

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

- STMicroelectronics PREFERRED SALES TYPE
- HIGH VOLTAGE CAPABILITY
- U.L. RECOGNISED ISOWATT218 PACKAGE (U.L. FILE # E81734 (N)).

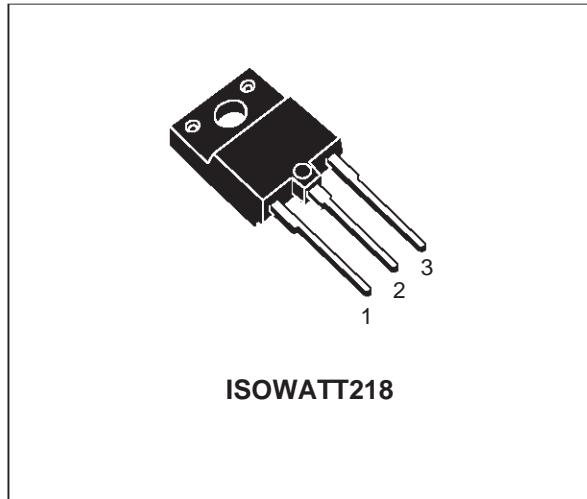
APPLICATIONS

- HORIZONTAL DEFLECTION FOR COLOUR TV AND MONITORS

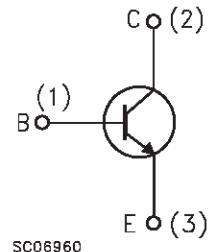
DESCRIPTION

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

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



INTERNAL SCHEMATIC DIAGRAM



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

THD215HI

THERMAL DATA

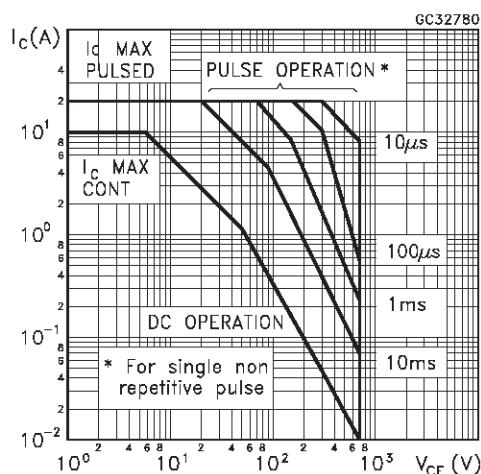
$R_{thj-case}$	Thermal Resistance Junction-case	Max	2.2	$^{\circ}\text{C/W}$
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

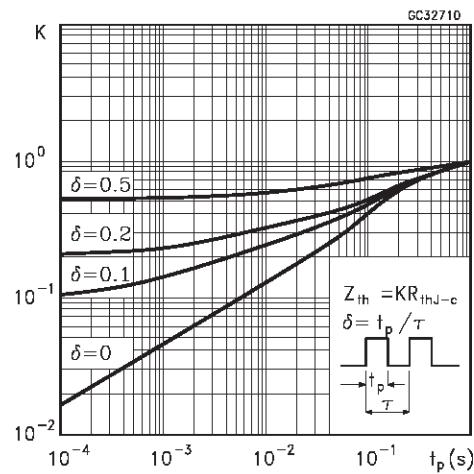
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 700 \text{ V}$			10	μA
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 1500 \text{ V}$			10	μA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 \text{ V}$			100	μA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 100 \text{ mA}$	700			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 6 \text{ A}$ $I_B = 1.2 \text{ A}$			1.3	V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 6 \text{ A}$ $I_B = 1.2 \text{ A}$			1.3	V
$h_{FE}*$	DC Current Gain	$I_C = 10 \text{ mA}$ $V_{CE} = 5 \text{ V}$ $I_C = 6 \text{ A}$ $V_{CE} = 5 \text{ V}$ $I_C = 6 \text{ A}$ $V_{CE} = 5 \text{ V}$ $T_j = 125^{\circ}\text{C}$	10 6 4		13	
t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	$I_C = 4.5 \text{ A}$ $f = 64 \text{ KHz}$ $I_{B1} = 1.5 \text{ A}$ $I_{B2} = -2.4 \text{ A}$ $V_{ceflyback} = 1100 \sin\left(\frac{\pi}{5} 10^6\right) t \text{ V}$		3.3 160		μs ns

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

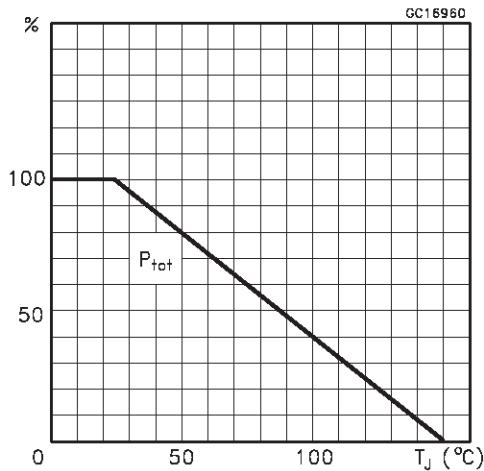
Safe Operating Area



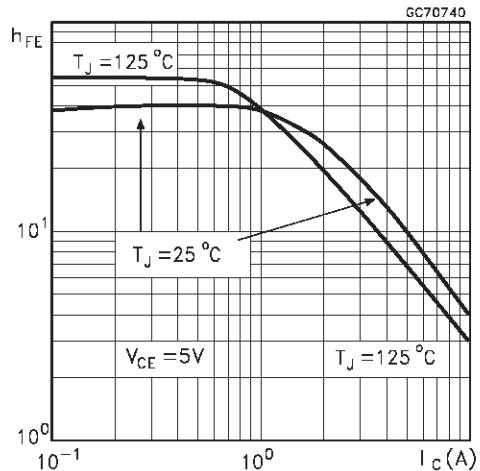
Thermal Impedance



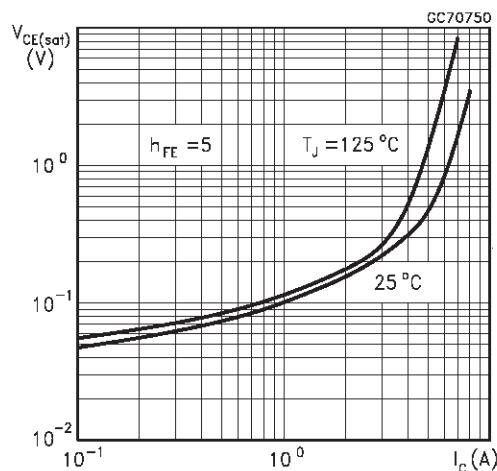
Derating Curve



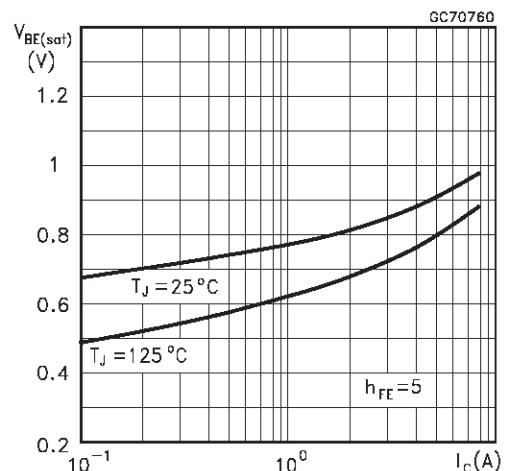
DC Current Gain



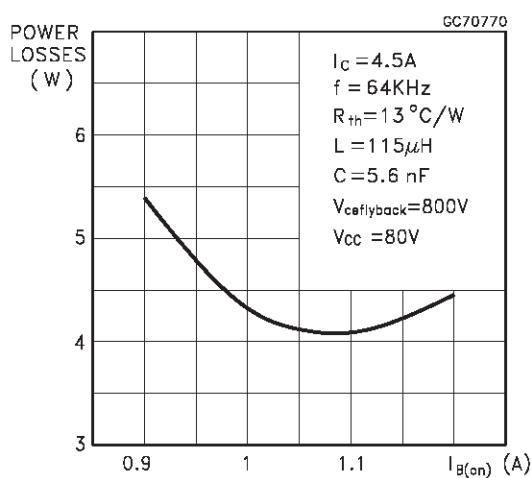
Collector Emitter Saturation Voltage



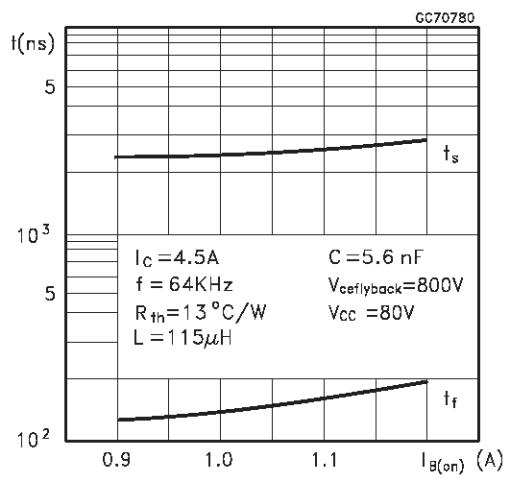
Base Emitter Saturation Voltage



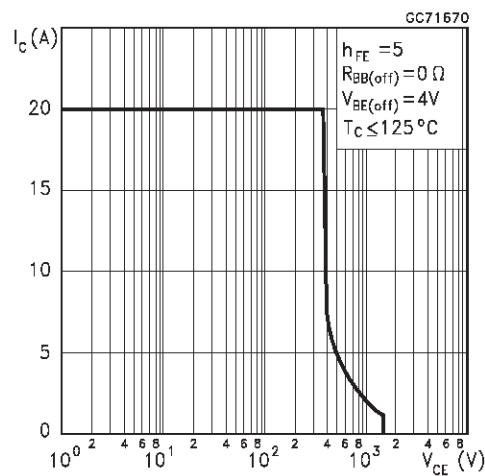
Power Losses at 64 KHz



Switching Time Inductive Load at 64 KHz

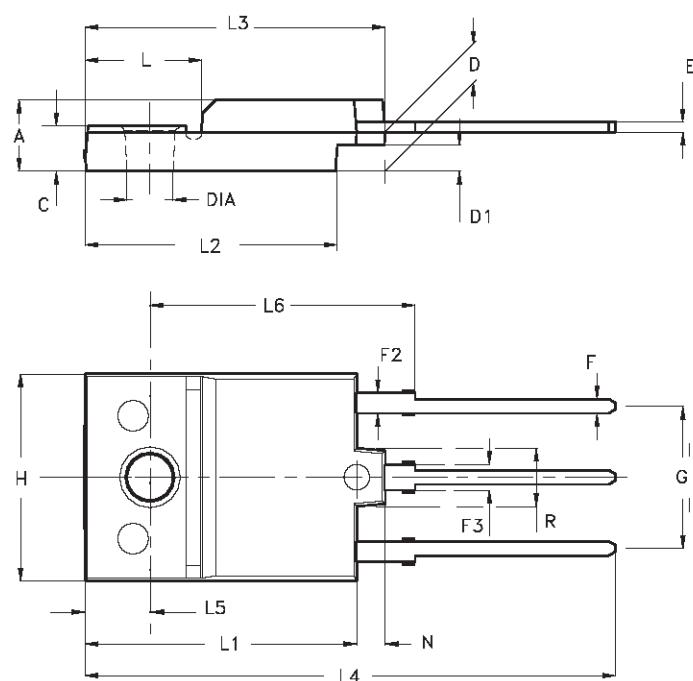


Reverse Biased SOA



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

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