

MTS.SCR75.16

Power bridge rectifier + thyristor

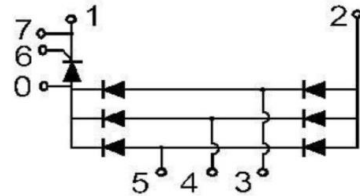
Features:

- 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	
◆ DIODE						
$V_{RSM/DSM}$	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, $T_c = 100^\circ\text{C}$			75	A
I_{FSM}	Surge forward current	10ms half sine wave, $T_j = 45^\circ\text{C}$			750	A
I^2t	I^2t for fusing coordination	10ms half sine wave, $T_j = 45^\circ\text{C}$			2810	A^2s
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	$T = 25^\circ\text{C}$; $I_F = 75\text{A}$			1.30	V
I_{RD}	Repetitive peak reverse current	$T_j = 25^\circ\text{C}$, $V_{RD} = V_{RRM}$			0.10	mA
		$T_j = 150^\circ\text{C}$, $V_{RD} = V_{RRM}$			6	mA
$R_{th(j-c)}$	Thermal resistance junction to case				0.25	$^\circ\text{C}/\text{W}$
$R_{th(c-s)}$	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 (M5)		2.5		3.5	N·m
W_t	Weight			210		g
Outline	M56B					

Symbol	Characteristics	Test Conditions	Value			Unit
			Min	Typ	Max	
◆ THYRISTOR						
$V_{RSM/DSM}$	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 $T_c = 85^\circ\text{C}$			75	A
I_{TSM}	Surge non repetitive current	10ms half sine wave $T_J = 45^\circ\text{C}, V_R = 0$			920	A
I_{RRM} I_{DRM}	Repetitive peak current	at V_{DRM}/V_{RRM} $T_J = 150^\circ\text{C}$			20	mA
I^2t	I^2t for fusing coordination	10ms half sine wave $T_J = 45^\circ\text{C}, V_R = 0$			4230	A ² 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	$T = 25^\circ\text{C}, I_T = 75\text{A}$			1.50	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				0.40	°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

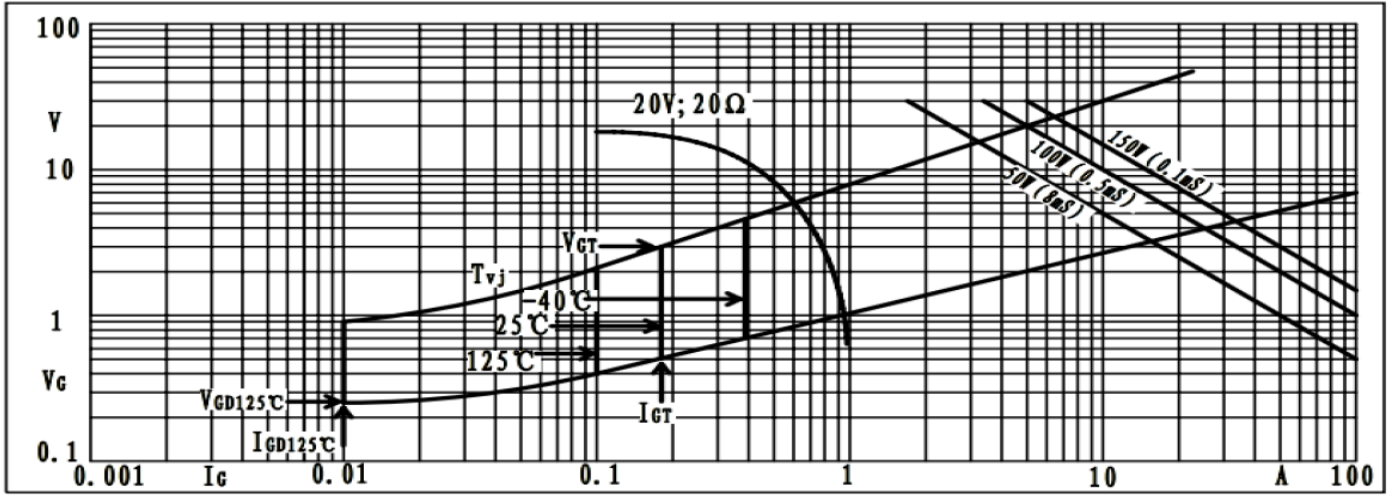


Fig1. Gate trigger characteristics

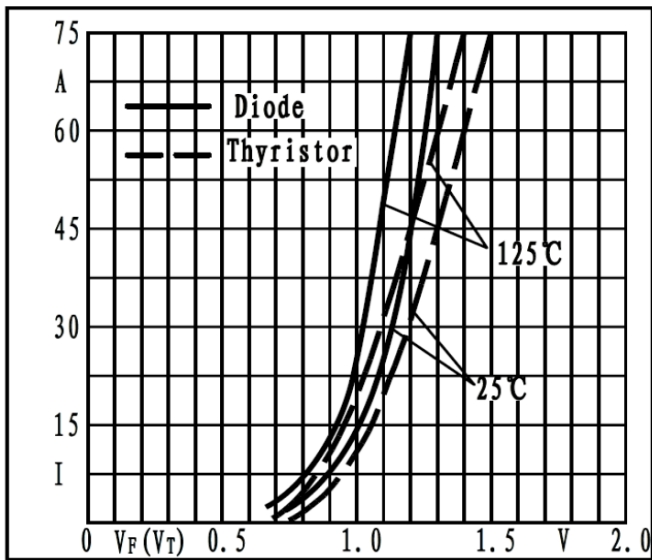


Fig2. Forward characteristics

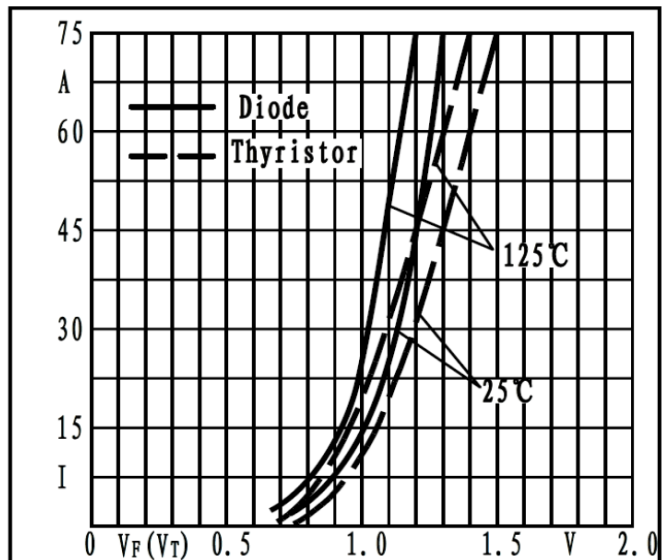


Fig2. Forward characteristics

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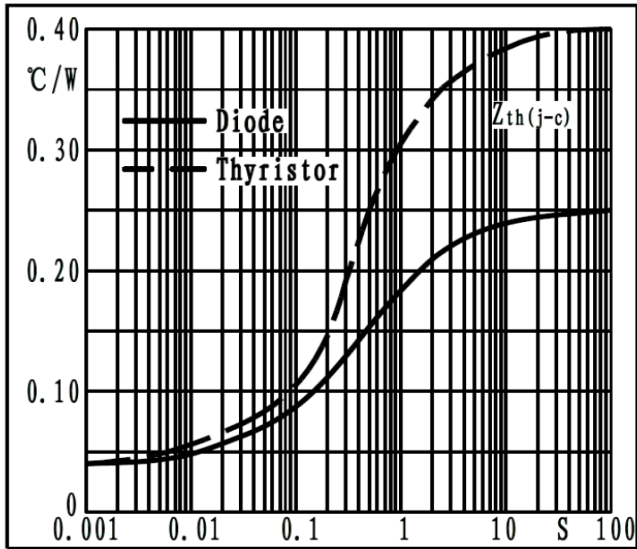


Fig4. Transient thermal impedance

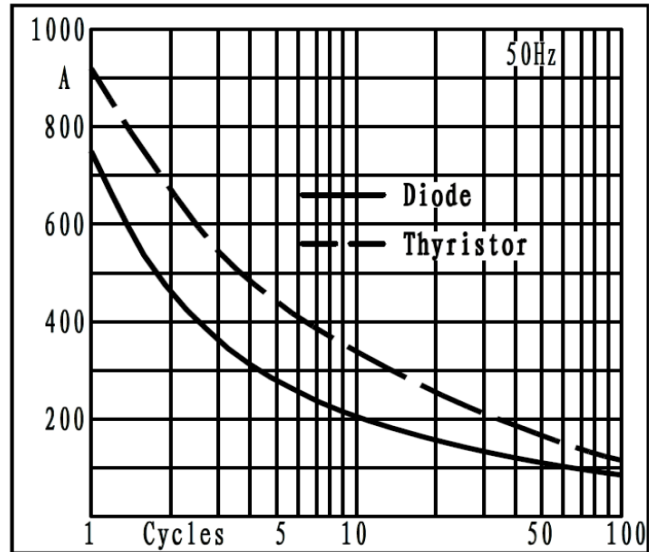


Fig5. Max non-repetitive forward surge current

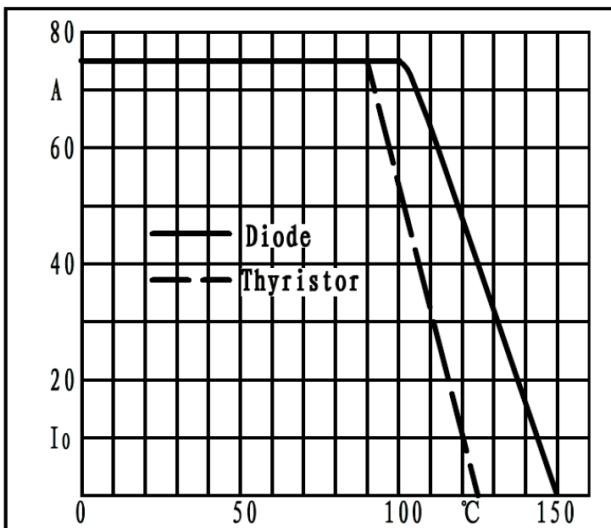
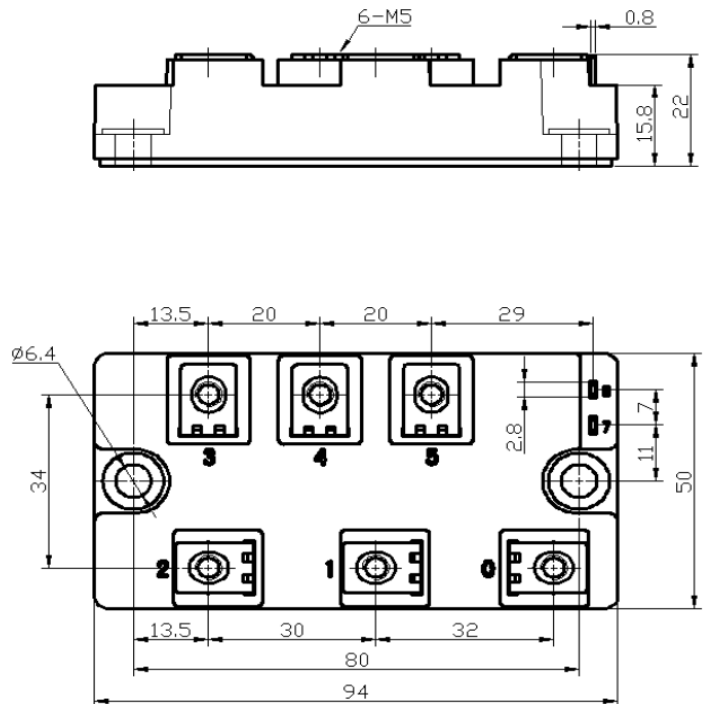


Fig6. Forward current derating curve



Dimensions in mm

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