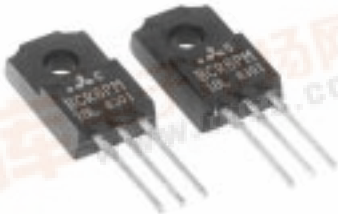


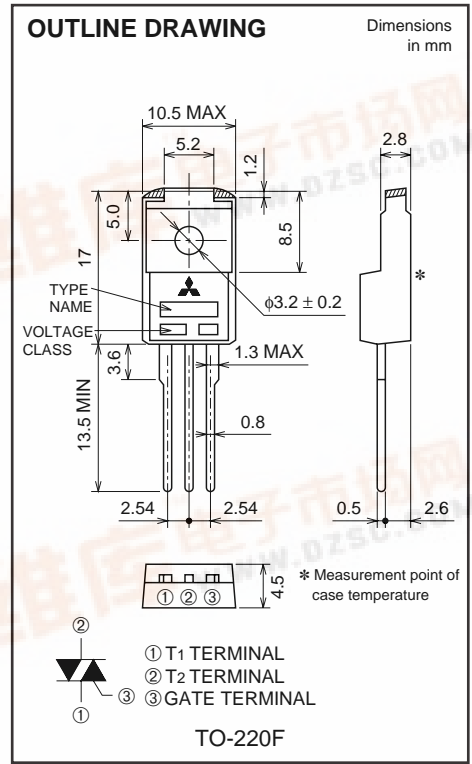
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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

BCR8PM-18



- IT (RMS) 8A
- VDRM 900V
- I_{FGT I}, I_{RG T I}, I_{RG T III} 30mA
- V_{iso} 1500V
- UL Recognized: File No. E80276



APPLICATION

Switching mode power supply, light dimmer, electric flasher unit, control of household equipment such as TV sets · stereo · refrigerator · washing machine · infrared kotatsu · carpet, solenoid drivers, small motor control, copying machine, electric tool, other general purpose control applications

MAXIMUM RATINGS

| Symbol | Parameter | Voltage class | | Unit |
|--------|--|---------------|--|------|
| | | 18 | | |
| VDRM | Repetitive peak off-state voltage *1 | 900 | | V |
| VDSM | Non-repetitive peak off-state voltage *1 | 1100 | | V |

| Symbol | Parameter | Conditions | Ratings | Unit |
|-----------------------------|--|---|------------|------------------|
| I _T (RMS) | RMS on-state current | Commercial frequency, sine full wave 360° conduction, T _c =88°C | 8 | A |
| I _{TSM} | Surge on-state current | 60Hz sine wave 1 full cycle, peak value, non-repetitive | 80 | A |
| I ² _t | I ² _t for fusing | Value corresponding to 1 cycle of half wave 60Hz, surge on-state current | 26 | A ² s |
| P _{GM} | Peak gate power dissipation | | 5 | W |
| P _{G (AV)} | Average gate power dissipation | | 0.5 | W |
| V _{GM} | Peak gate voltage | | 10 | V |
| I _{GM} | Peak gate current | | 2 | A |
| T _j | Junction temperature | | -40 ~ +125 | °C |
| T _{stg} | Storage temperature | | -40 ~ +125 | °C |
| — | Weight | Typical value | 2.0 | g |
| V _{iso} | Isolation voltage | T _a =25°C, AC 1 minute, T ₁ · T ₂ · G terminal to case | 1500 | V |

*1 Gate open.



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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

| Symbol | Parameter | Test conditions | Limits | | | Unit | |
|----------------------|--|---|--------|------|------|--------------------|----|
| | | | Min. | Typ. | Max. | | |
| IDRM | Repetitive peak off-state current | $T_j=125^\circ\text{C}$, V_{DRM} applied | — | — | 2.0 | mA | |
| V _{TM} | On-state voltage | $T_c=25^\circ\text{C}$, $I_{\text{TM}}=12\text{A}$, Instantaneous measurement | — | — | 1.6 | V | |
| V _{FGT I} | Gate trigger voltage *2 | $T_j=25^\circ\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$ | I | — | — | 1.5 | V |
| V _{RGT I} | | | II | — | — | 1.5 | V |
| V _{RGT III} | | | III | — | — | 1.5 | V |
| I _{FGT I} | Gate trigger current *2 | $T_j=25^\circ\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$ | I | — | — | 30 | mA |
| I _{RGT I} | | | II | — | — | 30 | mA |
| I _{RGT III} | | | III | — | — | 30 | mA |
| V _{GD} | Gate non-trigger voltage | $T_j=125^\circ\text{C}$, $V_D=1/2V_{\text{DRM}}$ | 0.2 | — | — | V | |
| R _{th(j-c)} | Thermal resistance | Junction to case *4 | — | — | 3.7 | $^\circ\text{C/W}$ | |
| (dv/dt) _c | Critical-rate of rise of off-state commutating voltage | | *3 | — | — | V/ μs | |

*2. Measurement using the gate trigger characteristics measurement circuit.

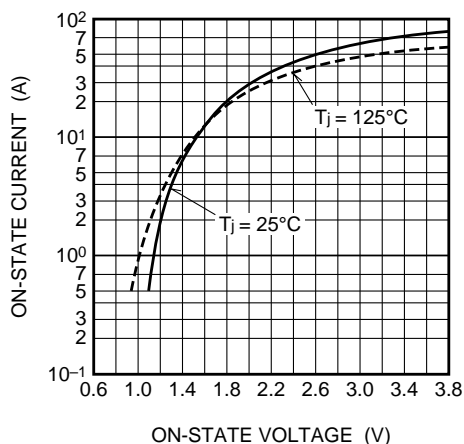
*3. The critical-rate of rise of the off-state commutating voltage is shown in the table below.

*4. The contact thermal resistance R_{th(c-f)} in case of greasing is 0.5 $^\circ\text{C/W}$.

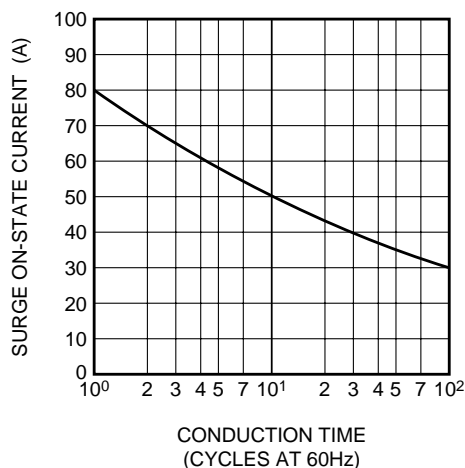
| Voltage class | V _{DRM} (V) | (dv/dt) _c | | | Test conditions | Commutating voltage and current waveforms (inductive load) |
|---------------|----------------------|----------------------|------|------------------|--|--|
| | | Symbol | Min. | Unit | | |
| 18 | 900 | R | — | V/ μs | 1. Junction temperature $T_j=125^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c=-4.0\text{A/ms}$ 3. Peak off-state voltage $V_D=400\text{V}$ | |
| | | L | 10 | | | |

PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS



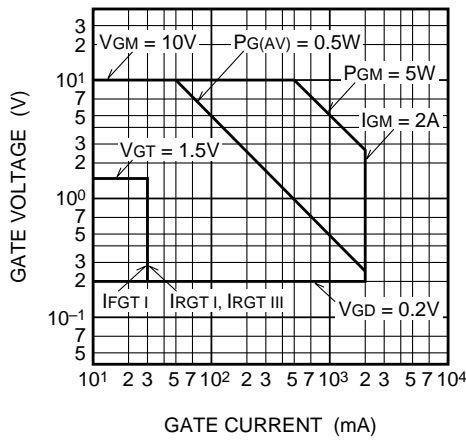
RATED SURGE ON-STATE CURRENT



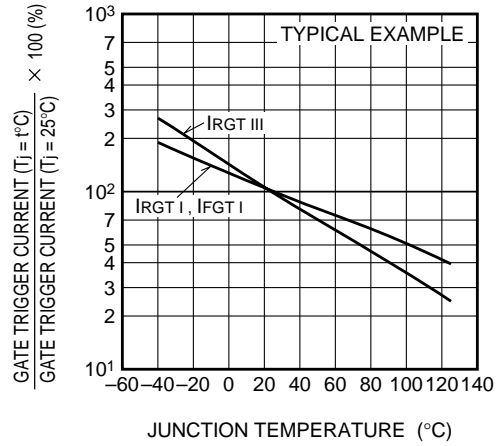
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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

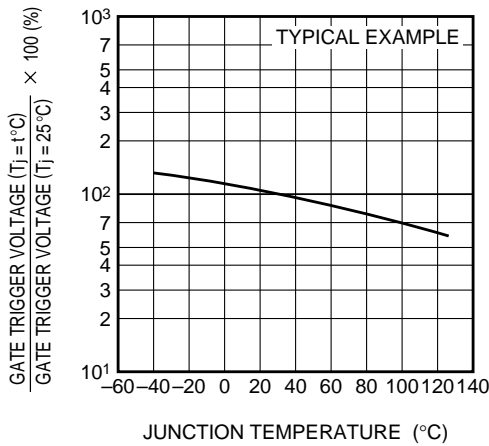
GATE CHARACTERISTICS



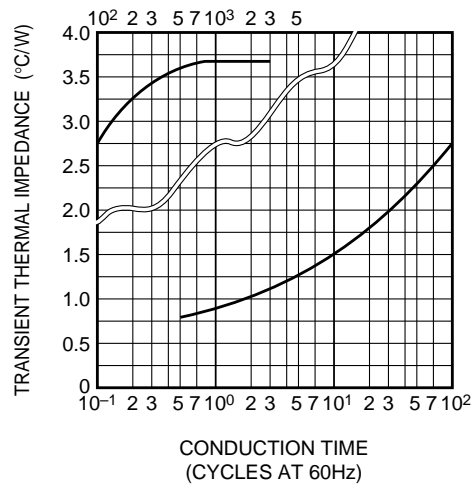
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



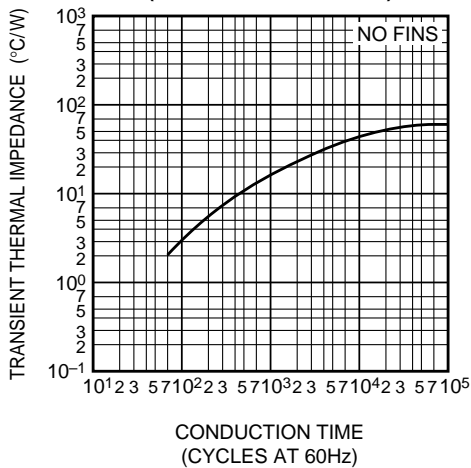
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



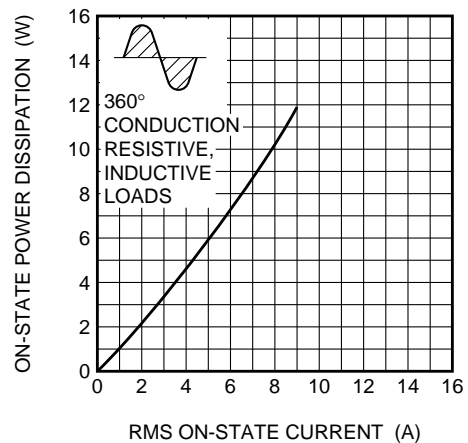
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO AMBIENT)



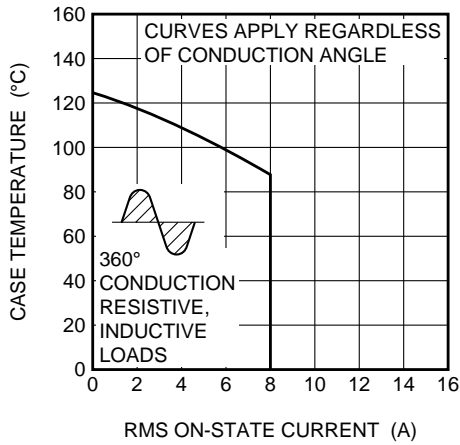
MAXIMUM ON-STATE POWER DISSIPATION



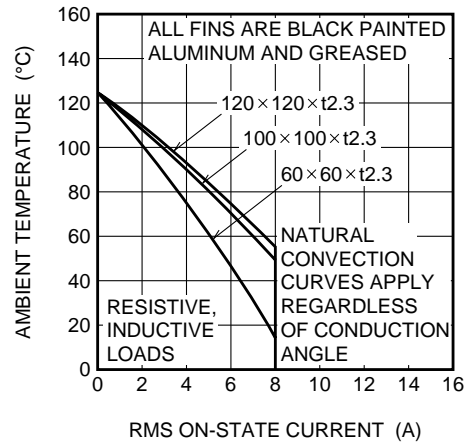
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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

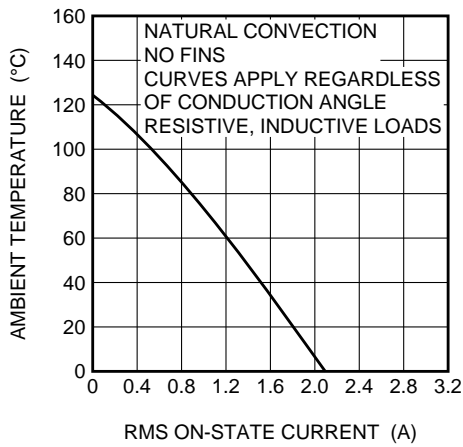
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



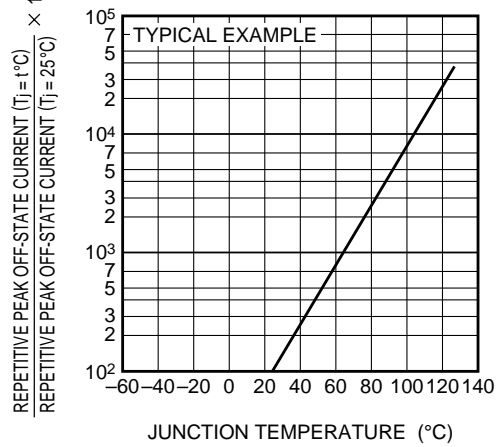
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



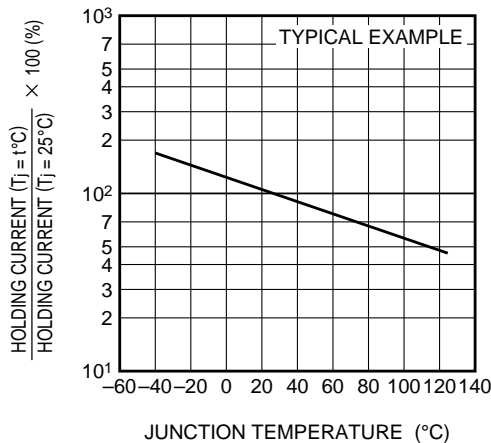
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



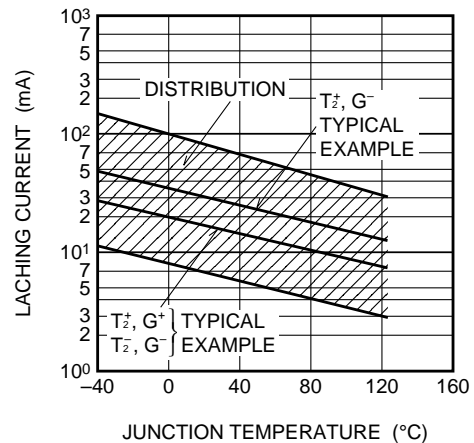
REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE



HOLDING CURRENT VS. JUNCTION TEMPERATURE



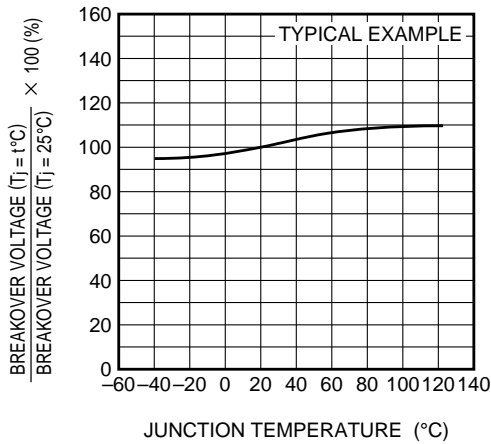
LATCHING CURRENT VS. JUNCTION TEMPERATURE



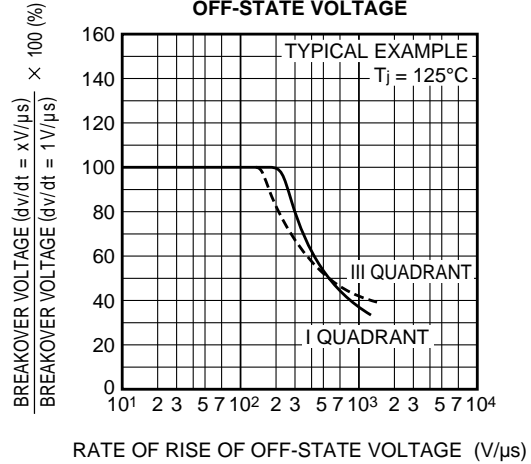
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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

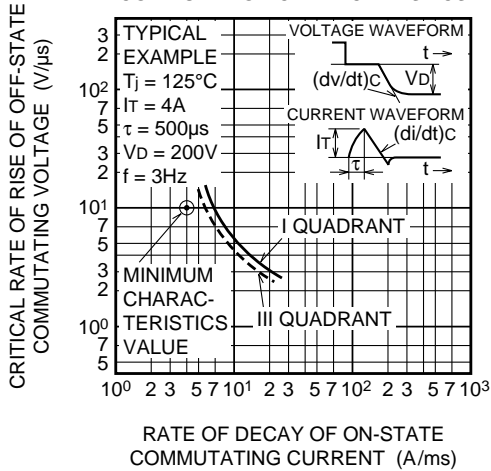
BREAKEOVER VOLTAGE VS. JUNCTION TEMPERATURE



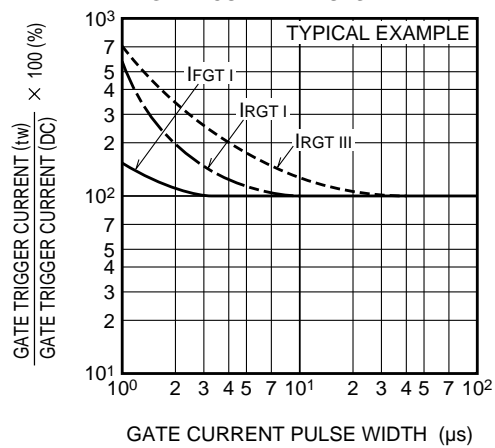
BREAKEOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE



COMMUTATION CHARACTERISTICS



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

