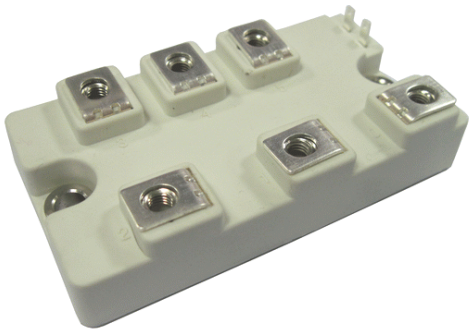
MT75DT-L1

RoHS COMPLIANT



Three Phase Bridge + Thyristor

VRRM / VDRM	800 to 1800V
IFAV / ITAV	75A

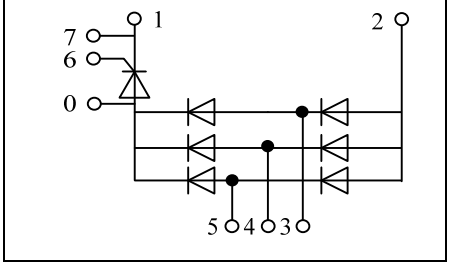
Features

- 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

Circuit



Module Type

TYPE	VRRM /VDRM	VRSM
MT75DT08L1	800V	900V
MT75DT12L1	1200V	1300V
MT75DT16L1	1600V	1700V
MT75DT18L1	1800V	1900V

◆Diode

Maximum Ratings

Symbol	Item	Conditions	Values	Units
ID	Output Current(D.C.)	Tc=101℃ Three phase full wave	75	A
IFSM	Surge forward current	t=10mS Tvj =45℃	920	A
i^2t	Circuit Fusing Consideration		4200	A^2s
Visol	Isolation Breakdown Voltage(R.M.S)	a.c.50HZ;r.m.s.;1min	3000	V
Tvj	Operating Junction Temperature		-40 to +150	℃
Tstg	Storage Temperature		-40 to +125	℃
Mt	Mounting Torque	To terminals(M5)	3±15%	Nm
Ms		To heatsink(M5)	3±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
Rth(c-s)	Thermal Impedance, max.	Case to Heatsink	0.10	℃/W

Electrical Characteristics

Symbol	Item	Conditions	Values	Units
VFM	Forward Voltage Drop, max.	T=25℃ IF =100A	1.40	V
IRRM	Repetitive Peak Reverse Current, max.	Tvj =25℃ VRD=VRRM Tvj =150℃ VRD=VRRM	≤0.5 ≤6	mA mA

◆Thyristor

Maximum Ratings

Symbol	Item	Conditions	Values	Units
I_{TAV}	Average On-State Current	Tc=99℃, Single Phase half wave 180° conduction	75	A
I_{TSM}	Surge On-State Current	TVJ=45℃ t=10ms (50Hz), sine VR=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
Tvj	Operating Junction Temperature		-40 to +125	℃
Tstg	Storage Temperature		-40 to +125	℃
Mt	Mounting Torque	To terminals(M5)	3±15%	Nm
Ms		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 =100mA d_{iG}/d_t=0.1A/μs	150	A/μs
dv/dt	Critical Rate of Rise of Off-State Voltage, min.	$T_J=T_{VJM}$,$V_D=2/3V_{DRM}$,linear voltage rise	500	V/μs

Electrical and Thermal Characteristics

Symbol	Item	Conditions	Values			Units
			Min.	Typ.	Max.	
V_{TM}	Peak On-State Voltage, max.	T=25℃ I_T=100A			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℃ , V_D =6V			3	V
I_{GT}	Gate Trigger Current, max.	T_{VJ} =25℃ , V_D =6V			150	mA
Rth(j-c)	Thermal Impedance, max.	Junction to Case			0.30	℃/W
Rth(c-s)	Thermal Impedance, max.	Case to Heatsink			0.10	℃/W

Performance Curves

Fig1. Power dissipation

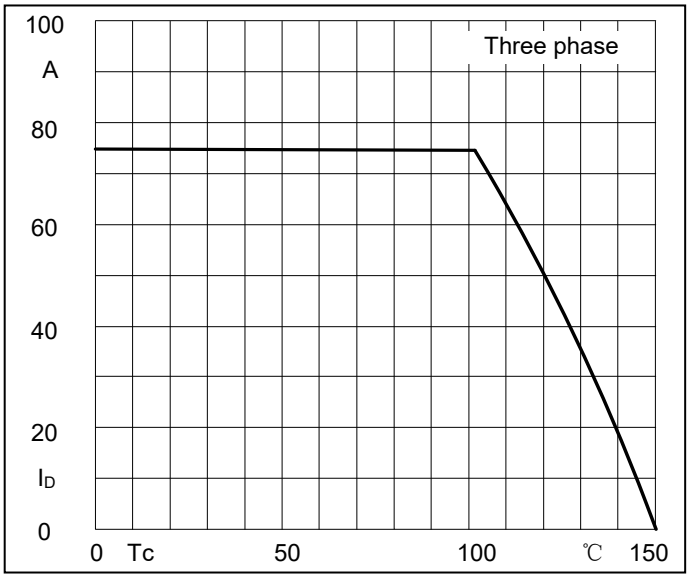


Fig2. Forward Current Derating Curve

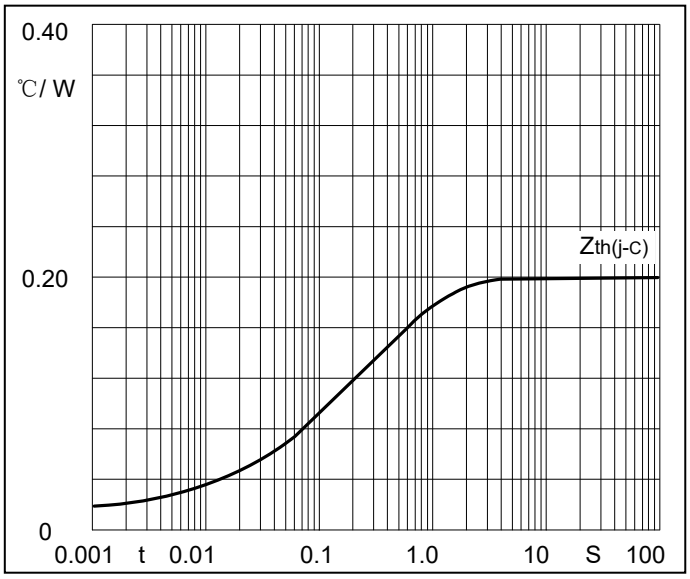


Fig3. Transient thermal impedance

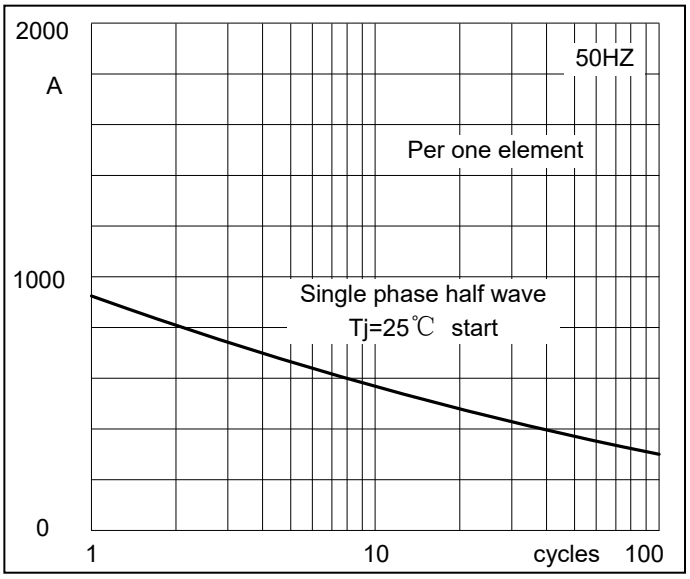


Fig4. Max Non-Repetitive Forward Surge Current

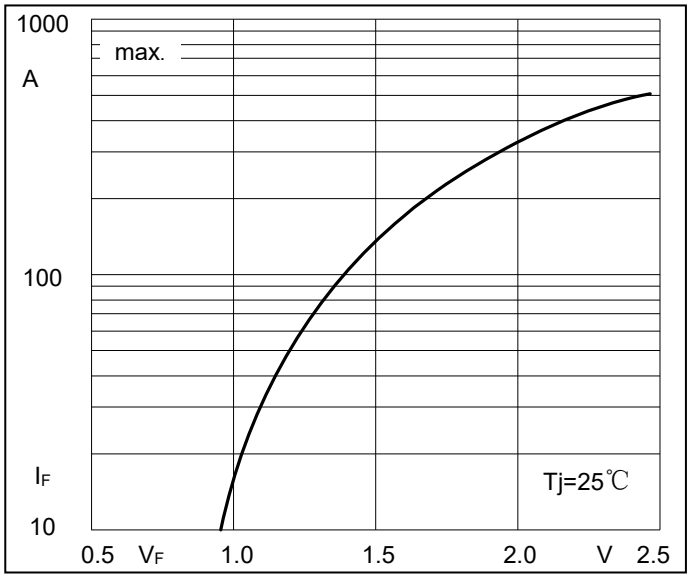


Fig5. Forward Characteristics

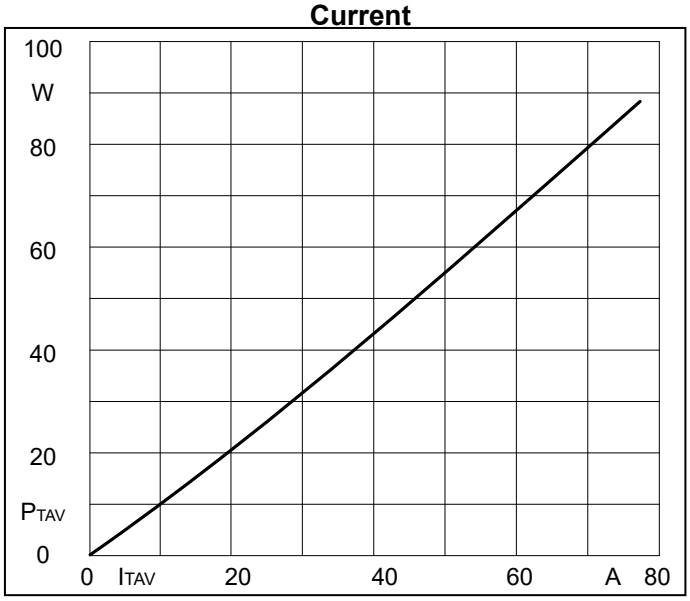


Fig6. SCR Power dissipation

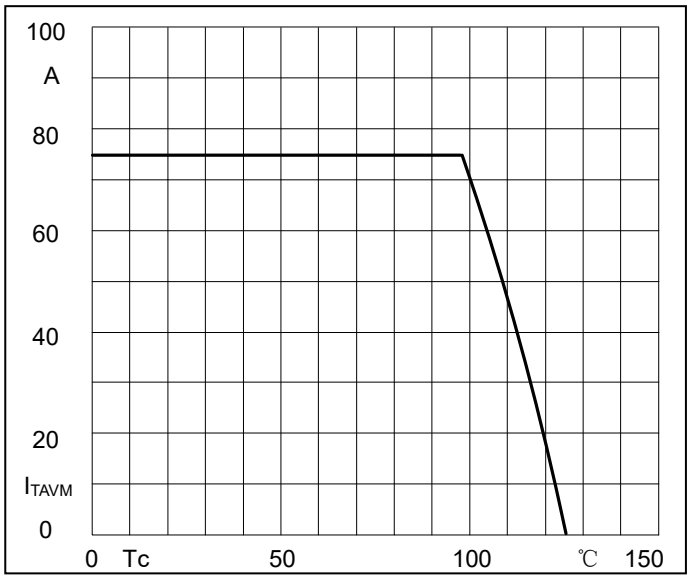


Fig7. SCR Forward Current Derating Curve

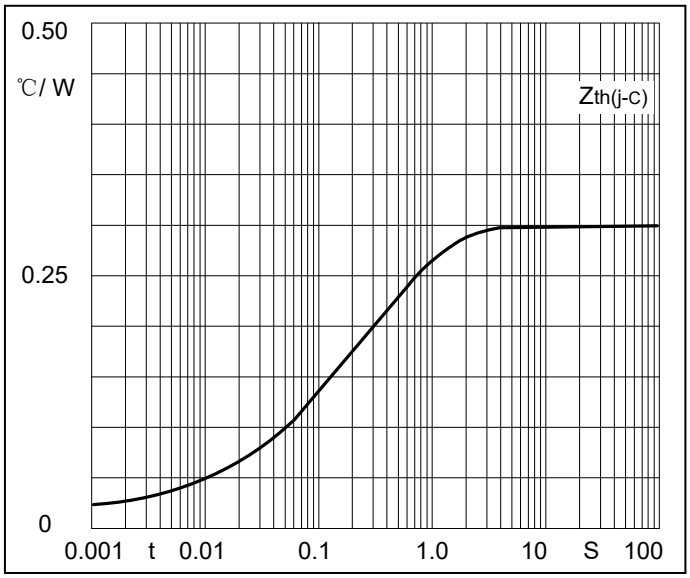


Fig8. SCR Transient thermal impedance

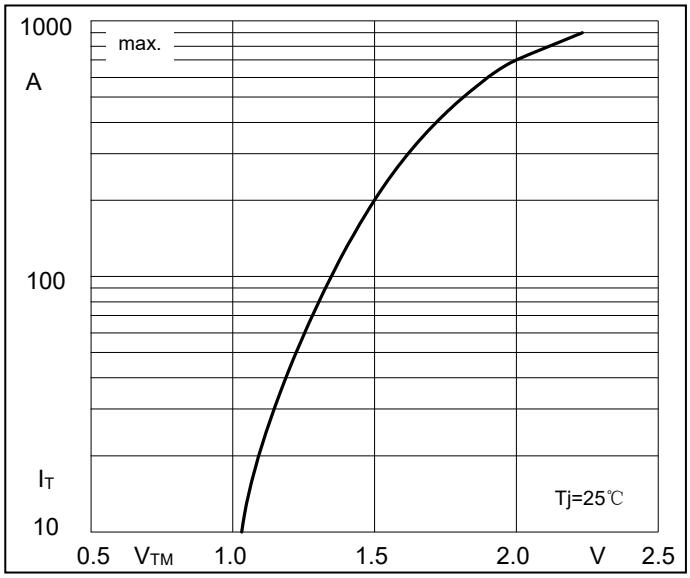


Fig9. SCR Forward Characteristics

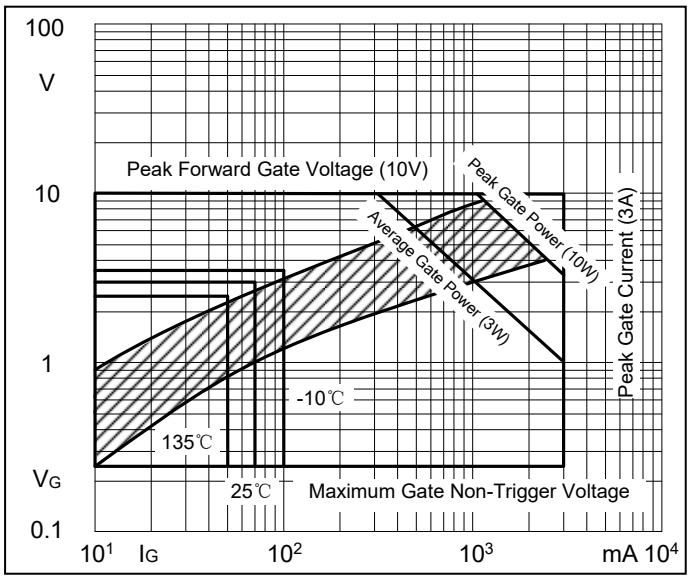
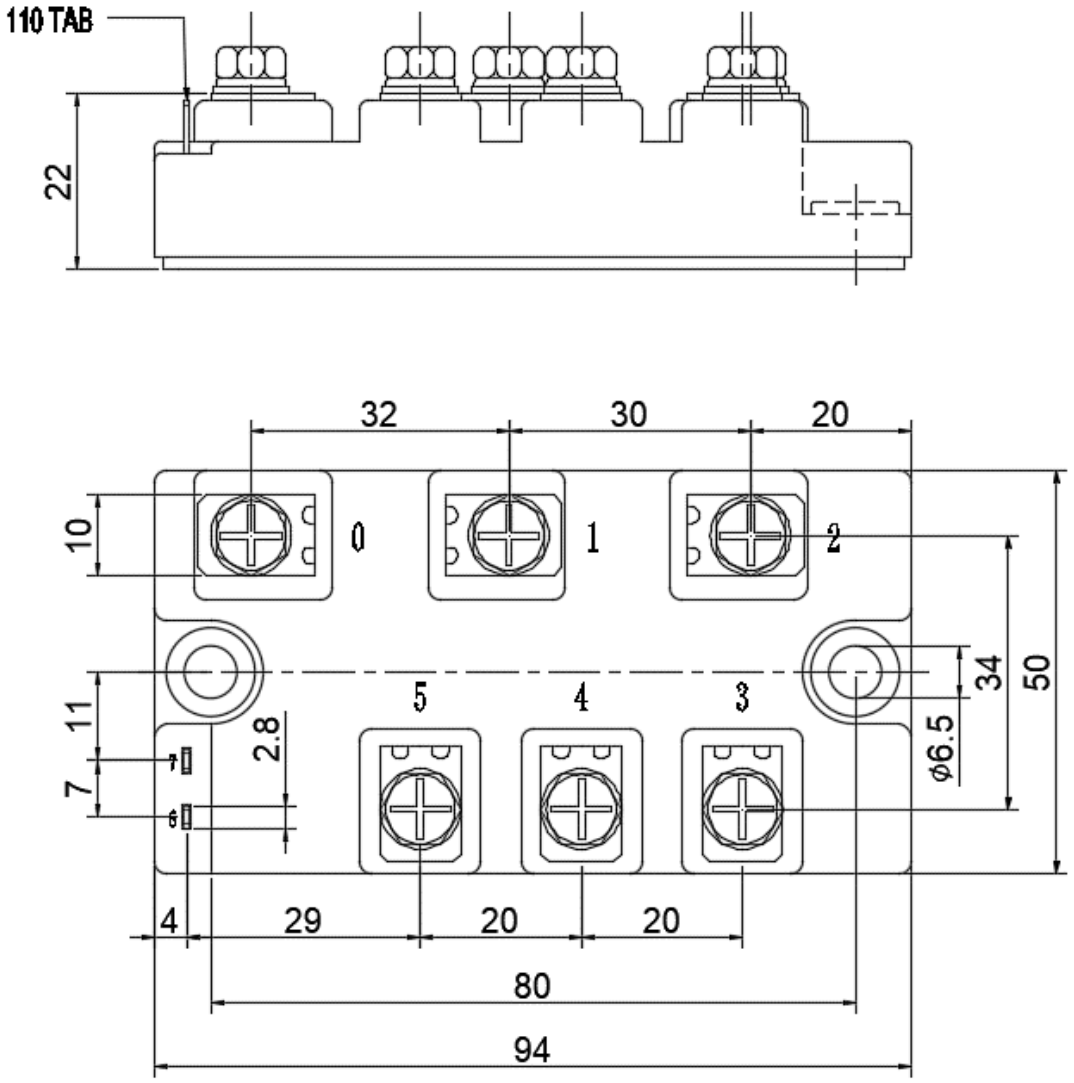


Fig10. Gate trigger Characteristics

Package Outline Information

CASE: L1



Dimensions in mm