



Micro Commercial Components



Micro Commercial Components  
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 Simi Valley, CA 93065  
 USA  
 Tel:818-701-4933

**MT90C08T1**  
**MT90C12T1**  
**MT90C16T1**  
**MT90C18T1**

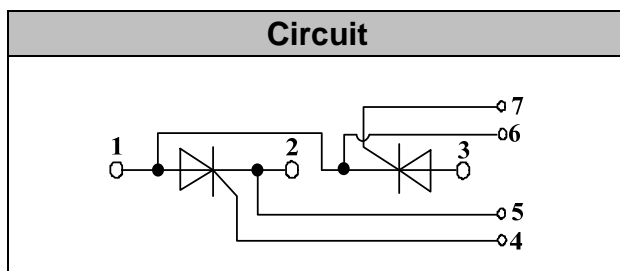
**90 Amp**  
**THYRISTOR MODULE**  
**800~1800 Volts**

## Features

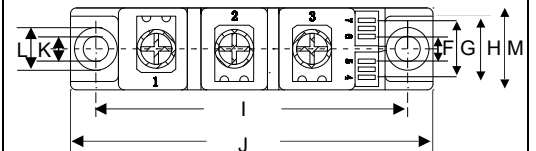
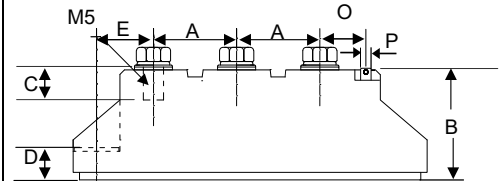
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- International standard package
- Heat transfer through aluminum oxide DBC ceramic isolated metal baseplate
- Glass passivated chip
- Simple Mounting

## Applications

- Power Converters
- Lighting Control
- DC Motor Control and Drives
- Heat and temperature control



T1



### DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.776	0.799	19.50	20.50	
B	1.169	1.193	29.50	30.50	
C	0.343	0.366	8.50	9.50	
D	0.323	0.346	8.00	9.00	
E	0.602	0.622	15.10	16.00	
F	0.224	0.248	5.50	6.50	
G	0.539	0.563	13.50	14.50	
H	0.657	0.681	16.50	17.50	
I	3.138	3.161	79.50	80.50	
J	3.650	3.673	92.50	93.50	
K	0.256		6.50		∅
L	0.421	0.445	10.50	11.50	
M	0.815	0.839	20.50	21.50	
O	0.579	0.602	14.50	15.50	
P	0.11X0.032		2.8X0.8		

**Module Type**

TYPE	VRRM	VRSM
MT90C08T1	800V	900V
MT90C12T1	1200V	1300V
MT90C16T1	1600V	1700V
MT90C18T1	1800V	1900V

**Maximum Ratings**

Symbol	Conditions	Values	Units
$I_{TAV}$	Sine 180°;Tc=85°C	90	A
$I_{TSM}$	T <sub>VJ</sub> =45°C t=10ms, sine	2000	A
	T <sub>VJ</sub> =125°C t=10ms, sine	1750	
$i^2t$	T <sub>VJ</sub> =45°C t=10ms, sine	20000	A2s
	T <sub>VJ</sub> =125°C t=10ms, sine	15000	
Visol	a.c.50HZ;r.m.s.;1min	3000	V
Tvj		-40 to 130	°C
Tstg		-40 to 125	°C
Mt	To terminals(M5)	3 ± 15%	Nm
Ms	To heatsink(M6)	5 ± 15%	Nm
di/dt	T <sub>VJ</sub> = T <sub>VJM</sub> , 2/3V <sub>DRM</sub> ,I <sub>G</sub> =500mA Tr<0.5us,tp>6us	150	A/us
dv/dt	T <sub>J</sub> = T <sub>VJM</sub> ,2/3V <sub>DRM</sub> linear voltage rise	1000	V/us
a	Maximum allowable acceleration	50	m/s <sup>2</sup>
Weight	Module(Approximately)	100	g

**Thermal Characteristics**

Symbol	Conditions	Values	Units
Rth(j-c)	Cont.;per thyristor / per module	0.28/0.14	°C/W
Rth(c-s)	per thyristor / per module	0.2/0.1	°C/W

**Electrical Characteristics**

Symbol	Conditions	Values		Units
V <sub>TM</sub>	T=25°C I <sub>TM</sub> =300A		1.65	V
I <sub>RRM</sub> /I <sub>DRM</sub>	T <sub>VJ</sub> =T <sub>VJM</sub> ,V <sub>R</sub> =V <sub>RRM</sub> ,V <sub>D</sub> =V <sub>DRM</sub>		20	mA
V <sub>TO</sub>	For power-loss calculations only (T <sub>VJ</sub> =125°C)		0.9	V
r <sub>T</sub>	T <sub>VJ</sub> =T <sub>VJM</sub>		2	mΩ
V <sub>GT</sub>	T <sub>VJ</sub> =25°C , V <sub>D</sub> =6V		3.0	V
I <sub>GT</sub>	T <sub>VJ</sub> =25°C , V <sub>D</sub> =6V		150	mA
V <sub>GD</sub>	T <sub>VJ</sub> =125°C , V <sub>D</sub> =2/3V <sub>DRM</sub>		0.25	V
I <sub>GD</sub>	T <sub>VJ</sub> =125°C , V <sub>D</sub> =2/3V <sub>DRM</sub>		6	mA
I <sub>L</sub>	T <sub>VJ</sub> =25°C , R <sub>G</sub> = 33 Ω	300	600	mA
I <sub>H</sub>	T <sub>VJ</sub> =25°C , V <sub>D</sub> =6V	150	250	mA
tgd	T <sub>VJ</sub> =25°C, I <sub>G</sub> =1A, di <sub>G</sub> /dt=1A/us	1		us
tq	T <sub>VJ</sub> =T <sub>VJM</sub>	100		us

Performance Curves

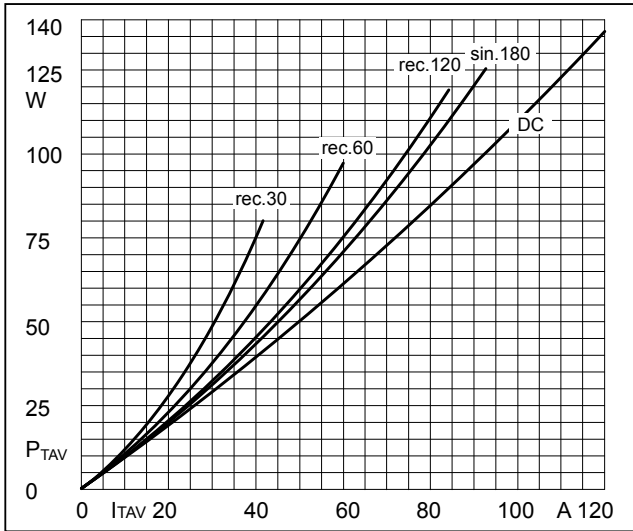


Fig1. Power dissipation

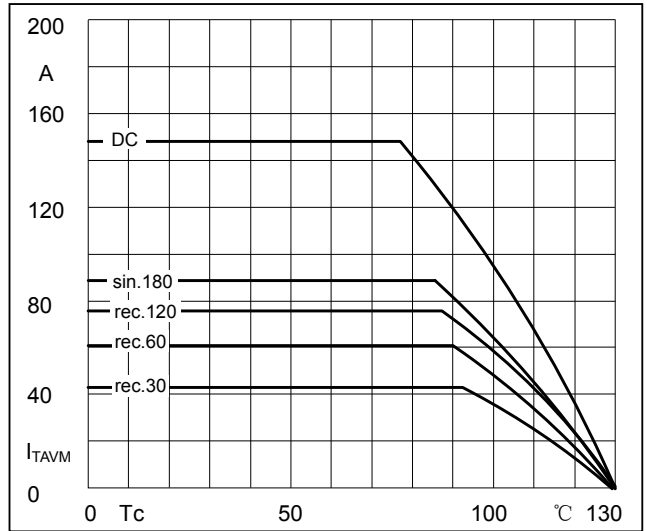


Fig2. Forward Current Derating Curve

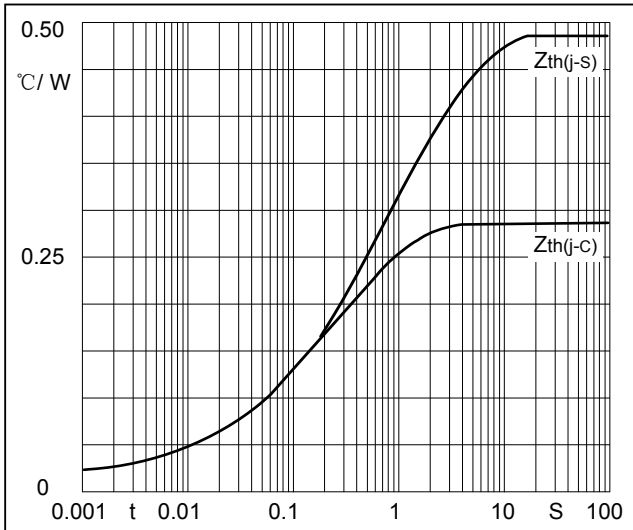


Fig3. Transient thermal impedance

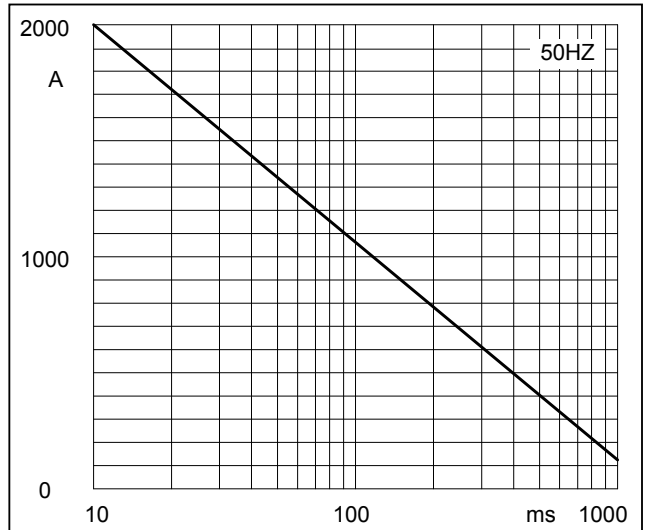


Fig4. Max Non-Repetitive Forward Surge Current

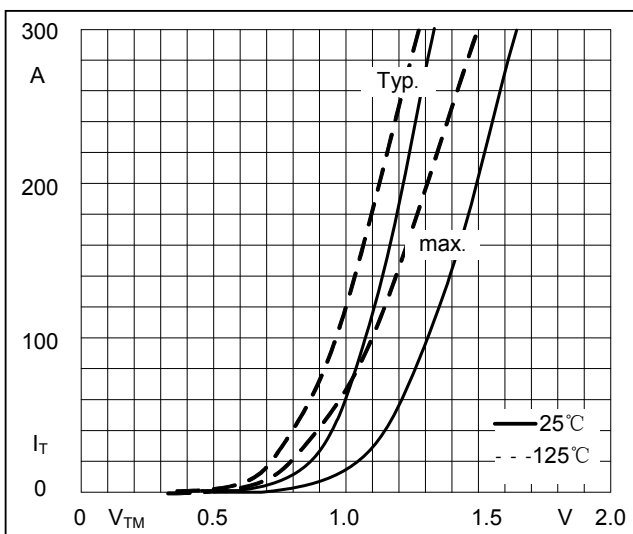
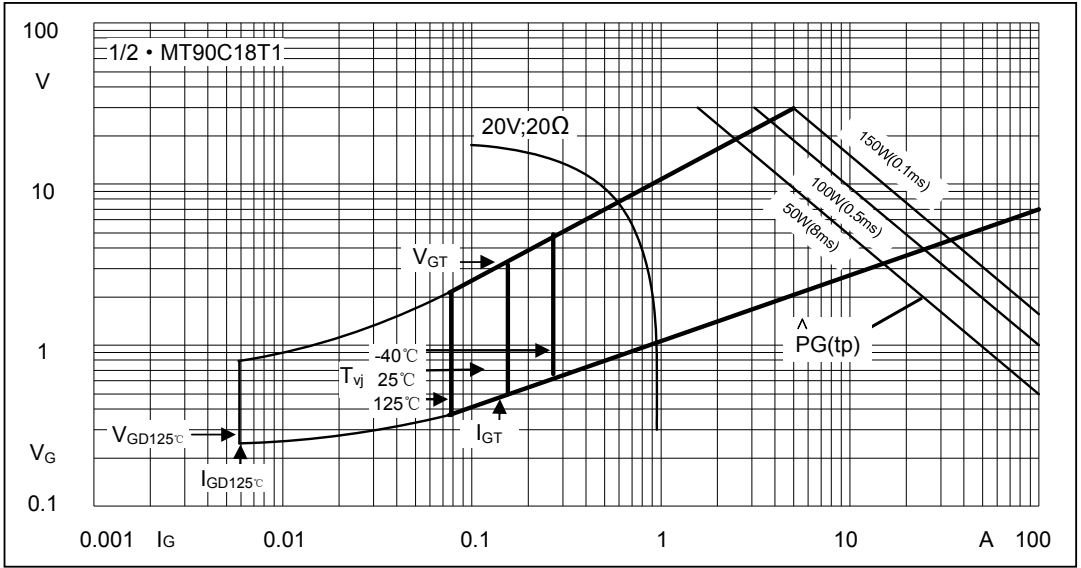


Fig5. Forward Characteristics

**Performance Curves**



**Fig6. Gate trigger Characteristics**



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## Ordering Information :

Device	Packing
Part Number-BP	Bulk: 10PCS/BOX ;100PCS/CTN

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