



Thyristor Module

VRRM / VDRM 800 to 1800V
ITAV 110A

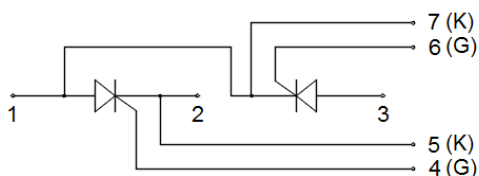
Applications

- Power Converters
- Lighting Control
- DC Motor Control and Drives
- Heat and temperature control

Features

- International standard package
- High Surge Capability
- Glass passivated chip
- Simple Mounting
- Heat transfer through aluminum oxide DBC ceramic isolated metal baseplate

Circuit



Module Type

TYPE	VRRM	VRSM
MT110C08T1D	800V	900V
MT110C12T1D	1200V	1300V
MT110C16T1D	1600V	1700V
MT110C18T1D	1800V	1900V

Maximum Ratings

Symbol	Conditions	Values	Units
I_{TAV}	Sine 180°, $T_c=85^\circ\text{C}$	110	A
I_{TSM}	$T_{VJ}=45^\circ\text{C}$ $t=10\text{ms}$, sine $T_{VJ}=125^\circ\text{C}$ $t=10\text{ms}$, sine	2250 1900	A
i^2t	$T_{VJ}=45^\circ\text{C}$ $t=10\text{ms}$, sine $T_{VJ}=125^\circ\text{C}$ $t=10\text{ms}$, sine	25000 18000	A^2s
V_{isol}	a.c.50HZ;r.m.s.;1min	3000	V
T_{vj}		-40 to 130	$^\circ\text{C}$
T_{stg}		-40 to 125	$^\circ\text{C}$
M_t	To terminals(M5)	$3 \pm 15\%$	Nm
M_s	To heatsink(M6)	$5 \pm 15\%$	Nm
di/dt	$T_{VJ}=T_{VJM}$, $2/3V_{DRM}$, $I_G=500\text{mA}$ $Tr<0.5\mu\text{s}$, $tp>6\mu\text{s}$	150	A/ μs
dv/dt	$T_J=T_{VJM}$, $2/3V_{DRM}$, linear voltage rise	1000	V/ μs
a	Maximum allowable acceleration	50	m/s^2
Weight	Module(Approximately)	100	g

Thermal Characteristics

Symbol	Conditions	Values	Units
$R_{th(j-c)}$	Cont.;per thyristor / per module	0.28/0.14	$^\circ\text{C/W}$
$R_{th(c-s)}$	per thyristor / per module	0.2/0.1	$^\circ\text{C/W}$



Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
V_{TM}	$T=25^{\circ}\text{C}$ $I_{TM}=300\text{A}$			1.65	V
I_{RRM}/I_{DRM}	$T_{VJ}=T_{VJM}$, $V_R=V_{RRM}$, $V_D=V_{DRM}$			20	mA
V_{TO}	For power-loss calculations only ($T_{VJ}=125^{\circ}\text{C}$)			0.9	V
r_T	$T_{VJ}=T_{VJM}$			2	m Ω
V_{GT}	$T_{VJ}=25^{\circ}\text{C}$, $V_D=6\text{V}$			3	V
I_{GT}	$T_{VJ}=25^{\circ}\text{C}$, $V_D=6\text{V}$			150	mA
V_{GD}	$T_{VJ}=125^{\circ}\text{C}$, $V_D=2/3V_{DRM}$			0.25	V
I_{GD}	$T_{VJ}=125^{\circ}\text{C}$, $V_D=2/3V_{DRM}$			6	mA
I_L	$T_{VJ}=25^{\circ}\text{C}$, $R_G=33\ \Omega$		300	600	mA
I_H	$T_{VJ}=25^{\circ}\text{C}$, $V_D=6\text{V}$		150	250	mA
tg δ	$T_{VJ}=25^{\circ}\text{C}$, $I_G=1\text{A}$, $di_G/dt=1\text{A/us}$	1			us
tq	$T_{VJ}=T_{VJM}$	100			us

Performance Curves

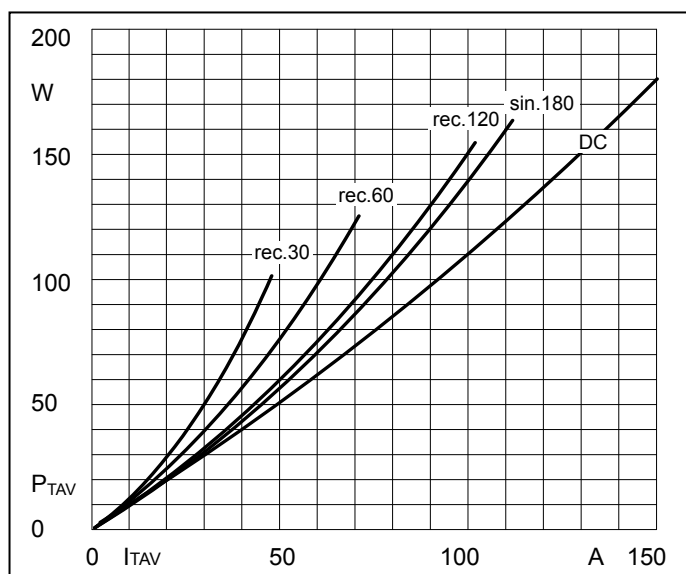


Fig1. Power dissipation

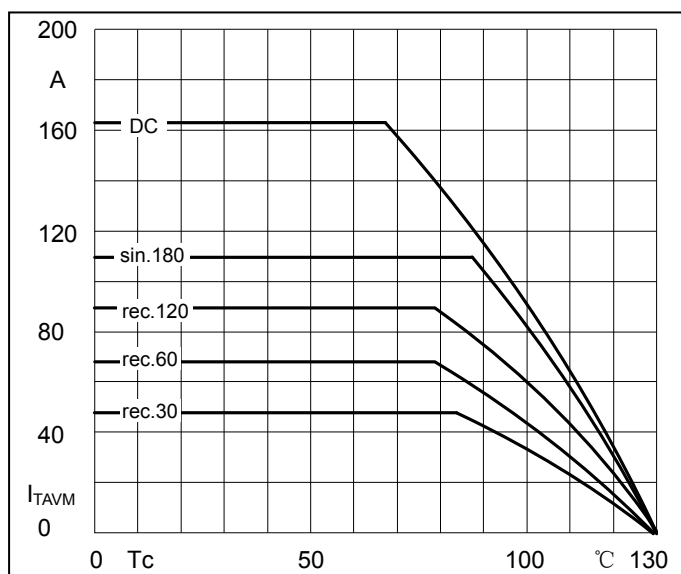


Fig2. Forward Current Derating Curve

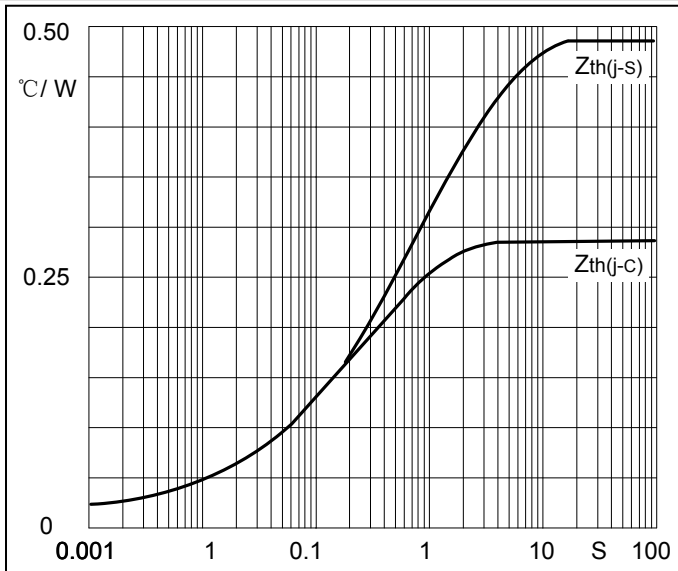


Fig3. Transient thermal impedance

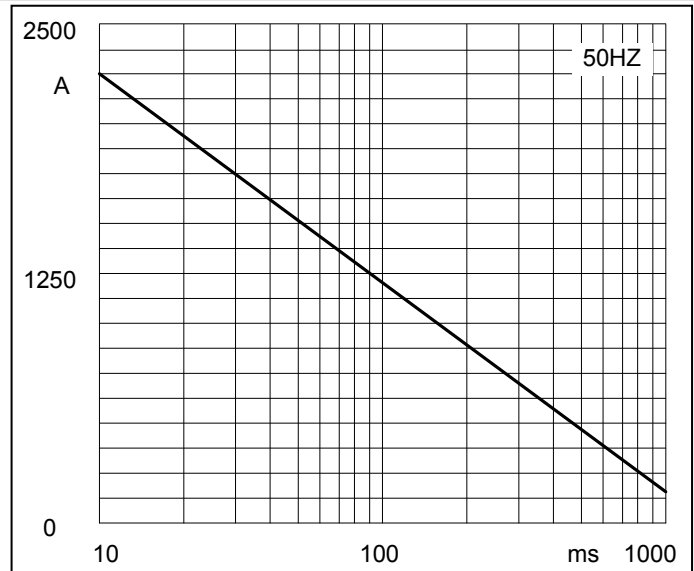


Fig4. Max Non-Repetitive Forward Surge Current

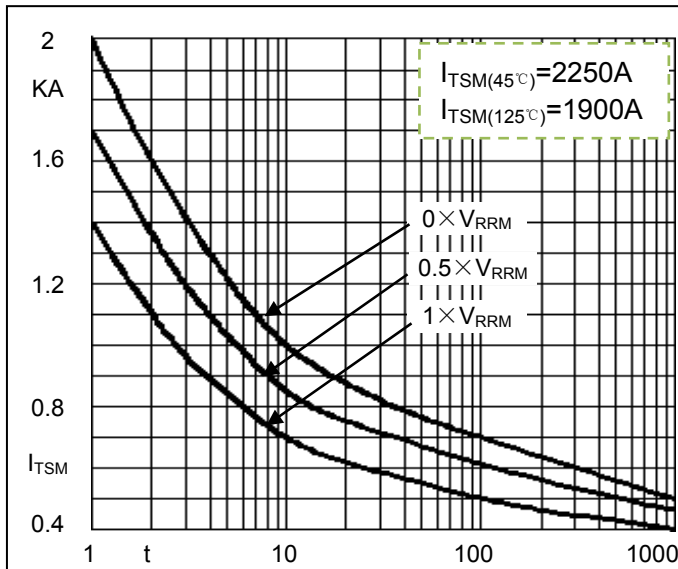


Fig5. Surge overload current vs. Cycles

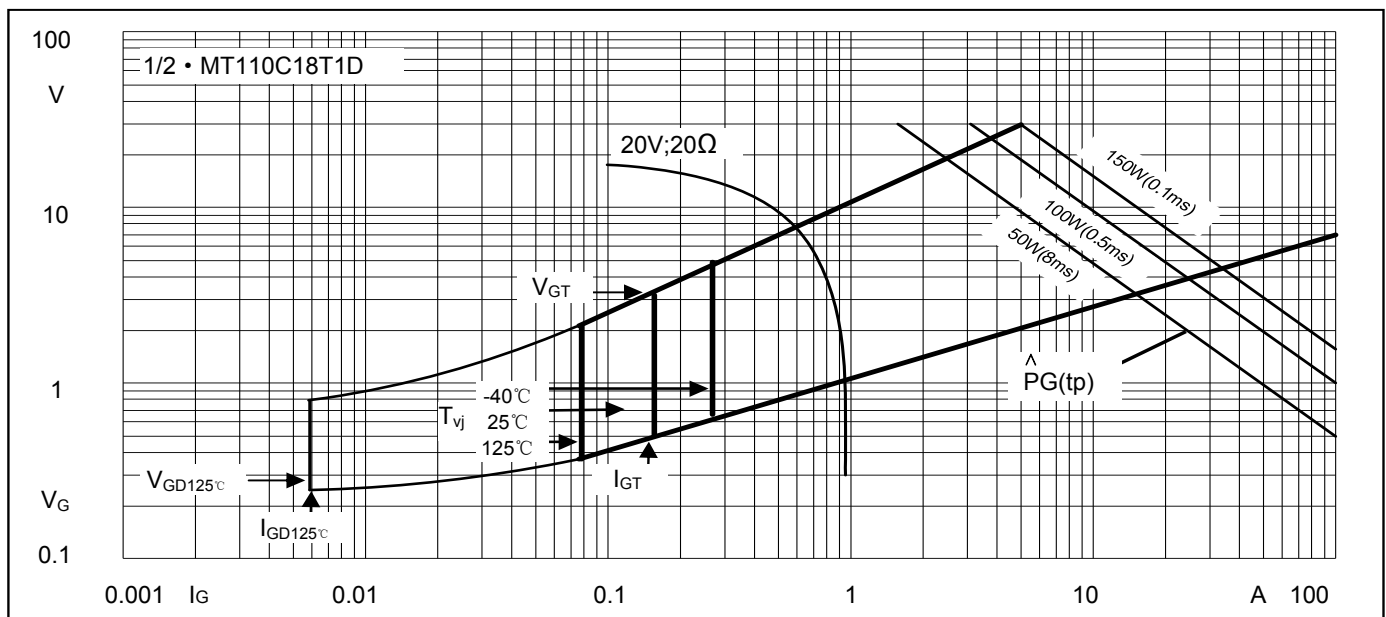
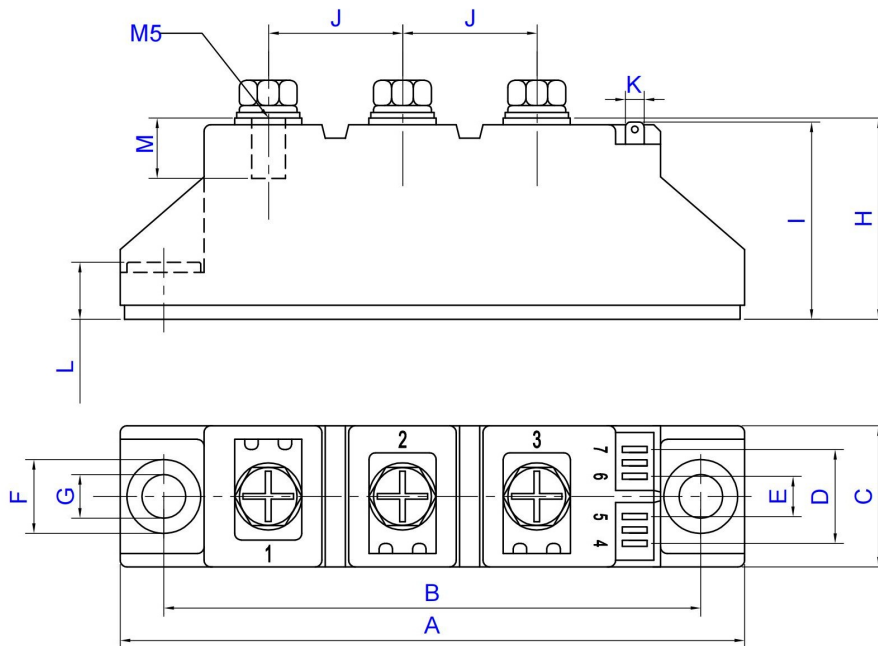


Fig6. Gate trigger Characteristics

Package Outline Information

CASE: T1



DIM	Min (mm)	Max (mm)	Note
A	92.5	93.5	
B	79.5	80.5	
C	20.5	21.5	
D	13.5	14.5	
E	5.5	6.5	
F	10.5	11.5	
G	6.2	6.8	Ø
H	29.5	30.5	
I	28.5	29.5	
J	19.5	20.5	
K	2.3	3.5	
L	8.2	8.8	
M	8.5	9.5	

Packing Standard

Item	Length: A (mm)	Width: B (mm)	Height: C (mm)	Quantity (PCS)
Inner Box	276	258	48	10
Outer Carton	545	295	240	100



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