



Three Phase Bridge + Thyristor

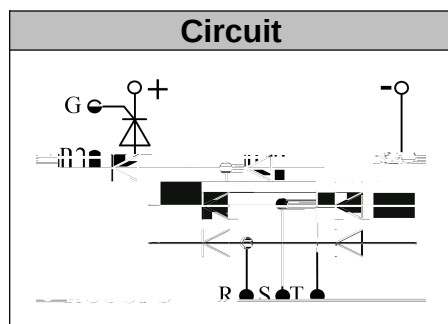
V_{RRM} / V_{DRM} 800 to 1800V
 I_{FAV} / I_{TAV} 200A

Features

- Blocking voltage: 800 to 1800V
- Three Phase Bridge and a Thyristor
- Low Forward Voltage

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}
MT200DT08L2	800V	900V
MT200DT12L2	1200V	1300V
MT200DT16L2	1600V	1700V
MT200DT18L2	1800V	1900V

Diode

Maximum Ratings

Symbol	Item	Conditions	Values	Units
I_D	Output Current(D.C.)	$T_c=96$ Three phase full wave	200	A
I_{FSM}	Surge forward current	$t=10ms, \text{sine}, T_{vj}=45$	1900	A
i^2t	Circuit Fusing Consideration	$t=10ms, \text{sine}, T_{vj}=45$	18050	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(M4)	$2 \pm 15\%$	Nm
M_t		To terminals(M6)	$5 \pm 15\%$	Nm
M_s		To heatsink(M6)	$5 \pm 15\%$	Nm
Weight		Module Approximately	320	g

Thermal Characteristics

Symbol	Item	Conditions	Values	Units
$R_{th(j-c)}$	Thermal Impedance, max.	Junction to Case(TOTAL)	0.12	$^{\circ}W$
$R_{th(c-s)}$	Thermal Impedance, max.	Case to Heat sink	0.06	$^{\circ}W$

Electrical Characteristics

Symbol	Item	Conditions	Values	Units
V_{FM}	Forward Voltage Drop, max.	$T=25$ $I_F=200A$	1.35	V
I_{RRM}	Repetitive Peak Reverse Current, max.	$T_{vj}=25$ $V_{RD}=V_{RRM}$ $T_{vj}=150$ $V_{RD}=V_{RRM}$	≤ 2 ≤ 10	mA mA



Thyristor Maximum Ratings

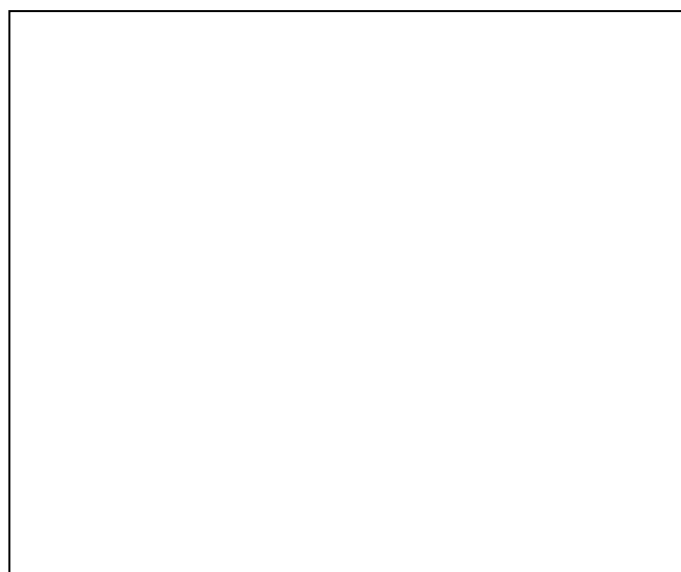
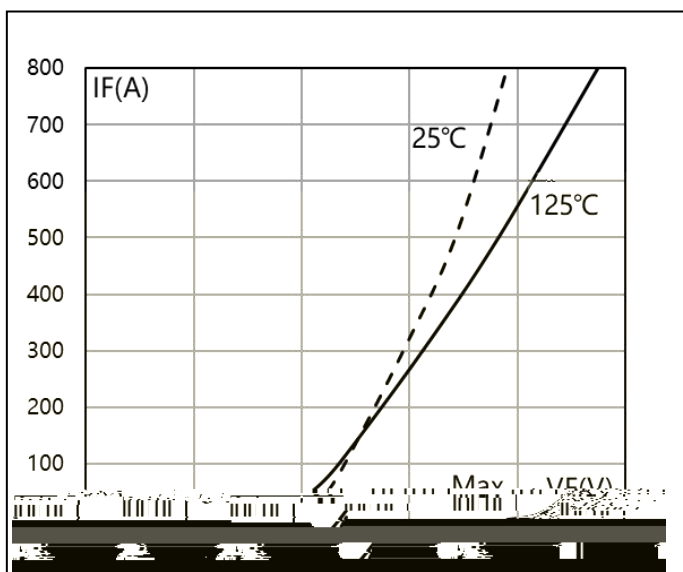
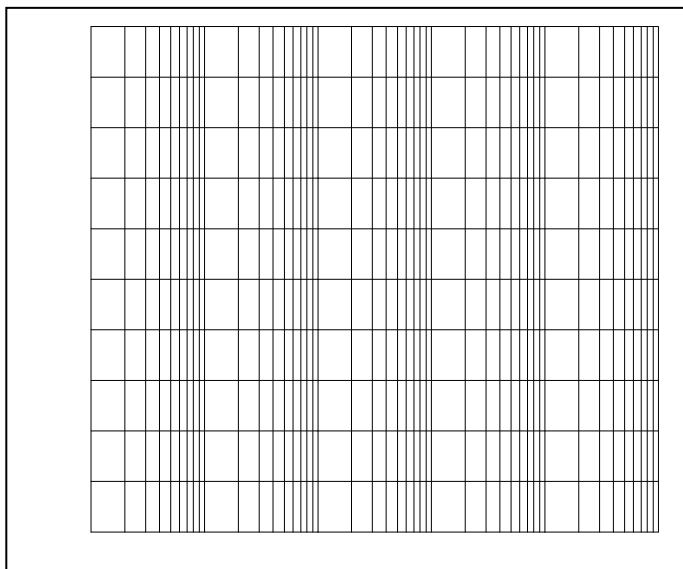
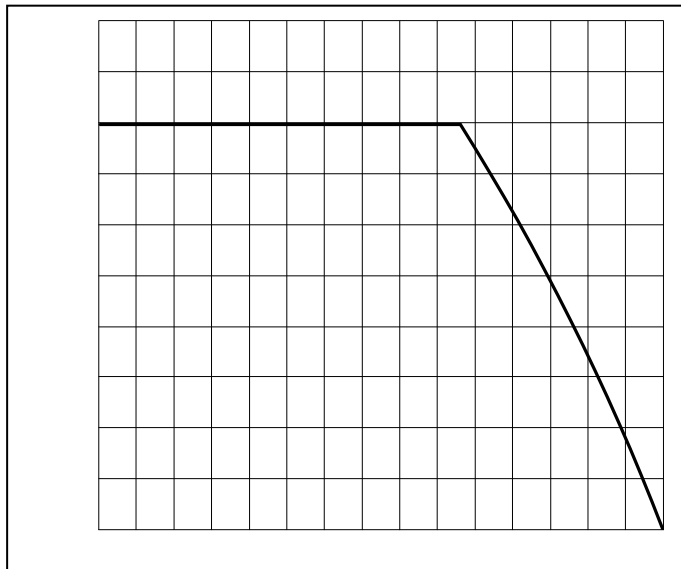
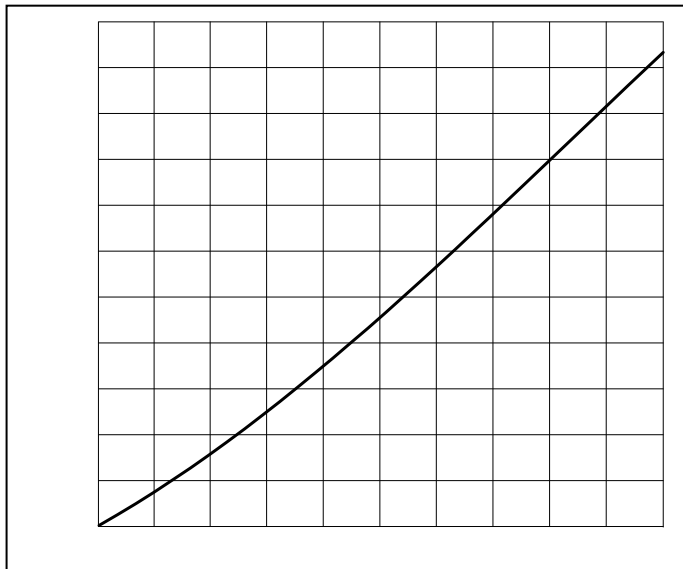
Symbol	Item	Conditions	Values	Units
I_{TAV}	Average On-State Current	$T_c=93^\circ\text{C}$, Single Phase half wave 180° conduction	200	A
I_{TSM}	Surge On-State Current	$T_{VJ}=45^\circ\text{C}$ $t=10\text{ms}$ (50Hz), sine $V_R=0$	4500	A
i^2t	Circuit Fusing Consideration		101250	A^2s
V_{isol}	Isolation 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(M4)	2~15%	Nm
M_t		To terminals(M6)	5~15%	
M_s		To heatsink(M6)	5~15%	Nm
di/dt	Critical Rate of Rise of On-State Current	$T_{VJ}=T_{VJM}$, $V_D=1/2V_{DRM}$, $I_G=100\text{mA}$ $d_i/d_t=0.1\text{A}/\mu\text{s}$	200	$\text{A}/\mu\text{s}$
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.	$T=25^\circ\text{C}$ $I_T=200\text{A}$			1.40	V
I_{RRM}/I_{DRM}	Repetitive Peak Reverse Current, max. / Repetitive Peak Off-State Current, max.	$T_{VJ}=T_{VJM}$, $V_R=V_{RRM}$, $V_D=V_{DRM}$			100	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			0.14	$^\circ\text{W}$
$R_{th(c-s)}$	Thermal Impedance, max.	Case to Heat sink			0.06	$^\circ\text{W}$



Performance Curves



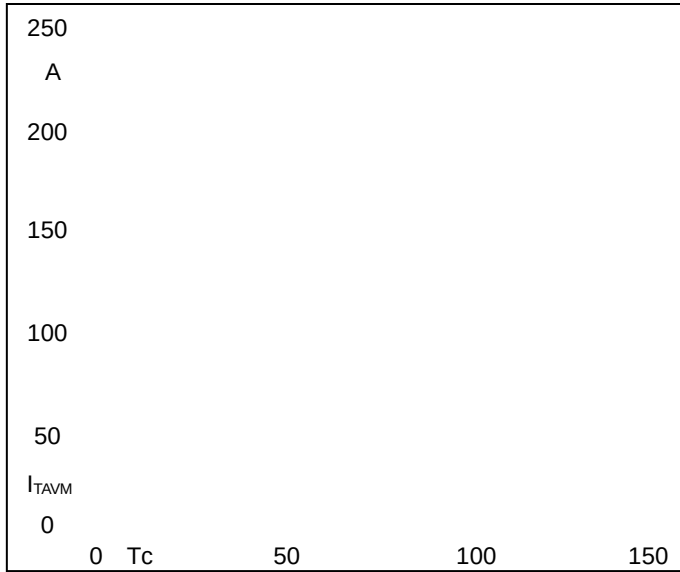


Fig7. SCR Forward Current Derating Curve

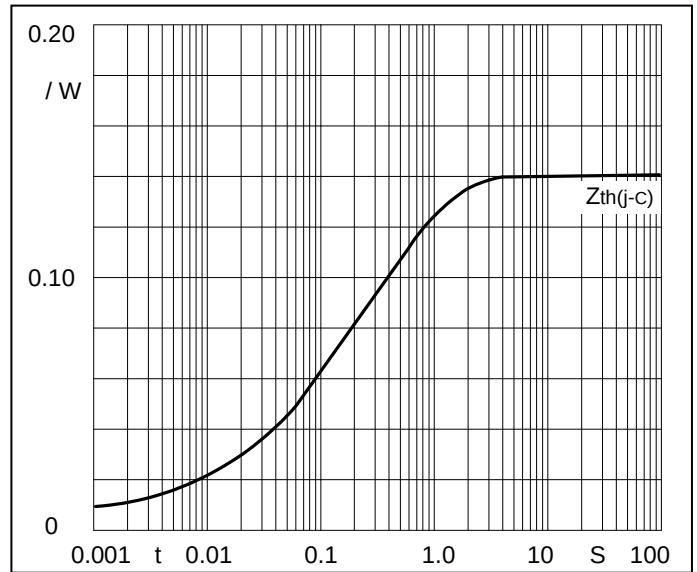


Fig8. SCR Transient thermal impedance

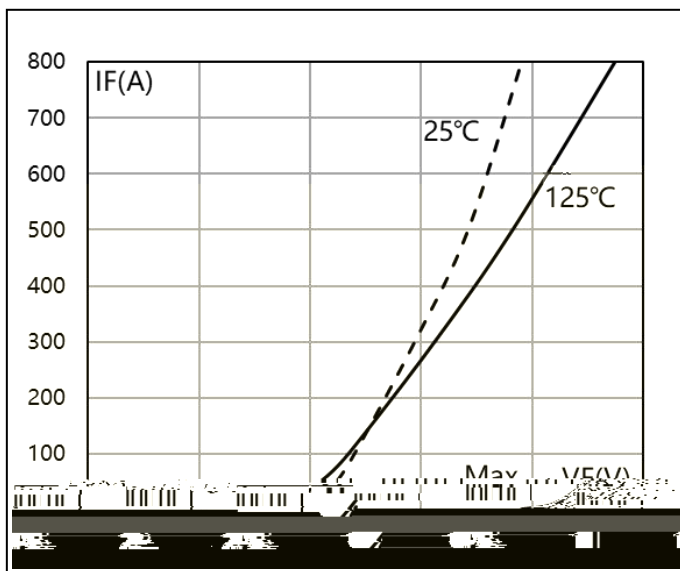


Fig9. SCR Forward Characteristics

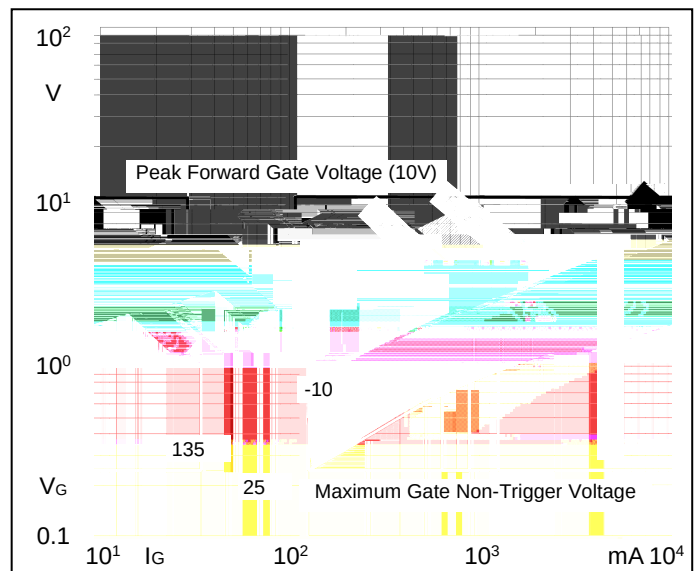


Fig10. Gate trigger Characteristics

