



Micro Commercial Components



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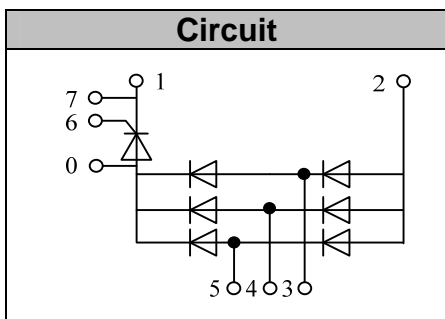
**MT75DT08L1**  
**MT75DT12L1**  
**MT75DT16L1**  
**MT75DT18L1**

## Features

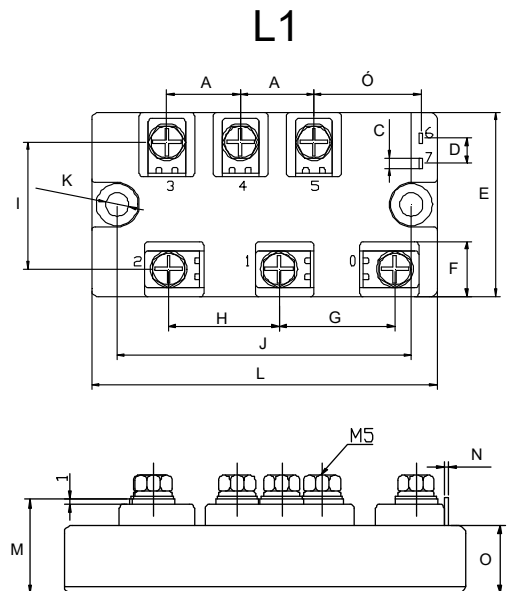
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Blocking Voltage: 800 to 1800V
- Three Phase Bridge and a Thyristor
- Isolated Module Package

## Applications

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



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



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.776	.799	19.70	20.30	
B	1.169	1.193	21.70	30.30	
C	.098	.122	2.50	3.10	
D	.264	.287	6.70	7.30	
E	1.96	1.98	49.70	50.30	
F	.578	.602	14.70	15.30	
G	1.248	1.272	31.70	32.30	
H	1.169	1.193	29.70	30.30	
I	1.327	1.350	33.70	34.30	
J	3.138	3.161	79.70	80.30	
K		.256		6.50	∅
L	3.689	3.713	93.70	94.30	
M	.854	.878	21.70	22.30	
N	.020	.043	0.50	1.10	
O	.610	.634	15.50	16.10	

## 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 <sup>2</sup> t	Circuit Fusing Consideration		4200	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	℃
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
Rth(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	$T_c=99^{\circ}\text{C}$ , Single Phase half wave $180^{\circ}$ conduction	75	A
$I_{TSM}$	Surge On-State Current	$T_{VJ}=45^{\circ}\text{C}$ $t=10\text{ms}$ (50Hz), sine $VR=0$	920	A
$i^2t$	Circuit Fusing Consideration		4200	$\text{A}^2\text{s}$
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	$^{\circ}\text{C}$
Mt	Mounting Torque	To terminals(M5)	$3\pm 15\%$	Nm
Ms		To heatsink(M5)	$3\pm 15\%$	Nm
di/dt	Critical Rate of Rise of On-State Current	$T_{VJ}=T_{VJM}$ , $V_D=1/2V_{DRM}$ , $I_G=100\text{mA}$ $d_{iG}/d_t=0.1\text{A}/\mu\text{s}$	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.	$T=25^{\circ}\text{C}$ $I_T=100\text{A}$			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
Rth(j-c)	Thermal Impedance, max.	Junction to Case			0.30	$^{\circ}\text{C}/\text{W}$
Rth(c-s)	Thermal Impedance, max.	Case to Heatsink			0.10	$^{\circ}\text{C}/\text{W}$

**Performance Curves**

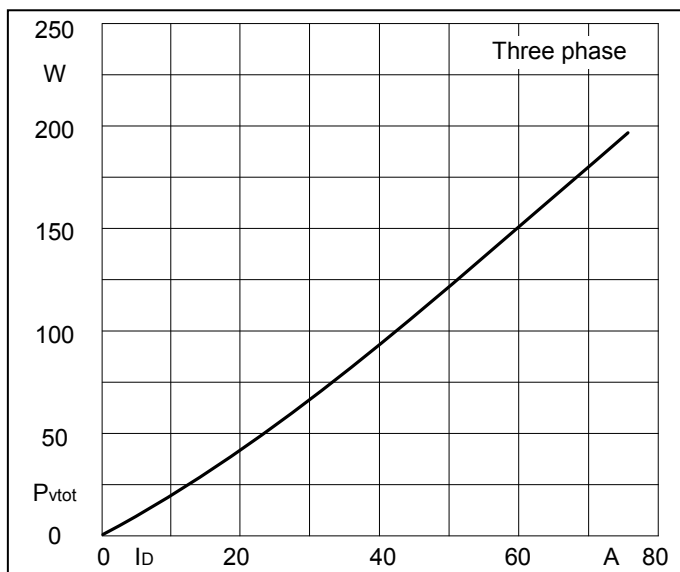


Fig1. Power dissipation

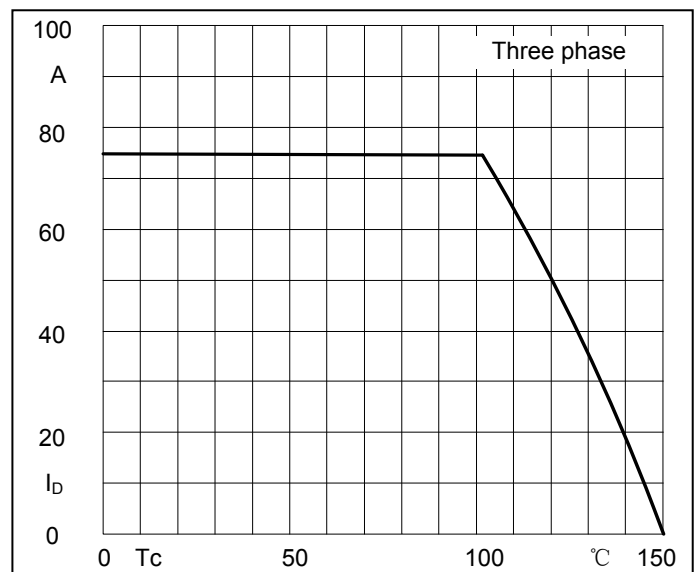
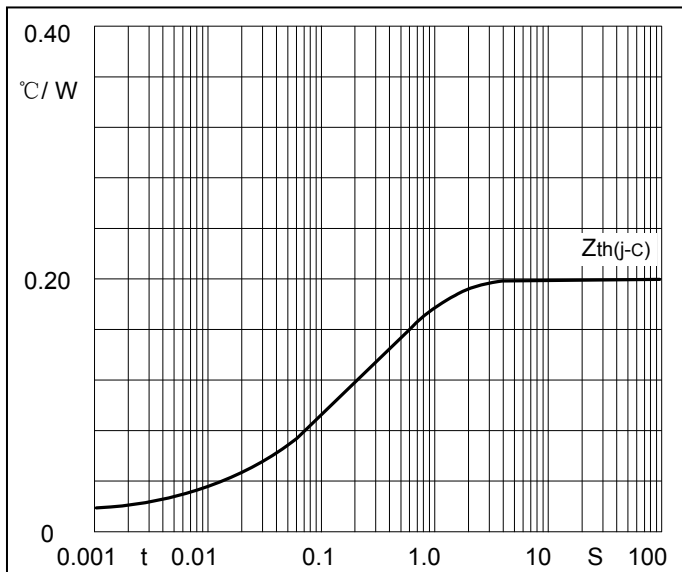
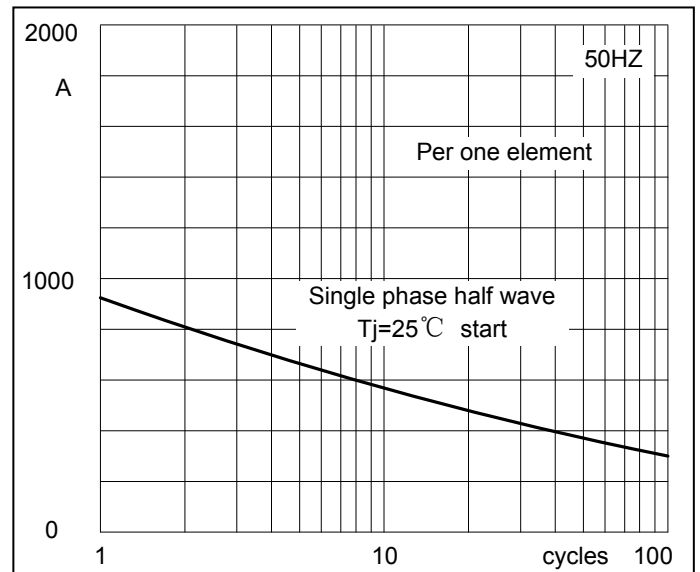


Fig2. Forward Current Derating Curve

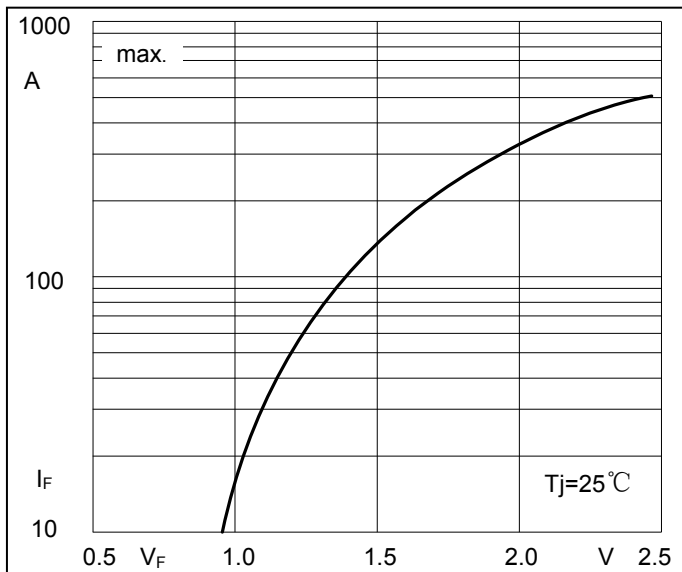
**Performance Curves**



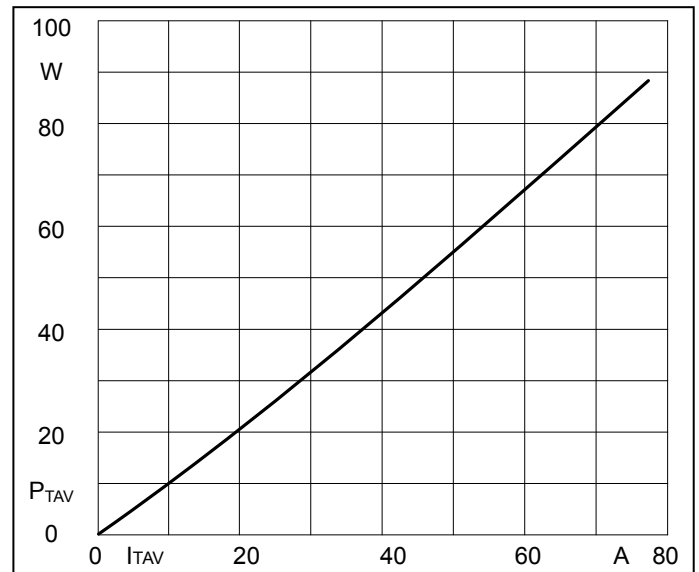
**Fig3. Transient thermal impedance**



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



**Fig5. Forward Characteristics**



**Fig6. SCR Power dissipation**



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### Ordering Information :

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

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