## 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 |
|---|---|---|---|---|
| ID | Output Current(D.C.) | Tc=85℃ | 40 | A |
| IFSM | Surge forward current | t=10mS Tvj =45℃ | 1000 | A |
| $i^2t$ | Circuit Fusing Consideration | | 5000 | $A^2s$ |
| Visol | Isolation Breakdown Voltage(R.M.S) | a.c.50HZ;r.m.s.;1min | 3000 | V |
| Tvj | Operating Junction Temperature | | -40 to +125 | ℃ |
| Tstg | Storage Temperature | | -40 to +125 | ℃ |
| Mt | Mounting Torque | To terminals(M5) | 3±15% | Nm |
| Ms | | 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 | ℃/W |
| Rth(c-s) | Thermal Impedance, max. | Case to Heatsink | 0.10 | ℃/W |

### Electrical Characteristics

| Symbol | Item | Conditions | Values | | | Units |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| VFM | Forward Voltage Drop, max. | T=25℃ IF =200A | | | 1.95 | V |
| IRRM | Repetitive Peak Reverse Current, max. | Tvj =25℃ VRD=VRRM<br>Tvj =125℃ VRD=VRRM | ≤0.5<br>≤6 | | | mA<br>mA |

## ◆Thyristor

### Maximum Ratings

| Symbol | Item | Conditions | Values | Units |
|---|---|---|---|---|
| $I_{TAV}$ | Average On-State Current | Sine 180°;Tc=85℃ | 40 | A |
| $I_{TSM}$ | Surge On-State Current | $T_{VJ}$ =45℃ t=10ms, sine<br>$T_{VJ}$ =125℃ t=10ms, sine | 1000<br>850 | A |
| $i^2t$ | Circuit Fusing Consideration | $T_{VJ}$ =45℃ t=10ms, sine<br>$T_{VJ}$ =125℃ t=10ms, sine | 5000<br>3600 | $A^2s$ |
| Visol | Isolation Breakdown Voltage(R.M.S) | a.c.50HZ;r.m.s.;1min | 3000 | V |
| Tvj | Operating Junction Temperature | | -40 to +125 | ℃ |
| Tstg | Storage Temperature | | -40 to +125 | ℃ |
| 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 | $T_{VJ}$= $T_{VJM}$ , 2/3$V_{DRM}$ ,$I_G$ =500mA Tr<0.5us,tp>6us | 150 | A/us |
| dv/dt | Critical Rate of Rise of Off-State Voltage, min. | $T_J$=$T_{VJM}$ ,2/3$V_{DRM}$ linear voltage rise | 1000 | V/us |
| a | Maximum allowable acceleration | | 50 | $m/s^2$ |

### Thermal Characteristics

| Symbol | Item | Conditions | Values | Units |
|---|---|---|---|---|
| $R_{th(j-c)}$ | Thermal Impedance, max. | Junction to Case | 0.65 | ℃/W |
| Rth(c-s) | Thermal Impedance, max. | Case to Heatsink | 0.20 | ℃/W |

### Electrical Characteristics

| Symbol | Item | Conditions | Values | | | Units |
|---|---|---|---|---|---|---|
| $V_{TM}$ | Peak On-State Voltage, max. | T=25℃ $I_T$ =200A | | | 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℃) | | | 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℃ , $V_D$ =6V | | | 2.5 | V |
| $I_{GT}$ | Gate Trigger Current, max. | $T_{VJ}$ =25℃ , $V_D$ =6V | | | 150 | mA |
| $V_{GD}$ | Non-triggering gate voltage, max. | $T_{VJ}$=125℃,$V_D$ =2/3$V_{DRM}$ | | | 0.25 | V |
| $I_{GD}$ | Non-triggering gate current, max. | $T_{VJ}$ =125℃, $V_D$ =2/3$V_{DRM}$ | | | 6 | mA |
| $I_L$ | Latching current, max. | $T_{VJ}$ =25℃ , $R_G$ = 33 Ω | | 300 | 600 | mA |
| $I_H$ | Holding current, max. | $T_{VJ}$ =25℃ , $V_D$ =6V | | 150 | 250 | mA |
| tgd | Gate controlled delay time | TVJ=25℃, IG=1A, diG/dt=1A/us | 1 | | | us |
| tq | Circuit commutated turn-off time | $T_{VJ}$ =$T_{VJM}$ | 80 | | | us |

## Performance Curves

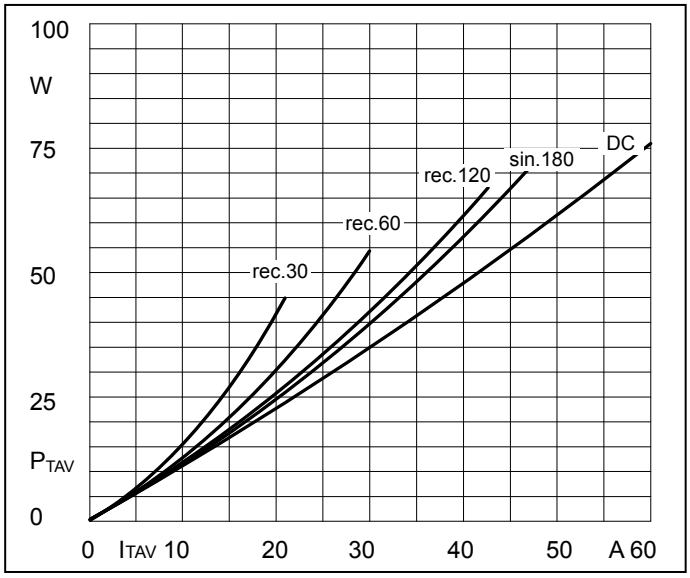


**Fig1. Power dissipation**

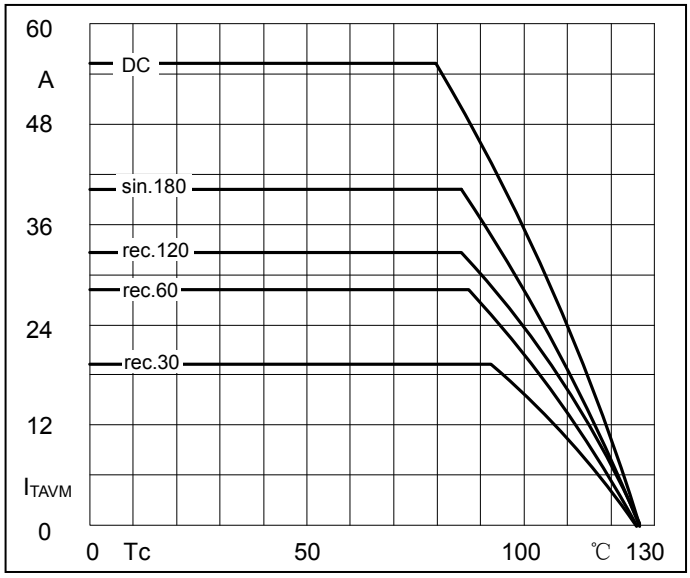


**Fig2.Forward Current Derating Curve**

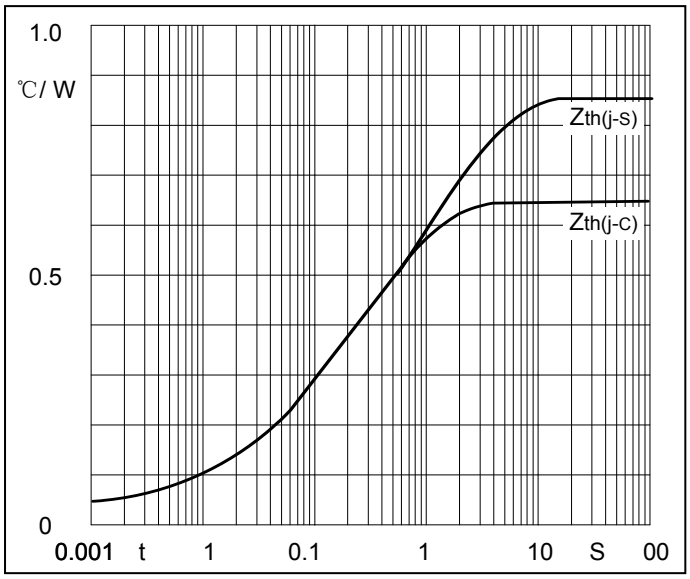


**Fig3. Transient thermal impedance**

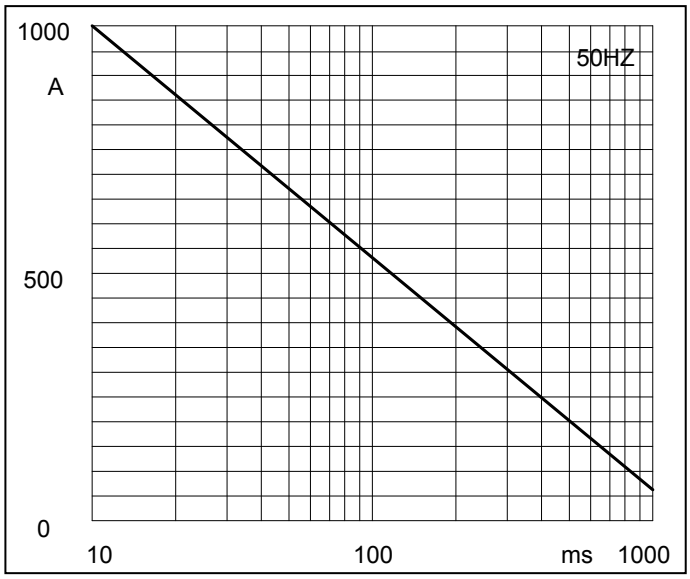


**Fig4. Max Non-Repetitive Forward Surge Current**

## Performance Curves

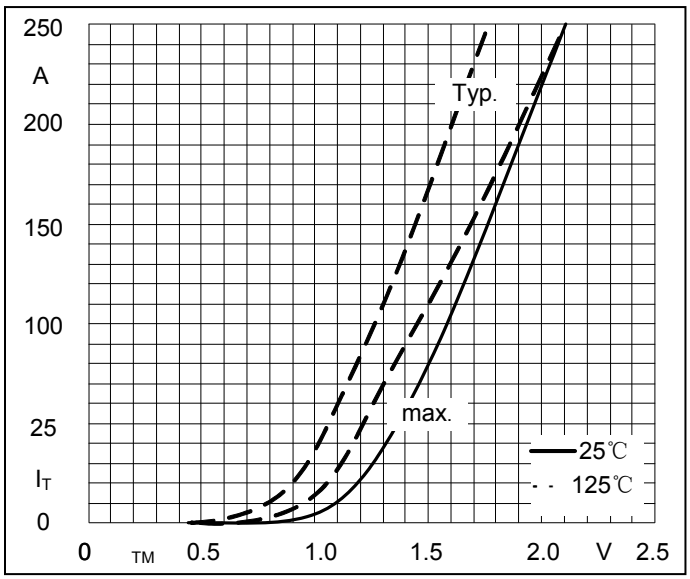


**Fig5. Forward Characteristics**

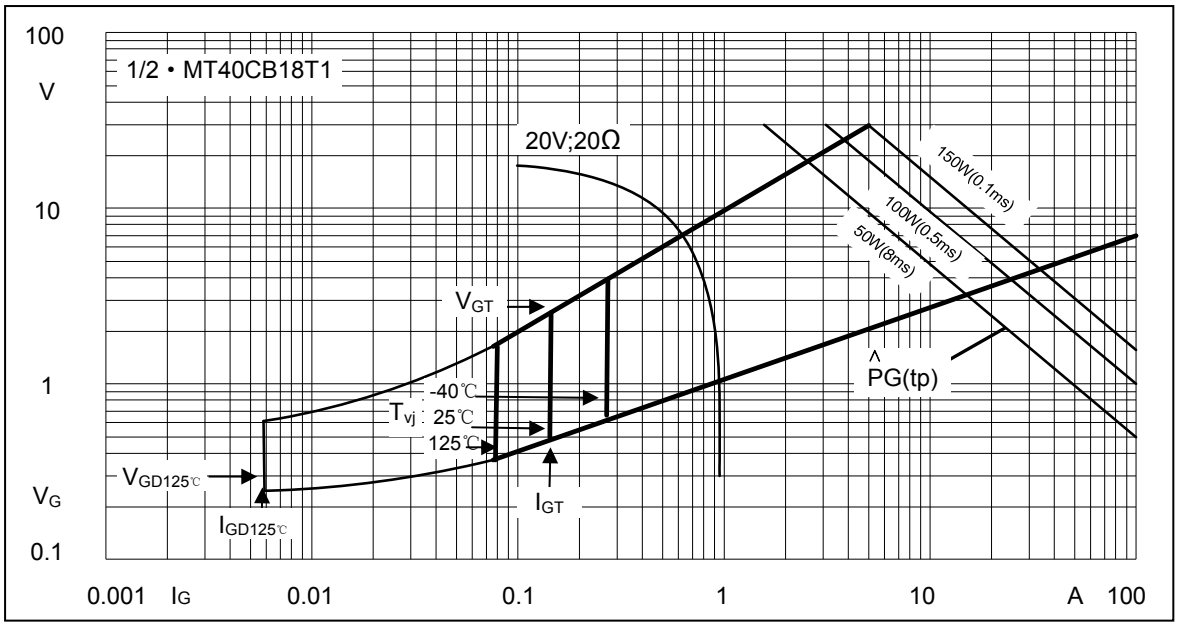


**Fig6. Gate trigger Characteristics**

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## Ordering Information :

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

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