



BU208D BU508DFI

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTORS

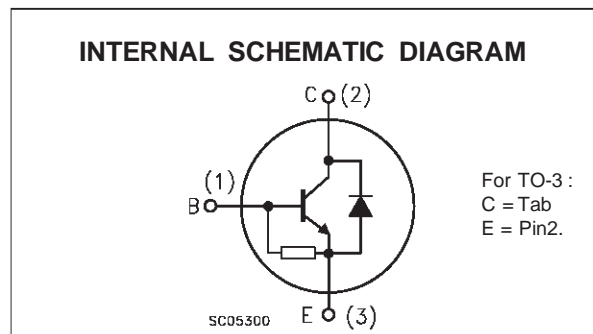
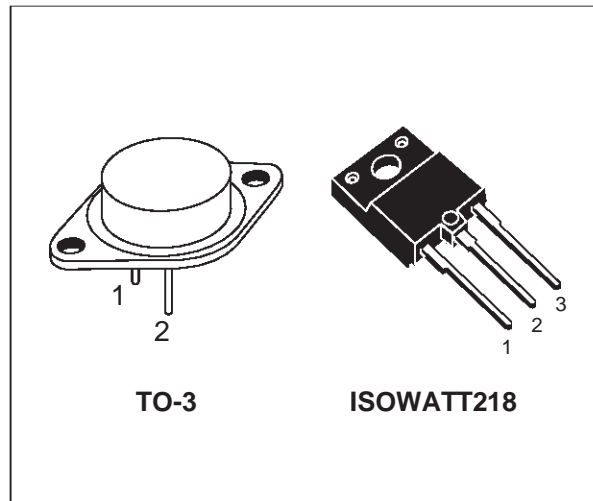
- STMicroelectronics PREFERRED SALESTYPES
- HIGH VOLTAGE CAPABILITY
- U.L. RECOGNISED ISOWATT218 PACKAGE (U.L. FILE # E81734 (N))
- JEDEC TO-3 METAL CASE
- NPN TRANSISTOR WITH INTEGRATED FREEWHEELING DIODE

APPLICATIONS:

- HORIZONTAL DEFLECTION FOR COLOUR TV

DESCRIPTION

The BU208D and BU508DFI are manufactured using Multiepitaxial Mesa technology for cost-effective high performance and use 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 ($t_p < 5$ ms)	15		A
		TO - 3	ISOWATT218	
P_{tot}	Total Dissipation at $T_c = 25$ °C	150	50	W
T_{stg}	Storage Temperature	-65 to 175	-65 to 150	°C
T_j	Max. Operating Junction Temperature	175	150	°C

BU208D / BU508DFI

THERMAL DATA

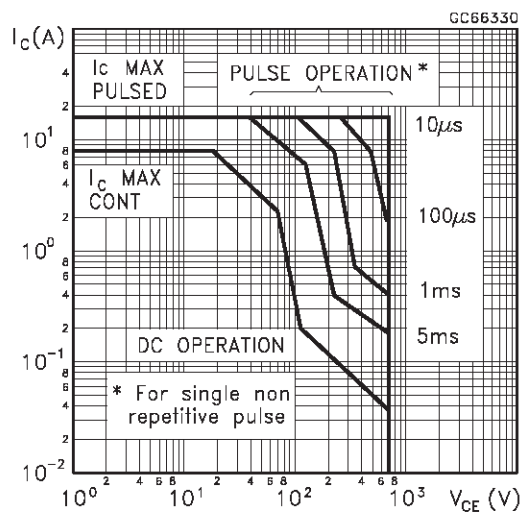
			TO-3	ISOWATT218	
$R_{thj-case}$	Thermal Resistance Junction-case	Max	1	2.5	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

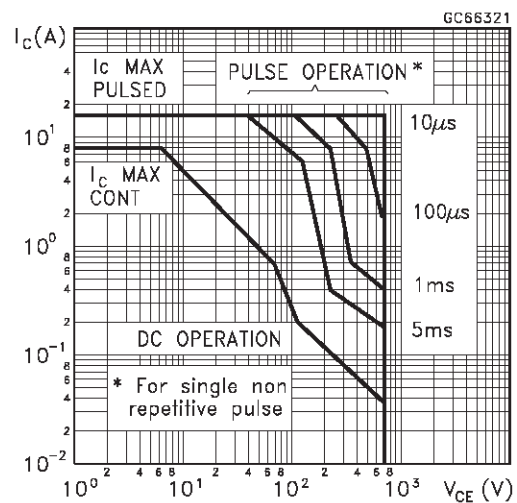
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 1500 V$ $V_{CE} = 1500 V$ $T_j = 125^{\circ}C$			1 2	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			300	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 100 m A$	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	$I_C = 4.5 A$ $h_{FE} = 2.5$ $V_{CC} = 140 V$ $L_C = 0.9 mH$ $L_B = 3 \mu H$		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 %

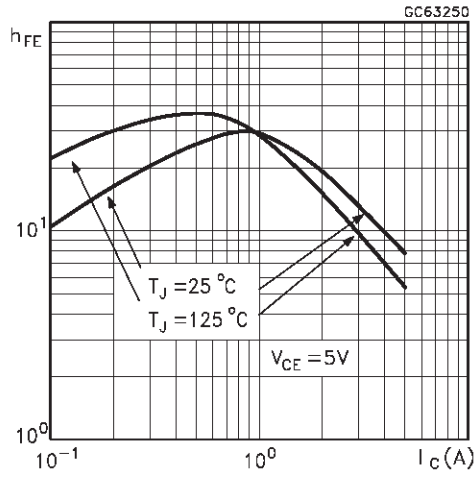
Safe Operating Area (TO-3)



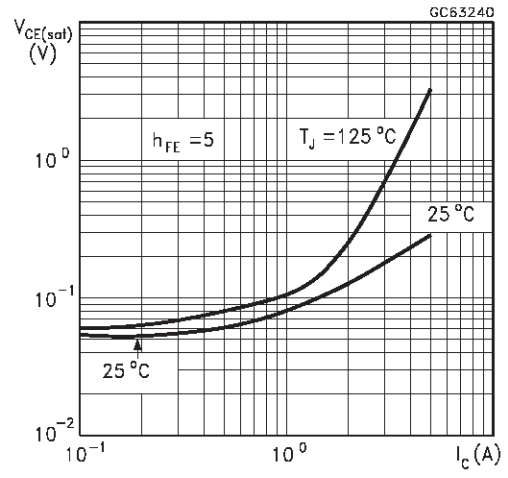
Safe Operating Area (ISOWATT218)



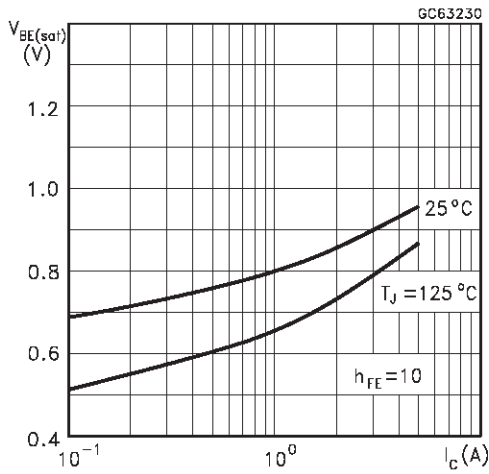
DC Current Gain



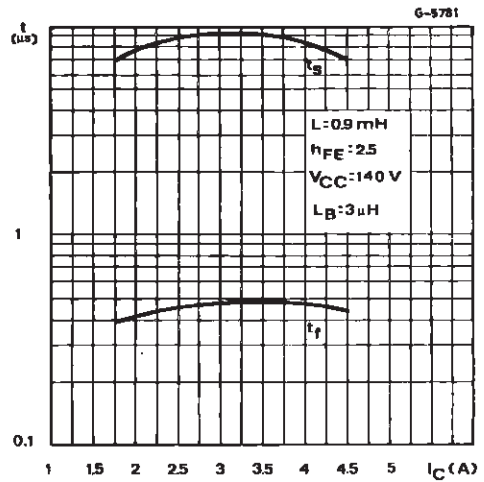
Collector Emitter Saturation Voltage



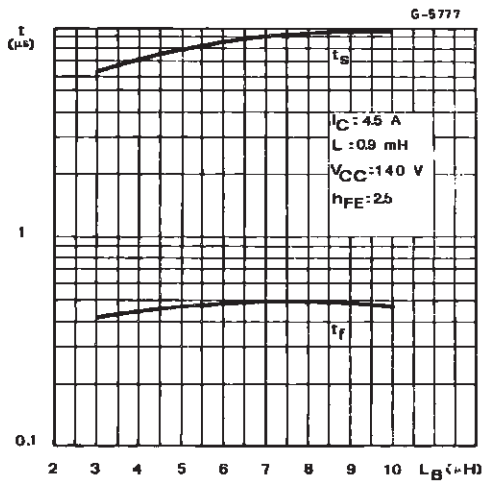
Base Emitter Saturation Voltage



Switching Time Inductive Load



Switching Time Inductive Load (see figure 1)



Switching Time Percentance vs. Case

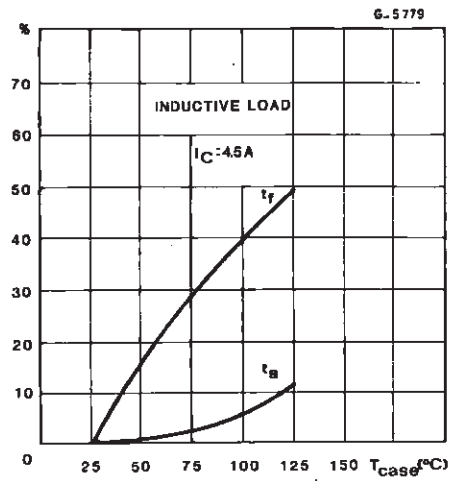
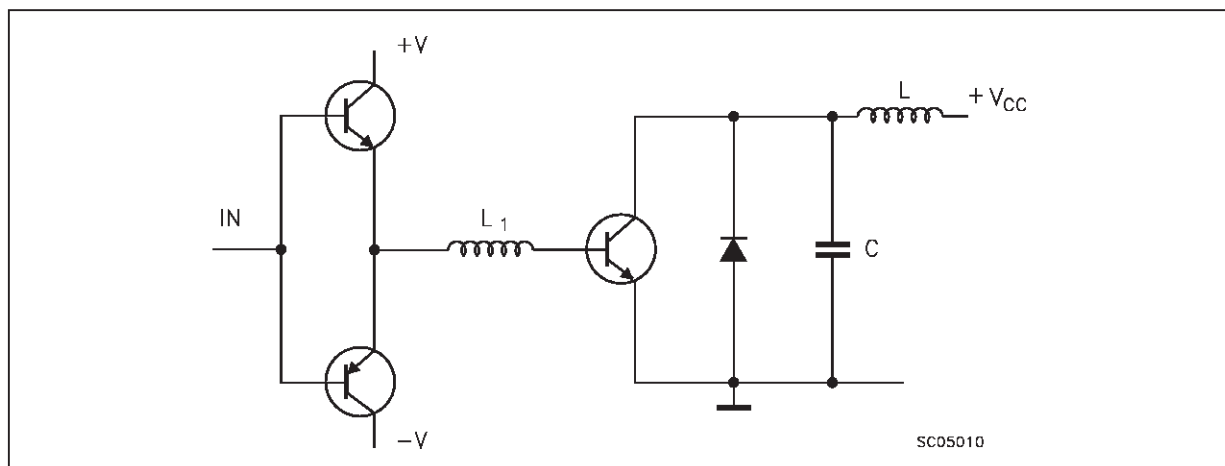
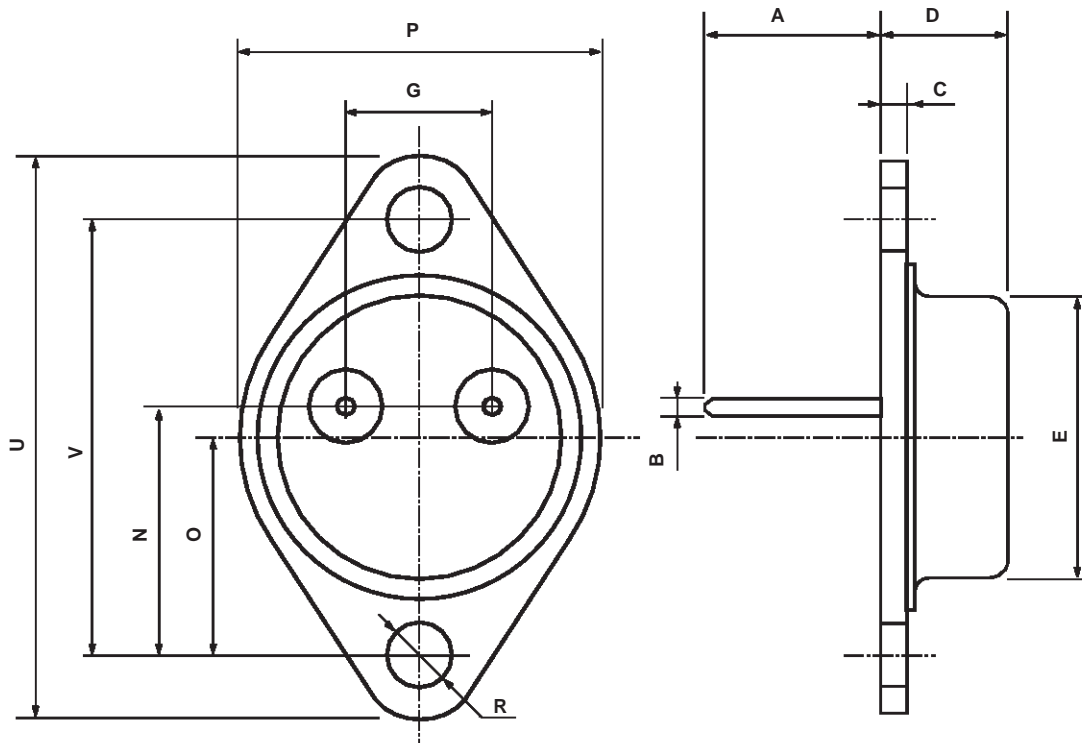


Figure 1: Inductive Load Switching Test Circuit.



TO-3 MECHANICAL DATA

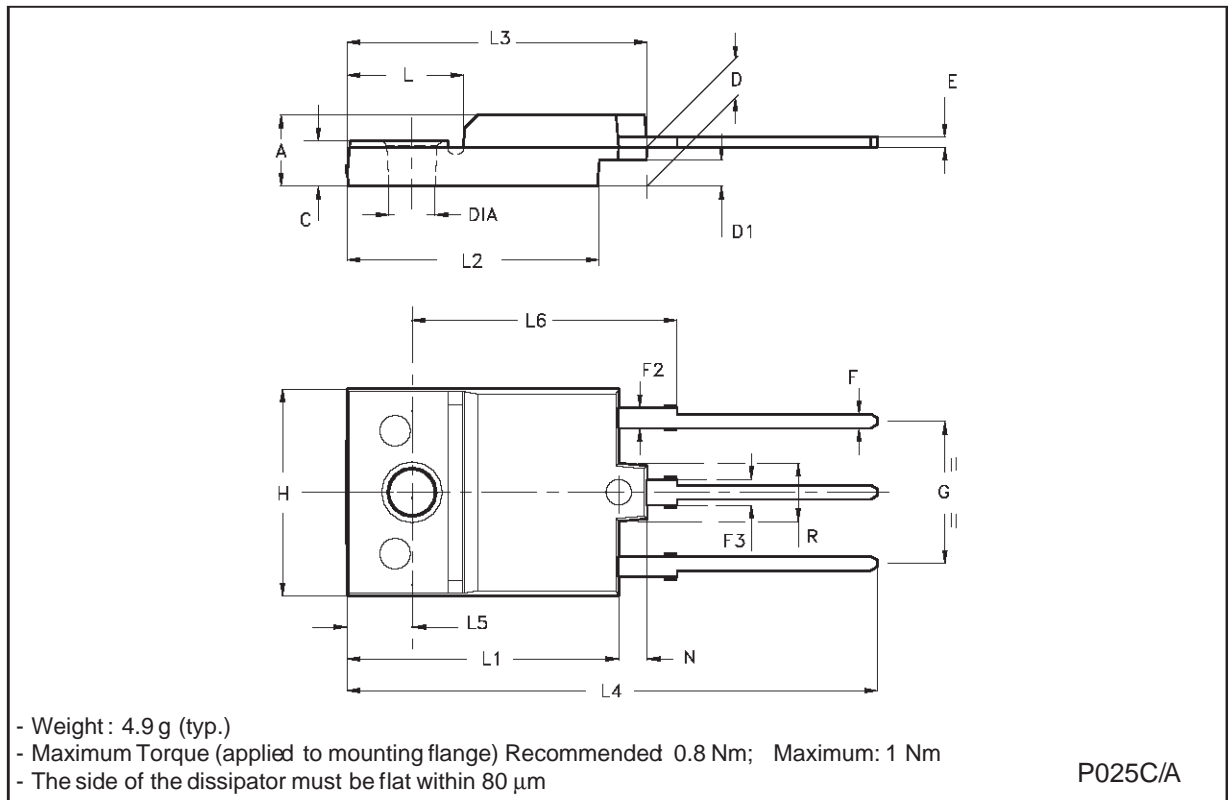
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193



P003F

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



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