

**Features**

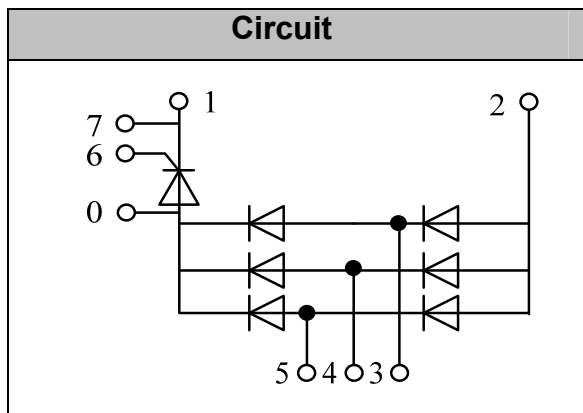
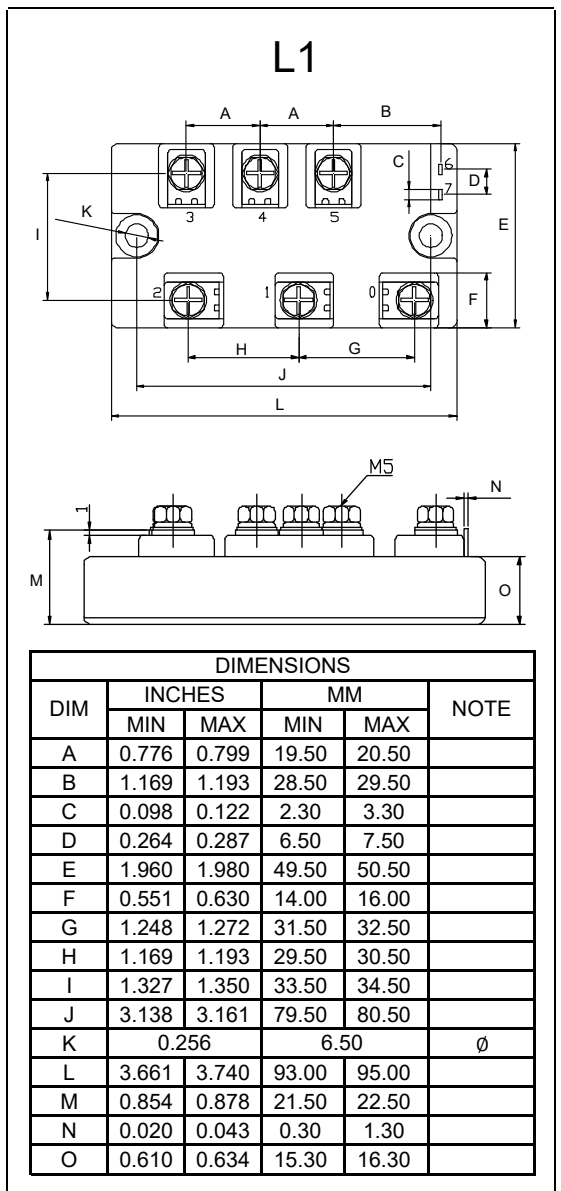
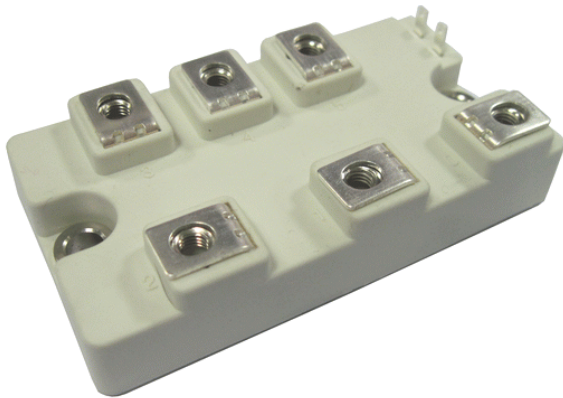
- Lead Free Finish/RoHS Compliant (Note 1) ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Blocking Voltage: 800 to 1800V
- Three Phase Bridge and a Thyristor
- Isolated Module Package

**Applications**

- Inverter for AC or DC Motor Control
- Current Stabilized Power Supply
- Switching Power Supply

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

MCC Part Number	$V_{RRM}/V_{DRM}$	$V_{RSM}$
MT100DT08L1	800V	900V
MT100DT12L1	1200V	1300V
MT100DT16L1	1600V	1700V
MT100DT18L1	1800V	1900V



◆ Diode  
Maximum Ratings

Symbol	Item	Conditions	Values	Units
ID	Output Current(D.C.)	Tc=100°C Three Phase Full Wave	100	A
IFSM	Surge Forward Current	t=10mS Tvj =45°C	1200	A
i <sup>2</sup> t	Circuit Fusing Consideration		7200	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(M5)	3±15%	Nm
Ms		To Heatsink(M5)	3±15%	Nm
Weight		Module (Approximately)	210	g

Thermal Characteristics

Symbol	Item	Conditions	Values	Units
Rth <sub>(J-C)</sub>	Thermal Impedance, Max.	Junction to Case(Total)	0.18	°C/W
Rth <sub>(C-S)</sub>	Thermal Impedance, Max.	Case to Heatsink	0.10	°C/W

Electrical Characteristics

Symbol	Item	Conditions	Values	Units
VFM	Forward Voltage Drop, Max.	T=25°C IF =100A	1.35	V
I <sub>RRM</sub>	Repetitive Peak Reverse Current, Max.	Tvj =25°C VRD=VRRM Tvj =150°C VRD=VRRM	≤0.5 ≤6	mA mA

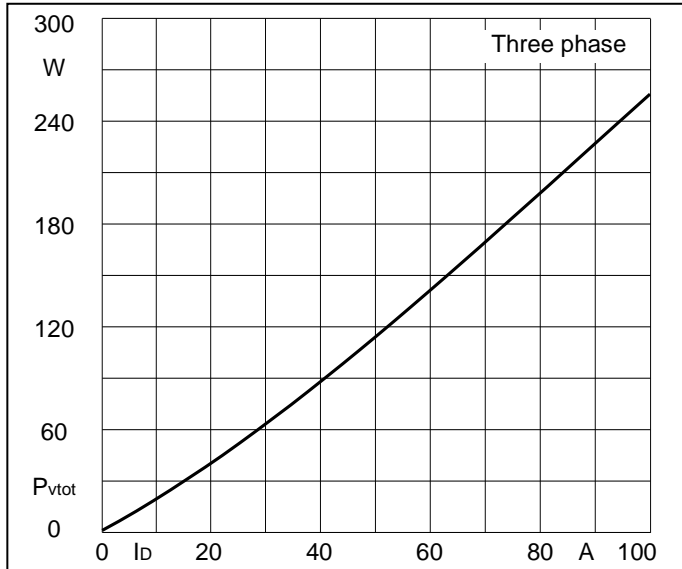
## ◆Thyristor Maximum Ratings

Symbol	Item	Conditions	Values	Units
$I_{TAV}$	Average On-State Current	$T_c=92^{\circ}\text{C}$ , Single Phase Half Wave 180° Conduction	100	A
$I_{TSM}$	Surge On-State Current	$T_{VJ}=45^{\circ}\text{C}$ $t=10\text{ms}$ (50Hz), Sine $V_R=0$	1200	A
$i^2t$	Circuit Fusing Consideration		7200	$\text{A}^2\text{s}$
$V_{isol}$	Isolation Breakdown Voltage(R.M.S)	a.c.50Hz;r.m.s.;1 Min	3000	V
$T_{vj}$	Operating Junction Temperature		-40 to +125	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature		-40 to +125	$^{\circ}\text{C}$
$M_t$	Mounting Torque	To Terminals(M5)	$3\pm 15\%$	Nm
$M_s$		To Heatsink(M5)	$3\pm 15\%$	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	$\text{V}/\mu\text{s}$

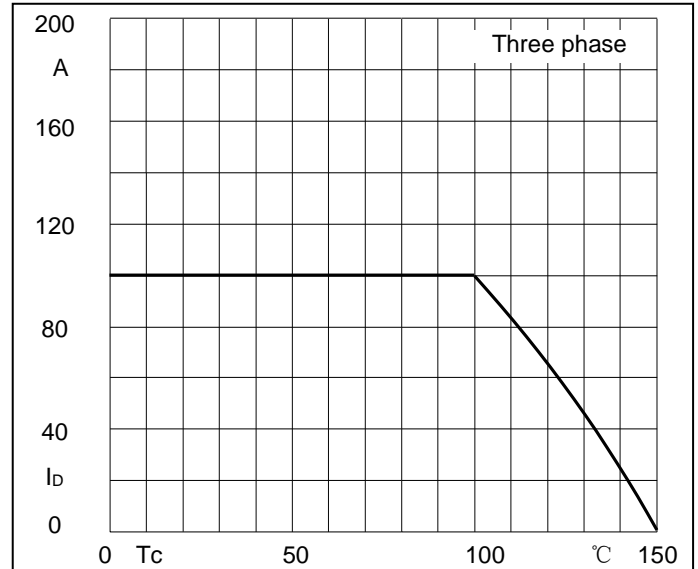
## Electrical and Thermal Characteristics

Symbol	Item	Conditions	Values			Units
			Min.	Typ.	Max.	
$V_{TM}$	Peak On-State Voltage	$T=25^{\circ}\text{C}$ $I_T=100\text{A}$			1.25	V
$I_{RRM}/I_{DRM}$	Repetitive Peak Reverse Current / Repetitive Peak Off-State Current	$T_{VJ}=T_{VJM}$ , $V_R=V_{RRM}$ , $V_D$ $=V_{DRM}$			20	mA
$V_{GT}$	Gate Trigger Voltage	$T_{VJ}=25^{\circ}\text{C}$ , $V_D=6\text{V}$		1	3	V
$I_{GT}$	Gate Trigger Current	$T_{VJ}=25^{\circ}\text{C}$ , $V_D=6\text{V}$		65	150	mA
$I_H$	Hoding Current	$T_{VJ}=25^{\circ}\text{C}$ , $V_D=6\text{V}$		120	220	mA
$I_L$	latching Current	$T_{VJ}=25^{\circ}\text{C}$ , $R=33\Omega$		180	400	mA
$R_{th(J-C)}$	Thermal Impedance	Junction to Case			0.26	$^{\circ}\text{C}/\text{W}$
$R_{th(C-S)}$	Thermal Impedance	Case to Heatsink			0.10	$^{\circ}\text{C}/\text{W}$

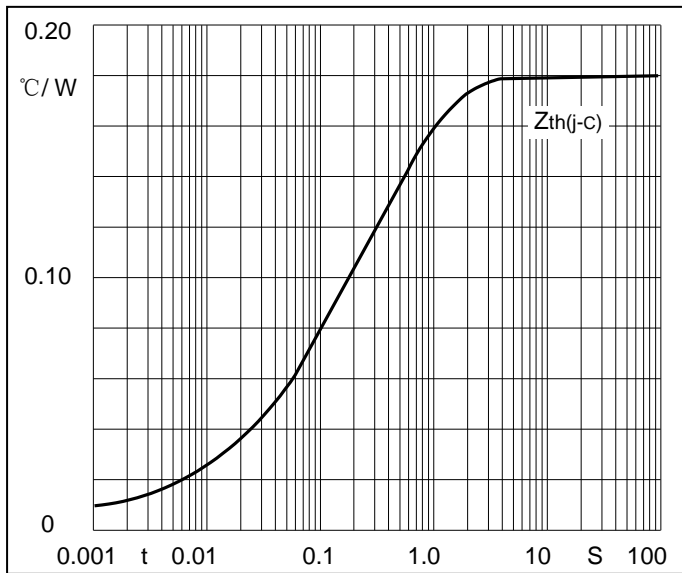
**Performance Curves**



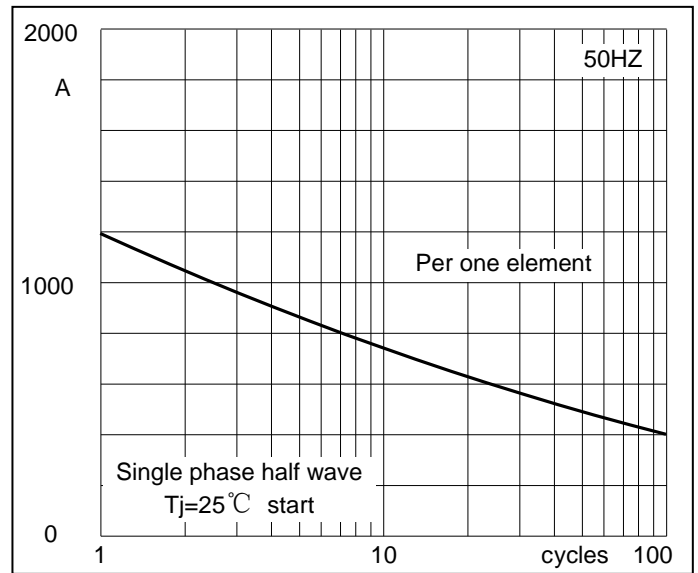
**Fig1. Power dissipation**



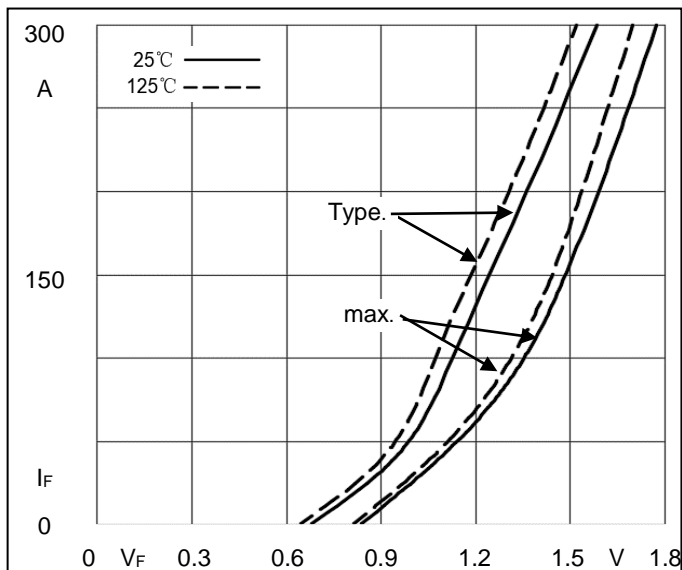
**Fig2. Forward Current Derating Curve**



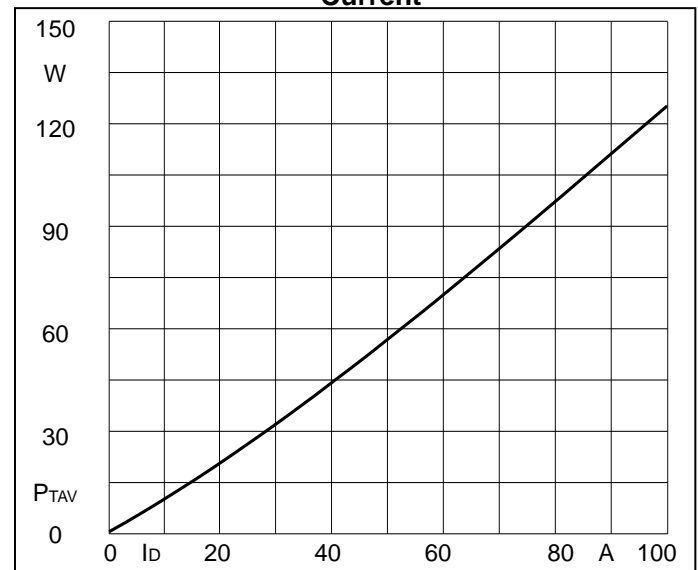
**Fig3. Transient thermal impedance**



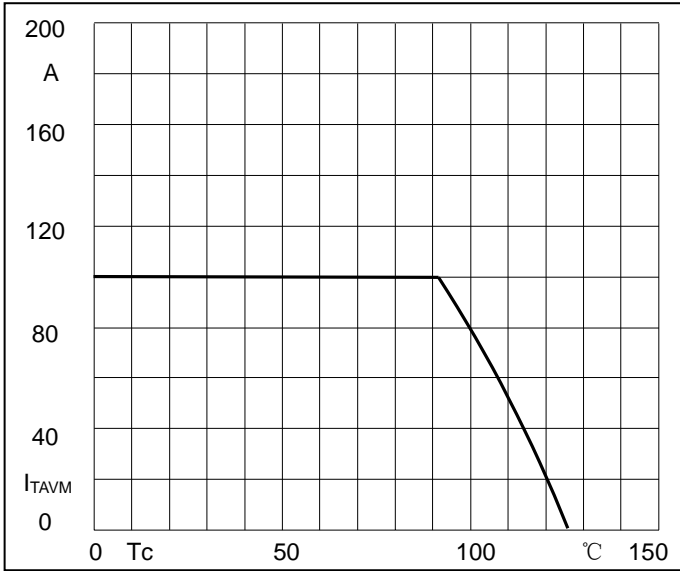
**Fig4. Max Non-Repetitive Forward Surge Current**



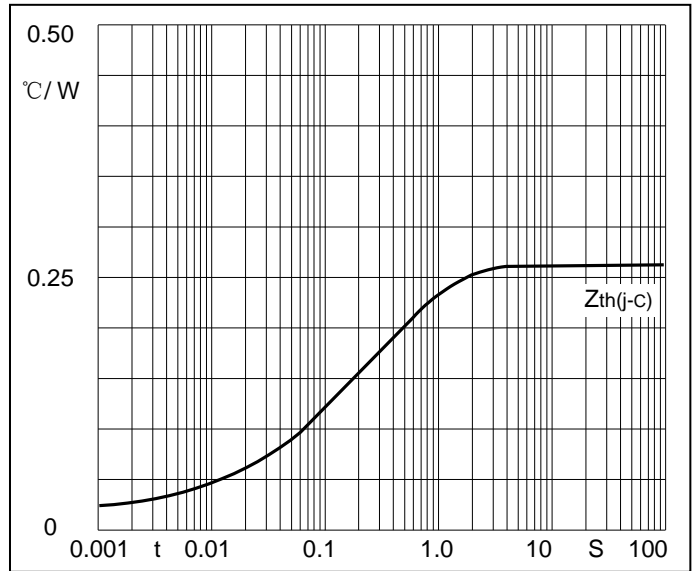
**Fig5. Diode Forward Characteristics**



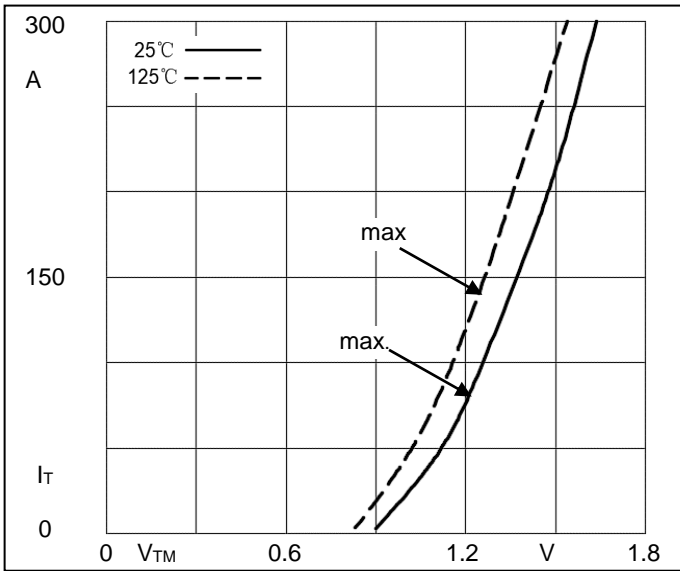
**Fig6. SCR Power dissipation**



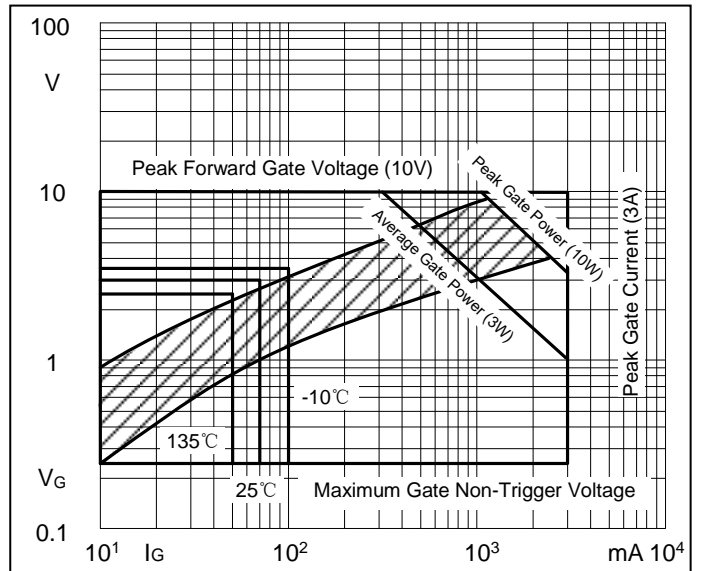
**Fig7. SCR Forward Current Derating Curve**



**Fig8. SCR Transient thermal impedance**



**Fig9. SCR Forward Characteristics**



**Fig10. Gate trigger Characteristics**

## Ordering Information

Device	Packing
Part Number-BP	Bulk: 6PCS/BOX ;60PCS/CTN

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