



Micro Commercial Components



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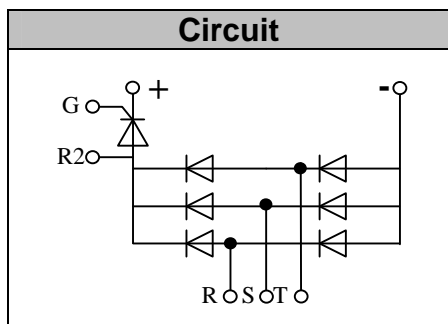
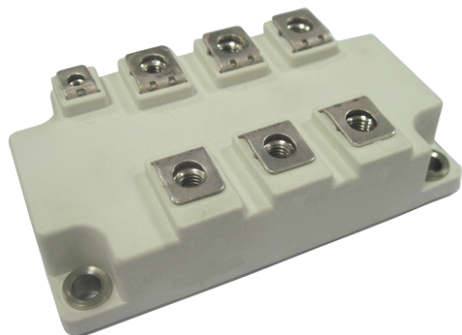
**MT150DT08L2**  
**MT150DT12L2**  
**MT150DT16L2**  
**MT150DT18L2**

## Features

- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Blocking Voltage:800 to 1800V
- Three Phase Bridge and a Thyristor
- Low Forward Voltage

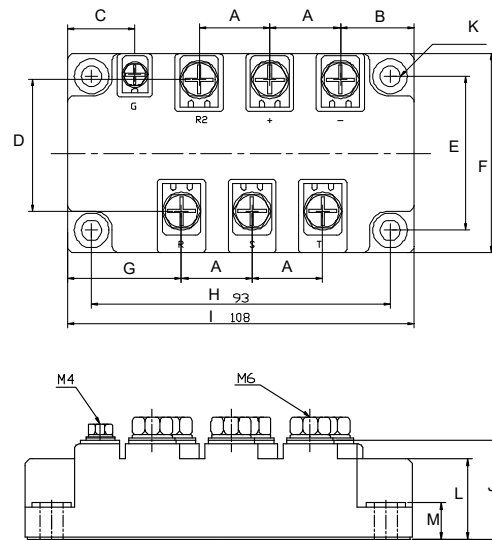
## Applications

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



**150 Amp**  
**Three Phase**  
**Bridge + Thyristor**  
**800~1800 Volts**

L2



DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.854	0.878	21.50	22.50	
B	0.894	0.917	22.50	23.50	
C	0.815	0.839	20.50	21.50	
D	1.600	1.630	40.50	41.50	
E	1.880	1.900	47.50	48.50	
F	2.430	2.450	61.50	62.50	
G	1.390	1.410	35.00	36.00	
H	3.650	3.670	92.50	93.50	
I	4.240	4.260	107.50	108.50	
J	1.050	1.080	26.50	27.50	
K	0.256		6.50		∅
L	0.846	0.870	21.30	22.30	
M	0.323	0.346	8.00	9.00	

## Module Type

TYPE	VRRM/ VDRM	VRSM
MT150DT08L2	800V	900V
MT150DT12L2	1200V	1300V
MT150DT16L2	1600V	1700V
MT150DT18L2	1800V	1900V

## ◆Diode

### Maximum Ratings

Symbol	Item	Conditions	Values	Units
ID	Output Current(D.C.)	Tc=93°C Three phase full wave	150	A
IFSM	Surge forward current	t=10mS Tvj =45°C	1500	A
i <sup>2</sup> t	Circuit Fusing Consideration		11250	A <sup>2</sup> s
Visol	Isolation Breakdown Voltage(R.M.S)	a.c.50HZ;r.m.s.;1min	3000	V
Tvj	Operating Junction Temperature		-40 to +150	°C
Tstg	Storage Temperature		-40 to +125	°C
Mt	Mounting Torque	To terminals(M4)	2±15%	Nm
Mt		To terminals(M6)	5±15%	Nm
Ms		To heatsink(M6)	5±15%	Nm
Weight		Module (Approximately)	320	g

## Thermal Characteristics

Symbol	Item	Conditions	Values	Units
Rth(j-c)	Thermal Impedance, max.	Junction to Case(TOTAL)	0.14	°C/W
Rth(c-s)	Thermal Impedance, max.	Case to Heat sink	0.07	°C/W

## Electrical Characteristics

Symbol	Item	Conditions	Values	Units
VFM	Forward Voltage Drop, max.	T=25°C IF =150A	1.35	V
I <sub>RRM</sub>	Repetitive Peak Reverse Current, max.	Tvj =25°C VRD=VRRM Tvj =150°C VRD=VRRM	≤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	150	A
$I_{TSM}$	Surge On-State Current	$T_{VJ}=45^{\circ}\text{C}$ $t=10\text{ms}$ (50Hz), sine $VR=0$	1500	A
$i^2t$	Circuit Fusing Consideration		11250	$\text{A}^2\text{s}$
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	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature		-40 to +125	$^{\circ}\text{C}$
$M_t$	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
$di/dt$	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
$V_{TM}$	Peak On-State Voltage, max.	$T=25^{\circ}\text{C}$ $I_T=150\text{A}$			1.35	V
$I_{RRM}/I_{DRM}$	Repetitive Peak Reverse Current, max. / Repetitive Peak Off-State Current, max.	$T_{VJ}=T_{VJM}$ , $V_R=V_{RRM}$ , $V_D=V_{DRM}$			40	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			0.16	$^{\circ}\text{C}/\text{W}$
$R_{th(c-s)}$	Thermal Impedance, max.	Case to Heatsink			0.07	$^{\circ}\text{C}/\text{W}$

Performance Curves

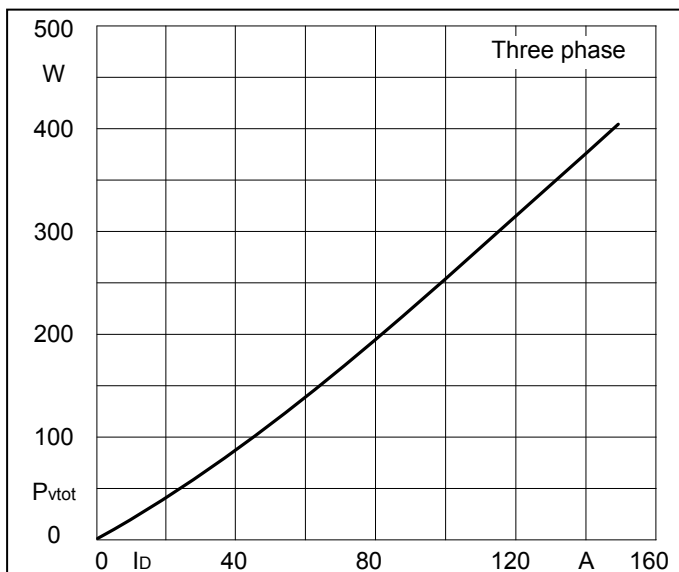


Fig1. Power dissipation

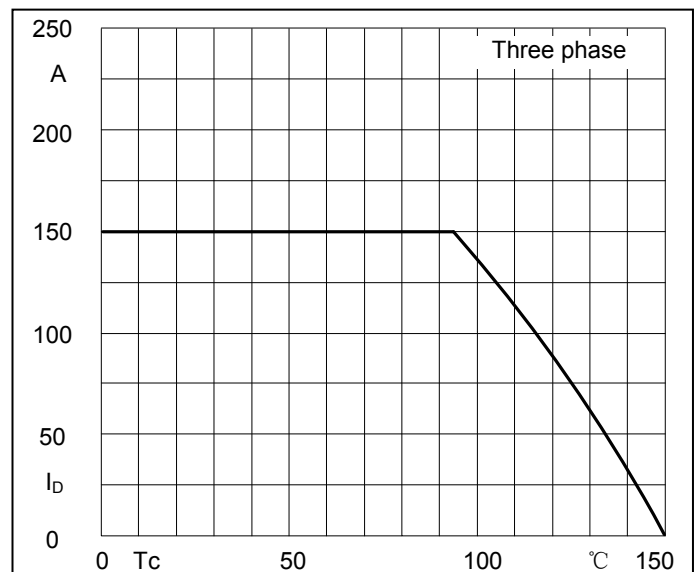
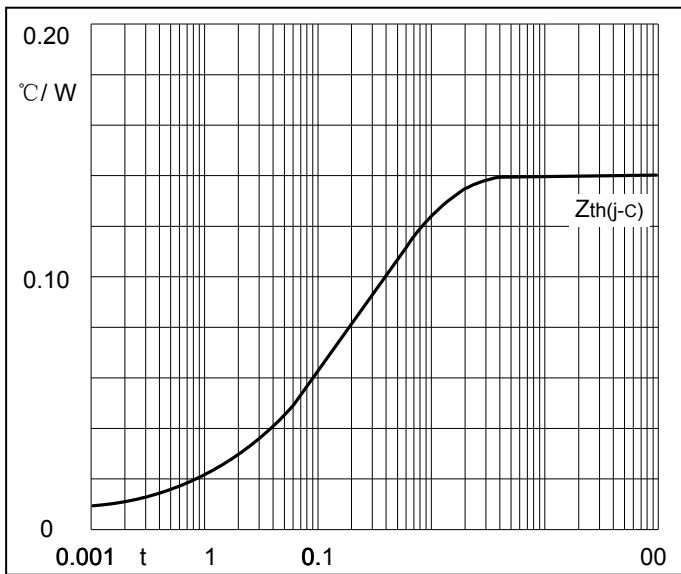
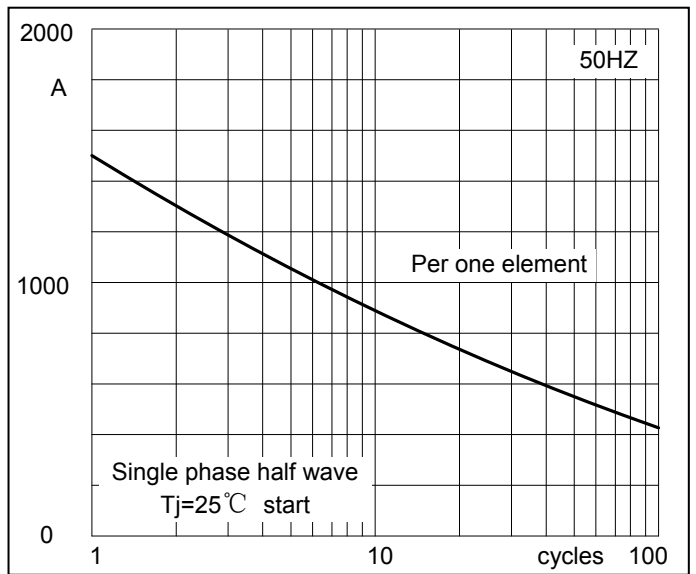


Fig2. Forward Current Derating Curve

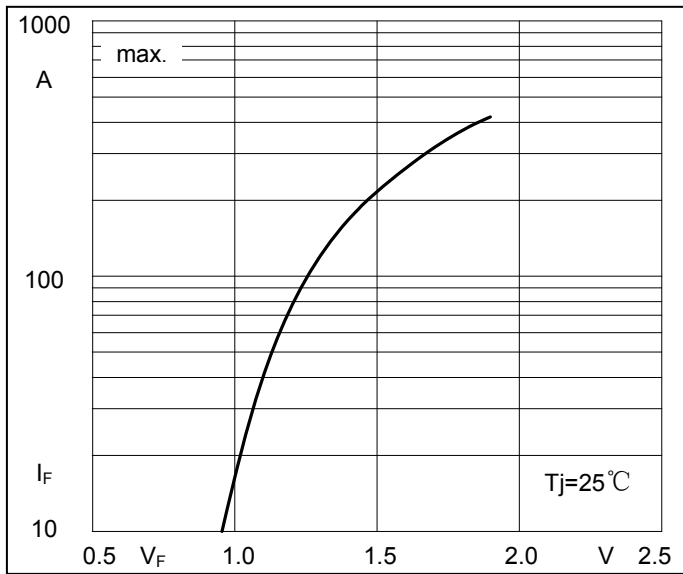
**Performance Curves**



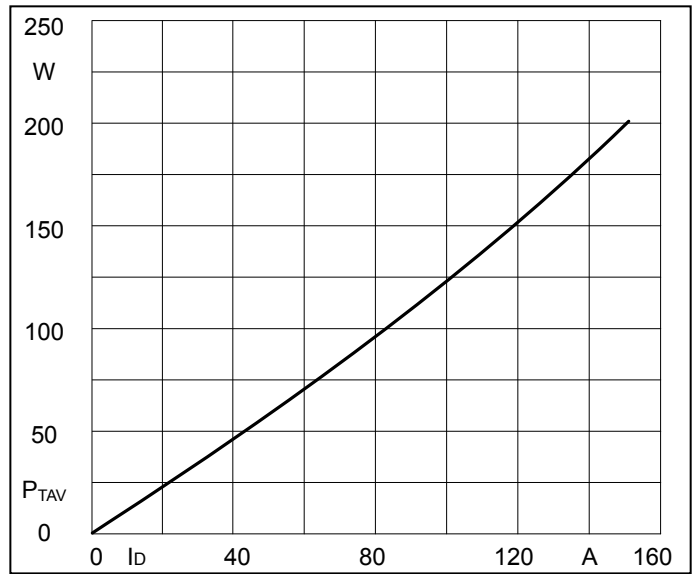
**Fig3. Transient thermal impedance**



**Fig4. Max Non-Repetitive Forward Surge Current**

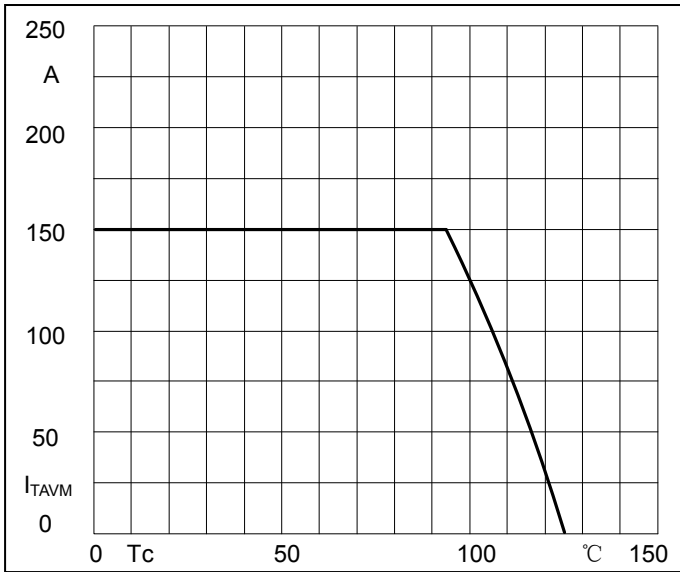


**Fig5. Forward Characteristics**

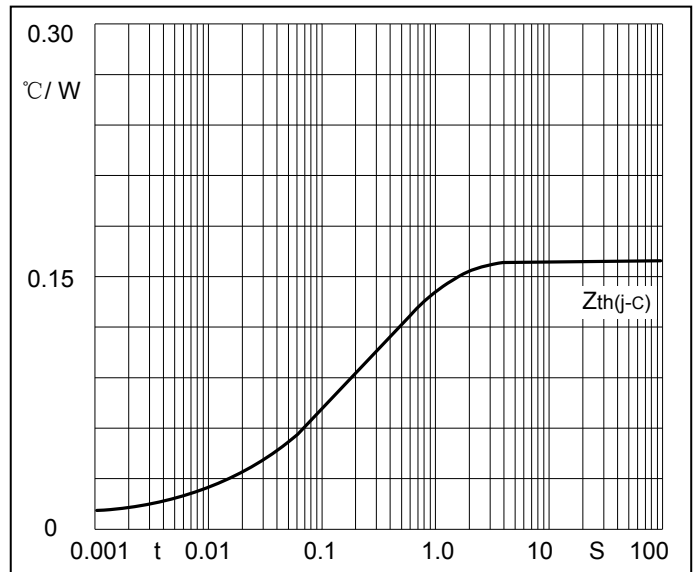


**Fig6. SCR Power dissipation**

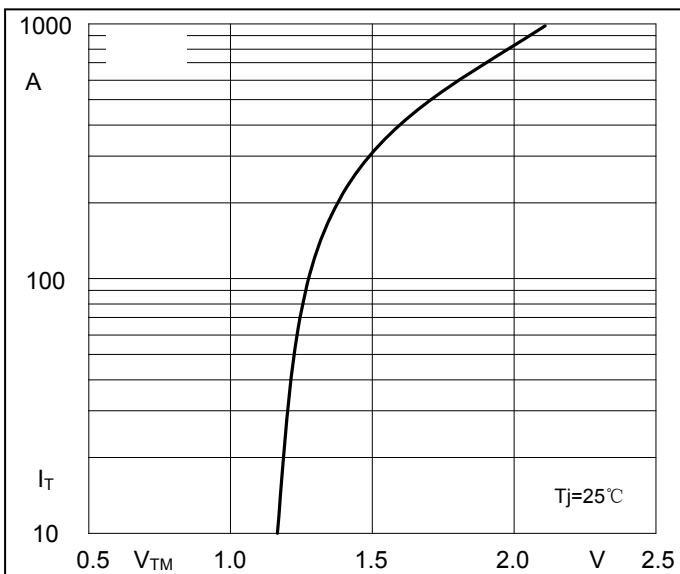
**Performance Curves**



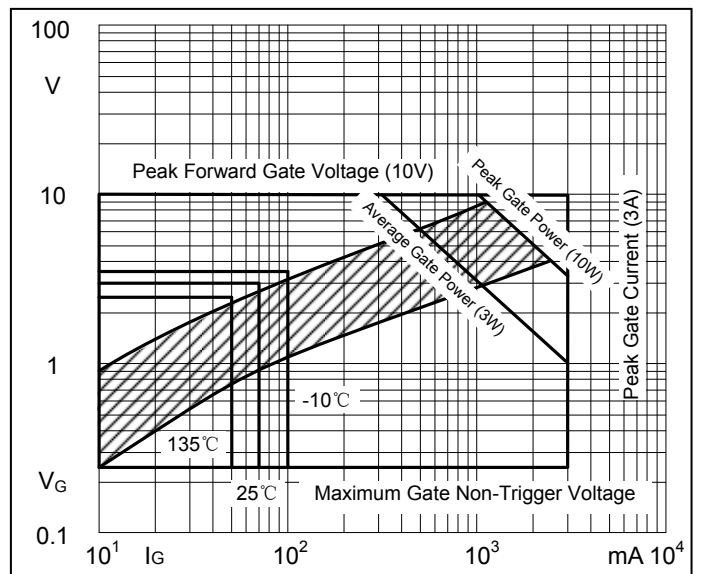
**Fig7. SCR Forward Current Derating Curve**



**Fig8. SCR Transient thermal impedance**



**Fig9. SCR Forward Characteristics**



**Fig10. Gate trigger Characteristics**