

MT90C08T1
MT90C12T1
MT90C16T1
MT90C18T1

Features

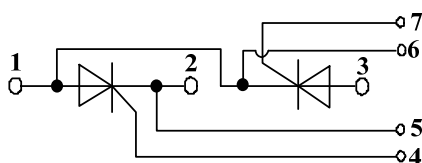
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- International standard package
- Heat transfer through aluminum oxide DBC ceramic isolated metal baseplate
- Glass passivated chip
- Simple Mounting

Applications

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

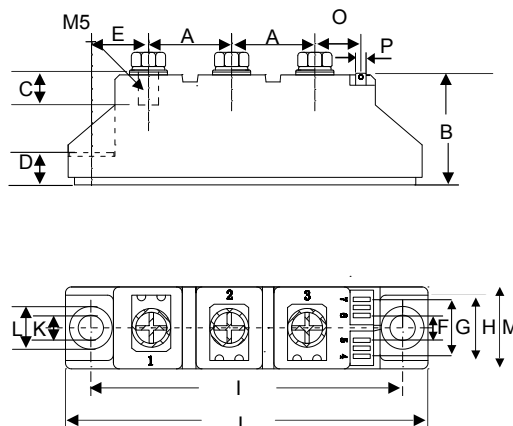


Circuit



90 Amp
THYRISTOR MODULE
800~1800 Volts

T1



DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.776	.799	19.70	20.30	
B	1.169	1.193	29.70	30.30	
C	.343	.366	8.70	9.30	
D	.323	.346	8.20	8.80	
E	.602	.622	15.30	15.80	
F	.224	.248	5.70	6.30	
G	.539	.563	13.70	14.30	
H	.657	.681	16.70	17.30	
I	3.138	3.161	79.70	80.30	
J	3.650	3.673	92.70	93.30	
K	.256		6.50		Ø
L	.421	.445	10.70	11.30	
M	.815	.839	20.70	21.30	
O	.579	.602	14.70	15.30	
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°; $T_c=85^{\circ}\text{C}$	90	A
I_{TSM}	$T_{VJ}=45^{\circ}\text{C}$ $t=10\text{ms}$, sine $T_{VJ}=125^{\circ}\text{C}$ $t=10\text{ms}$, sine	2000 1750	A
i^2t	$T_{VJ}=45^{\circ}\text{C}$ $t=10\text{ms}$, sine $T_{VJ}=125^{\circ}\text{C}$ $t=10\text{ms}$, sine	20000 15000	A ² s
Visol	a.c.50HZ;r.m.s.;1min	3000	V
T_{vj}		-40 to 130	°C
T_{stg}		-40 to 125	°C
Mt	To terminals(M5)	$3 \pm 15\%$	Nm
Ms	To heatsink(M6)	$5 \pm 15\%$	Nm
di/dt	$T_{VJ}=T_{VJM}$, $2/3V_{DRM}$, $I_G=500\text{mA}$ $Tr<0.5\mu\text{s}$, $tp>6\mu\text{s}$	150	A/ μs
dv/dt	$T_J=T_{VJM}$, $2/3V_{DRM}$ linear voltage rise	1000	V/ μs
a	Maximum allowable acceleration	50	m/s ²
Weight	Module(Approximately)	100	g

Thermal Characteristics

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

Electrical Characteristics

Symbol	Conditions	Values			Units
V_{TM}	$T=25^{\circ}\text{C}$ $I_{TM}=300\text{A}$			1.65	V
I_{RRM}/I_{DRM}	$T_{VJ}=T_{VJM}$, $V_R=V_{RRM}$, $V_D=V_{DRM}$			20	mA
V_{TO}	For power-loss calculations only ($T_{VJ}=125^{\circ}\text{C}$)			0.9	V
r_T	$T_{VJ}=T_{VJM}$			2	mΩ
V_{GT}	$T_{VJ}=25^{\circ}\text{C}$, $V_D=6\text{V}$			3.0	V
I_{GT}	$T_{VJ}=25^{\circ}\text{C}$, $V_D=6\text{V}$			150	mA
V_{GD}	$T_{VJ}=125^{\circ}\text{C}$, $V_D=2/3V_{DRM}$			0.25	V
I_{GD}	$T_{VJ}=125^{\circ}\text{C}$, $V_D=2/3V_{DRM}$			6	mA
I_L	$T_{VJ}=25^{\circ}\text{C}$, $R_G=33\Omega$		300	600	mA
I_H	$T_{VJ}=25^{\circ}\text{C}$, $V_D=6\text{V}$		150	250	mA
tgδ	$T_{VJ}=25^{\circ}\text{C}$, $I_G=1\text{A}$, $di_G/dt=1\text{A}/\mu\text{s}$		1		us
tq	$T_{VJ}=T_{VJM}$		100		us

Performance Curves

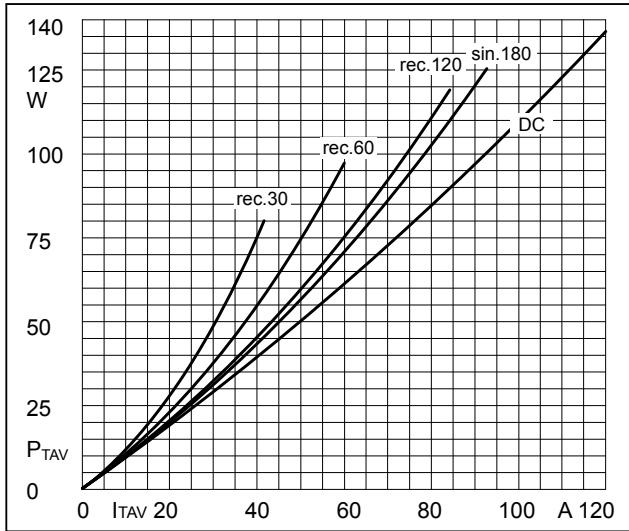


Fig1. Power dissipation

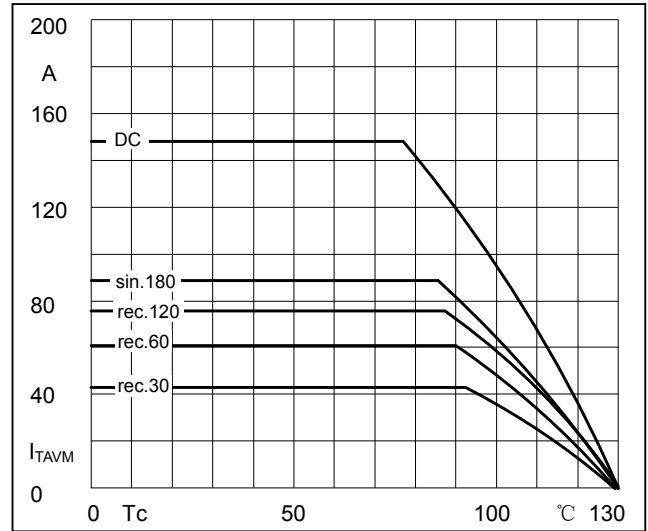


Fig2. Forward Current Derating Curve

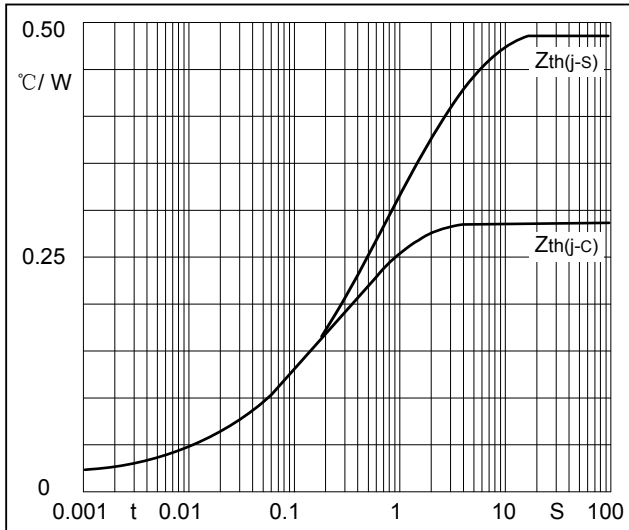


Fig3. Transient thermal impedance

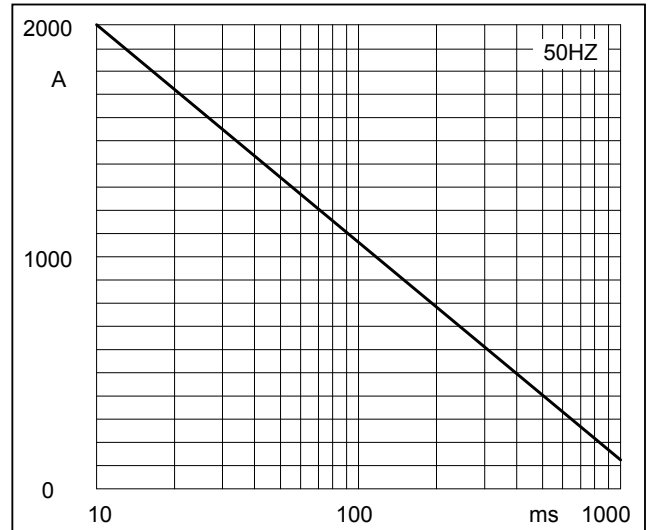


Fig4. Max Non-Repetitive Forward Surge Current

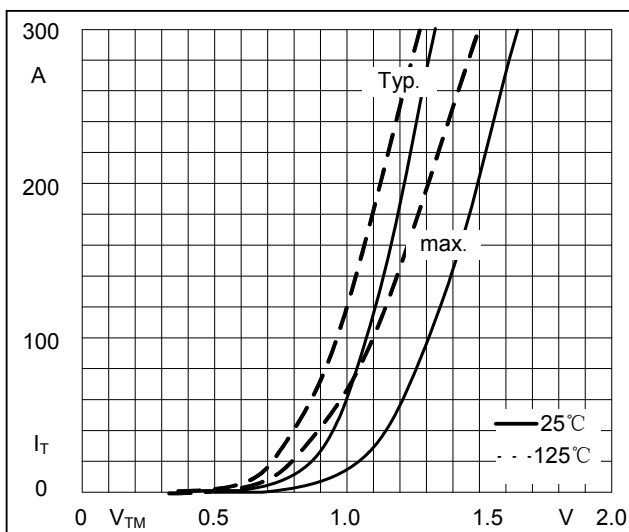


Fig5. Forward Characteristics

Performance Curves

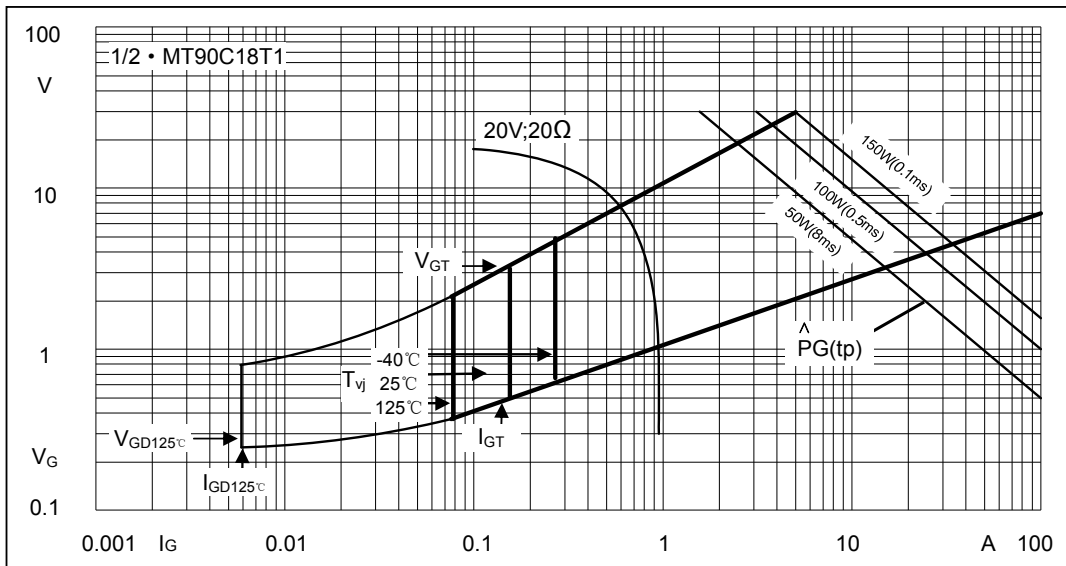


Fig6. Gate trigger Characteristics



Ordering Information :

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

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