

MRH90.12

Thyristor/Diode module

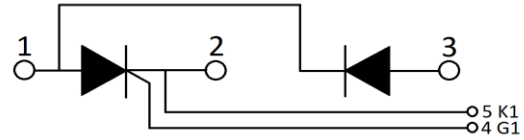


Features:

- International standard package
- High surge capability
- Glass passivated chip
- Simple mounting
- UL recognized, file no. E312789

Typical applications:

- Power converters
- Lighting control
- DC motor control and drives
- Heat and temperature control



Symbol	Characteristics	Test Conditions	Value			Unit
			Min	Typ	Max	
$V_{RSM/DSM}$	Non-repetitive reverse/forward blocking voltage	$T_j = 25^\circ\text{C}$			1300	V
$V_{RRM/DRM}$	Repetitive reverse/forward blocking voltage	$T_j = 25^\circ\text{C}$			1200	V
$I_T \cdot I_{F(AV)}$	On-state/forward average current	180° half sine wave 50Hz $T_c = 85^\circ\text{C}$ (thyristor)			95	A
$I_T \cdot I_{F(RMS)}$	RMS on-state current	$T_c = 100^\circ\text{C}$ (diode)			149	A
I_{RRM} I_{DRM}	Repetitive peak current	at V_{DRM}/V_{RRM} $T_j = 125^\circ\text{C}$			30	mA
$I_{TSM} \cdot I_{FSM}$	Surge non repetitive current	Thyristor: 10ms half sine wave $T_j = 45^\circ\text{C}$			2200	A
		Diode: 10ms half sine wave $T_j = 45^\circ\text{C}$			2600	A
$I^2 t$	$I^2 t$ for fusing coordination	Thyristor: $V_R = 60\% V_{RRM}$ $T_j = 45^\circ\text{C}$			26000	A ² s
		Diode: $V_R = 60\% V_{RRM}$ $T_j = 45^\circ\text{C}$			40600	A ² s
V_{TO}	Threshold voltage	$T_j = 125^\circ\text{C}$			0.85	V
r_T	On-state slope resistance	$T_j = 125^\circ\text{C}$			1.50	mΩ
$V_{TM} \cdot V_{FM}$	Thyristor: Peak on-state voltage	$T = 25^\circ\text{C}$; $I_T = 330\text{A}$			1.70	V
	Diode: Peak forward voltage	$T = 25^\circ\text{C}$; $I_F = 330\text{A}$			1.20	V
dv/dt	Critical rate of rise of off-state voltage	$V_{DM} = 67\% V_{DRM}$, $T_j = 125^\circ\text{C}$, linear voltage rise			500	V/μs
di/dt	Critical rate of rise of off-state current	$T_j = 25^\circ\text{C}$, Gate source 1,5A, $T_r < 0,5\mu\text{s}$ Repetitive			150	A/μs
I_{GT}	Gate trigger current	$V_A = 12\text{V}$, $I_A = 1\text{A}$, $T_j = 25^\circ\text{C}$	20		150	mA
V_{GT}	Gate trigger voltage		0.70		1.80	V
I_H	Holding current	$T_j = 25^\circ\text{C}$	20		150	mA
I_L	Latching current	$T_j = 25^\circ\text{C}$	100		400	mA
$R_{th(j-c)}$	Thermal resistance junction to case	Single side cooled per chip			0.30	°C/W
$R_{th(c-s)}$	Thermal resistance case to sink	Single side cooled per chip			0.20	°C/W
V_{ISO}	Isolation voltage	50Hz, RMS, $t = 1\text{min}$, $I_{ISO} : 1\text{mA (MAX)}$		2500		V
F_M	Mounting torque - copper plate (M6)		4		6	N·m
	Mounting torque - terminal (M5)		2.5		3.5	N·m
T_{stg}	Storage Temperature		-40		125	°C
T_j	Operating Temperature		-40		125	°C
W_t	Weight			120		g
Outline	M01-1					

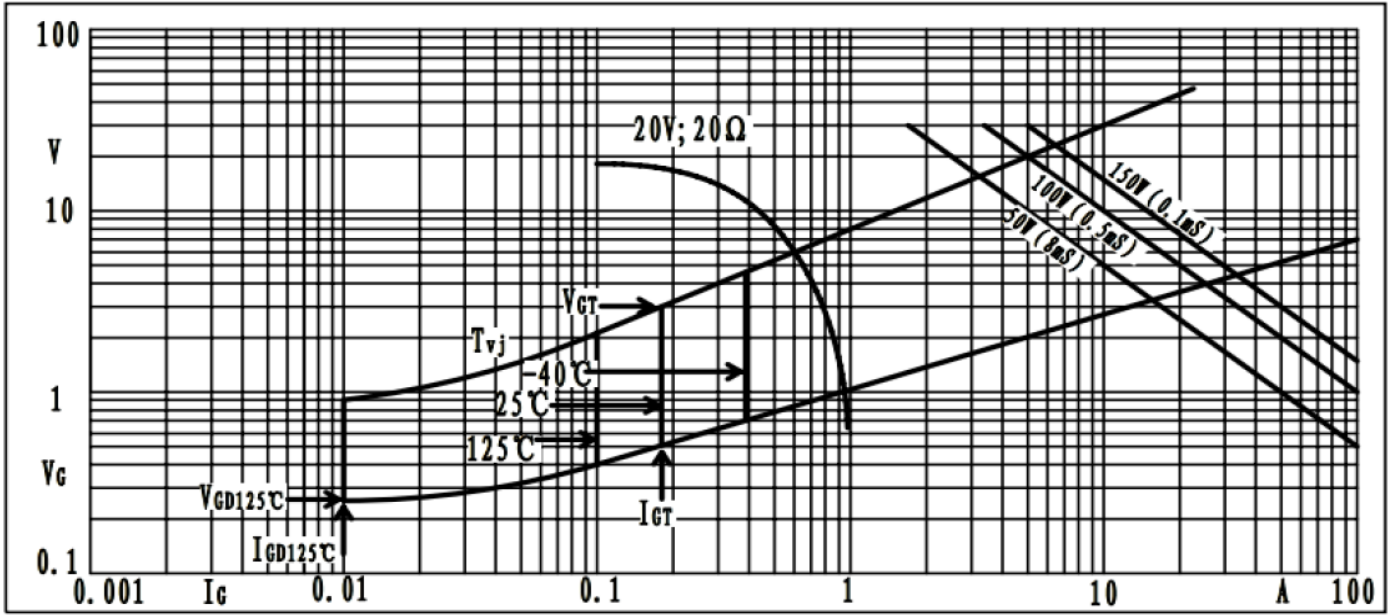


Fig1. Gate trigger characteristics

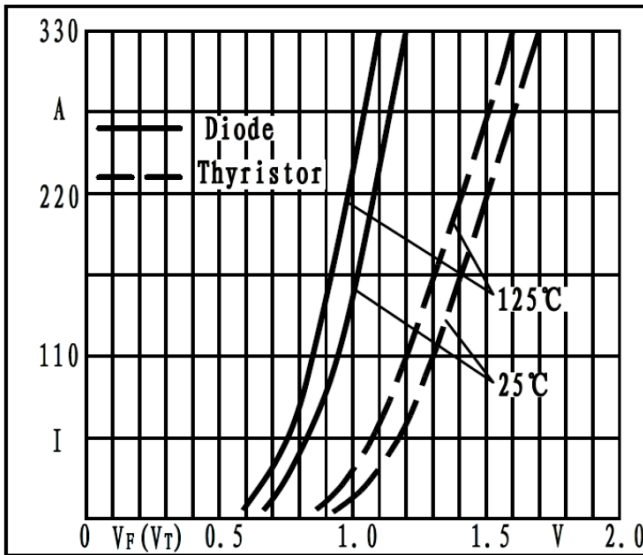


Fig2. Forward characteristics

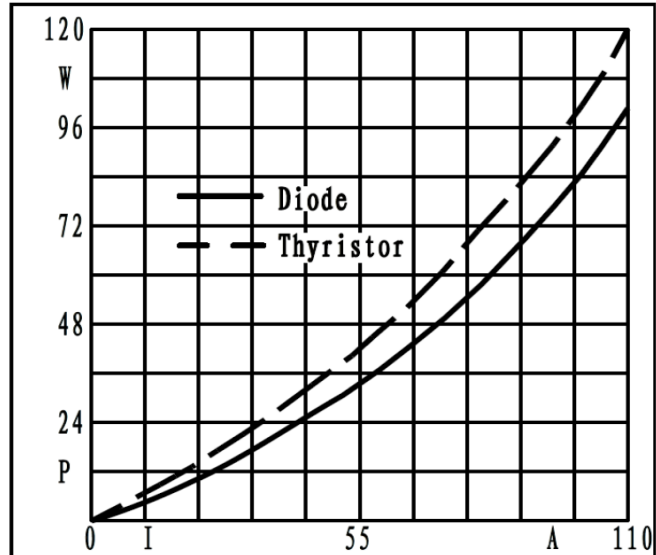


Fig3. Power dissipation

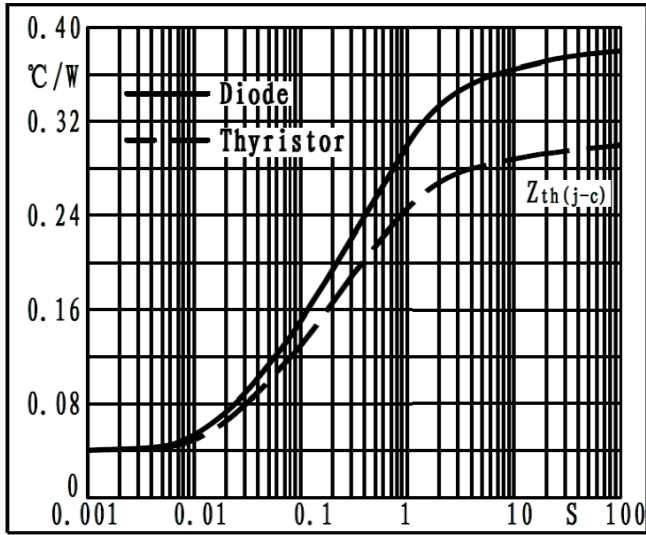


Fig4. Transient thermal impedance

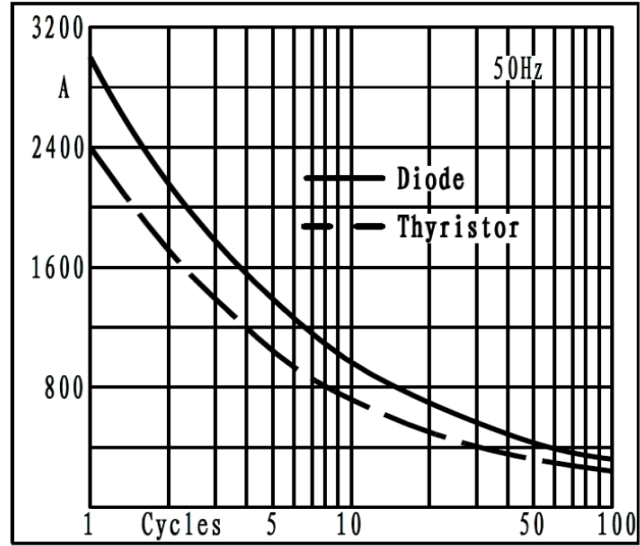


Fig5. Max non-repetitive forward surge current

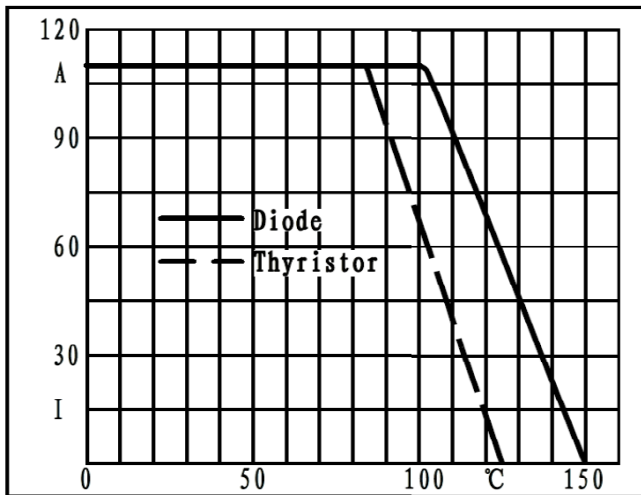
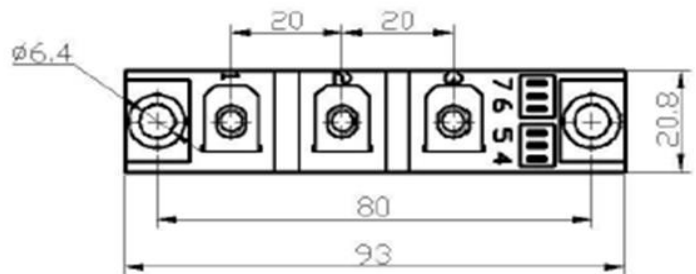
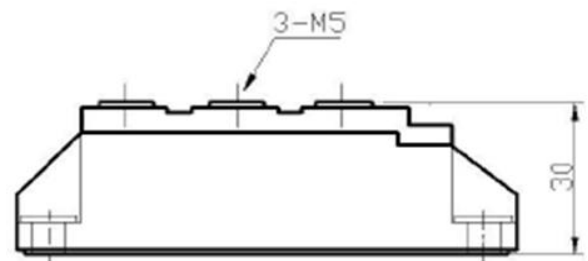


Fig6. Forward current derating curve



(dimensions in mm)

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