

Thyristor Modules

V_{RRM} / V_{DRM} 800 to 1800V
I_{TAV} 90 A

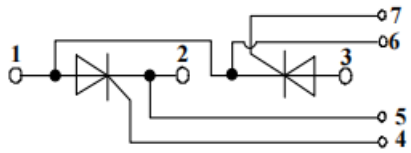
Applications

- 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	V_{RRM}/V_{DRM}	V_{RSM}
MT90C08T1	800V	900V
MT90C12T1	1200V	1300V
MT90C16T1	1600V	1700V
MT90C18T1	1800V	1900V

Maximum Ratings

Symbol	Conditions	Values	Units
I_{TAV}	Single phase ,half wave 180°conduction Tc=85□	90	A
I_{TSM}	t=10ms T_J =25□	2200	A
I^2t	t=10ms T_J =25□	24200	A^2s
V_{ISO}	AC 50Hz/60Hz; R.M.S; 1min	3000	V
T_J		-40 to +125	□
Tstg		-40 to +125	□
Mt	To Terminals(M5)	3±15%	N·m
Ms	To Heatsink(M6)	5±15%	N·m
di/dt	T_j =125□, 2/3V_{DRM} ,I_G =500mA Tr<0.5us,tp>6us	150	A/us
a	Maximum allowable acceleration	50	m/s^2
Weight		90	g

Thermal Characteristics

Symbol	Conditions	Values	Units
Rth(j-c)	Junction to Case(Per Thyristor)	0.3	□/W
Rth(c-s)	Case to Heat Sink	0.1	□/W

Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
V_{TM}	T_J =25□ IT=300A			1.65	V
I_{RRM}/I_{DRM}	T_J =125□ ,V_R=V_{RRM} ,V_D=V_{DRM}			20	mA
V_{T0}	T_J =125□			0.85	V
rT	T_J =125□			2.6	mΩ
V_{GT}	T_J =25□, V_D =6V			3	V
I_{GT}	T_J =25□, V_D =6V			150	mA
V_{GD}	T_J =125□, V_D =2/3V_{DRM}			0.25	V
I_{GD}	T_J =125□, V_D =2/3V_{DRM}			6	mA
I_L	T_J =25□, R_G = 33 Ω		100	300	mA
I_H	T_J =25□, V_D =6V		70	200	mA
t_{gd}	T_J =25□, I_G=1A, diG/dt=1A/us		1		us
t_q	T_J =125□		100		us
dv/dt	T_J =125□,2/3V_{DRM}, Linear voltage rise		1000		V/us

Performance Curves

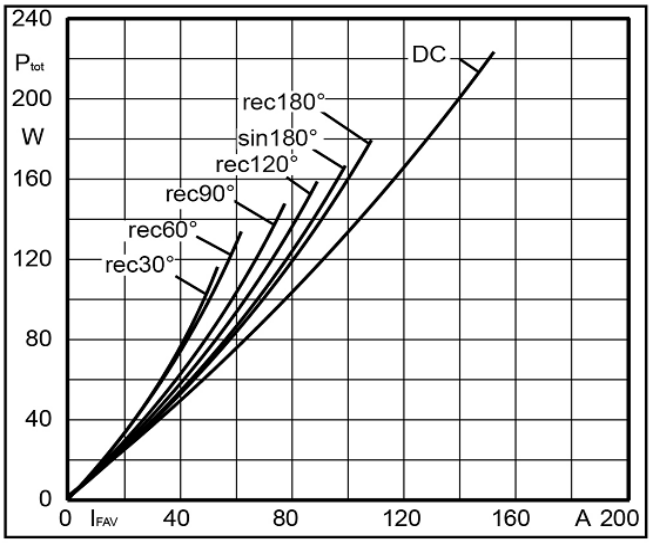


Fig1. Power dissipation

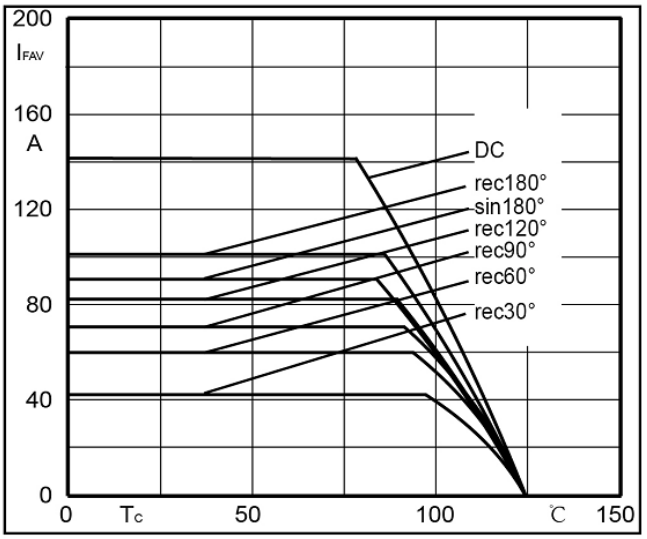


Fig2.Forward Current Derating Curve

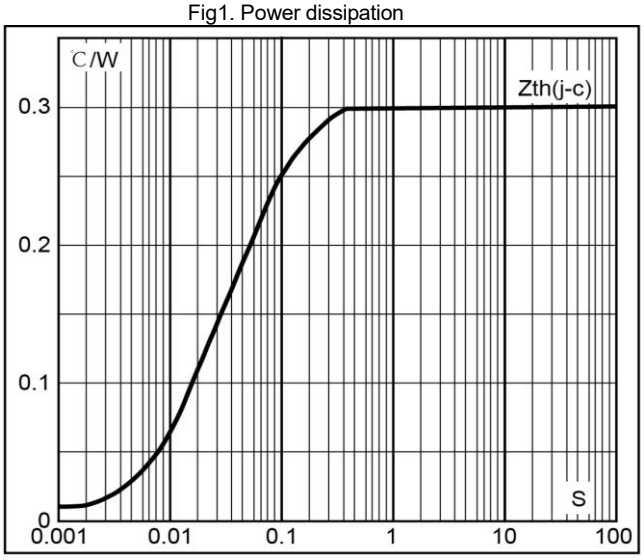


Fig3. Transient thermal impedance

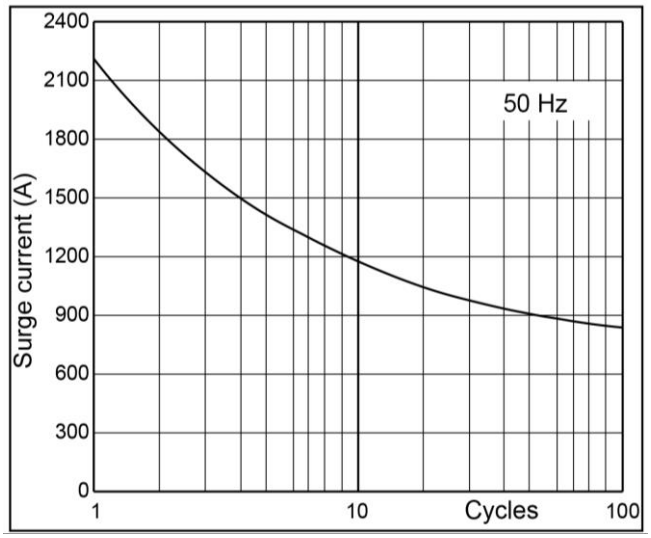


Fig4. Max Non-Repetitive Forward Surge Current

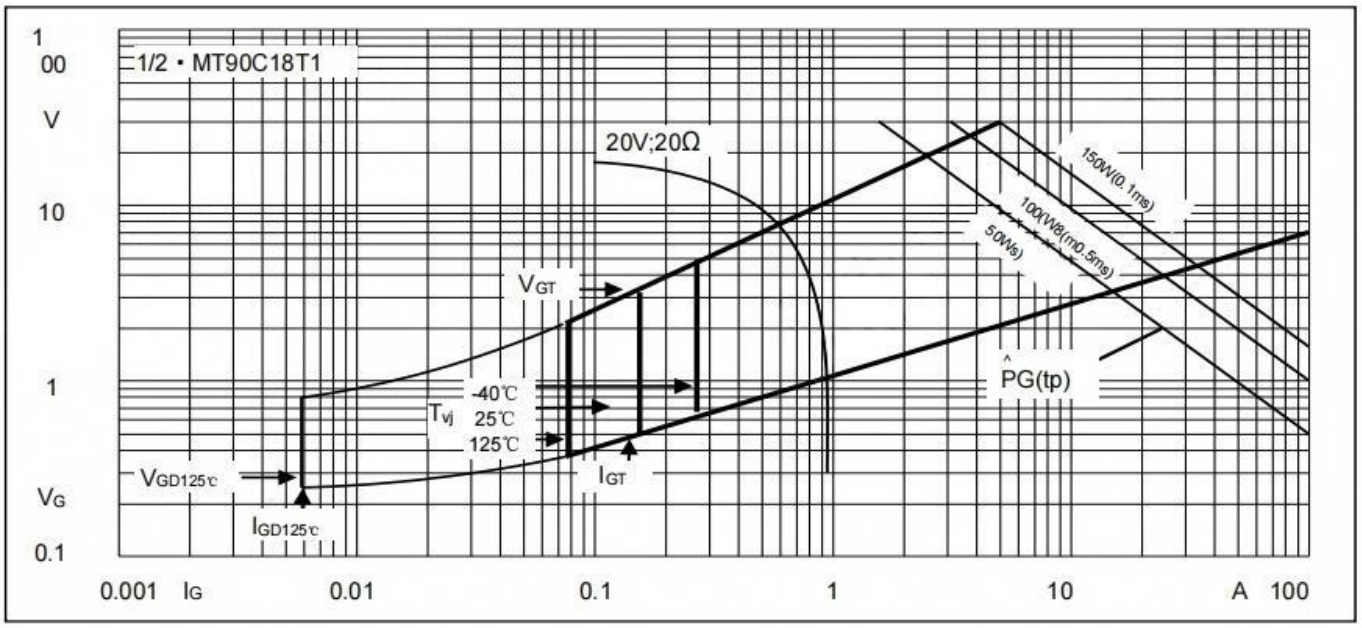
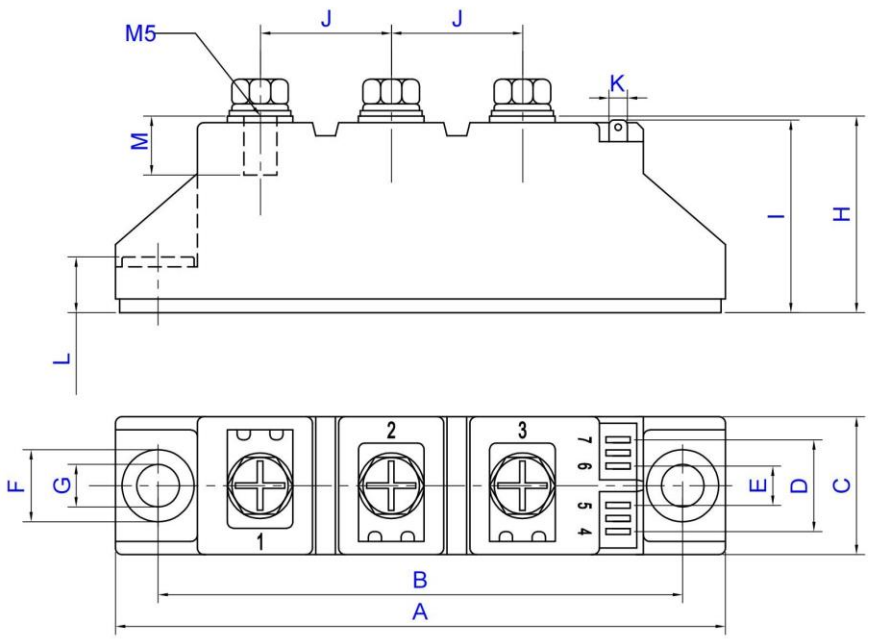


Fig5. Gate trigger Characteristics

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	120

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