

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

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

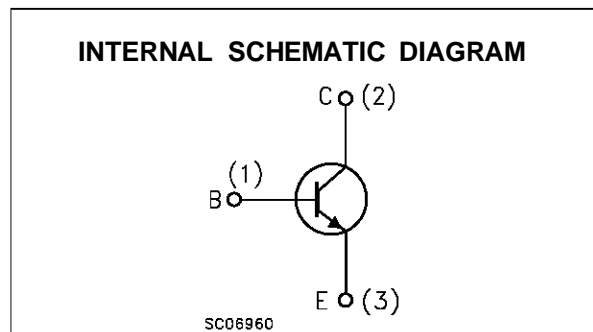
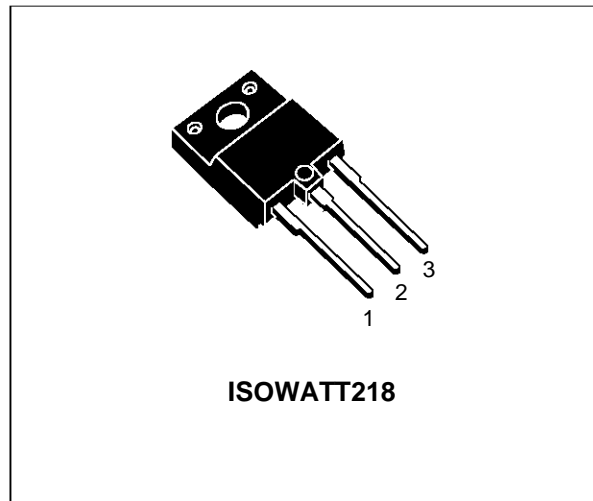
APPLICATIONS:

- HORIZONTAL DEFLECTION FOR MONITORS

DESCRIPTION

The THD200FI is manufactured using Multi-epitaxial 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.



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

THD200FI

THERMAL DATA

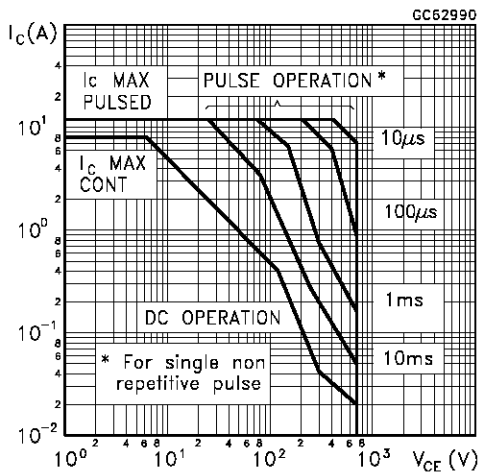
R _{thj-case}	Thermal Resistance Junction-case	Max	2.2	°C/W
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

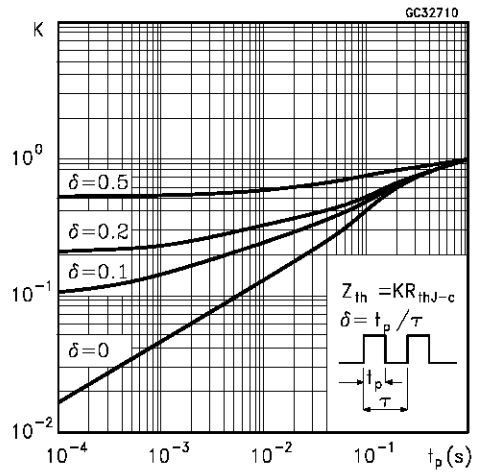
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CES}	Collector Cut-off Current (V _{BE} = 0)	V _{CE} = 1500 V V _{CE} = 1500 V T _j = 125 °C			1 2	mA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			100	μA
V _{CEO(sus)}	Collector-Emitter Sustaining Voltage	I _C = 100 mA	700			V
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 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	6.5 4		13	
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
t _s t _f	INDUCTIVE LOAD Storage Time Fall Time	I _C = 7 A f = 64 KHz I _{B1} = 1.5 A I _{B2} = -3.5 A V _{ceflyback} = 1200 sin(π/5 10 ⁶) t V		1.7 215		μs ns

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

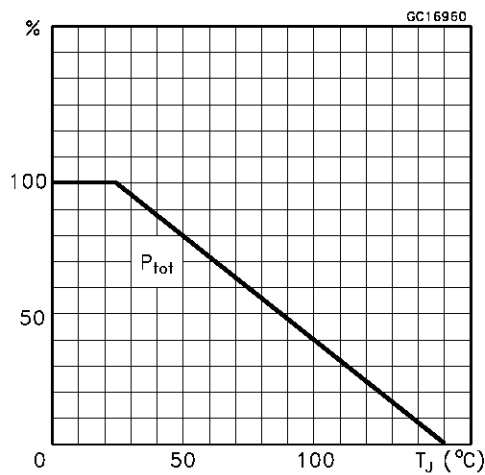
Safe Operating Area Derating Curve



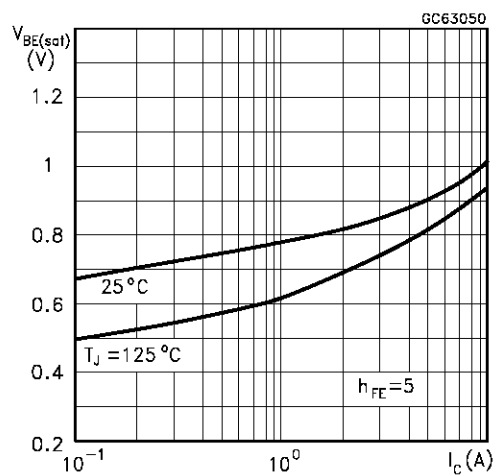
Thermal Impedance



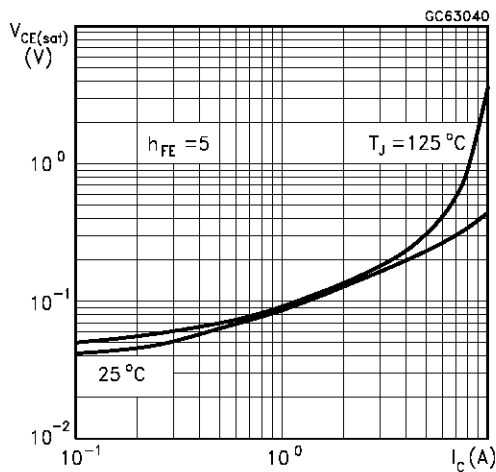
Derating Curve



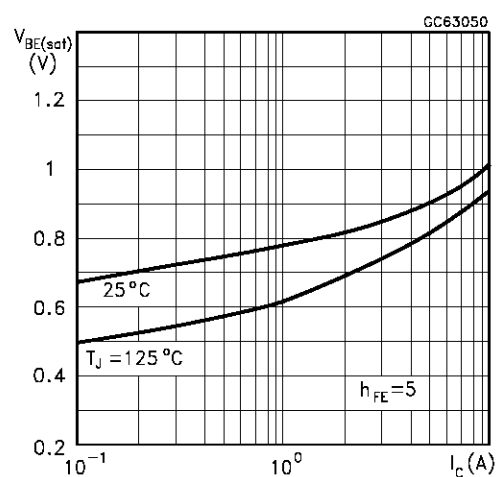
DC Current Gain



Collector Emitter Saturation Voltage

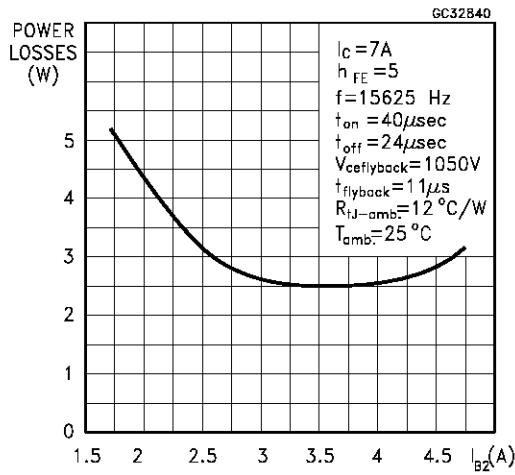


Base Emitter Saturation Voltage

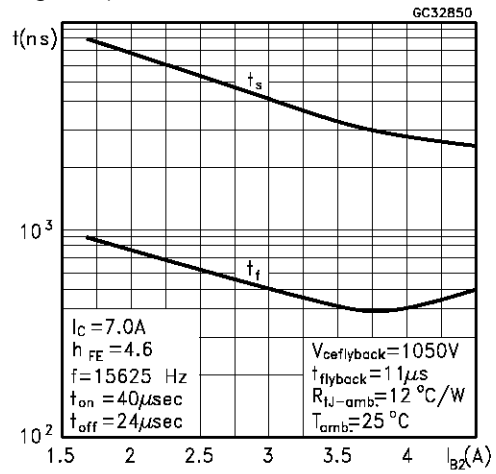


THD200FI

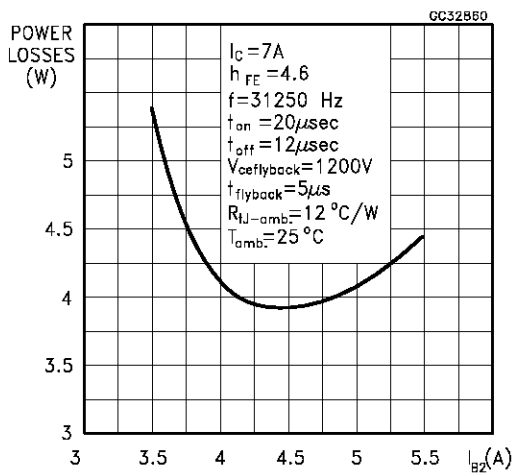
Power Losses at 16 KHz



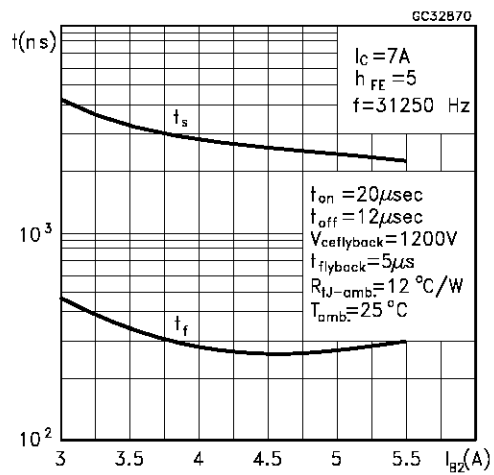
Switching Time Inductive Load at 16 KHz (see figure 2)



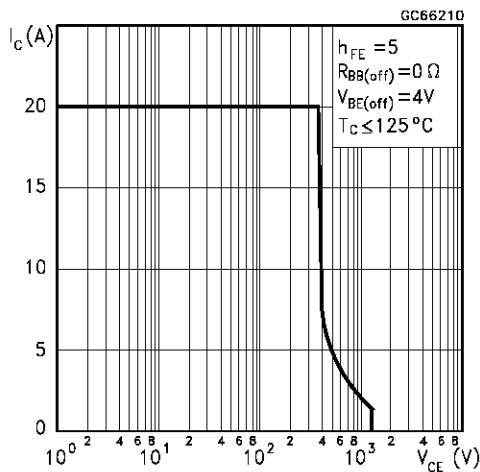
Power Losses at 32 KHz



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



Reverse Biased SOA



BASE DRIVE INFORMATION

Figure 1: Inductive Load Switching Test Circuits.

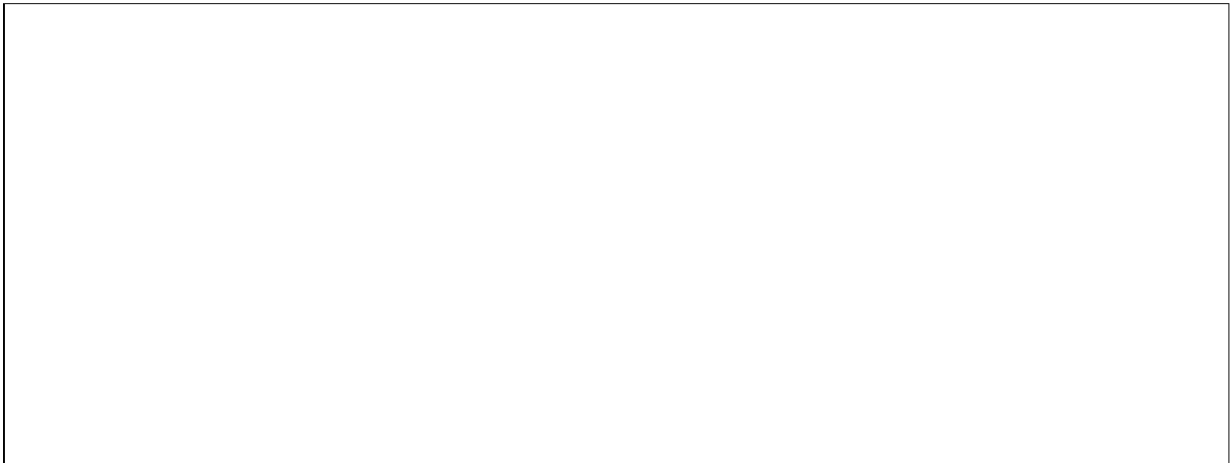
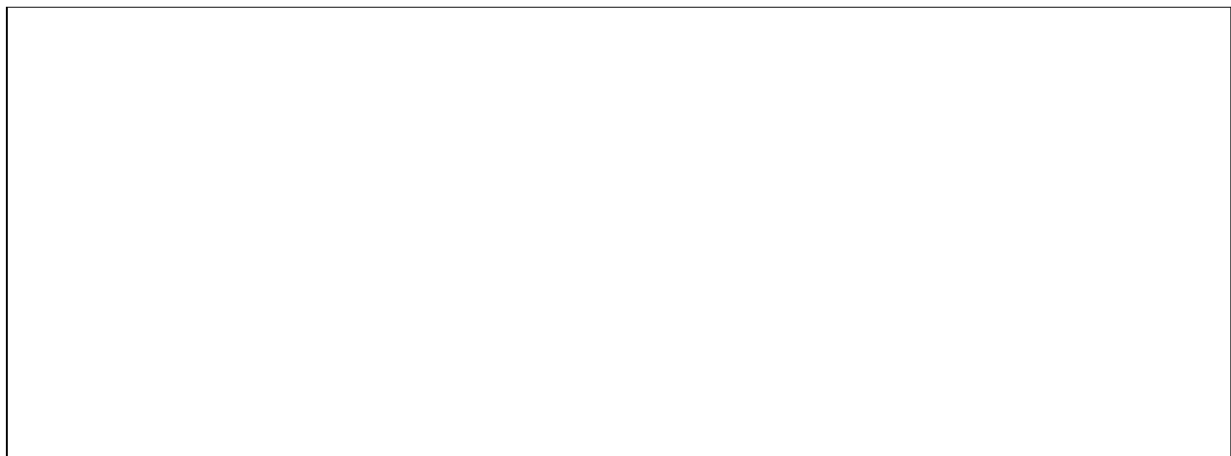
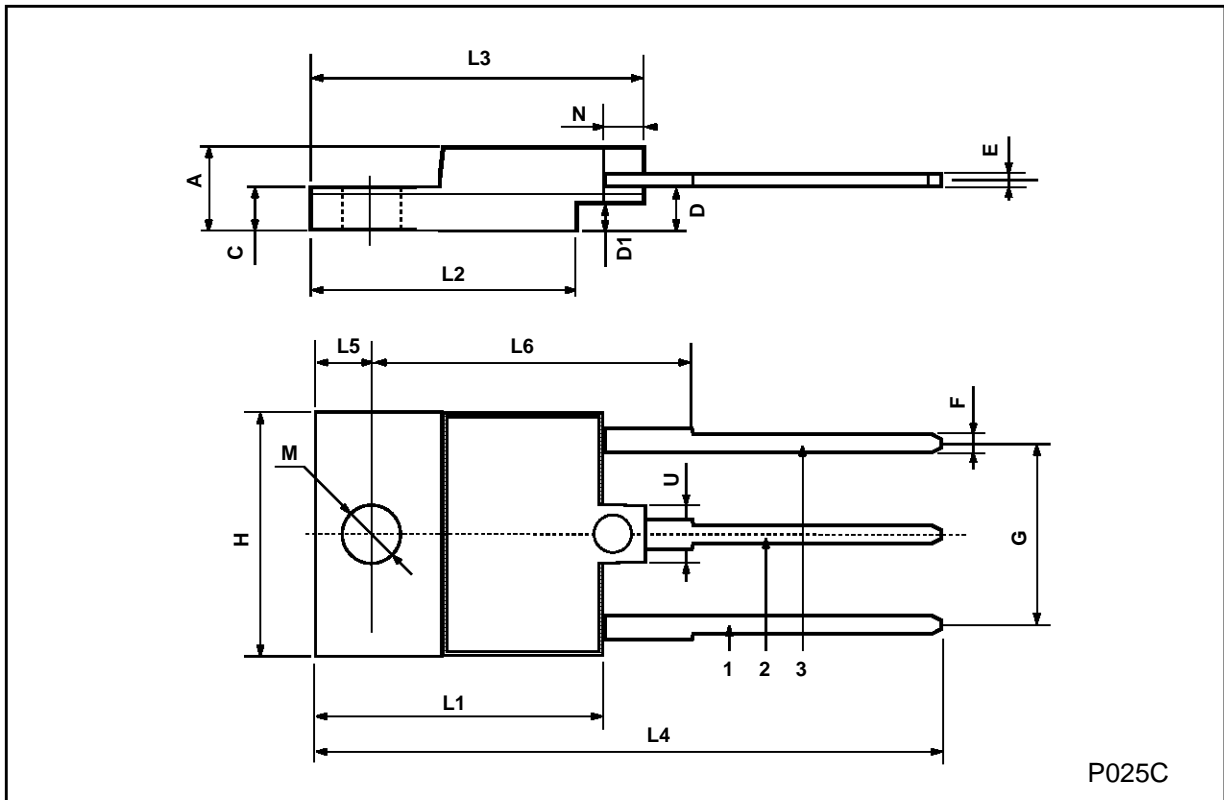


Figure 2: Switching Waveforms in a Deflection Circuit



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	



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