



BU508DFI

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

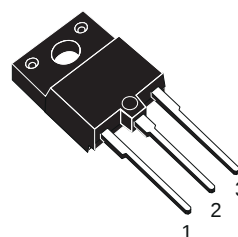
- STMicroelectronics PREFERRED SALESTYPE
- HIGH VOLTAGE CAPABILITY ($> 1500\text{ V}$)
- NPN TRANSISTOR WITH INTEGRATED FREEWHEELING DIODE
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING

APPLICATIONS:

- HORIZONTAL DEFLECTION FOR COLOUR TV UP TO 25"

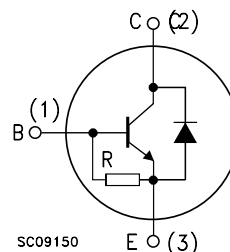
DESCRIPTION

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



ISOWATT218

INTERNAL SCHEMATIC DIAGRAM



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	$^{\circ}\text{C}$

THERMAL DATA

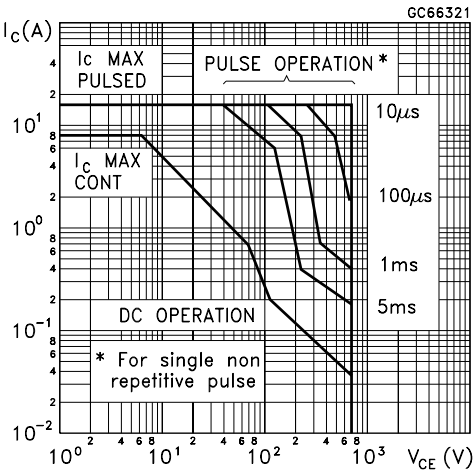
R _{thj-case}	Thermal Resistance Junction-case	Max	2.5	°C/W
-----------------------	----------------------------------	-----	-----	------

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

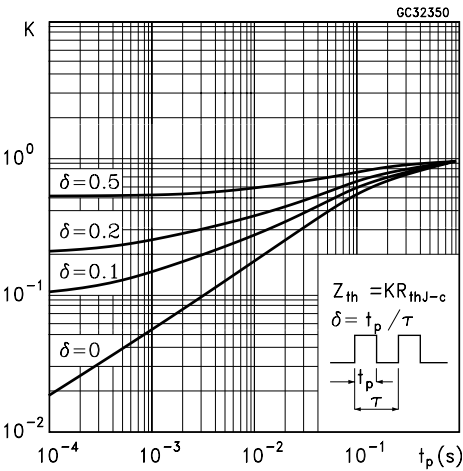
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	V _{CE} = 1500 V V _{CE} = 1500 V T _J = 125 °C			1 2	mA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			300	mA
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 100 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 %

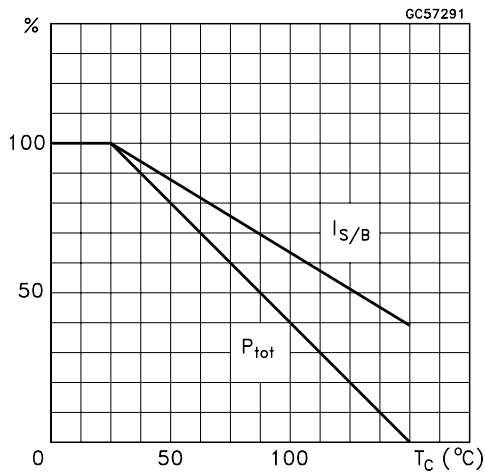
Safe Operating Area



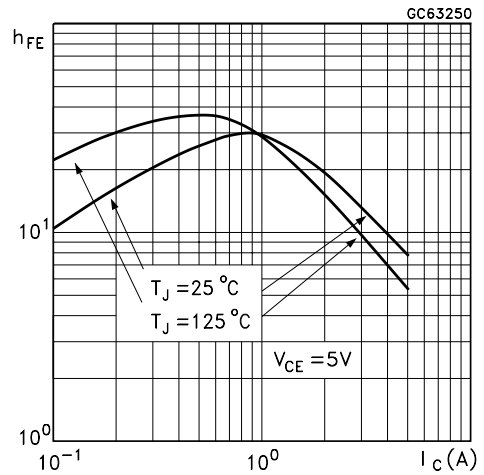
Thermal Impedance



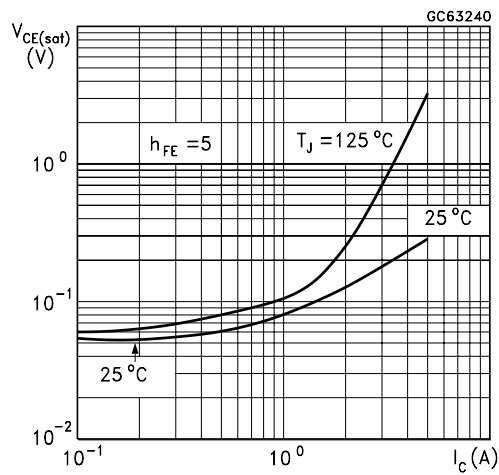
Derating Curve



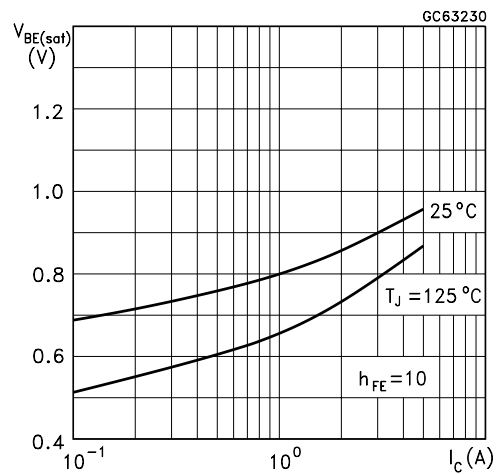
DC Current Gain



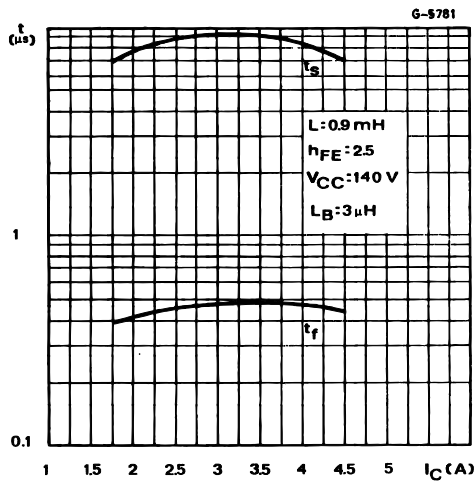
Collector Emitter Saturation Voltage



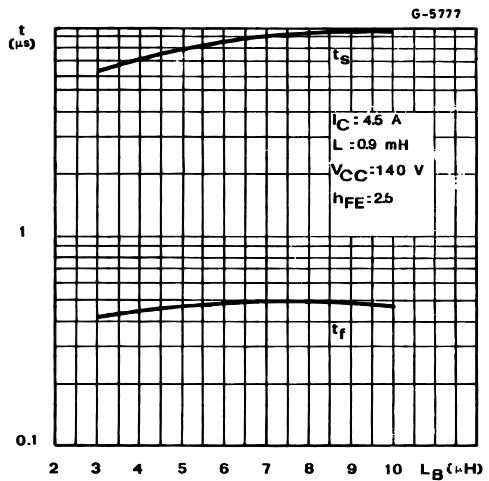
Base Emitter Saturation Voltage



Switching Time Inductive Load



Switching Time Inductive Load



Switching Time Percentance vs. Case

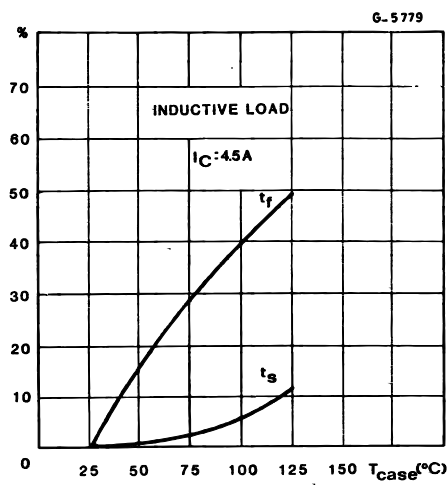
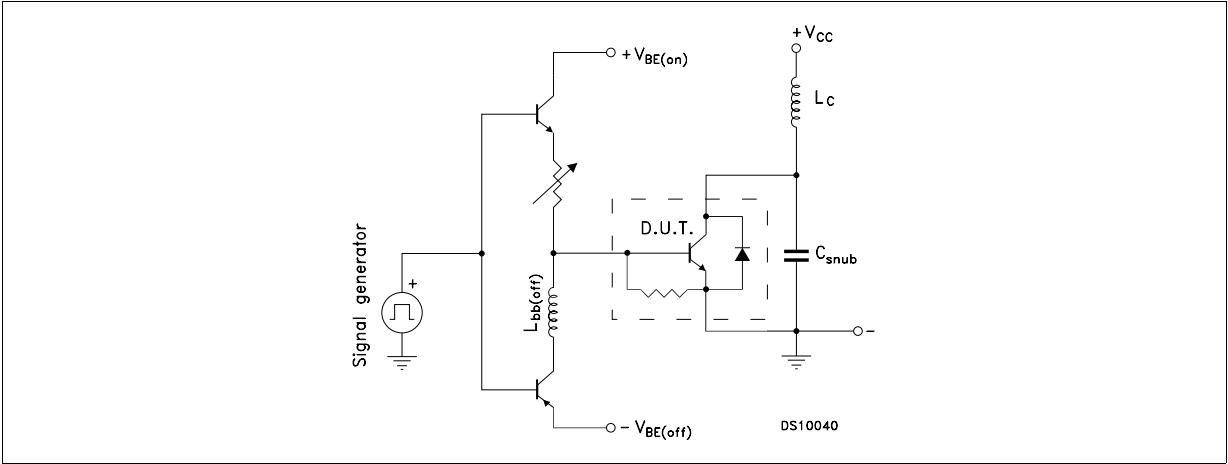
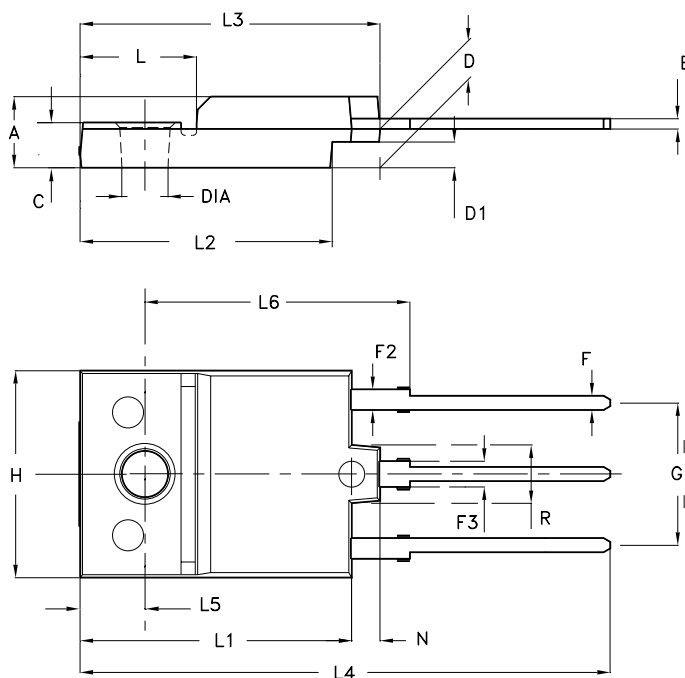


Figure 1: Inductive Load Switching Test Circuit.



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



- Weight : 4.9 g (typ.)
- Maximum Torque (applied to mounting flange) Recommended: 0.8 Nm; Maximum: 1 Nm
- The side of the dissipator must be flat within 80 μ m

P025C/A

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>