

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE
- HIGH VOLTAGE CAPABILITY
- U.L. RECOGNISED ISOWATT218 PACKAGE (U.L. FILE # E81734 (N))

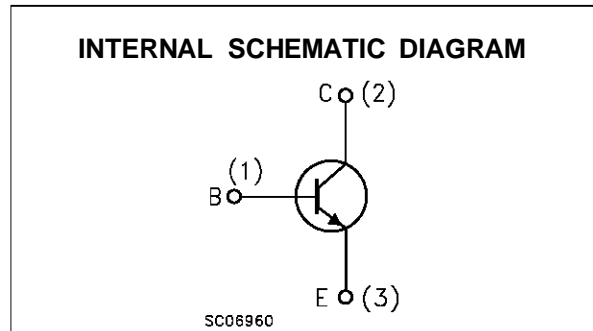
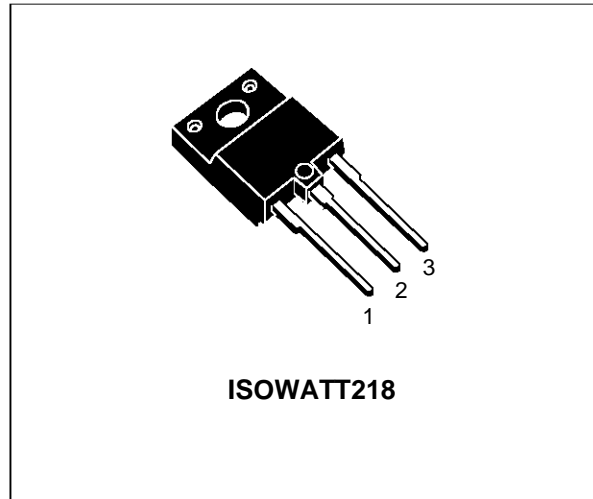
APPLICATIONS:

- HORIZONTAL DEFLECTION FOR MONITORS
- SWITCH MODE POWER SUPPLIES

DESCRIPTION

The BUH715 is manufactured using Multi-epitaxial Mesa technology for cost-effective high performance and uses a Hollow Emitter structure to enhance switching speeds.

The BUH series is designed for use in horizontal deflection circuits in televisions and monitors.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	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	10	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	20	A
I_B	Base Current	5	A
I_{BM}	Base Peak Current ($t_p < 5$ ms)	10	A
P_{tot}	Total Dissipation at $T_C = 25$ °C	57	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

BUH715

THERMAL DATA

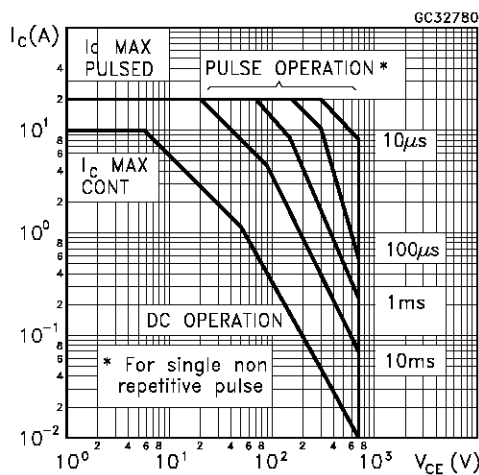
R _{thj-case}	Thermal Resistance Junction-case	Max	2.2	°C/W
-----------------------	----------------------------------	-----	-----	------

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

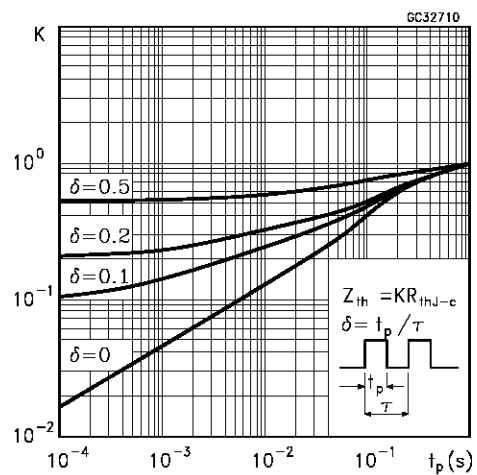
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	V _{CE} = 1500 V V _{CE} = 1500 V T _j = 125 °C			1 2	mA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			100	μA
V _{CEO(sus)}	Collector-Emitter Sustaining Voltage	I _C = 100 mA	700			V
V _{EBO}	Emitter-Base Voltage (I _C = 0)	I _E = 10 mA	10			V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = 7 A I _B = 1.5 A			1.5	V
V _{BE(sat)*}	Base-Emitter Saturation Voltage	I _C = 7 A I _B = 1.5 A			1.3	V
h _{FE*}	DC Current Gain	I _C = 7 A V _{CE} = 5 V I _C = 7 A V _{CE} = 5 V T _j = 100 °C	8 5		16	
t _s t _f	RESISTIVE LOAD Storage Time Fall Time	V _{CC} = 400 V I _C = 7 A I _{B1} = 1.5 A I _{B2} = 3.5 A		2.1 140	3.1 210	μs ns
t _s t _f	INDUCTIVE LOAD Storage Time Fall Time	I _C = 7 A f = 15625 Hz I _{B1} = 1.5 A I _{B2} = -3.5 A V _{ceflyback} = 1050 sin(π/10 10 ⁶) t V		3.5 350		μs ns
t _s t _f	INDUCTIVE LOAD Storage Time Fall Time	I _C = 7 A f = 31250 Hz I _{B1} = 1.5 A I _{B2} = -3.5 A V _{ceflyback} = 1200 sin(π/5 10 ⁶) t V		3.5 320		μs ns

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

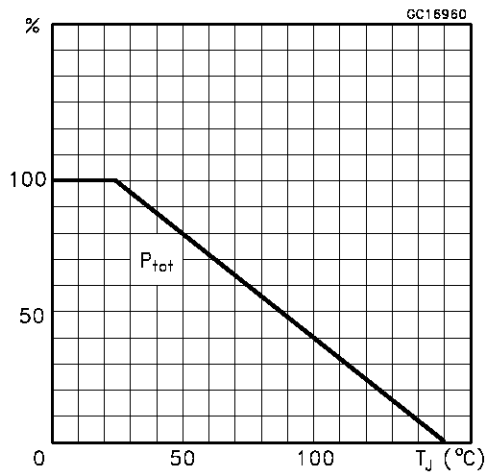
Safe Operating Area



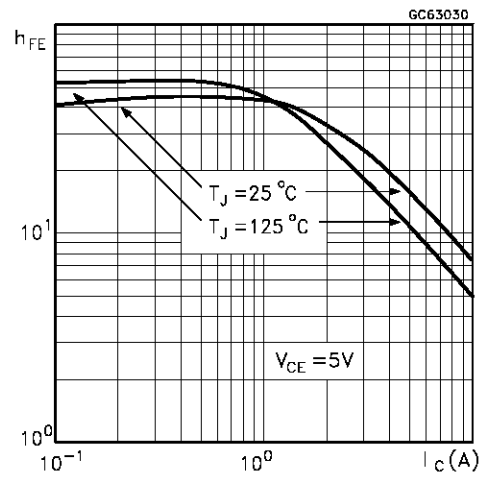
Thermal Impedance



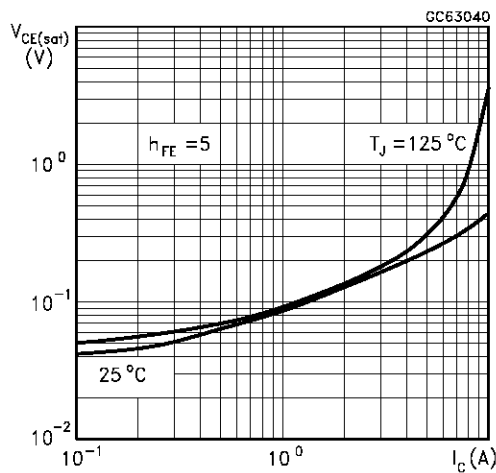
Derating Curve



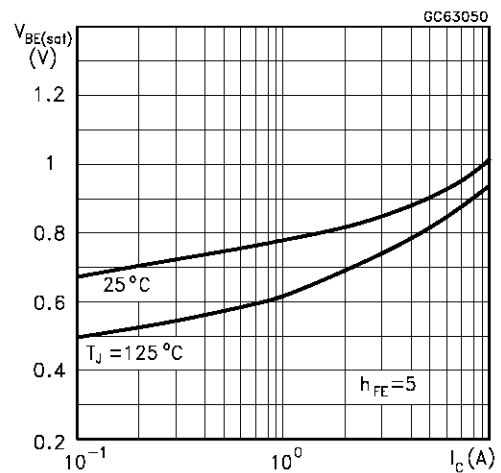
DC Current Gain



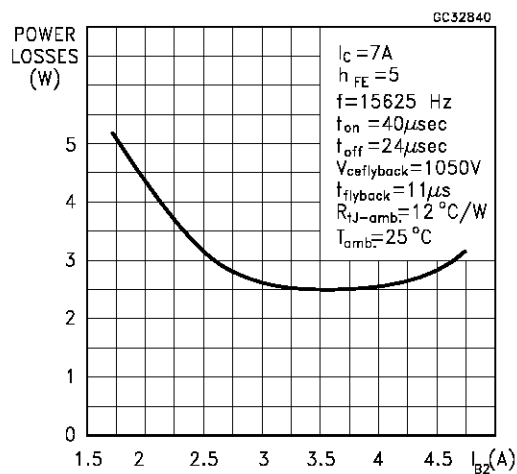
Collector Emitter Saturation Voltage



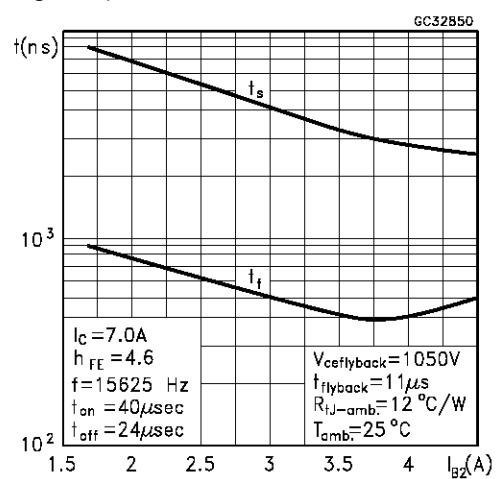
Base Emitter Saturation Voltage



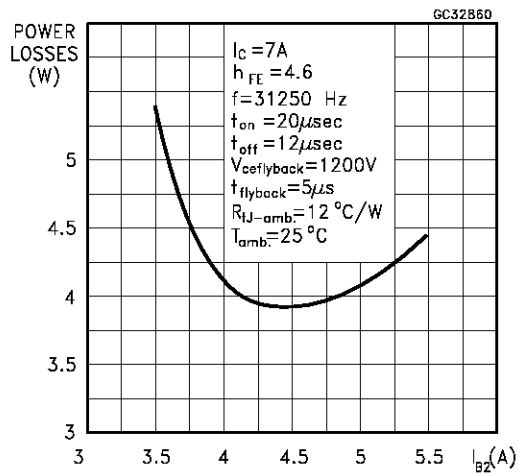
Power Losses at 16 KHz



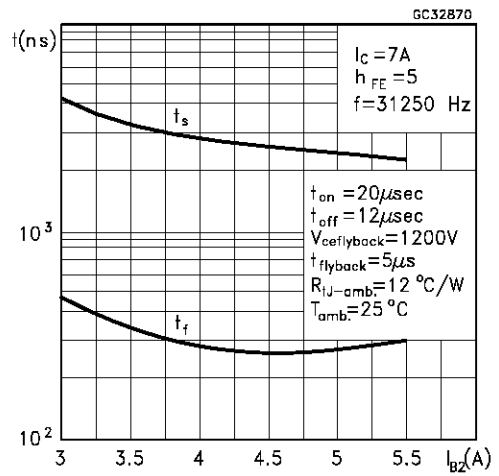
Switching Time Inductive Load at 16KHz (see figure 2)



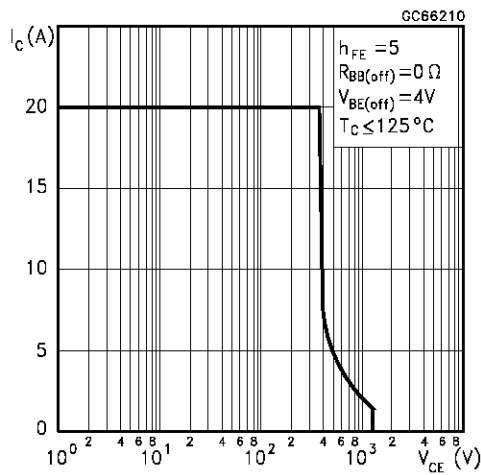
Power Losses at 32 KHz



Switching Time Inductive Load at 32 KHz (see figure 2)



Reverse Biased SOA



BASE DRIVE INFORMATION

Figure 1: Inductive Load Switching Test Circuits.

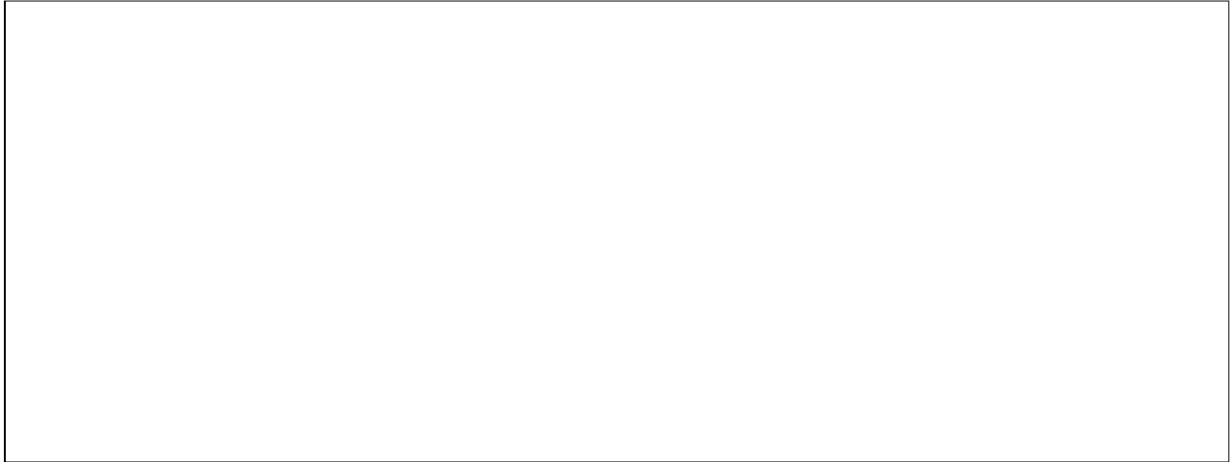
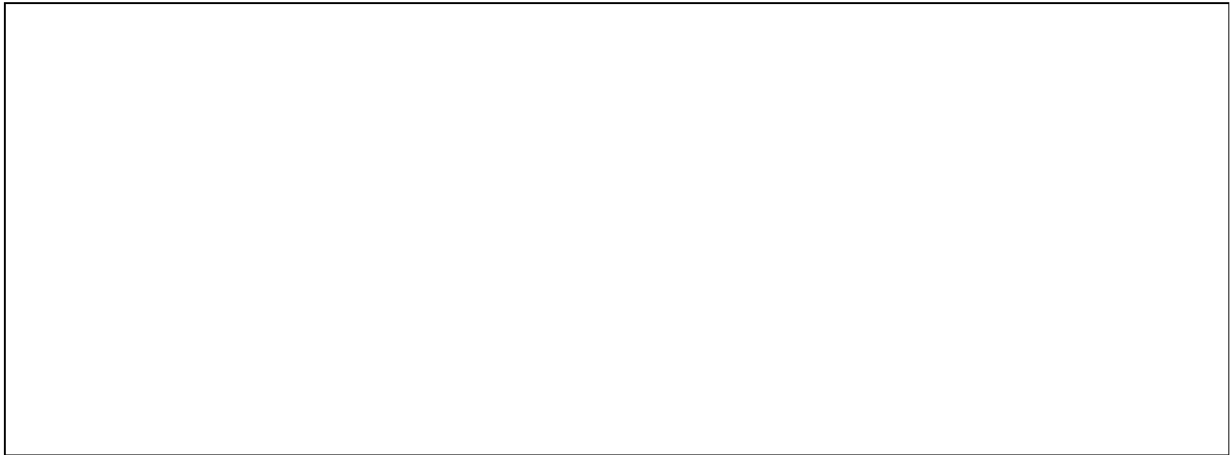
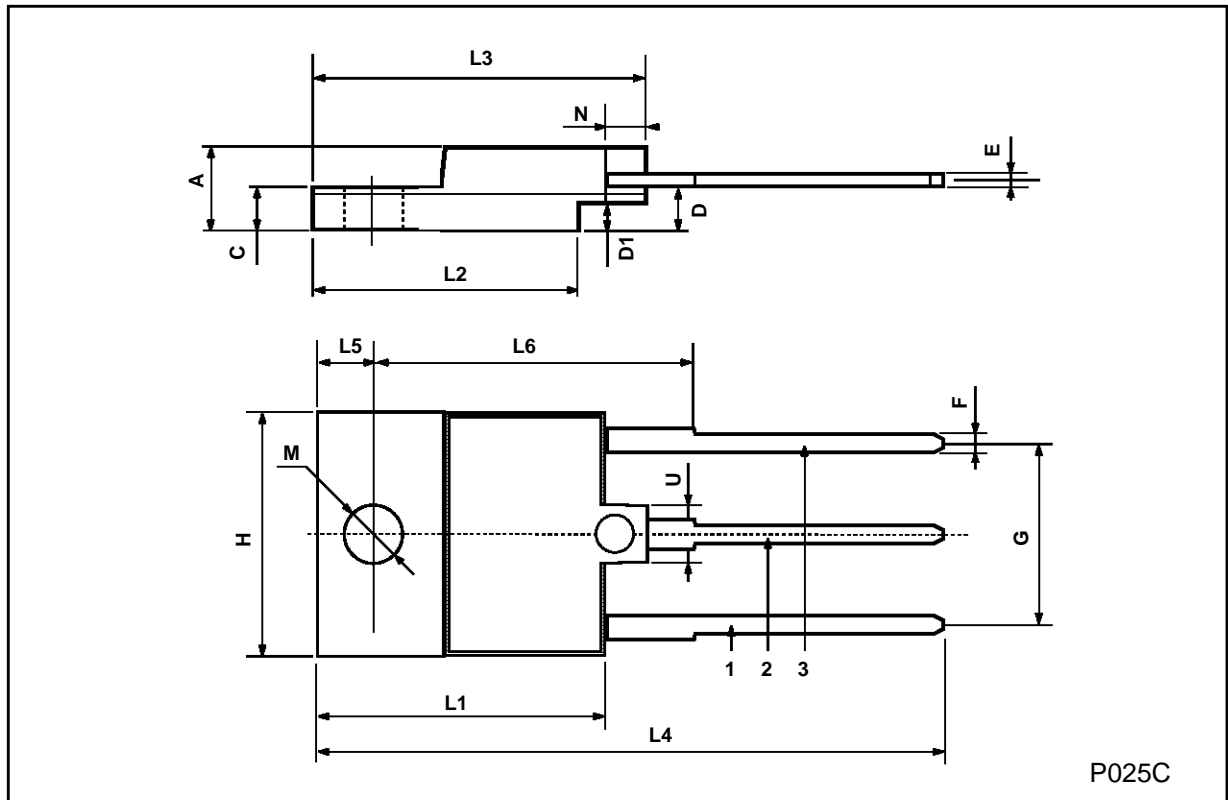


Figure 2: Switching Waveforms in a Deflection Circuit



ISOWATT218 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	5.35		5.65	0.210		0.222
C	3.3		3.8	0.130		0.149
D	2.9		3.1	0.114		0.122
D1	1.88		2.08	0.074		0.081
E	0.75		1	0.029		0.039
F	1.05		1.25	0.041		0.049
G	10.8		11.2	0.425		0.441
H	15.8		16.2	0.622		0.637
L1	20.8		21.2	0.818		0.834
L2	19.1		19.9	0.752		0.783
L3	22.8		23.6	0.897		0.929
L4	40.5		42.5	1.594		1.673
L5	4.85		5.25	0.190		0.206
L6	20.25		20.75	0.797		0.817
M	3.5		3.7	0.137		0.145
N	2.1		2.3	0.082		0.090
U		4.6			0.181	



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics 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 SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1996 SGS-THOMSON Microelectronics - Printed in Italy - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A