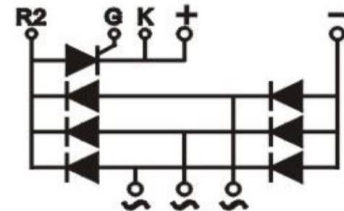


## MTS.SCR150.16

### Power bridge rectifier + thyristor

#### Features:

- Three phase bridge and a thyristor
- Isolated module package
- Glass passivated chip
- Simple mounting
- UL recognized, file no. E312789



#### Typical applications:

- Inverter for AC or DC motor control
- Current stabilized power supply
- Switching power supply

Symbol	Characteristics	Test Conditions	Value			Unit
			Min	Typ	Max	
<b>◆ DIODE</b>						
$V_{RSM/DSM}$	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
$I_D$	Output current DC	Three phase, full wave, $T_c = 100^\circ\text{C}$			150	A
$I_{FSM}$	Surge forward current	10ms half sine wave, $T_j = 45^\circ\text{C}$			1800	A
$I^2 t$	$I^2 t$ for fusing coordination	10ms half sine wave, $T_j = 45^\circ\text{C}$			16200	$\text{A}^2\text{s}$
$V_{FO}$	Threshold voltage	$T_j = 150^\circ\text{C}$			0.90	V
$r_T$	On-state slope resistance	$T_j = 150^\circ\text{C}$			2.00	$\text{m}\Omega$
$V_{FM}$	Peak forward voltage	$T = 25^\circ\text{C}$ ; $I_F = 150\text{A}$			1.40	V
$I_{RD}$	Repetitive peak reverse current	$T_j = 25^\circ\text{C}$ , $V_{RD} = V_{RRM}$			0.10	mA
		$T_j = 150^\circ\text{C}$ , $V_{RD} = V_{RRM}$			9.00	mA
$R_{th(j-c)}$	Thermal resistance junction to case				0.14	$^\circ\text{C}/\text{W}$
$R_{th(c-s)}$	Thermal resistance case to sink				0.10	$^\circ\text{C}/\text{W}$
$V_{ISO}$	Isolation voltage	50Hz, RMS, $t = 1\text{min}$		3000		V
$T_j$	Operating Temperature		-40		150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature		-40		150	$^\circ\text{C}$
$F_M$	Mounting torque - to heatsink (M6)		4		6	N·m
	Mounting torque - to terminal (M4)		1.75		2.5	N·m
	Mounting torque - to terminal (M6)		4		6	N·m
$W_t$	Weight			360		g
Outline						M51B

Symbol	Characteristics	Test Conditions	Value			Unit
			Min	Typ	Max	
<b>◆ THYRISTOR</b>						
$V_{RSM/DSM}$	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
$I_{T(AV)}$	Average on-state current	180° half sine wave 50Hz $T_c = 90^\circ\text{C}$			150	A
$I_{TSM}$	Surge non repetitive current	10ms half sine wave $T_J = 45^\circ\text{C}, V_R = 0$			1500	A
$I_{RRM}$ $I_{DRM}$	Repetitive peak current	at $V_{DRM}/V_{RRM}$ $T_J = 150^\circ\text{C}$			25	mA
$I^2 t$	$I^2 t$ for fusing coordination	10ms half sine wave $T_J = 45^\circ\text{C}, V_R = 0$			11250	A <sup>2</sup> s
$V_{TO}$	Threshold voltage	$T_J = 150^\circ\text{C}$			0.90	V
$r_T$	On-state slope resistance	$T_J = 150^\circ\text{C}$			2.00	mΩ
$V_{TM}$	Peak on-state voltage	$T = 25^\circ\text{C}, I_T = 150\text{A}$			1.60	V
$di/dt$	Critical rate of rise of off-state current	$T_J = 150^\circ\text{C}, V_D = 1/2 V_{DRM}, I_G = 100\text{mA}, di_G/dt = 0.1\text{A}/\mu\text{s}$			150	A/μs
$dv/dt$	Critical rate of rise of off-state voltage	$T_J = 150^\circ\text{C}, V_D = 2/3 V_{DRM},$ linear voltage rise			500	V/μs
$R_{th(j-c)}$	Thermal resistance junction to case				0.18	°C/W
$R_{th(c-s)}$	Thermal resistance case to sink				0.10	°C/W
$I_{GT}$	Gate trigger current	$V_D = 6\text{V}, T_J = 25^\circ\text{C}$			150	mA
$V_{GT}$	Gate trigger voltage				3	V
$I_{GD}$	Gate trigger current	$V_D = 2/3 V_{DRM}, T_J = 125^\circ\text{C}$			6	mA
$V_{GD}$	Gate trigger voltage				0.25	V
$I_H$	Holding current	$T_J = 25^\circ\text{C}, V_D = 6\text{V}$		150	250	mA
$I_L$	Latching current	$T_J = 25^\circ\text{C}, R_G = 33\Omega$		300	600	mA
$t_{gd}$	Gate controlled delay time	$T_J = 25^\circ\text{C}$		1		μs
$t_q$	Circuit commutated turn-off time	$T_J = 150^\circ\text{C}$		100		μs

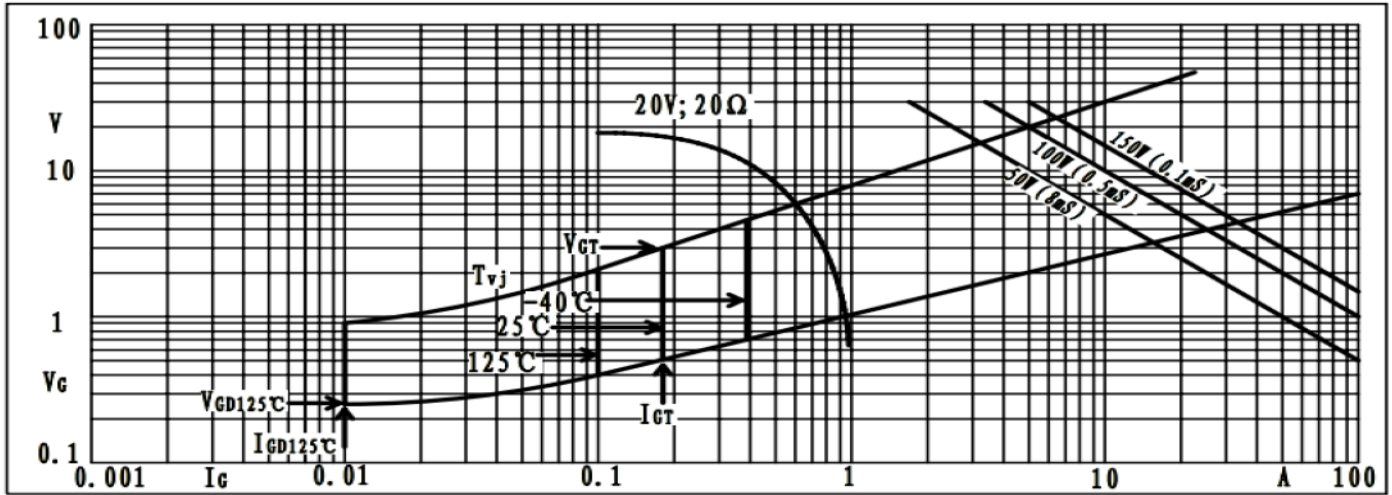


Fig1. Gate trigger characteristics

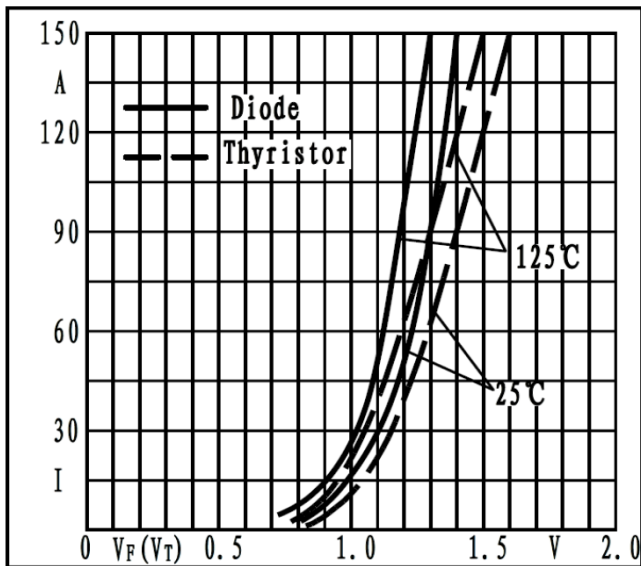


Fig2. Forward characteristics

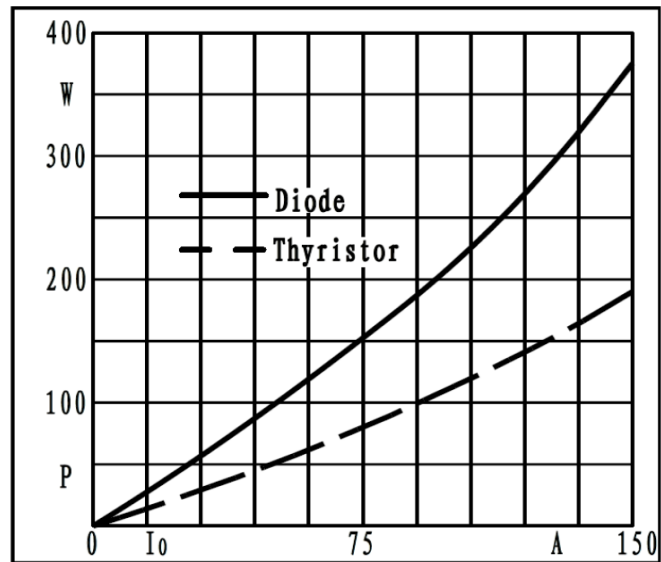


Fig3. Power dissipation

## MTS.SCR150.16

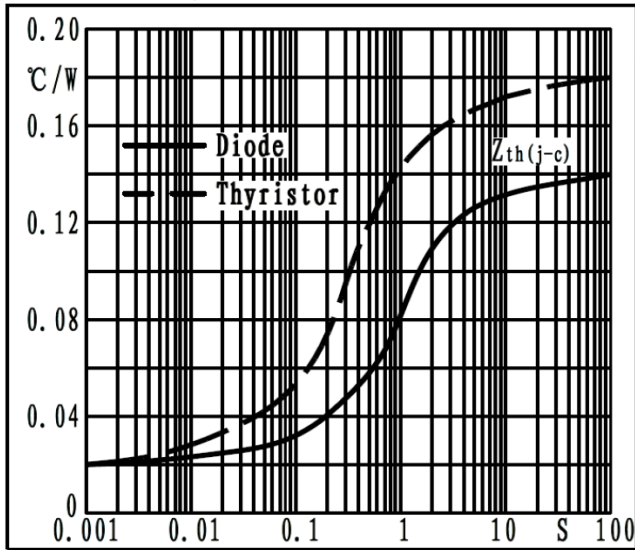


Fig4. Transient thermal impedance

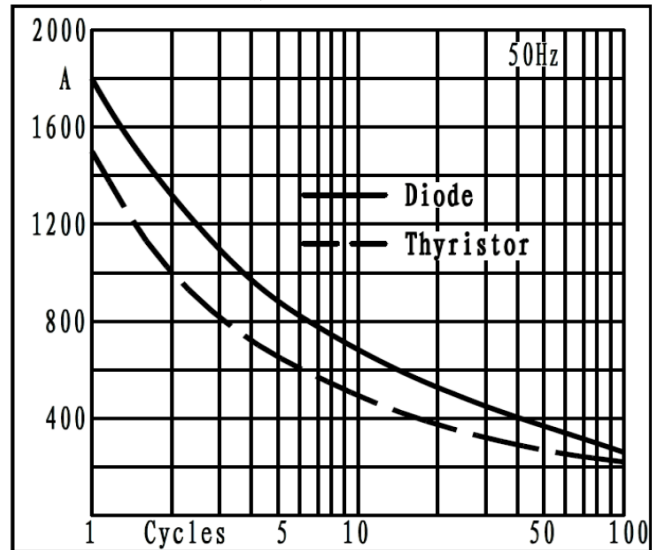


Fig5. Max non-repetitive forward

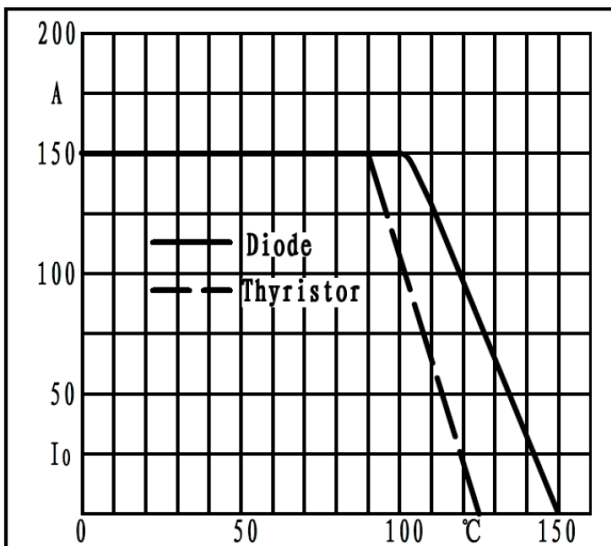
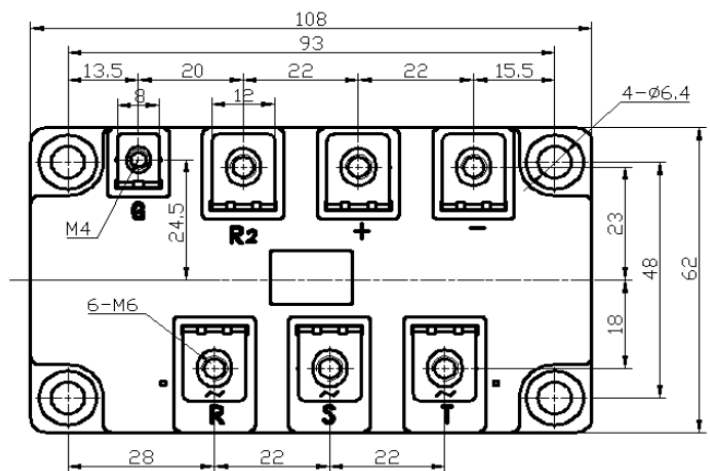
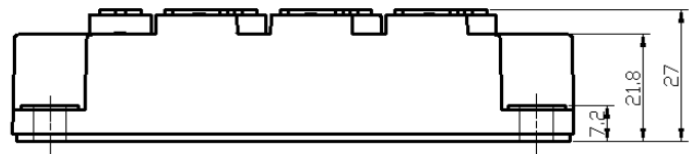


Fig6. Forward current derating curve



Dimensions in mm

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