



**THE DATASHEET OF
MT90C16T1-BP**





Micro Commercial Components



Micro Commercial Components
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MT90C08T1
MT90C12T1
MT90C16T1
MT90C18T1

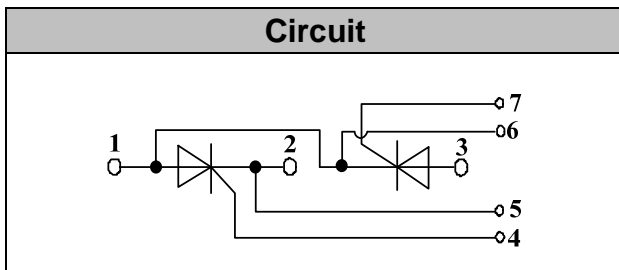
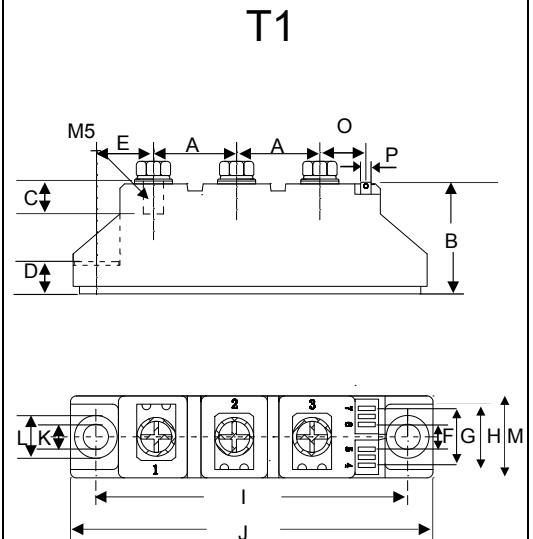
90 Amp
THYRISTOR MODULE
800~1800 Volts

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



| 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 _{VJ} =45°C t=10ms, sine | 2000 | A |
| | T _{VJ} =125°C t=10ms, sine | 1750 | |
| i^2t | T _{VJ} =45°C t=10ms, sine | 20000 | A2s |
| | T _{VJ} =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 _{VJ} = T _{VJM} , 2/3V _{DRM} ,I _G =500mA Tr<0.5us,tp>6us | 150 | A/us |
| dv/dt | T _J = T _{VJM} ,2/3V _{DRM} linear voltage rise | 1000 | V/us |
| a | Maximum allowable acceleration | 50 | m/s ² |
| 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 _{TM} | T=25°C I _{TM} =300A | | 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°C) | | 0.9 | V |
| r _T | T _{VJ} =T _{VJM} | | 2 | mΩ |
| V _{GT} | T _{VJ} =25°C , V _D =6V | | 3.0 | V |
| I _{GT} | T _{VJ} =25°C , V _D =6V | | 150 | mA |
| V _{GD} | T _{VJ} =125°C , V _D =2/3V _{DRM} | | 0.25 | V |
| I _{GD} | T _{VJ} =125°C , V _D =2/3V _{DRM} | | 6 | mA |
| I _L | T _{VJ} =25°C , R _G = 33 Ω | 300 | 600 | mA |
| I _H | T _{VJ} =25°C , V _D =6V | 150 | 250 | mA |
| tgd | T _{VJ} =25°C, I _G =1A, di _G /dt=1A/us | 1 | | us |
| tq | T _{VJ} =T _{VJM} | 100 | | us |

Performance Curves

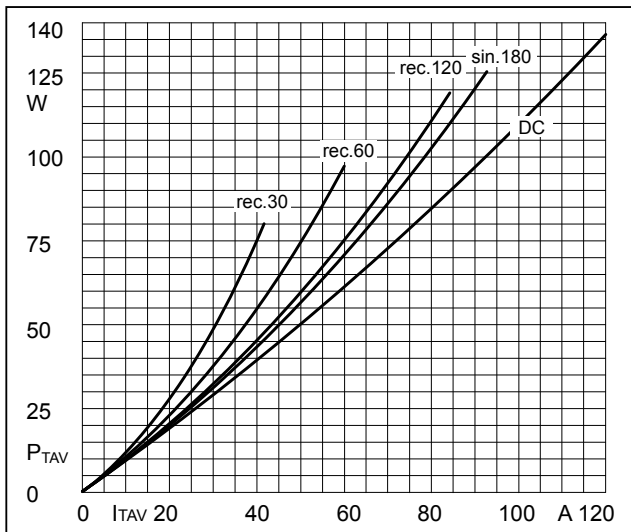


Fig1. Power dissipation

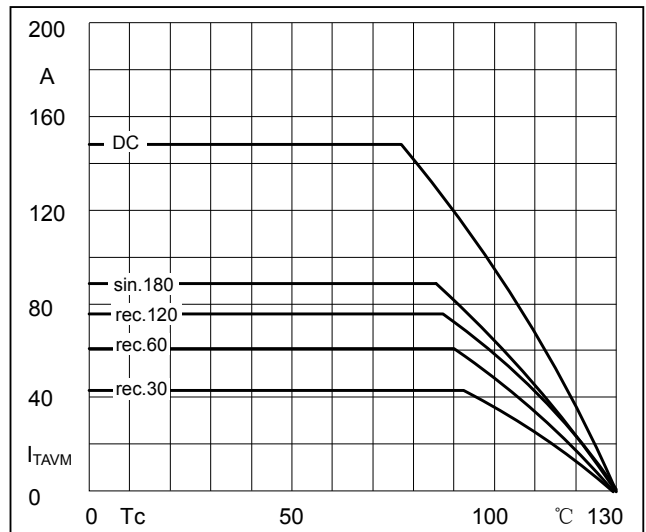


Fig2. Forward Current Derating Curve

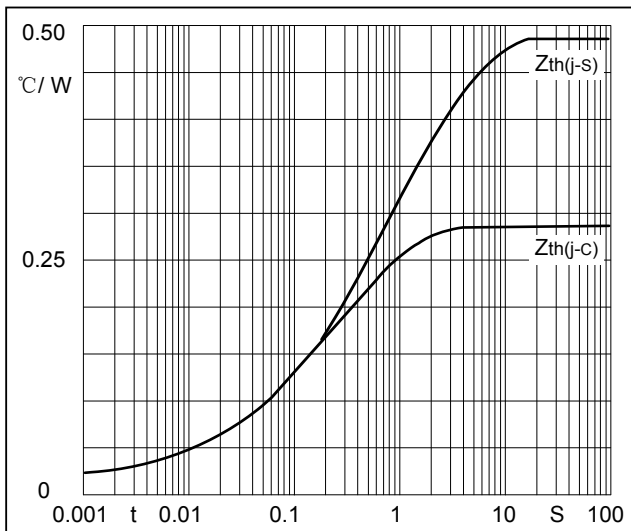


Fig3. Transient thermal impedance

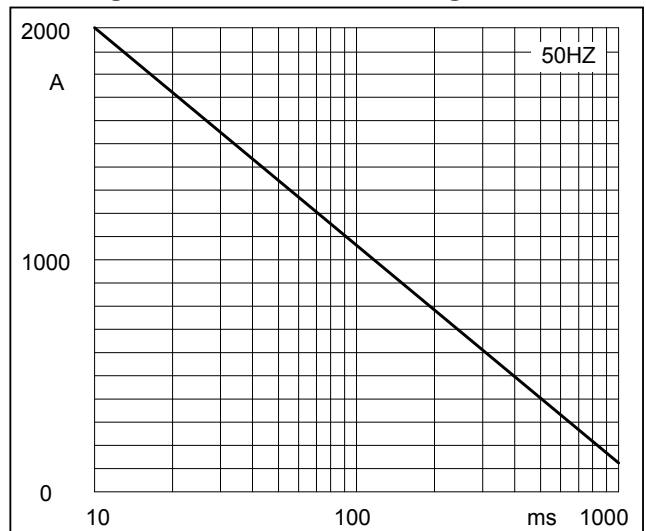


Fig4. Max Non-Repetitive Forward Surge Current

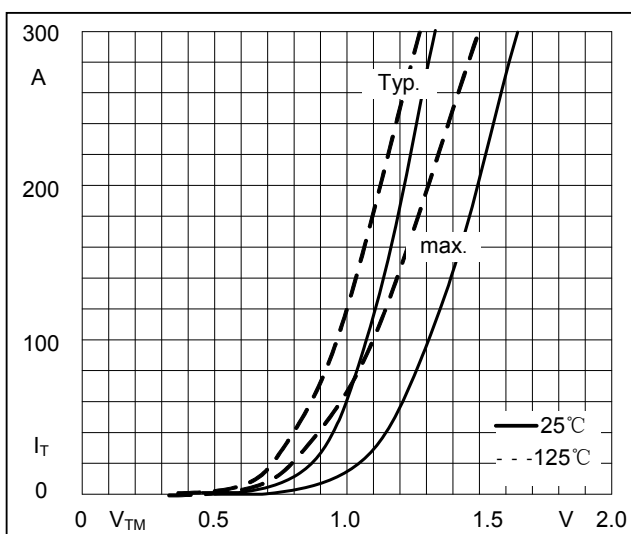


Fig5. Forward Characteristics

Performance Curves

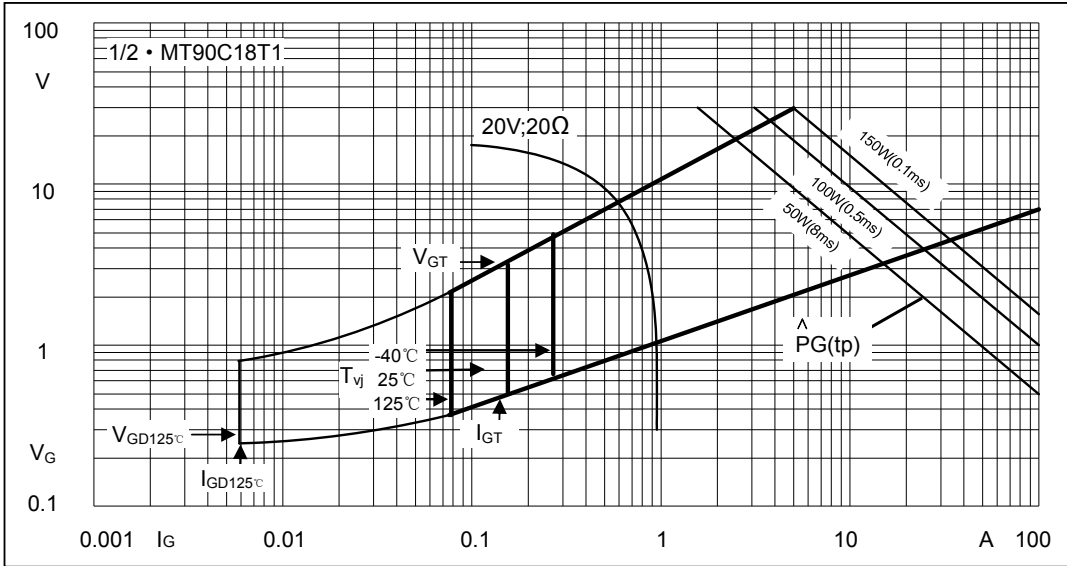


Fig6. Gate trigger Characteristics



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Ordering Information :

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

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