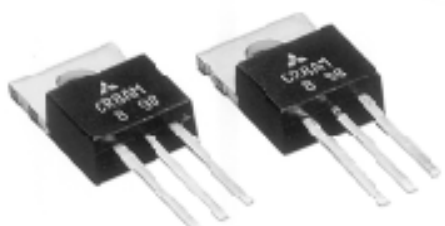


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MEDIUM POWER USE
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

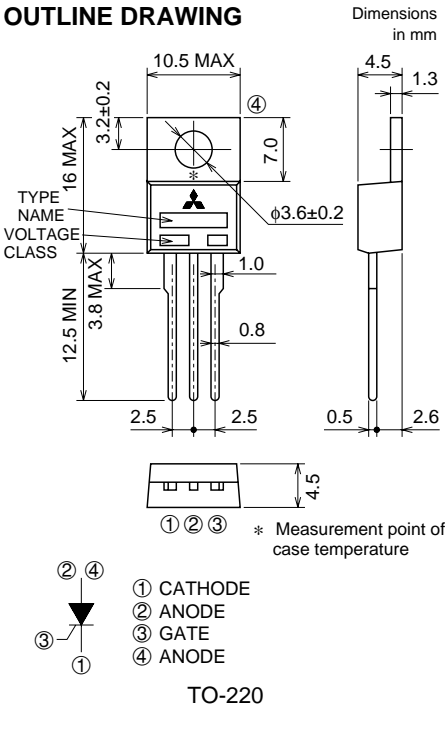
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- **IT (AV)** **8A**
- **VDRM** **400V/600V**
- **IGT** **15mA**

OUTLINE DRAWING

Dimensions in mm



TYPE NAME
VOLTAGE CLASS

① ② ③ * Measurement point of case temperature

① CATHODE
② ANODE
③ GATE
④ ANODE

TO-220

APPLICATION

Switching mode power supply, ECR, regulator for auticycle, motor control

MAXIMUM RATINGS

| Symbol | Parameter | Voltage class | | Unit |
|---------|-------------------------------------|---------------|-----|------|
| | | 8 | 12 | |
| VRRM | Repetitive peak reverse voltage | 400 | 600 | V |
| VRSM | Non-repetitive peak reverse voltage | 500 | 720 | V |
| VR (DC) | DC reverse voltage | 320 | 480 | V |
| VDRM | Repetitive peak off-state voltage | 400 | 600 | V |
| VD (DC) | DC off-state voltage | 320 | 480 | V |

| Symbol | Parameter | Conditions | Ratings | Unit |
|------------------|--------------------------------|--|------------|------------------|
| IT (RMS) | RMS on-state current | | 12.6 | A |
| IT (AV) | Average on-state current | Commercial frequency, sine half wave, 180° conduction, Tc=88°C | 8 | A |
| ITSM | Surge on-state current | 60Hz sine half wave 1 full cycle, peak value, non-repetitive | 120 | A |
| I ² t | I ² t for fusing | Value corresponding to 1 cycle of half wave 60Hz, surge on-state current | 60 | A ² s |
| PGM | Peak gate power dissipation | | 5 | W |
| PG (AV) | Average gate power dissipation | | 0.5 | W |
| VFGM | Peak gate forward voltage | | 6 | V |
| VRGM | Peak gate reverse voltage | | 10 | V |
| IFGM | Peak gate forward current | | 2 | A |
| Tj | Junction temperature | | -40 ~ +125 | °C |
| Tstg | Storage temperature | | -40 ~ +125 | °C |
| — | Weight | Typical value | 2.0 | g |

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MEDIUM POWER USE

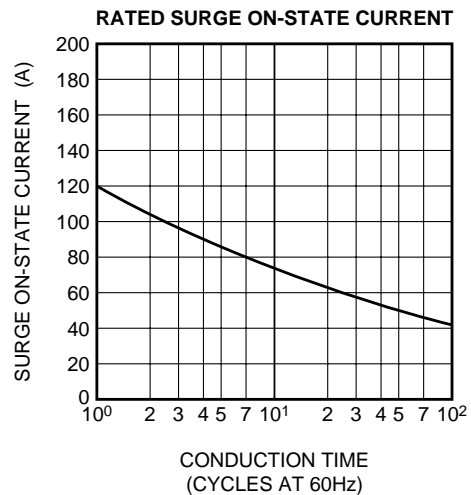
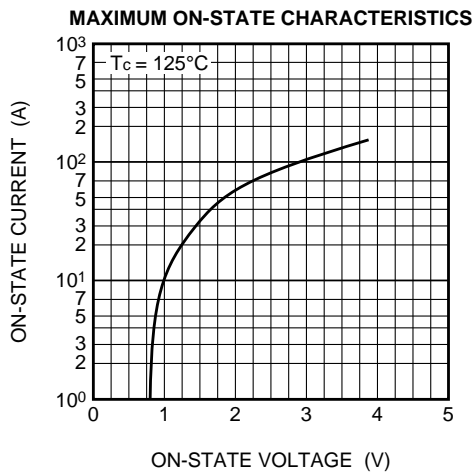
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

| Symbol | Parameter | Test conditions | Limits | | | Unit |
|----------------------|-----------------------------------|--|--------|------|------|--------------------|
| | | | Min. | Typ. | Max. | |
| IRRM | Repetitive peak reverse current | $T_j=125^\circ\text{C}$, V_{RRM} applied | — | — | 2.0 | mA |
| IDRM | Repetitive peak off-state current | $T_j=125^\circ\text{C}$, V_{DRM} applied | — | — | 2.0 | mA |
| V _{TM} | On-state voltage | $T_c=25^\circ\text{C}$, $I_{TM}=25\text{A}$, instantaneous value | — | — | 1.4 | V |
| V _{GT} | Gate trigger voltage | $T_j=25^\circ\text{C}$, $V_D=6\text{V}$, $I_T=1\text{A}$ | — | — | 1.0 | V |
| V _{GD} | Gate non-trigger voltage | $T_j=125^\circ\text{C}$, $V_D=1/2V_{DRM}$ | 0.2 | — | — | V |
| I _{GT} | Gate trigger current | $T_j=25^\circ\text{C}$, $V_D=6\text{V}$, $I_T=1\text{A}$ | — | — | 15 | mA |
| I _H | Holding current | $T_j=25^\circ\text{C}$, $V_D=12\text{V}$ | — | 15 | — | mA |
| R _{th(j-c)} | Thermal resistance | Junction to case | — | — | 3.0 | $^\circ\text{C/W}$ |

*1. The contact thermal resistance R_{th(j-c)} is 1.0 $^\circ\text{C/W}$ with greased.

PERFORMANCE CURVES

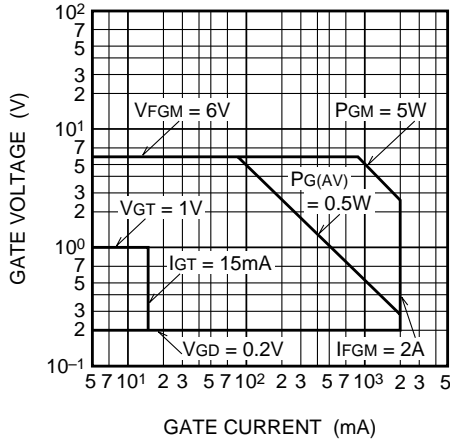


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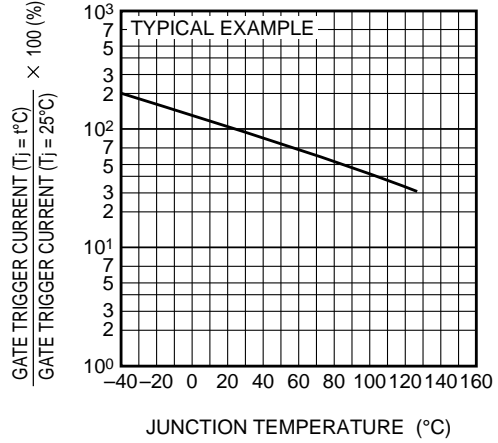
MEDIUM POWER USE

NON-INSULATED TYPE, GLASS PASSIVATION TYPE

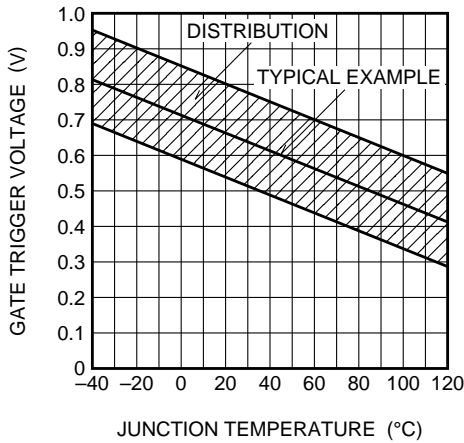
GATE CHARACTERISTICS



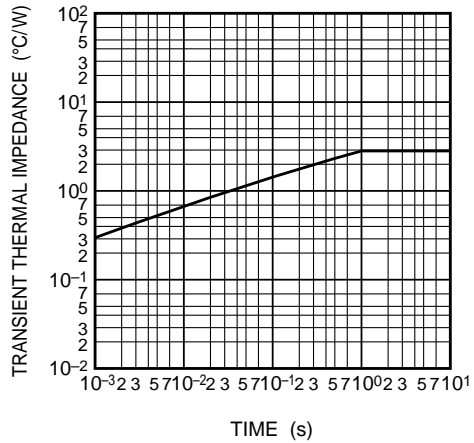
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



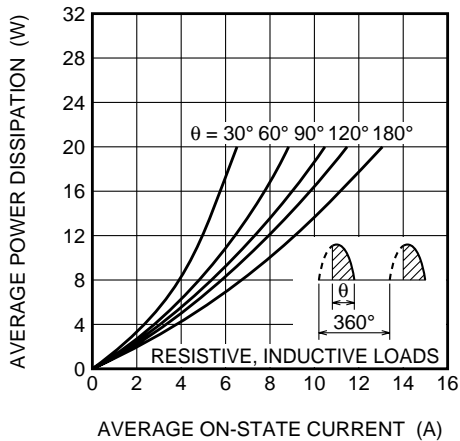
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



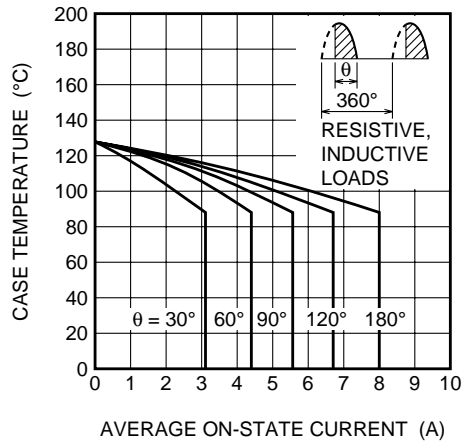
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE HALF WAVE)



ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)

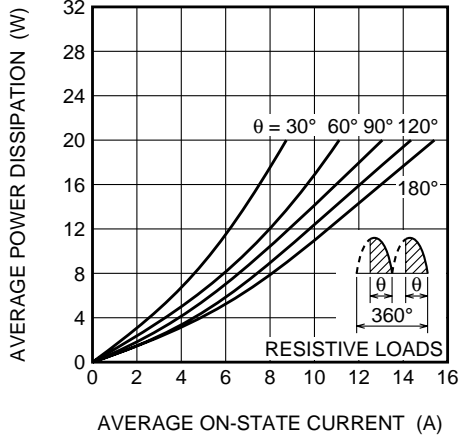


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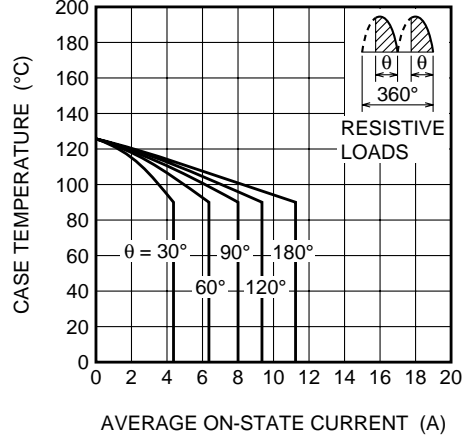
MEDIUM POWER USE

NON-INSULATED TYPE, GLASS PASSIVATION TYPE

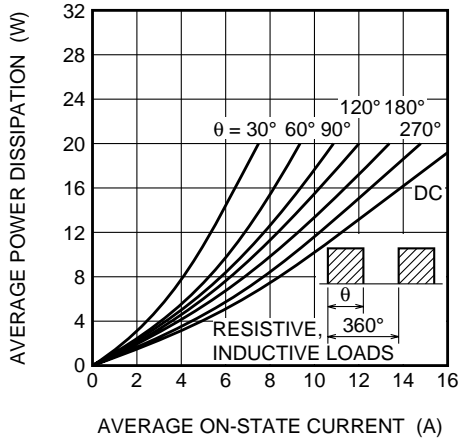
**MAXIMUM AVERAGE POWER DISSIPATION
(SINGLE-PHASE FULL WAVE)**



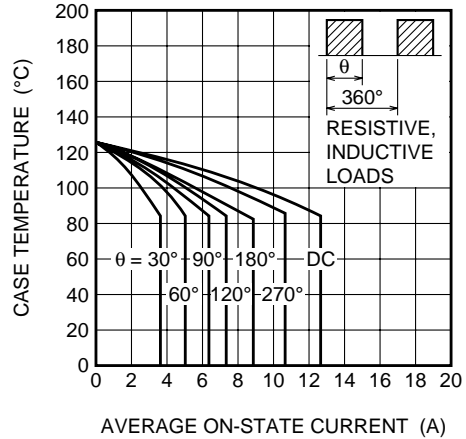
**ALLOWABLE CASE TEMPERATURE VS.
AVERAGE ON-STATE CURRENT
(SINGLE-PHASE FULL WAVE)**



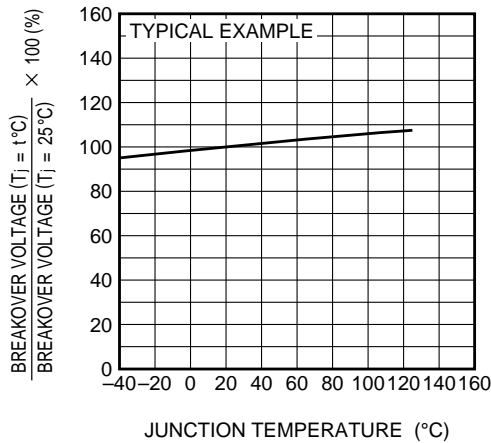
**MAXIMUM AVERAGE POWER DISSIPATION
(RECTANGULAR WAVE)**



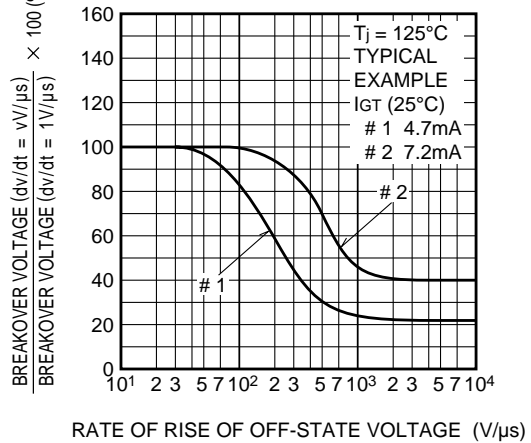
**ALLOWABLE CASE TEMPERATURE VS.
AVERAGE ON-STATE CURRENT
(RECTANGULAR WAVE)**



**BREAKOVER VOLTAGE VS.
JUNCTION TEMPERATURE**



**BREAKOVER VOLTAGE VS.
RATE OF RISE OF OFF-STATE VOLTAGE**

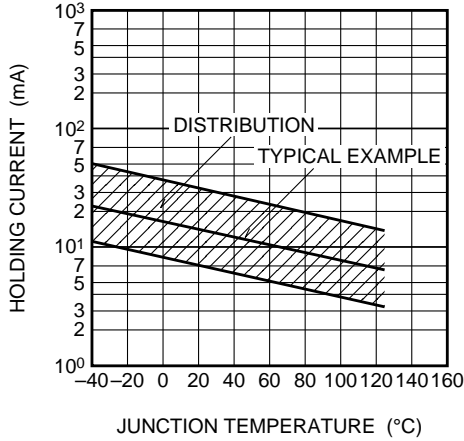


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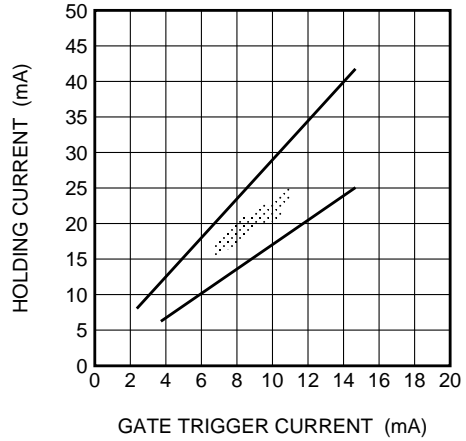
MEDIUM POWER USE

NON-INSULATED TYPE, GLASS PASSIVATION TYPE

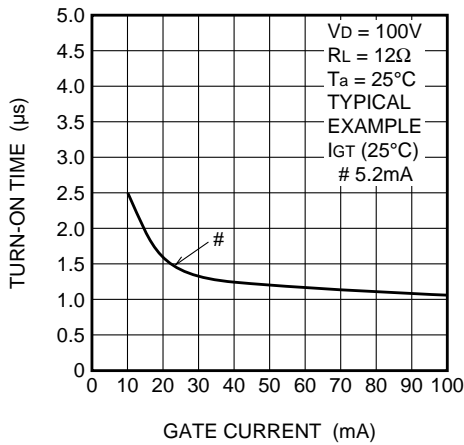
HOLDING CURRENT VS. JUNCTION TEMPERATURE



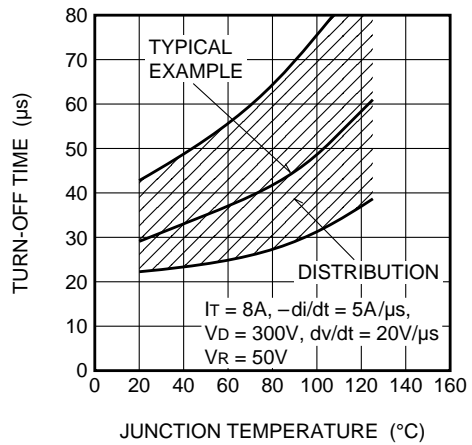
HOLDING CURRENT VS. GATE TRIGGER CURRENT



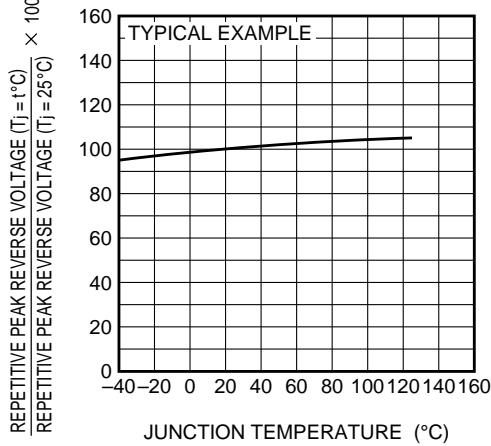
TURN-ON TIME VS. GATE CURRENT



TURN-OFF TIME VS. JUNCTION TEMPERATURE



REPETITIVE PEAK REVERSE VOLTAGE VS. JUNCTION TEMPERATURE



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH

