

## MRH160.16

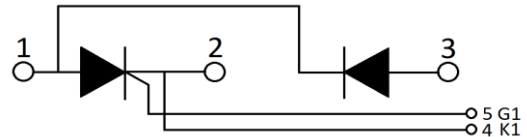
### Thyristor/Diode module

#### 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
$I_T-I_{F(AV)}$	On-state/forward average current	180° half sine wave 50Hz $T_c = 85^\circ\text{C}$ (thyristor)			160	A
$I_T-I_{F(RMS)}$	RMS on-state current	$T_c = 100^\circ\text{C}$ (diode)			236	A
$I_{RRM}$ $I_{DRM}$	Repetitive peak current	at $V_{DRM}/V_{RRM}$ $T_j = 125^\circ\text{C}$			30	mA
$I_{TSM}-I_{FSM}$	Surge non repetitive current	Thyristor: 10ms half sine wave $T_j = 45^\circ\text{C}$			5400	A
		Diode: 10ms half sine wave $T_j = 45^\circ\text{C}$			5800	A
$I^2t$	$I^2t$ for fusing coordination	Thyristor: $V_R = 60\% V_{RRM}$ $T_j = 45^\circ\text{C}$			145800	$\text{A}^2\text{s}$
		Diode: $V_R = 60\% V_{RRM}$ $T_j = 45^\circ\text{C}$			129800	$\text{A}^2\text{s}$
$V_{TO}$	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	m $\Omega$
$V_{TM}-V_{FM}$	Thyristor: Peak on-state voltage	$T=25^\circ\text{C}$ ; $I_T=480\text{A}$			1.50	V
	Diode: Peak forward voltage	$T=25^\circ\text{C}$ ; $I_F=480\text{A}$			1.00	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			1000	V/ $\mu\text{s}$
$di/dt$	Critical rate of rise of off-state current	$T_j = 125^\circ\text{C}$ , Gate source 500mA, $T_r < 0,5\mu\text{s}$ Repetitive			150	A/ $\mu\text{s}$
$I_{GT}$	Gate trigger current	$V_A = 6\text{V}$ , $T_j = 25^\circ\text{C}$			150	mA
$V_{GT}$	Gate trigger voltage				3	V
$I_H$	Holding current	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{V}$		150	400	mA
$I_L$	Latching current	$T_j = 25^\circ\text{C}$ , $R_G=33\Omega$		300	1000	mA
$R_{th(j-c)}$	Thermal resistance junction to case	Single side cooled per chip			0.19	$^\circ\text{C}/\text{W}$
$R_{th(c-s)}$	Thermal resistance case to sink	Single side cooled per chip			0.10	$^\circ\text{C}/\text{W}$
$V_{ISO}$	Isolation voltage	50Hz, RMS, $t = 1\text{min}$ , $I_{ISO} : 1\text{mA (MAX)}$			3000	V
$F_M$	Mounting torque - copper plate (M6)		4		6	N·m
	Mounting torque - terminal (M6)		4		6	N·m
$T_{stg}$	Storage Temperature		-40		125	$^\circ\text{C}$
$T_j$	Operating Temperature		-40		125	$^\circ\text{C}$
$W_t$	Weight			160		g
Outline	M03					

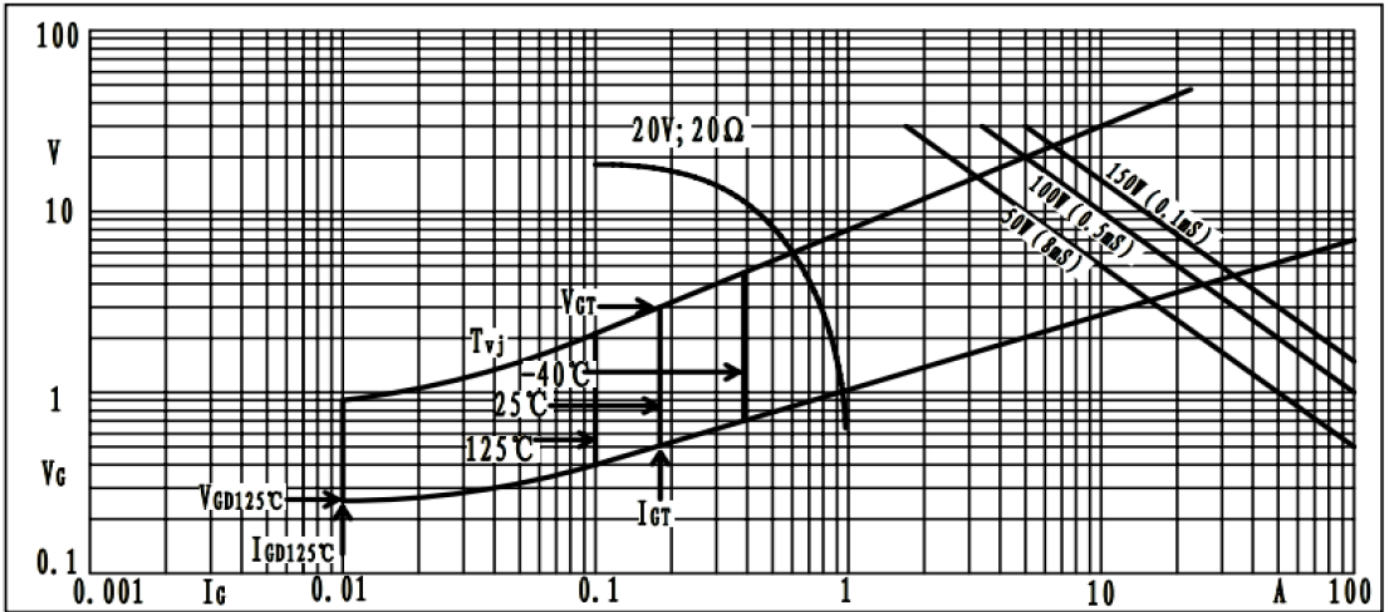


Fig1. Gate trigger characteristics

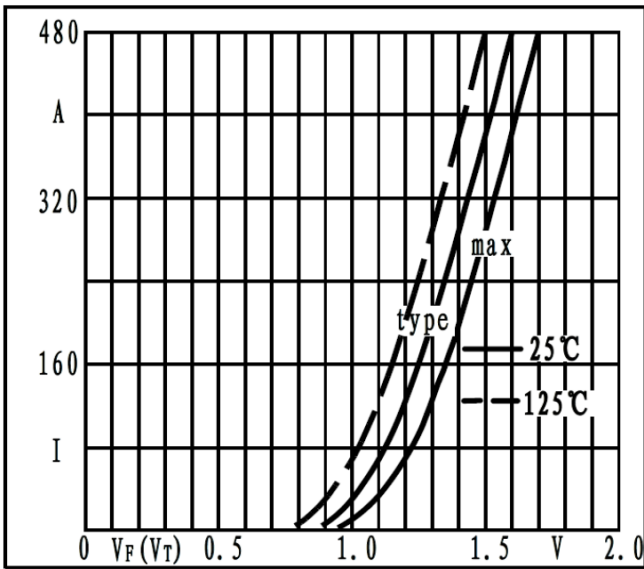


Fig2. Forward characteristics

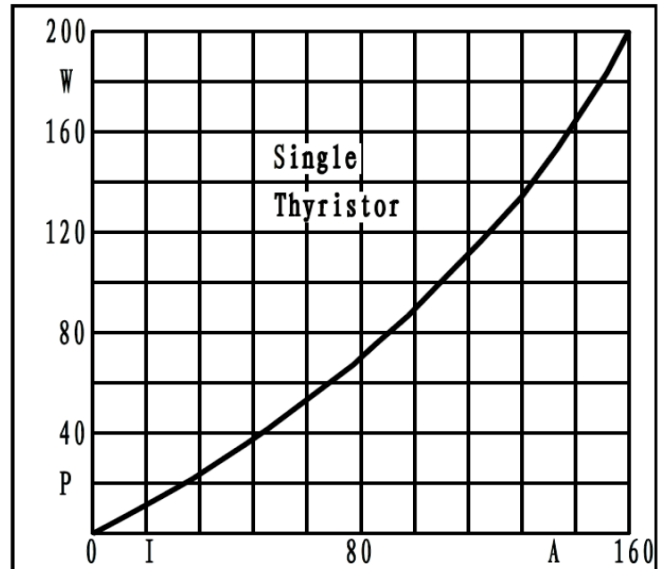


Fig3. Power dissipation

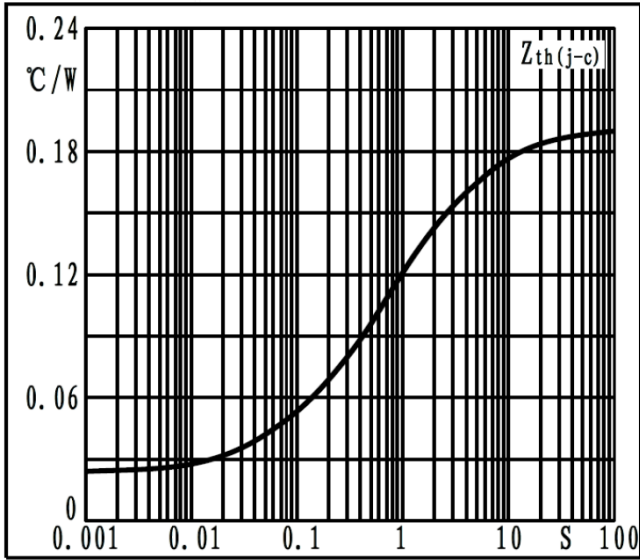


Fig4. Transient thermal impedance

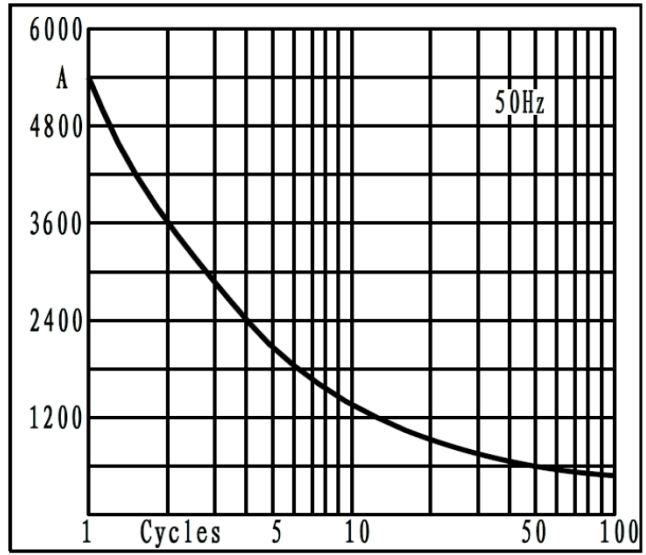


Fig5. Max non-repetitive forward

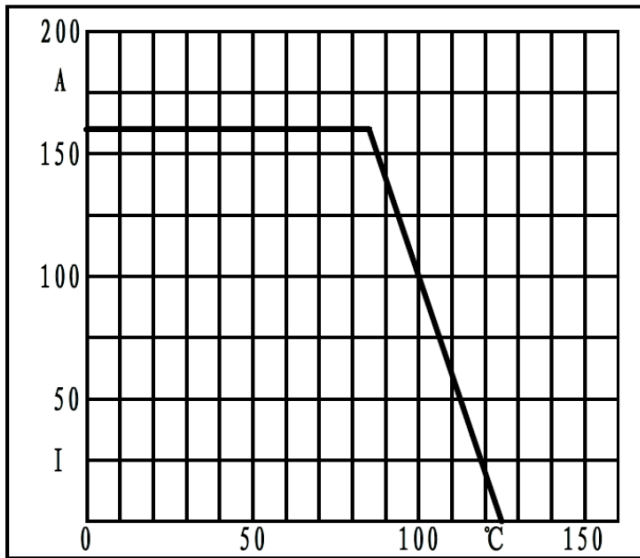
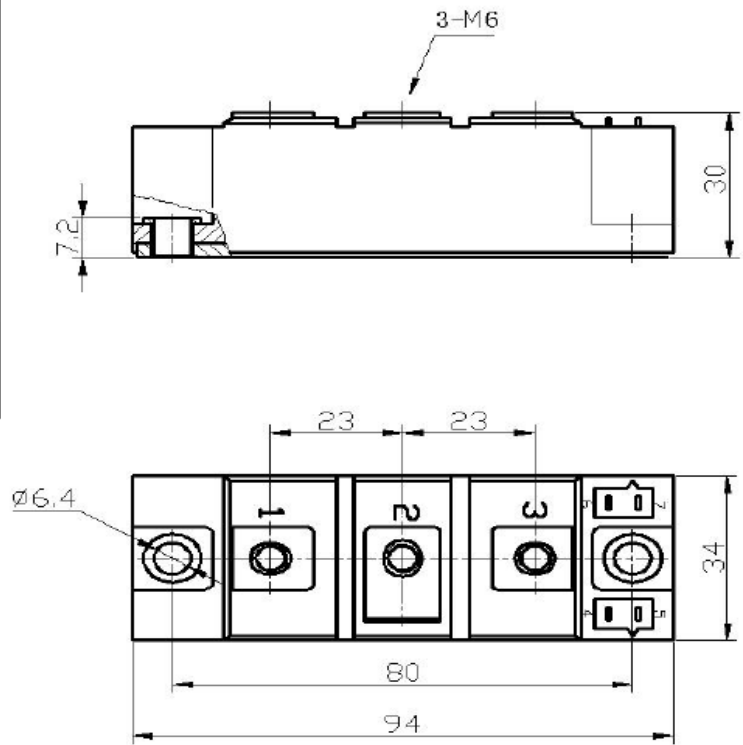


Fig6. Forward current derating curve



(dimensions in mm)

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