

## MRH90.16

### Thyristor/Diode module

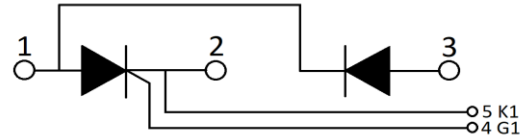


#### Features:

- 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	$T_j = 25^\circ\text{C}$			1700	V
$V_{RRM/DRM}$	Repetitive reverse/forward blocking voltage	$T_j = 25^\circ\text{C}$			1600	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 <sup>2</sup> s
		Diode: $V_R = 60\% V_{RRM}$ $T_j = 45^\circ\text{C}$			40600	A <sup>2</sup> 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					

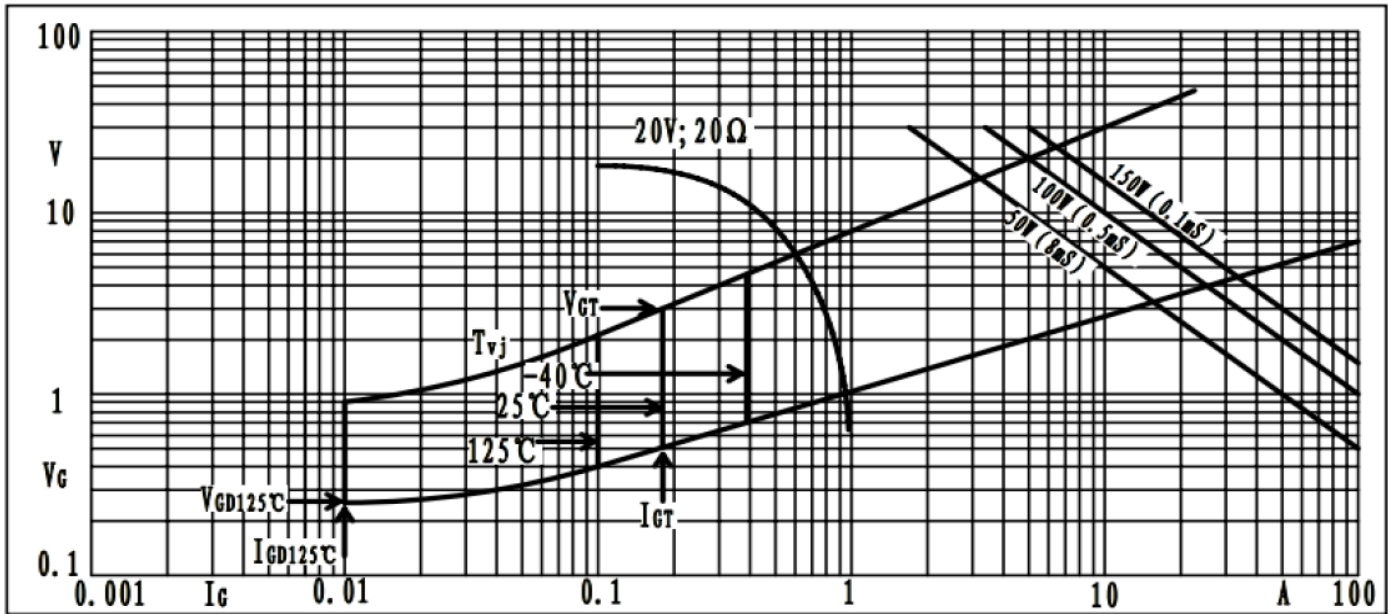


Fig1. Gate trigger characteristics

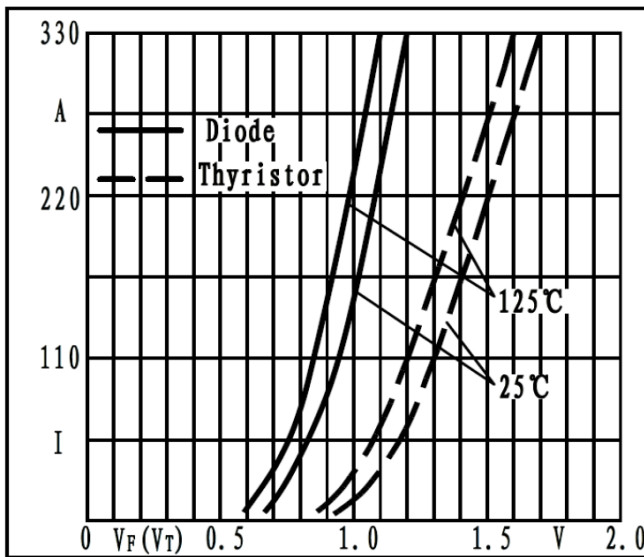


Fig2. Forward characteristics

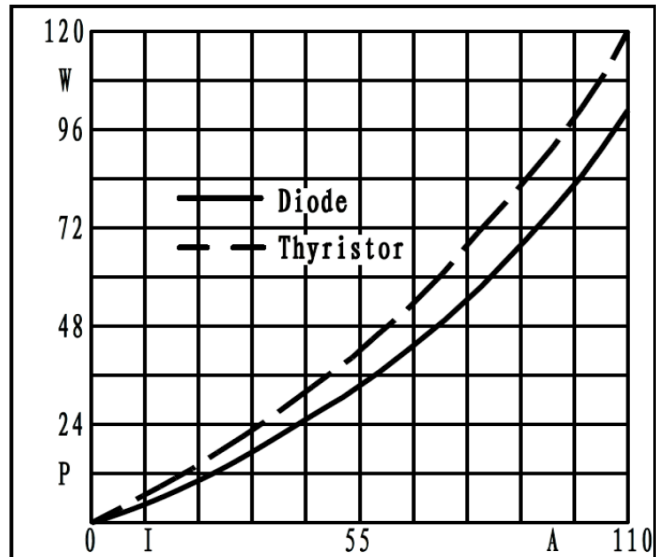


Fig3. Power dissipation

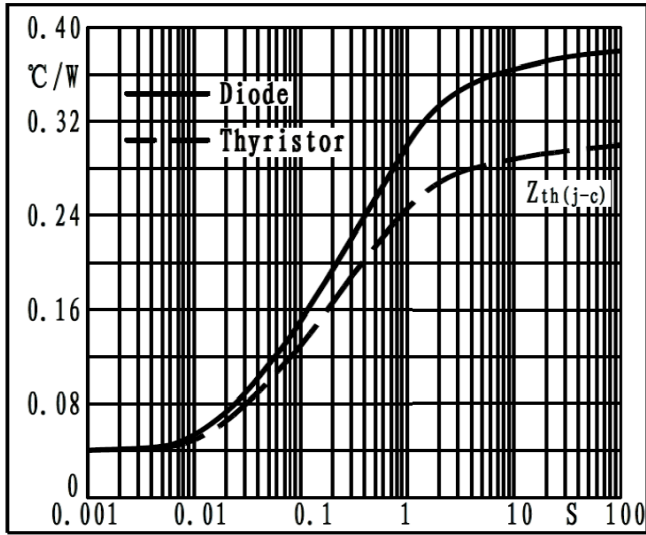


Fig4. Transient thermal impedance

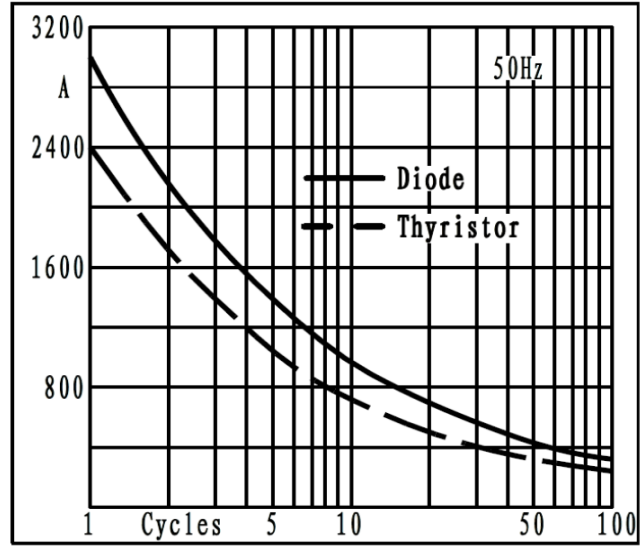


Fig5. Max non-repetitive forward surge current

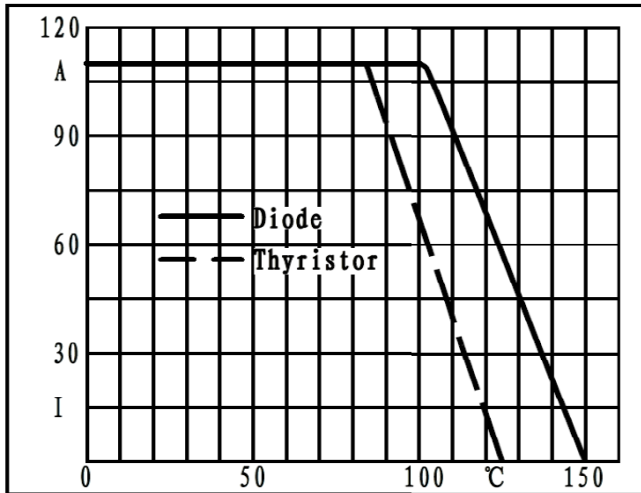
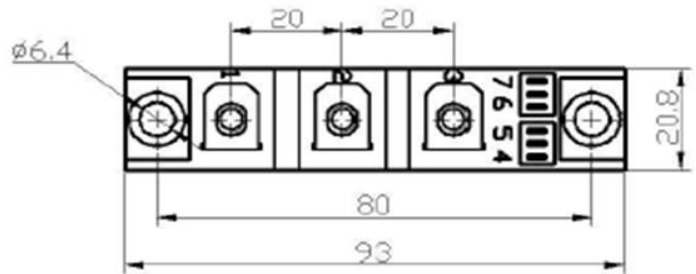
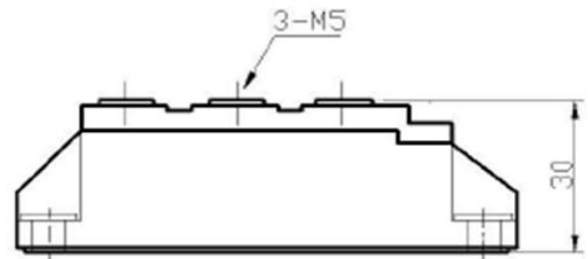


Fig6. Forward current derating curve



(dimensions in mm)

### S.CO.M.E.S. Srl

Via Enrico Mattei, 6/8 - 26283 - Castiglione d'Adda (LO) - Italy

Phone: +39 0377 901243 Fax: +39 0377 900206