

Three Phase Bridge + Thyristor

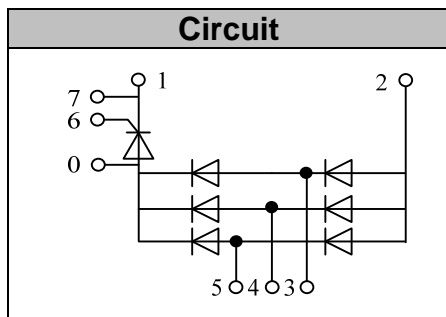
V_{RRM} / V_{DRM} 800 to 1800V
 I_{FAV} / I_{TAV} 75A

Features

Blocking voltage:800 to 1800V
 Three Phase Bridge and a Thyristor
 Isolated Module package

Applications

Inverter for AC or DC motor control
 Current stabilized power supply
 Switching power supply
 UL recognized applied for file no. E360040



Module Type

TYPE	V_{RRM} / V_{DRM}	V_{RSM}
MT75DT08L1	800V	900V
MT75DT12L1	1200V	1300V
MT75DT16L1	1600V	1700V
MT75DT18L1	1800V	1900V

Diode

Maximum Ratings

Symbol	Item	Conditions	Values	Units
I_D	Output Current(D.C.)	$T_c=101$ Three phase full wave	75	A
I_{FSM}	Surge forward current	$t=10mS$ $T_{vj}=45$	920	A
i^2t	Circuit Fusing Consideration		4200	A^2s
V_{isol}	Isolation Breakdown Voltage(R.M.S)	a.c.50HZ;r.m.s.;1min	3000	V
T_{vj}	Operating Junction Temperature		-40 to +150	
T_{stg}	Storage Temperature		-40 to +125	
M_t	Mounting Torque	To terminals(M5)	$3\pm 15\%$	Nm
M_s		To heatsink(M5)	$3\pm 15\%$	Nm
Weight		Module Approximately	210	g

Thermal Characteristics

Symbol	Item	Conditions	Values	Units
$R_{th(j-c)}$	Thermal Impedance, max.	Junction to Case(TOTAL)	0.20	$/W$
$R_{th(c-s)}$	Thermal Impedance, max.	Case to Heatsink	0.10	$/W$

Electrical Characteristics

Symbol	Item	Conditions	Values	Units
V_{FM}	Forward Voltage Drop, max.	$T=25$ $I_F=100A$	1.40	V

I_{RRM}



**Thyristor
Maximum Ratings**

Symbol	Item	Conditions	Values	Units
I_{TAV}	Average On-State Current	$T_c=99^\circ\text{C}$, Single Phase half wave 180° conduction	75	A
I_{TSM}	Surge On-State Current	$T_{VJ}=45^\circ\text{C}$ $t=10\text{ms}$ (50Hz), sine $V_R=0$	920	A
i^2t	Circuit Fusing Consideration		4200	A^2s
Visol	Isolation Breakdown Voltage(R.M.S)	a.c.50HZ;r.m.s.;1 min	3000	V
T_{vj}	Operating Junction Temperature		-40 to +125	
T_{stg}	Storage Temperature		-40 to +125	
M_t	Mounting Torque	To terminals(M5)	3±15%	Nm
M_s		To heatsink(M5)	3±15%	Nm
di/dt	Critical Rate of Rise of On-State Current	$T_{VJ}=T_{VJM}$, $V_D=1/2V_{DRM}$, $I_G=100\text{mA}$ $di_G/dt=0.1\text{A}/\mu\text{s}$	150	$\text{A}/\mu\text{s}$
dv/dt	Critical Rate of Rise of Off-State Voltage, min.	$T_J=T_{VJM}$, $V_D=2/3V_{DRM}$, linear voltage rise	500	$\text{V}/\mu\text{s}$

Electrical and Thermal Characteristics

Symbol	Item	Conditions	Values			Units
			Min.	Typ.	Max.	
V_{TM}	Peak On-State Voltage, max.	$T=25^\circ\text{C}$ $I_T=100\text{A}$			1.30	V
I_{RRM}/I_{DRM}	Repetitive Peak Reverse Current, max. / Repetitive Peak Off-State Current, max.	$T_{VJ}=T_{VJM}$, $V_R=V_{RRM}$, $V_D=V_{DRM}$			20	mA
V_{GT}	Gate Trigger Voltage, max.	$T_{VJ}=25^\circ\text{C}$, $V_D=6\text{V}$			3	V
I_{GT}	Gate Trigger Current, max.	$T_{VJ}=25^\circ\text{C}$, $V_D=6\text{V}$			150	mA
$R_{th(j-c)}$	Thermal Impedance, max.	Junction to Case			0.30	$^\circ\text{C}/\text{W}$
$R_{th(c-s)}$	Thermal Impedance, max.	Case to Heatsink			0.10	$^\circ\text{C}/\text{W}$



Performance Curves

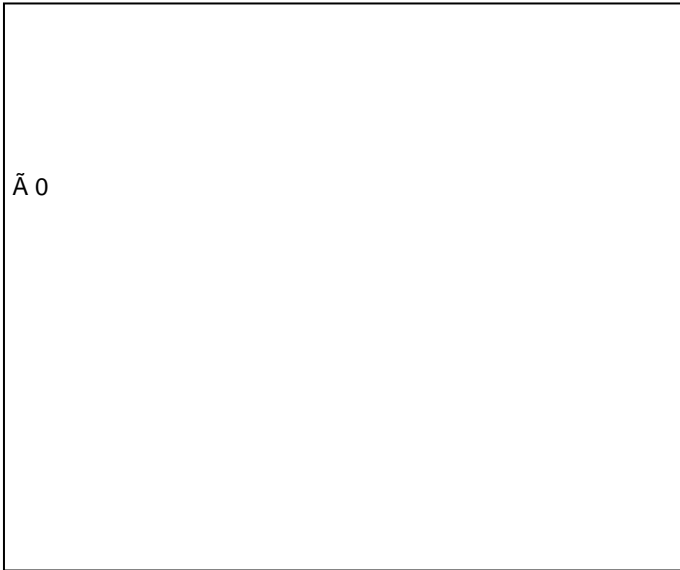


Fig1. Power dissipation

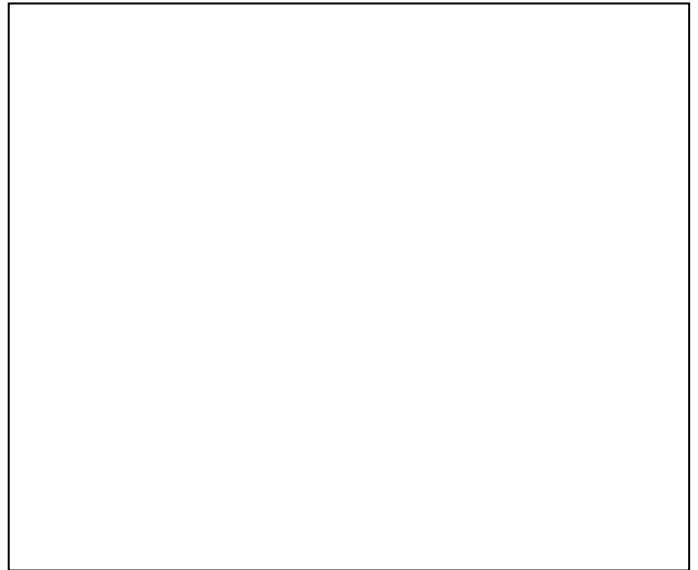


Fig2. Forward Current Derating Curve

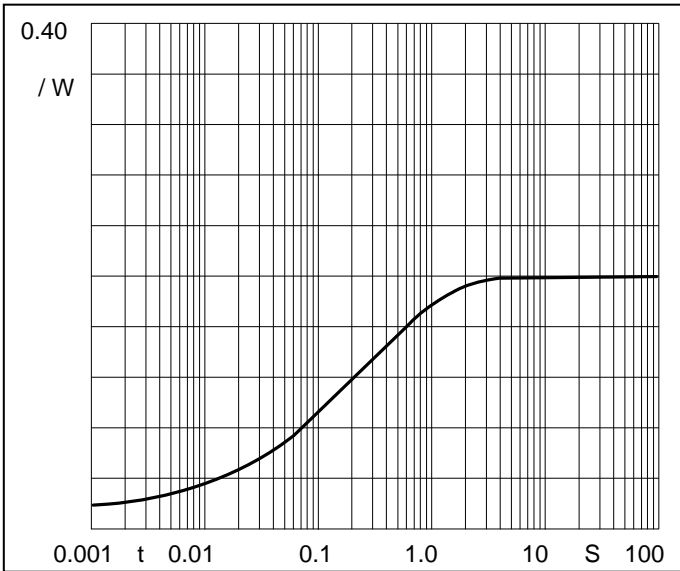


Fig3. Transient thermal impedance

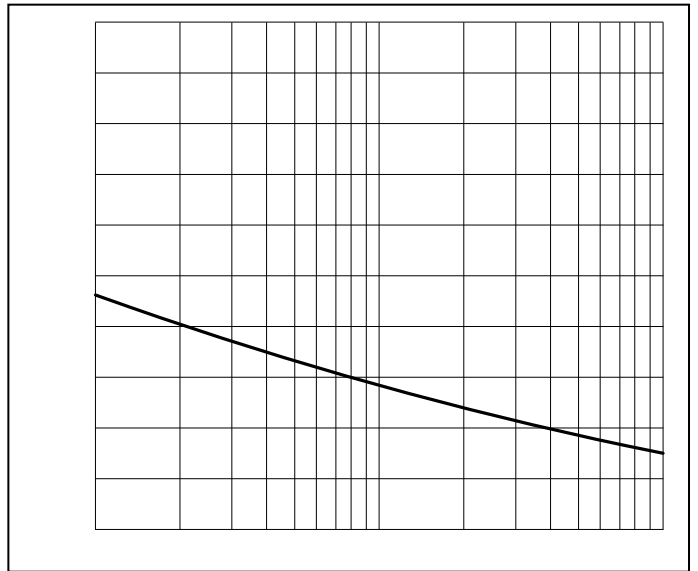


Fig4. Max Non-Repetitive Forward Surge Current

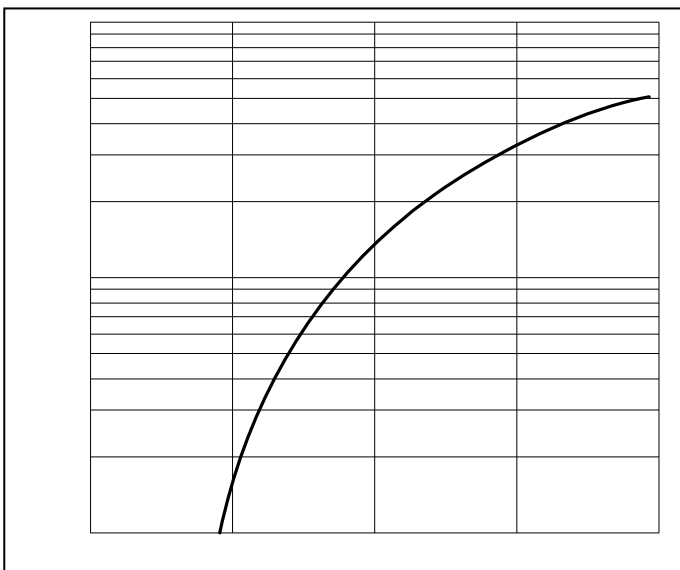


Fig5. Forward Characteristics

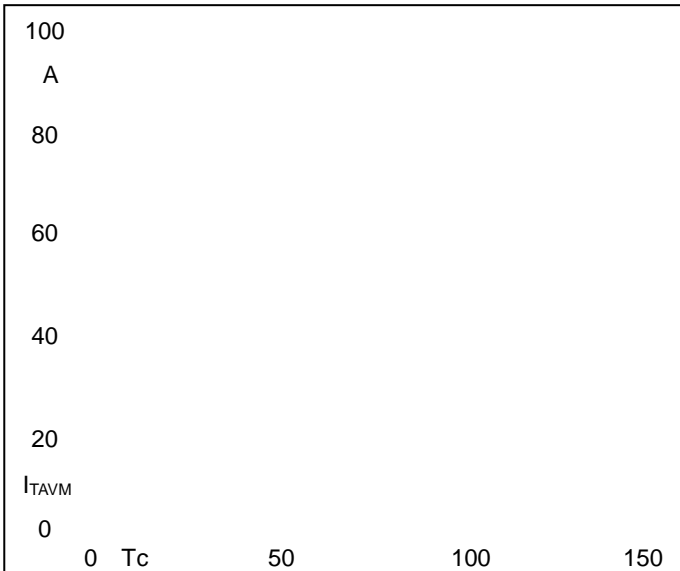


Fig7. SCR Forward Current Derating Curve

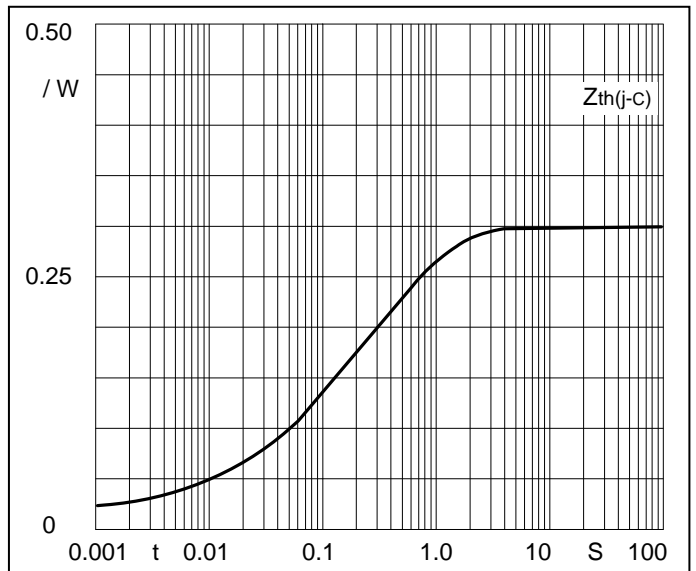


Fig8. SCR Transient thermal impedance

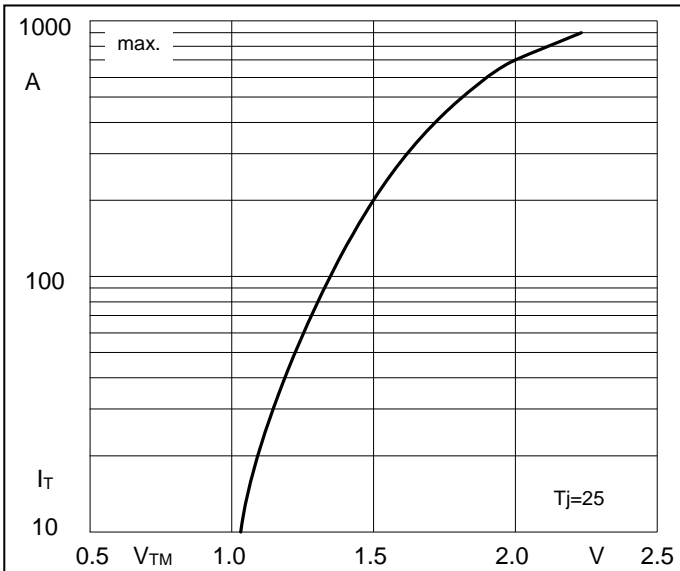


Fig9. SCR Forward Characteristics

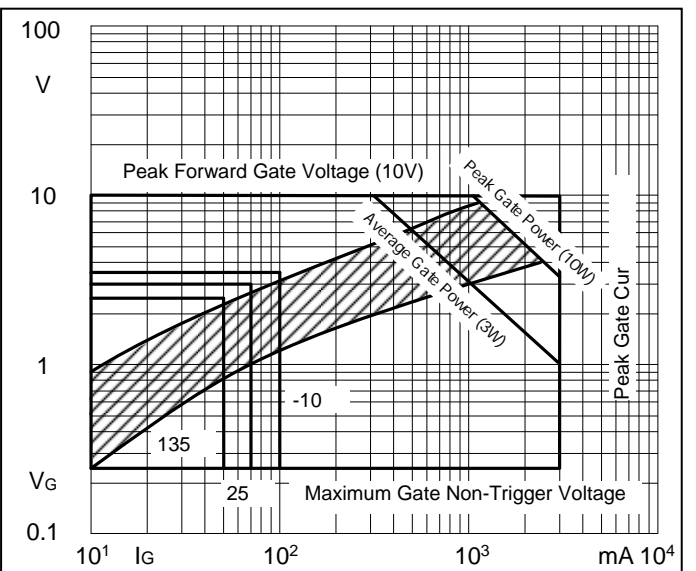


Fig10. Gate trigger Characteristics

