ($t_p < 5\text{ ms}$) | 15 | A |
| I_B | Base Current | 5 | A |
| I_{BM} | Base Peak Current ($t_p < 5\text{ ms}$) | 8 | A |
| P_{tot} | Total Dissipation at $T_c = 25\text{ }^\circ\text{C}$ | 50 | W |
| V_{isol} | Insulation Withstand Voltage (RMS) from All Three Leads to External Heatsink | 2500 | V |
| T_{stg} | Storage Temperature | -65 to 150 | $^\circ\text{C}$ |
| T_j | Max. Operating Junction Temperature | 150 | $^\circ\text{C}$ |

BU508DFI

THERMAL DATA

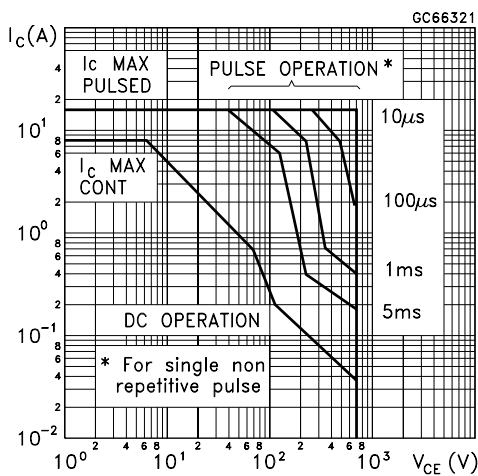
| | | | | |
|-----------------------|----------------------------------|-----|-----|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 2.5 | °C/W |
|-----------------------|----------------------------------|-----|-----|------|

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

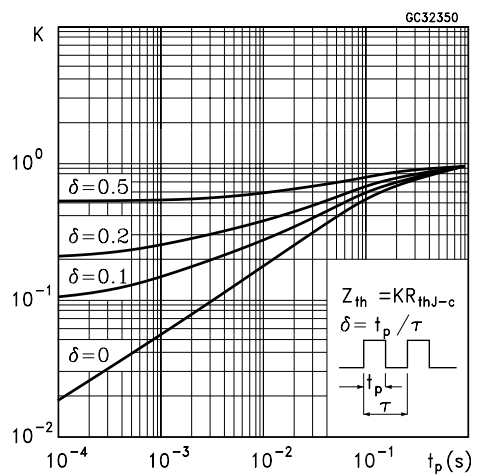
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------------------------------|---|--|------|----------|--------|----------|
| I _{CES} | Collector Cut-off Current (V _{BE} = 0) | V _{CE} = 1500 V V _{CE} = 1500 V T _j = 125 °C | | | 1 2 | mA mA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 5 V | | | 300 | mA |
| V _{CEO(sus)*} | Collector-Emitter Sustaining Voltage (I _B = 0) | I _C = 100 m A | 700 | | | V |
| V _{CE(sat)*} | Collector-Emitter Saturation Voltage | I _C = 4.5 A I _B = 2 A | | | 1 | V |
| V _{BE(sat)*} | Base-Emitter Saturation Voltage | I _C = 4.5 A I _B = 2 A | | | 1.3 | V |
| t _s t _f | INDUCTIVE LOAD Storage Time Fall Time | I _C = 4.5 A h _{FE} = 2.5 V _{CC} = 140 V L _C = 0.9 mH L _B = 3 μH (see figure 1) | | 7 550 | | μs ns |
| V _F | Diode Forward Voltage | I _F = 4 A | | | 2 | V |
| f _T | Transition Frequency | I _C = 0.1 A V _{CE} = 5 V f = 5 MHz | | 7 | | MHz |

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

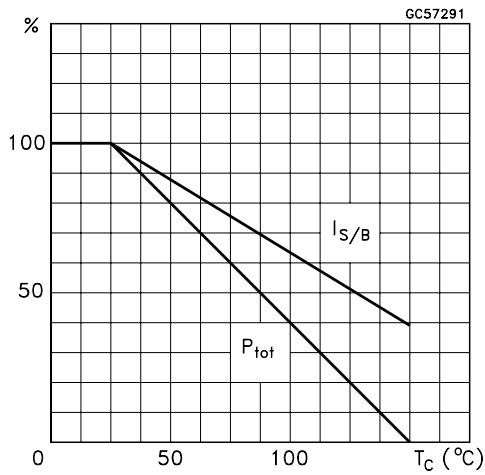
Safe Operating Area



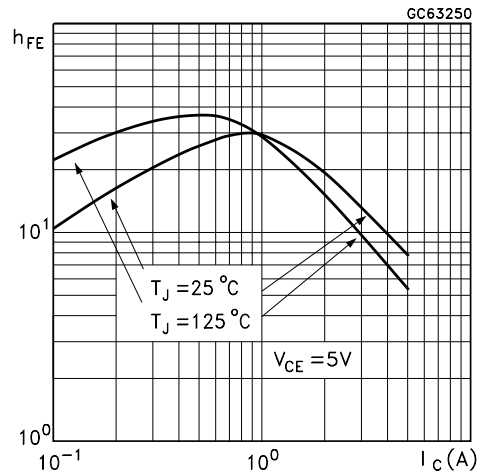
Thermal Impedance



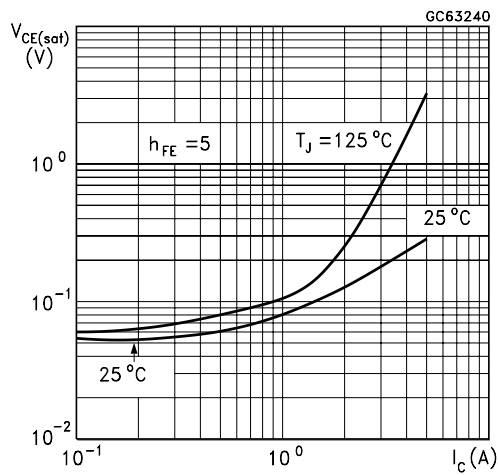
Derating Curve



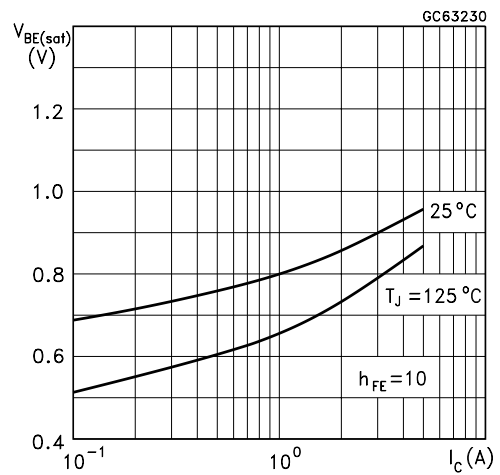
DC Current Gain



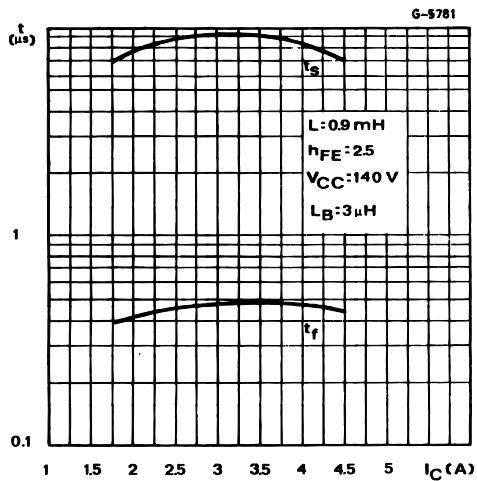
Collector Emitter Saturation Voltage



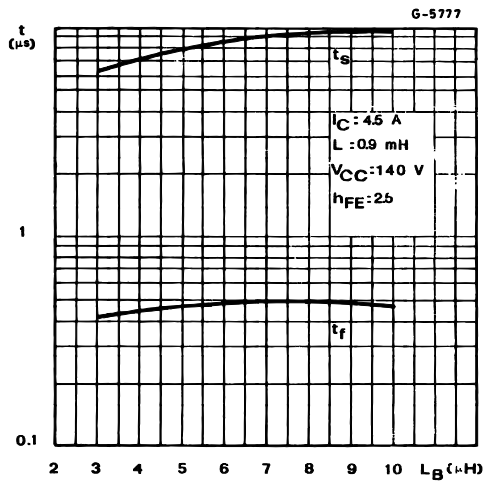
Base Emitter Saturation Voltage



Switching Time Inductive Load



Switching Time Inductive Load



Switching Time Percentance vs. Case

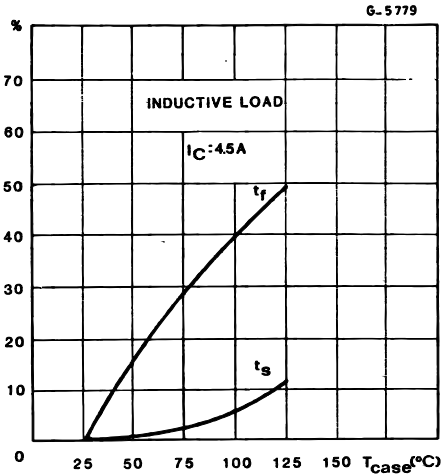
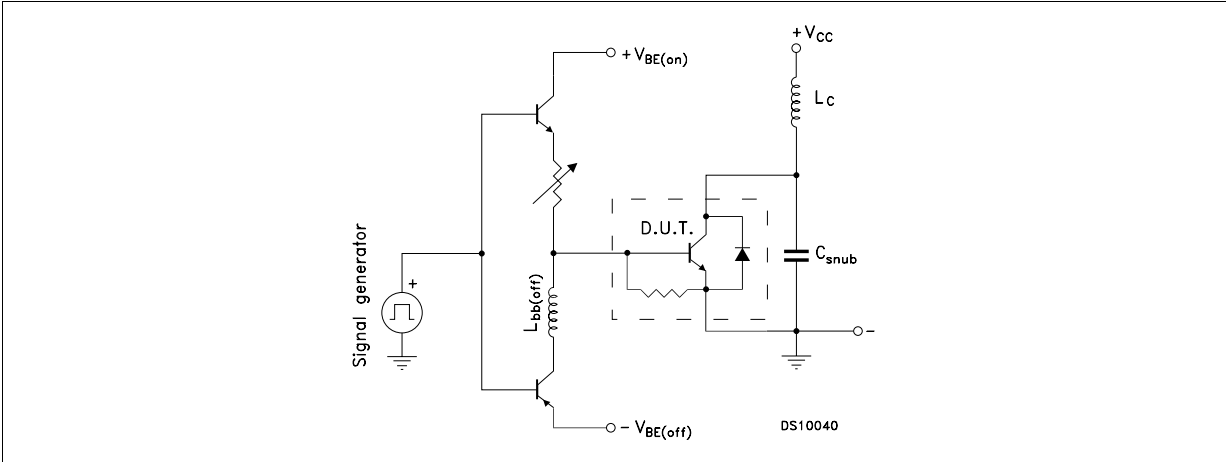
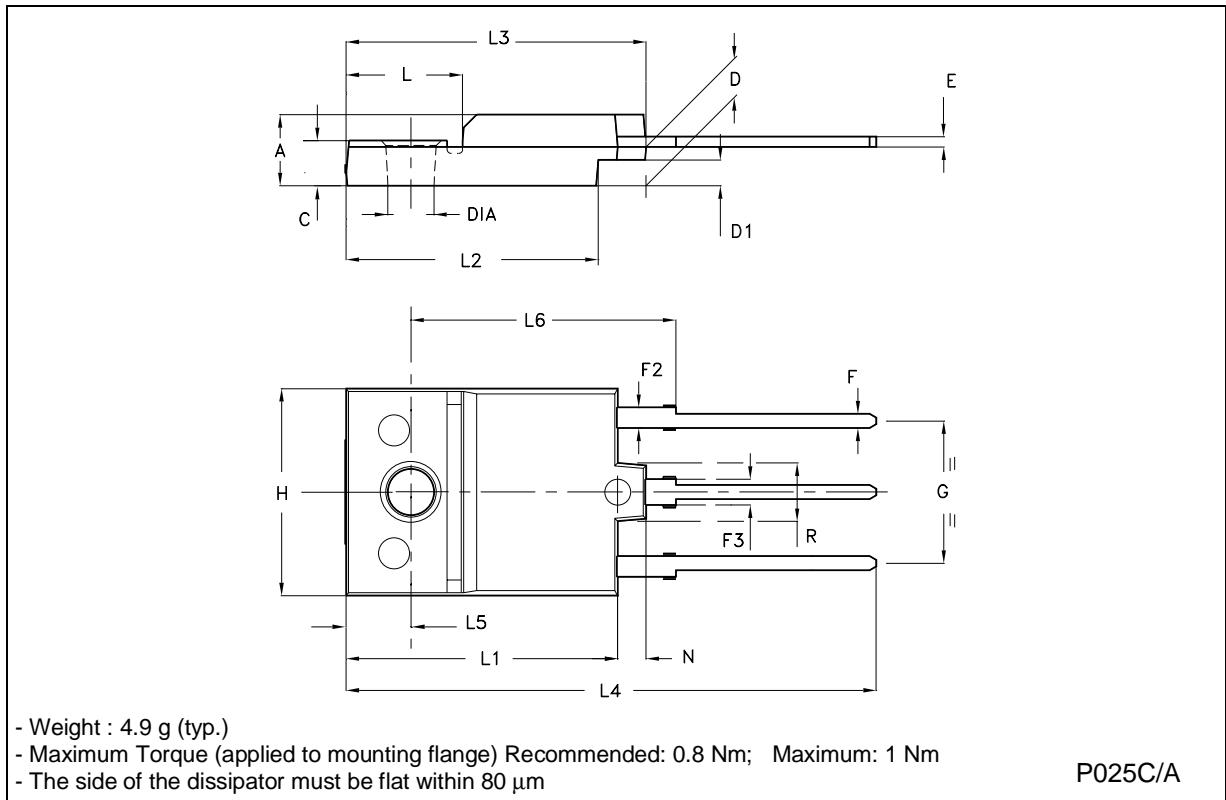


Figure 1: Inductive Load Switching Test Circuit.



ISOWATT218 MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|-------|------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 5.35 | | 5.65 | 0.211 | | 0.222 |
| C | 3.30 | | 3.80 | 0.130 | | 0.150 |
| D | 2.90 | | 3.10 | 0.114 | | 0.122 |
| D1 | 1.88 | | 2.08 | 0.074 | | 0.082 |
| E | 0.75 | | 0.95 | 0.030 | | 0.037 |
| F | 1.05 | | 1.25 | 0.041 | | 0.049 |
| F2 | 1.50 | | 1.70 | 0.059 | | 0.067 |
| F3 | 1.90 | | 2.10 | 0.075 | | 0.083 |
| G | 10.80 | | 11.20 | 0.425 | | 0.441 |
| H | 15.80 | | 16.20 | 0.622 | | 0.638 |
| L | | 9 | | | 0.354 | |
| L1 | 20.80 | | 21.20 | 0.819 | | 0.835 |
| L2 | 19.10 | | 19.90 | 0.752 | | 0.783 |
| L3 | 22.80 | | 23.60 | 0.898 | | 0.929 |
| L4 | 40.50 | | 42.50 | 1.594 | | 1.673 |
| L5 | 4.85 | | 5.25 | 0.191 | | 0.207 |
| L6 | 20.25 | | 20.75 | 0.797 | | 0.817 |
| N | 2.1 | | 2.3 | 0.083 | | 0.091 |
| R | | 4.6 | | | 0.181 | |
| DIA | 3.5 | | 3.7 | 0.138 | | 0.146 |



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 2002 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>

This datasheet has been download from:

www.datasheetcatalog.com

Datasheets for electronics components.