



Micro Commercial Components



Micro Commercial Components  
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 USA  
 Tel:818-701-4933

**MT25CB08T1**  
**MT25CB12T1**  
**MT25CB16T1**  
**MT25CB18T1**

**25 Amp**  
**THYRISTOR/DIODE**  
**MODULE**  
**800~1800 Volts**

## Features

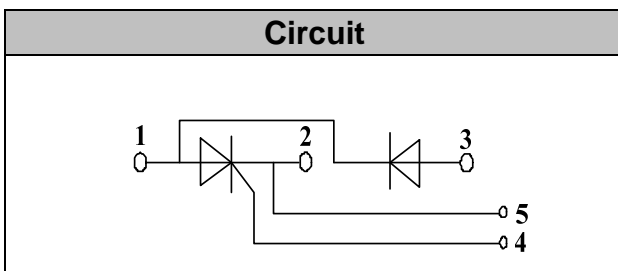
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- International standard package
- Heat transfer through aluminum oxide DBC ceramic isolated metal baseplate
- Glass passivated chip
- Simple Mounting

## Applications

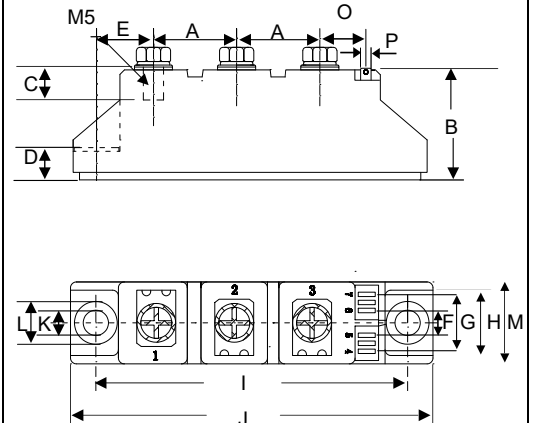
- Power Converters
- Lighting Control
- DC Motor Control and Drives
- Heat and temperature control



**Circuit**



**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
MT25CB08T1	800V	900V
MT25CB12T1	1200V	1300V
MT25CB16T1	1600V	1700V
MT25CB18T1	1800V	1900V

## ◆ Diode

### Maximum Ratings

Symbol	Item	Conditions	Values	Units
I <sub>D</sub>	Output Current(D.C.)	T <sub>c</sub> =85°C	25	A
I <sub>FSM</sub>	Surge forward current	t=10mS T <sub>vj</sub> =45°C	550	A
i <sup>2</sup> t	Circuit Fusing Consideration		1500	A <sup>2</sup> s
Visol	Isolation Breakdown Voltage(R.M.S)	a.c.50HZ;r.m.s.;1min	3000	V
T <sub>vj</sub>	Operating Junction Temperature		-40 to +125	°C
T <sub>stg</sub>	Storage Temperature		-40 to +125	°C
M <sub>t</sub>	Mounting Torque	To terminals(M5)	3±15%	Nm
M <sub>s</sub>		To heatsink(M6)	5±15%	Nm
Weight	Module (Approximately)		100	g

### Thermal Characteristics

Symbol	Item	Conditions	Values	Units
R <sub>th(j-c)</sub>	Thermal Impedance, max.	Junction to Case	0.45	°C/W
R <sub>th(c-s)</sub>	Thermal Impedance, max.	Case to Heatsink	0.10	°C/W

### Electrical Characteristics

Symbol	Item	Conditions	Values			Units
			Min.	Typ.	Max.	
V <sub>FM</sub>	Forward Voltage Drop, max.	T=25°C I <sub>F</sub> =75A			1.80	V
I <sub>RRM</sub>	Repetitive Peak Reverse Current, max.	T <sub>vj</sub> =25°C V <sub>RD</sub> =V <sub>RRM</sub> T <sub>vj</sub> =125°C V <sub>RD</sub> =V <sub>RRM</sub>	≤0.5 ≤6			mA mA

**◆Thyristor**
**Maximum Ratings**

Symbol	Item	Conditions	Values	Units
$I_{TAV}$	Average On-State Current	Sine 180°;Tc=85°C	25	A
$I_{TSM}$	Surge On-State Current	$T_{VJ}=45^{\circ}\text{C}$ t=10ms, sine $T_{VJ}=125^{\circ}\text{C}$ t=10ms, sine	550 480	A
$i^2t$	Circuit Fusing Consideration	$T_{VJ}=45^{\circ}\text{C}$ t=10ms, sine $T_{VJ}=125^{\circ}\text{C}$ t=10ms, sine	1500 1150	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 +125	°C
Tstg	Storage Temperature		-40 to +125	°C
Mt	Mounting Torque	To terminals(M5)	3±15%	Nm
Ms		To heatsink(M6)	5±15%	Nm
di/dt	Critical Rate of Rise of On-State Current	$T_{VJ}=T_{VJM}$ , 2/3V <sub>DRM</sub> ,I <sub>G</sub> =500mA Tr<0.5us,tp>6us	150	A/us
dv/dt	Critical Rate of Rise of Off-State Voltage, min.	$T_J=T_{VJM}$ ,2/3V <sub>DRM</sub> linear voltage rise	1000	V/us
a	Maximum allowable acceleration		50	m/s <sup>2</sup>

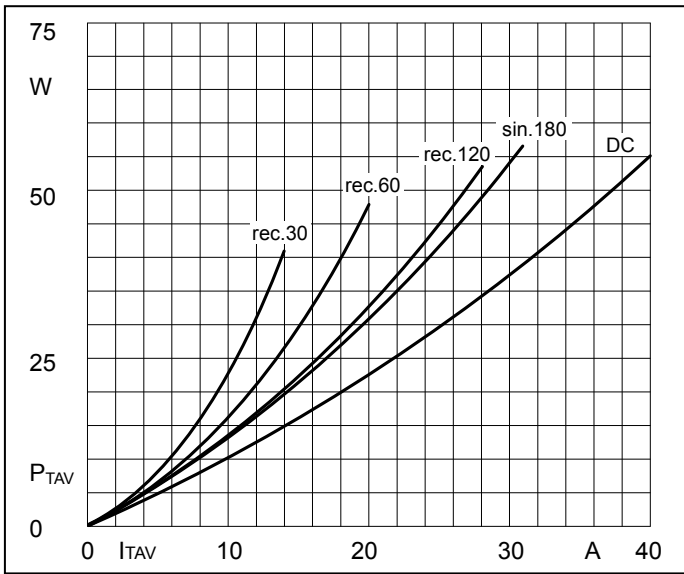
**Thermal Characteristics**

Symbol	Item	Conditions	Values	Units
Rth(j-c)	Thermal Impedance, max.	Junction to Case	0.90	°C/W
Rth(c-s)	Thermal Impedance, max.	Case to Heatsink	0.20	°C/W

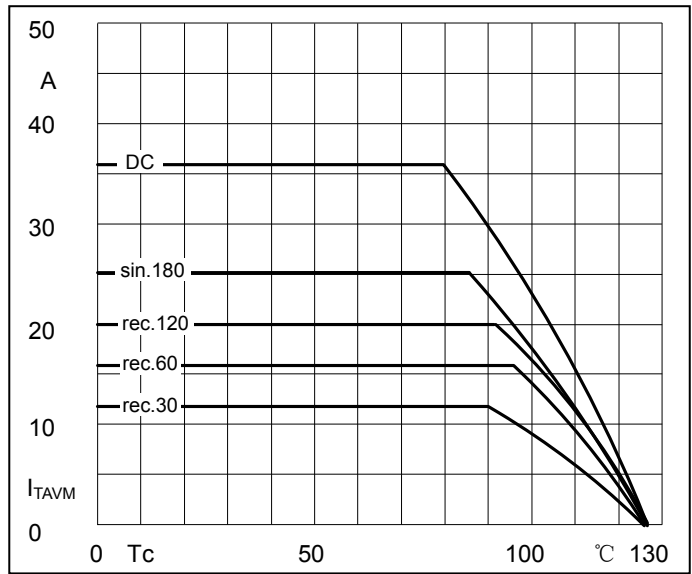
**Electrical Characteristics**

Symbol	Item	Conditions	Values			Units
$V_{TM}$	Peak On-State Voltage, max.	$T=25^{\circ}\text{C}$ I <sub>T</sub> =75A			1.80	V
$I_{RRM}/I_{DRM}$	Repetitive Peak Reverse Current, max. / Repetitive Peak Off-State Current, max.	$T_{VJ}=T_{VJM}$ ,V <sub>R</sub> =V <sub>RRM</sub> ,V <sub>D</sub> =V <sub>DRM</sub>			10	mA
$V_{TO}$	On state threshold voltage	For power-loss calculations only (T <sub>VJ</sub> =125°C)			0.9	V
r <sub>T</sub>	Value of on-state slope resistance. max	$T_{VJ}=T_{VJM}$			12	mΩ
V <sub>GT</sub>	Gate Trigger Voltage, max.	$T_{VJ}=25^{\circ}\text{C}$ , V <sub>D</sub> =6V			2.5	V
I <sub>GT</sub>	Gate Trigger Current, max.	$T_{VJ}=25^{\circ}\text{C}$ , V <sub>D</sub> =6V			150	mA
V <sub>GD</sub>	Non-triggering gate voltage, max.	$T_{VJ}=125^{\circ}\text{C}$ ,V <sub>D</sub> =2/3V <sub>DRM</sub>			0.25	V
I <sub>GD</sub>	Non-triggering gate current, max.	$T_{VJ}=125^{\circ}\text{C}$ , V <sub>D</sub> =2/3V <sub>DRM</sub>			5	mA
I <sub>L</sub>	Latching current, max.	$T_{VJ}=25^{\circ}\text{C}$ , R <sub>G</sub> = 33 Ω	250	400		mA
I <sub>H</sub>	Holding current, max.	$T_{VJ}=25^{\circ}\text{C}$ , V <sub>D</sub> =6V	100	200		mA
tgd	Gate controlled delay time	TVJ=25°C, IG=1A, diG/dt=1A/us	1			us
tq	Circuit commutated turn-off time	$T_{VJ}=T_{VJM}$	80			us

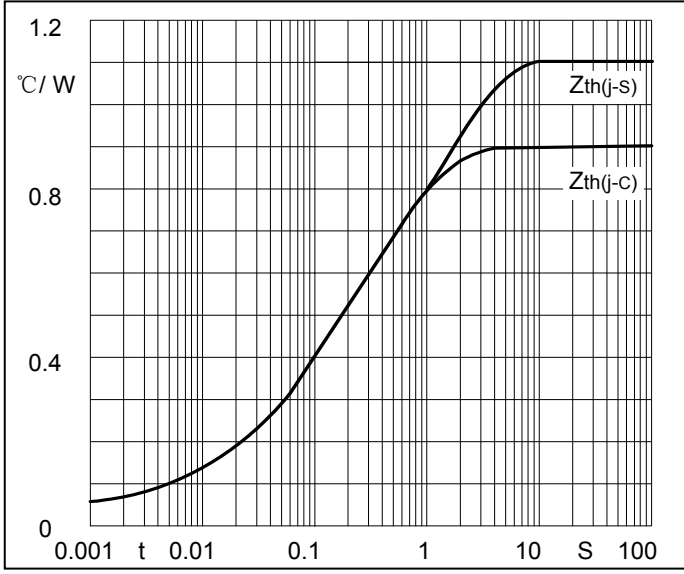
### Performance Curves



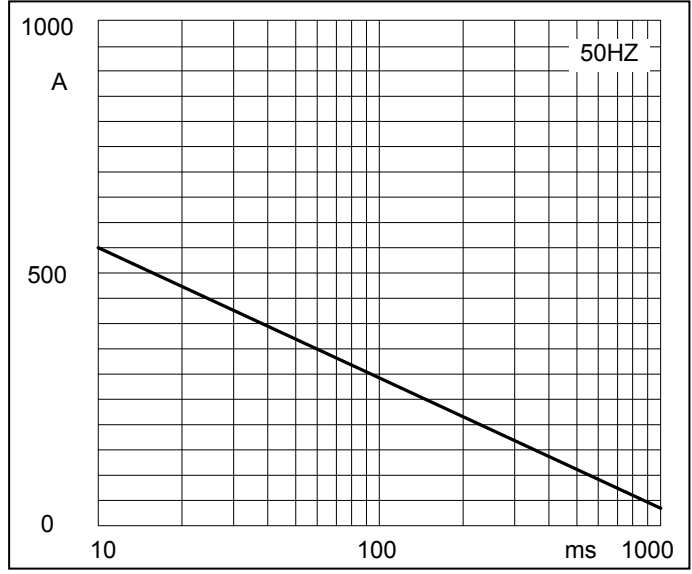
**Fig1. Power dissipation**



**Fig2. Forward Current Derating Curve**

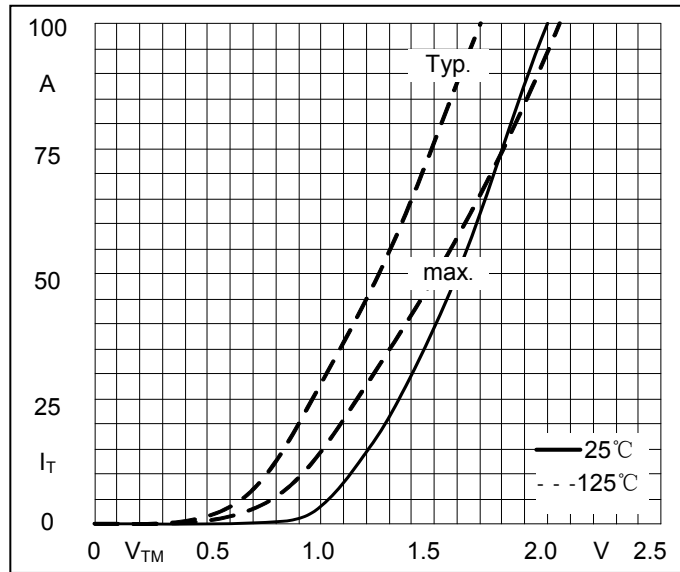


**Fig3. Transient thermal impedance**

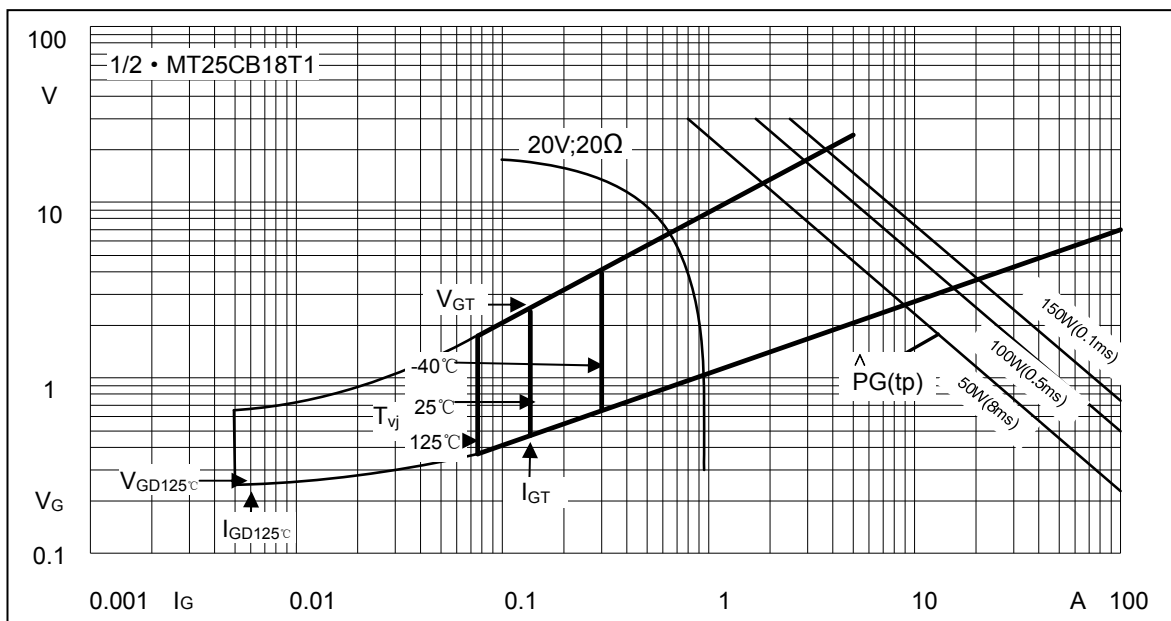


**Fig4. Max Non-Repetitive Forward Surge Current**

**Performance Curves**



**Fig5. Forward Characteristics**



**Fig6. Gate trigger Characteristics**



**Ordering Information :**

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

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