

Thyristor Modules



V_{RRM} / V_{DRM} 800 to 1800V

I_{TAV} 90A

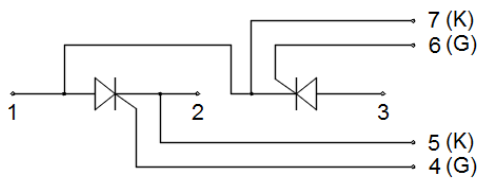
Applications

- 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 _{RSM}
MT90C08T1D	800V	900V
MT90C12T1D	1200V	1300V
MT90C16T1D	1600V	1700V
MT90C18T1D	1800V	1900V

Maximum Ratings

Symbol	Conditions	Values	Units
I _{TAV}	Sine 180°, T _c =85°C	90	A
I _{TSM}	T _{VJ} =45°C t=10ms, sine T _{VJ} =125°C t=10ms, sine	2000 1750	A
i ² t	T _{VJ} =45°C t=10ms, sine T _{VJ} =125°C t=10ms, sine	20000 15000	A ² s
Visol	a.c.50HZ;r.m.s.;1min	3000	V
T _{vj}		-40 to 130	°C
T _{stg}		-40 to 125	°C
Mt	To terminals(M5)	3 ± 15%	Nm
Ms	To heatsink(M6)	5 ± 15%	Nm
di/dt	T _{VJ} = T _{VJM} , 2/3V _{DRM} , I _G =500mA Tr<0.5us, tp>6us	150	A/us
dv/dt	T _J = T _{VJM} , 2/3V _{DRM} , linear voltage rise	1000	V/us
a	Maximum allowable acceleration	50	m/s ²
Weight	Module(Approximately)	100	g

Thermal Characteristics

Symbol	Conditions	Values	Units
Rth(j-c)	per thyristor / per module	0.28/0.14	°C/W
Rth(c-s)	per thyristor / per module	0.2/0.1	°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	$T_{VJ}=25^{\circ}\text{C}$, $I_G=1\text{A}$, $di_G/dt=1\text{A}/\mu\text{s}$	1			μs
t q	$T_{VJ}=T_{VJM}$	100			μs

Performance Curves

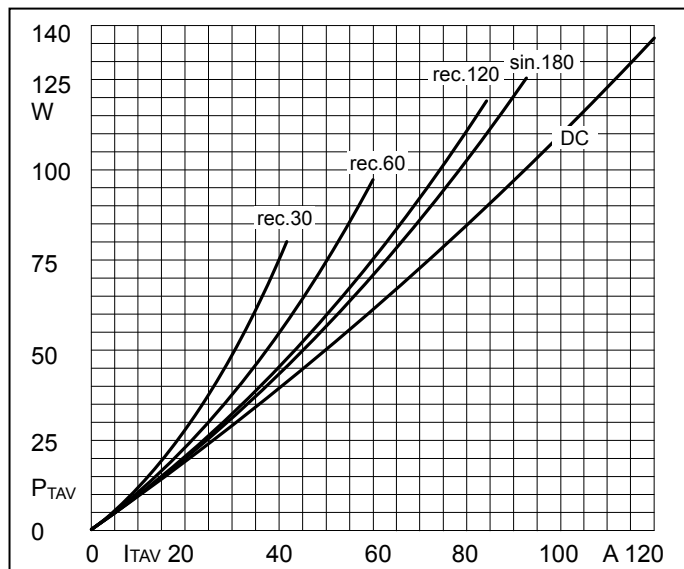


Fig1. Power dissipation

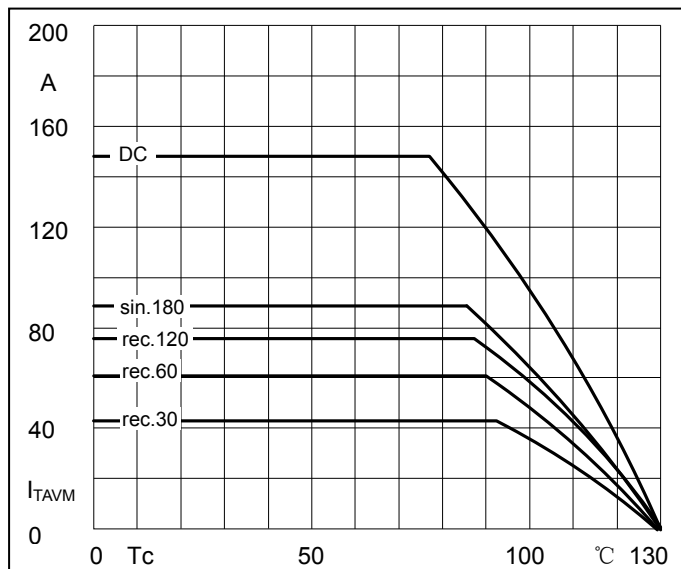


Fig2. Forward Current Derating Curve

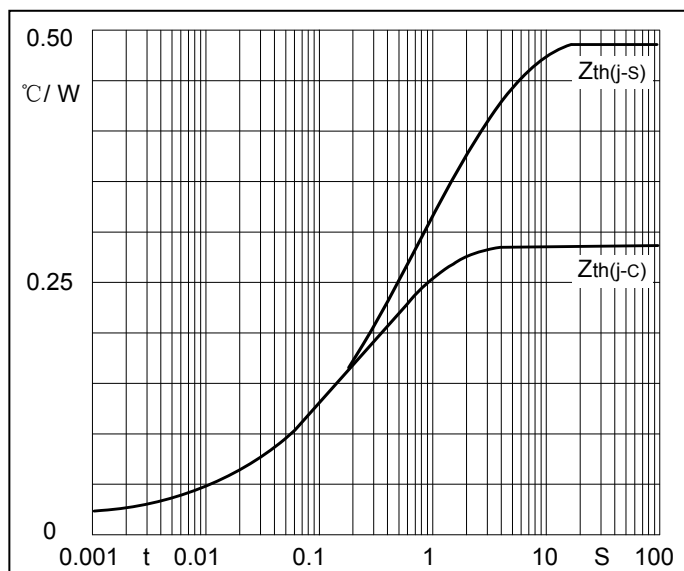


Fig3. Transient thermal impedance

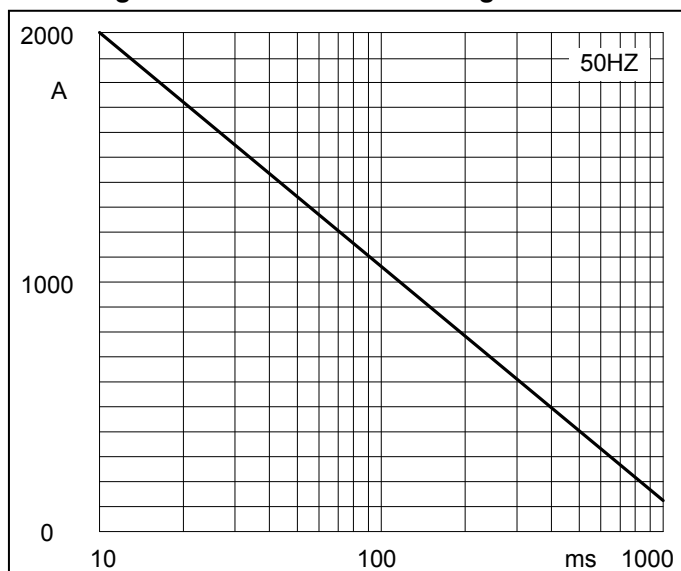


Fig4. Max Non-Repetitive Forward Surge Current

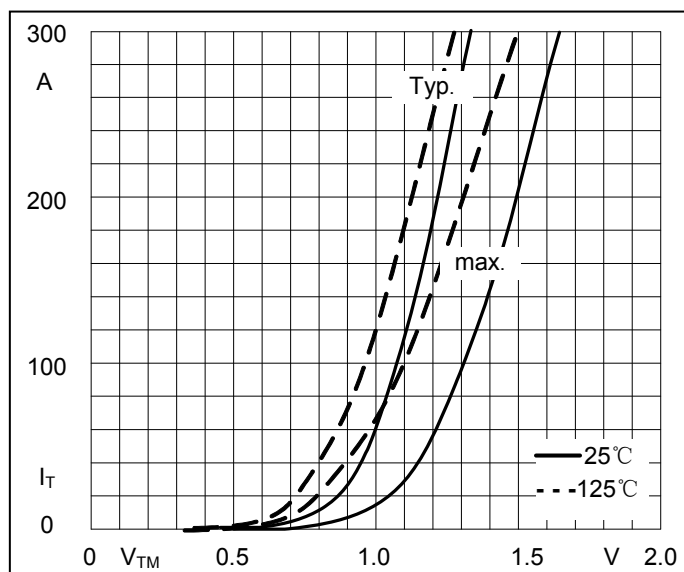


Fig5. Forward Characteristics

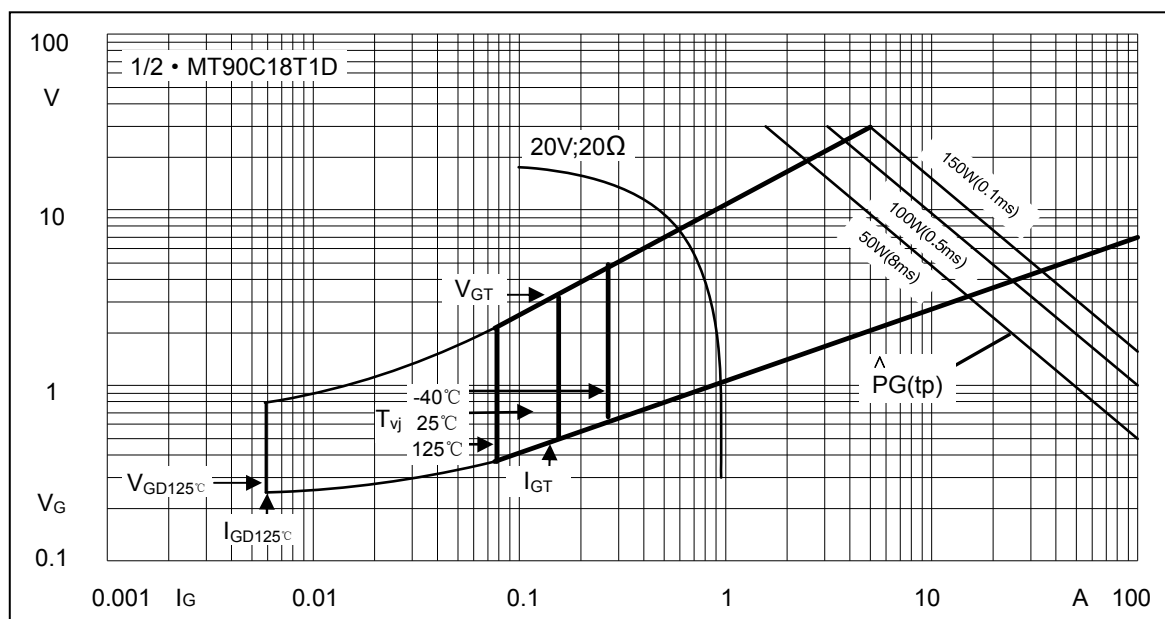
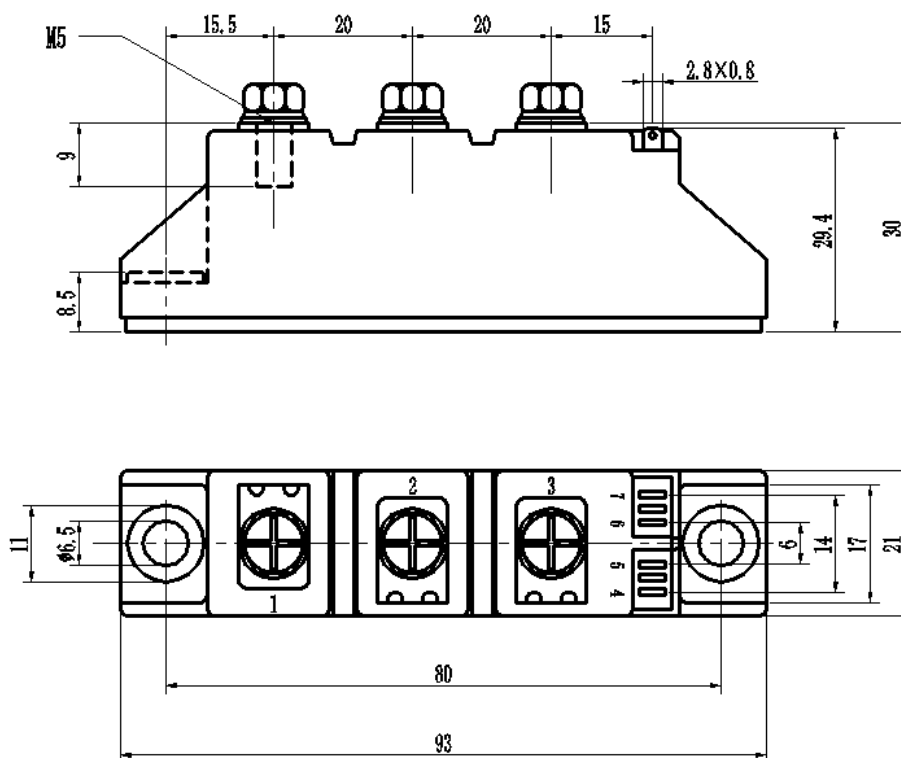


Fig6. Gate trigger Characteristics

Package Outline Information

CASE: T1D



Dimensions in mm