



Micro Commercial Components



Micro Commercial Components
 130 W Cochran St, Unit B
 Simi Valley, CA 93065
 USA
 Tel:818-701-4933

MT40CB08T1
MT40CB12T1
MT40CB16T1
MT40CB18T1

Features

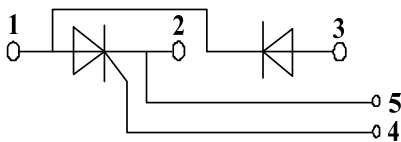
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- International standard package
- Heat transfer through aluminum oxide DBC ceramic isolated metal baseplate
- Glass passivated chip
- Simple Mounting

Applications

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

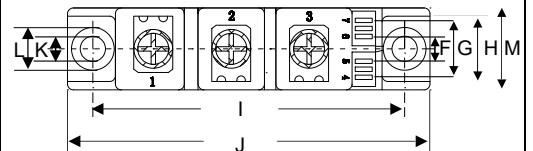
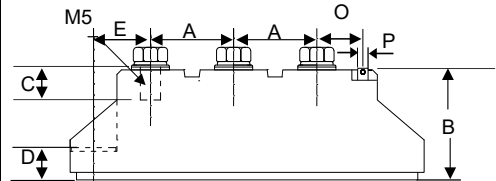


Circuit



40 Amp
THYRISTOR/DIODE
MODULE
800~1800 Volts

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
MT40CB08T1	800V	900V
MT40CB12T1	1200V	1300V
MT40CB16T1	1600V	1700V
MT40CB18T1	1800V	1900V

◆ Diode

Maximum Ratings

Symbol	Item	Conditions	Values	Units
I _D	Output Current(D.C.)	T _c =85°C	40	A
I _{FSM}	Surge forward current	t=10mS T _{vj} =45°C	1000	A
i ² t	Circuit Fusing Consideration		5000	A ² s
Visol	Isolation Breakdown Voltage(R.M.S)	a.c.50HZ;r.m.s.;1min	3000	V
T _{vj}	Operating Junction Temperature		-40 to +125	°C
T _{stg}	Storage Temperature		-40 to +125	°C
M _t	Mounting Torque	To terminals(M5)	3±15%	Nm
M _s		To heatsink(M6)	5±15%	Nm
Weight	Module (Approximately)		100	g

Thermal Characteristics

Symbol	Item	Conditions	Values	Units
R _{th(j-c)}	Thermal Impedance, max.	Junction to Case	0.33	°C/W
R _{th(c-s)}	Thermal Impedance, max.	Case to Heatsink	0.10	°C/W

Electrical Characteristics

Symbol	Item	Conditions	Values			Units
			Min.	Typ.	Max.	
V _{FM}	Forward Voltage Drop, max.	T=25°C I _F =200A			1.95	V
I _{RRM}	Repetitive Peak Reverse Current, max.	T _{vj} =25°C V _{RD} =V _{RRM} T _{vj} =125°C V _{RD} =V _{RRM}	≤0.5 ≤6			mA mA

◆Thyristor
Maximum Ratings

Symbol	Item	Conditions	Values	Units
I_{TAV}	Average On-State Current	Sine 180°;Tc=85°C	40	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	1000 850	A
i^2t	Circuit Fusing Consideration	$T_{VJ}=45^{\circ}\text{C}$ t=10ms, sine $T_{VJ}=125^{\circ}\text{C}$ t=10ms, sine	5000 3600	A ² 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 _{DRM} ,I _G =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 _{DRM} linear voltage rise	1000	V/us
a	Maximum allowable acceleration		50	m/s ²

Thermal Characteristics

Symbol	Item	Conditions	Values	Units
Rth(j-c)	Thermal Impedance, max.	Junction to Case	0.65	°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.	$T=25^{\circ}\text{C}$ $I_T=200\text{A}$			1.95	V
I_{RRM}/I_{DRM}	Repetitive Peak Reverse Current, max. / Repetitive Peak Off-State Current, max.	$T_{VJ}=T_{VJM}$, $V_R=V_{RRM}$, $V_D=V_{DRM}$			15	mA
V_{TO}	On state threshold voltage	For power-loss calculations only ($T_{VJ}=125^{\circ}\text{C}$)			1.0	V
r_T	Value of on-state slope resistance. max	$T_{VJ}=T_{VJM}$			4.5	mΩ
V_{GT}	Gate Trigger Voltage, max.	$T_{VJ}=25^{\circ}\text{C}$, $V_D=6\text{V}$			2.5	V
I_{GT}	Gate Trigger Current, max.	$T_{VJ}=25^{\circ}\text{C}$, $V_D=6\text{V}$			150	mA
V_{GD}	Non-triggering gate voltage, max.	$T_{VJ}=125^{\circ}\text{C}$, $V_D=2/3V_{DRM}$			0.25	V
I_{GD}	Non-triggering gate current, max.	$T_{VJ}=125^{\circ}\text{C}$, $V_D=2/3V_{DRM}$			6	mA
I_L	Latching current, max.	$T_{VJ}=25^{\circ}\text{C}$, $R_G=33\Omega$	300	600		mA
I_H	Holding current, max.	$T_{VJ}=25^{\circ}\text{C}$, $V_D=6\text{V}$	150	250		mA
tgd	Gate controlled delay time	$T_{VJ}=25^{\circ}\text{C}$, $I_G=1\text{A}$, diG/dt=1A/us	1			us
tq	Circuit commutated turn-off time	$T_{VJ}=T_{VJM}$	80			us

Performance Curves

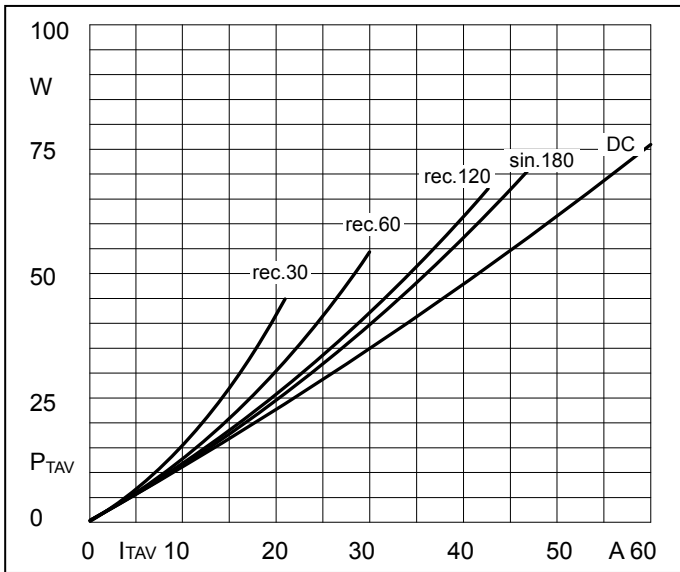


Fig1. Power dissipation

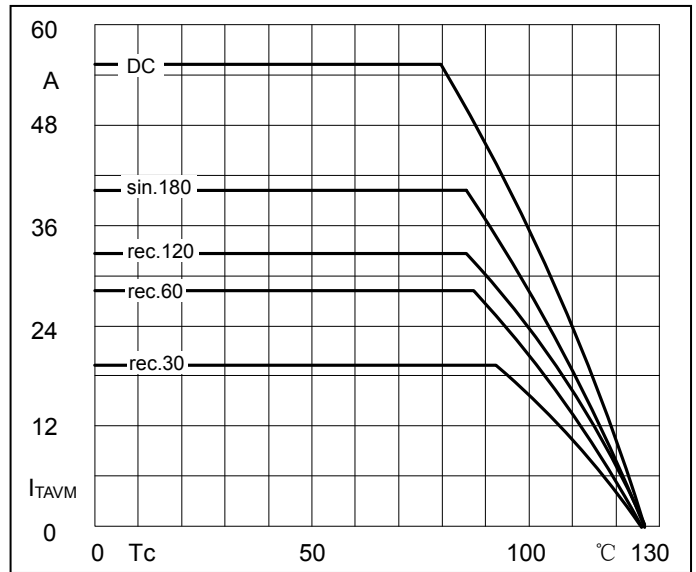


Fig2. Forward Current Derating Curve

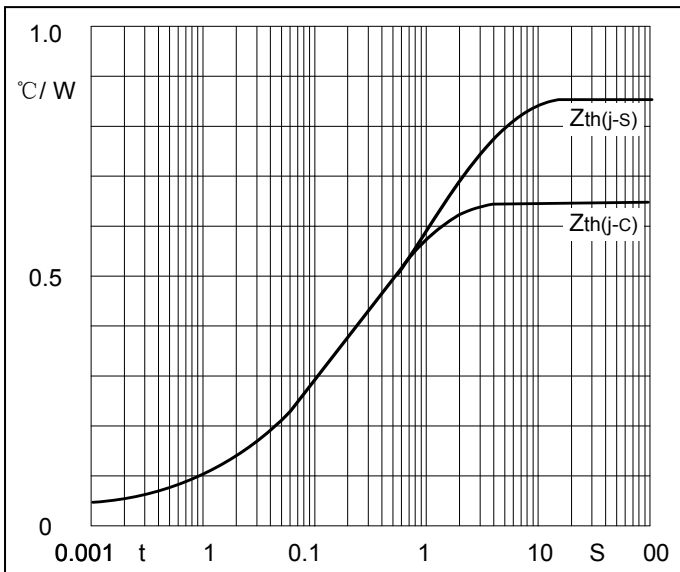


Fig3. Transient thermal impedance

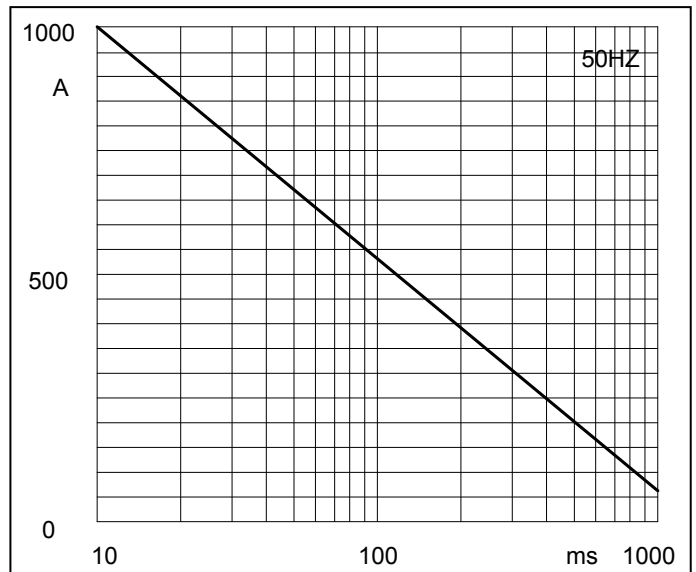


Fig4. Max Non-Repetitive Forward Surge Current

Performance Curves

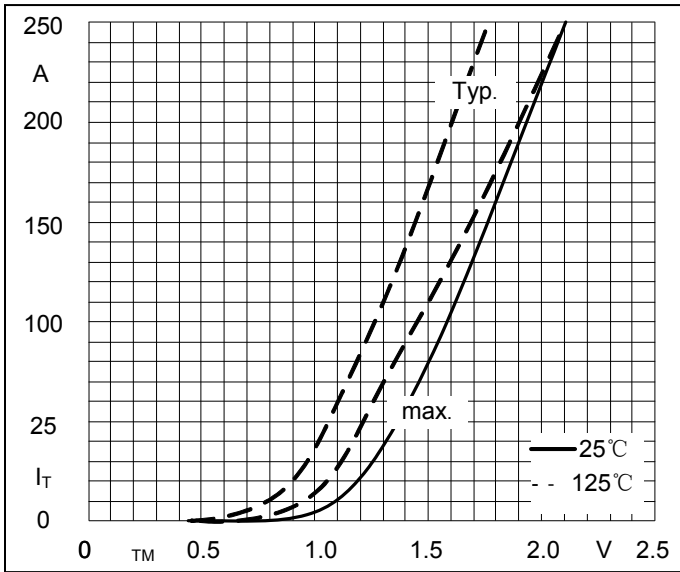


Fig5. Forward Characteristics

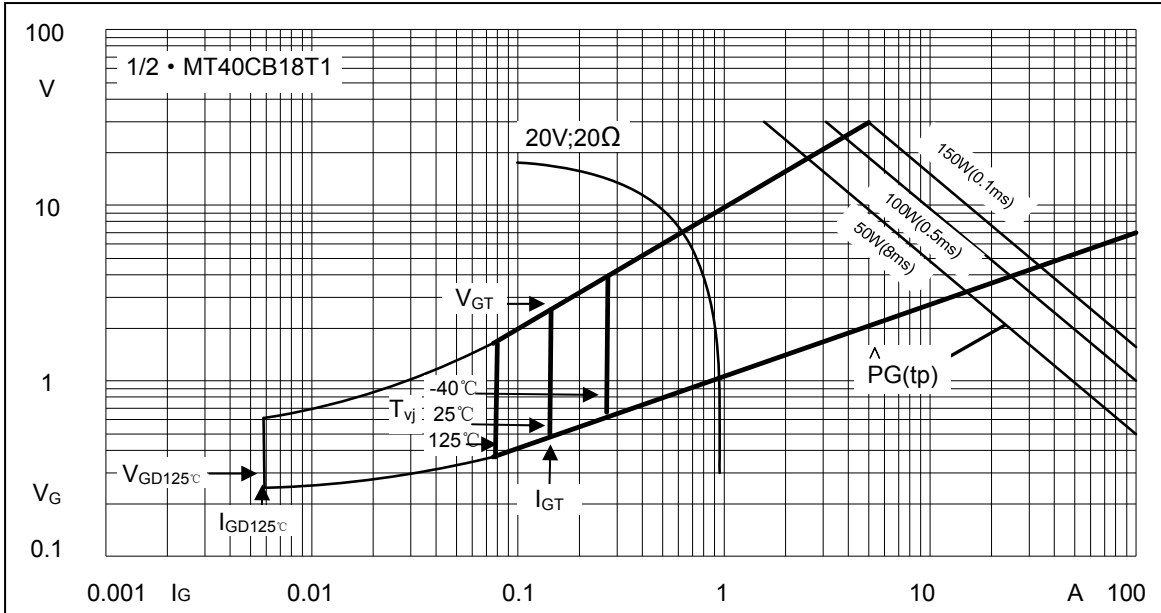


Fig6. Gate trigger Characteristics

Ordering Information :

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

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