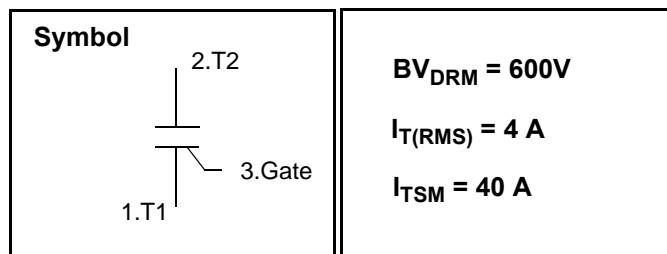


Triacs / Sensitive Gate

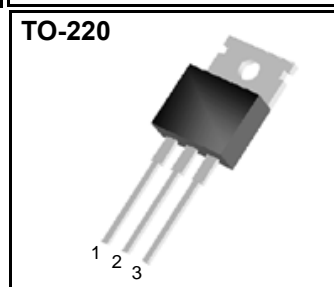
Features

Repetitive Peak Off-State Voltage : 600V
 R.M.S On-State Current ($I_{T(RMS)} = 4 \text{ A}$)
 High Commutation dv/dt
 Sensitive Gate Triggering 4 Mode
 Non-isolated Type



General Description

This device is sensitive gate triac suitable for direct coupling to TTL, HTL, CMOS and application such as various logic functions, low power AC switching applications, such as fan speed, small light controllers and home appliance equipment.



Absolute Maximum Ratings ($T_J = 25^\circ\text{C}$ unless otherwise specified)

| Symbol | Parameter | Condition | Ratings | Units |
|--------------|-----------------------------------|---|------------|----------------------|
| V_{DRM} | Repetitive Peak Off-State Voltage | Sine wave, 50 to 60 Hz, Gate open | 600 | V |
| $I_{T(RMS)}$ | R.M.S On-State Current | $T_C = 107^\circ\text{C}$, Full Sine wave | 4 | A |
| I_{TSM} | Surge On-State Current | One Cycle, 50Hz/60Hz, Peak, Non-Repetitive | 40/44 | A |
| I^2t | I^2t for Fusing | $t_p = 10\text{ms}$ | 3.1 | A^2s |
| P_{GM} | Peak Gate Power Dissipation | $T_C = 107^\circ\text{C}$, Pulse width 1.0 μs | 5 | W |
| $P_{G(AV)}$ | Average Gate Power Dissipation | Over any 20ms period | 0.5 | W |
| I_{GM} | Peak Gate Current | $t_p = 20\mu\text{s}$, $T_J = 125^\circ\text{C}$ | 2 | A |
| V_{GM} | Peak Gate Voltage | $t_p = 20\mu\text{s}$, $T_J = 125^\circ\text{C}$ | 5 | V |
| T_J | Operating Junction Temperature | | - 40 ~ 125 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | | - 40 ~ 150 | $^\circ\text{C}$ |

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Electrical Characteristics

| Symbol | Items | Conditions | Ratings | | | Unit |
|---------------|--|--|---------|------|------|--------------------|
| | | | Min. | Typ. | Max. | |
| I_{DRM} | Repetitive Peak Off-State Current | $V_D = V_{DRM}$, Single Phase, Half Wave $T_J = 125\text{ }^\circ\text{C}$ | | | 0.5 | mA |
| V_{TM} | Peak On-State Voltage | $I_T = 5\text{ A}$, Inst. Measurement | | 1.4 | 1.7 | V |
| I_{GT1}^+ | Gate Trigger Current | $V_D = 6\text{ V}$, $R_L = 10$ | | | 5 | mA |
| I_{GT1}^- | | | | | 5 | |
| I_{GT3}^- | | | | | 5 | |
| I_{GT3}^+ | | | | | 10 | |
| V_{GT1}^+ | Gate Trigger Voltage | $V_D = 6\text{ V}$, $R_L = 10$ | | | 1.5 | V |
| V_{GT1} | | | | | 1.5 | |
| V_{GT3} | | | | | 1.5 | |
| V_{GT3}^+ | | | | | 2.5 | |
| V_{GD} | Non-Trigger Gate Voltage | $T_J = 125\text{ }^\circ\text{C}$, $V_D = 1/2 V_{DRM}$ | 0.2 | | | V |
| $(dv/dt)_c$ | Critical Rate of Rise Off-State Voltage at Commutation | $T_J = 125\text{ }^\circ\text{C}$, $[di/dt]_c = -0.75\text{ A/ms}$, $V_D = 2/3 V_{DRM}$ | 5.0 | | | V/ μs |
| I_H | Holding Current | | | 5 | | mA |
| $R_{th(j-c)}$ | Thermal Impedance | Junction to case | | | 3.0 | $^\circ\text{C/W}$ |
| $R_{th(j-a)}$ | Thermal Impedance | Junction to Ambient (In the free air) | | | 60 | $^\circ\text{C/W}$ |

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Fig 1. Gate Characteristics

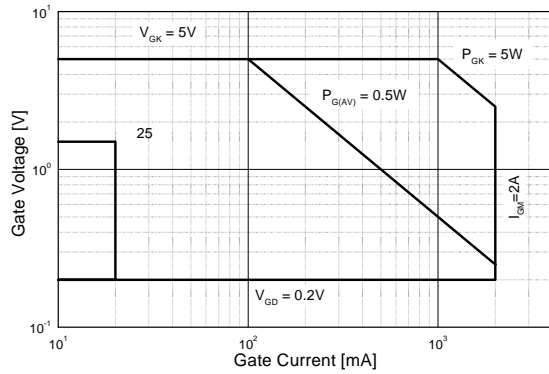


Fig 2. On-State Voltage

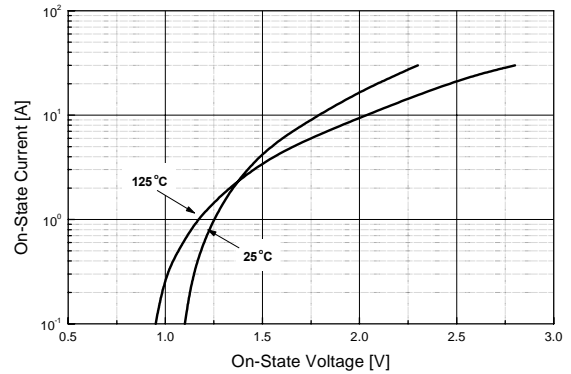


Fig 3. On State Current vs. Maximum Power Dissipation

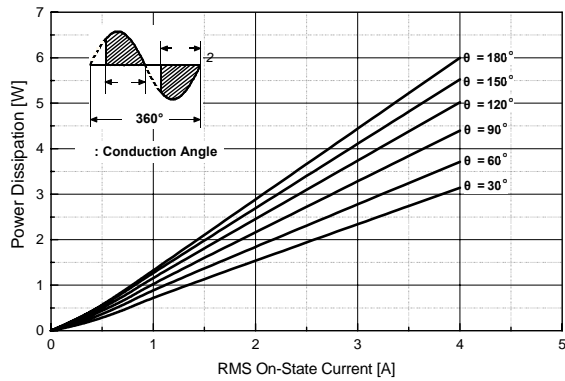


Fig 4. On State Current vs. Allowable Case Temperature

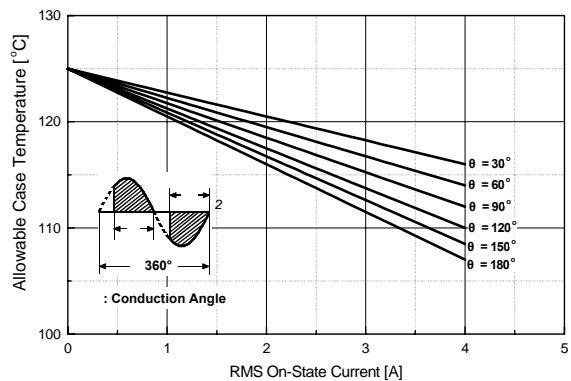


Fig 5. Surge On-State Current Rating (Non-Repetitive)

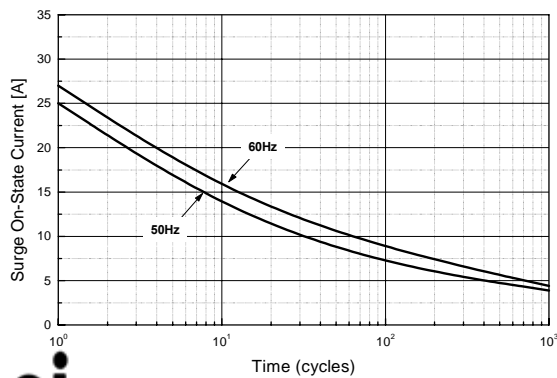
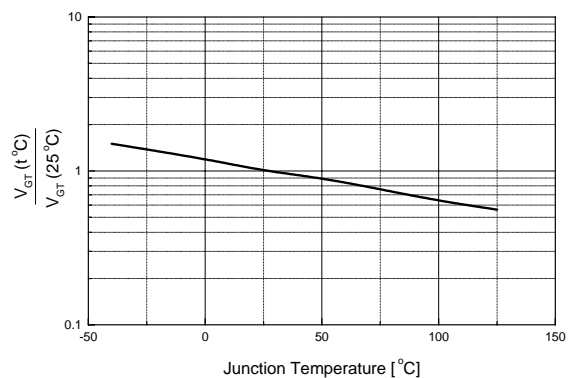


Fig 6. Gate Trigger Voltage vs. Junction Temperature



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Fig 7. Gate Trigger Current vs. Junction Temperature

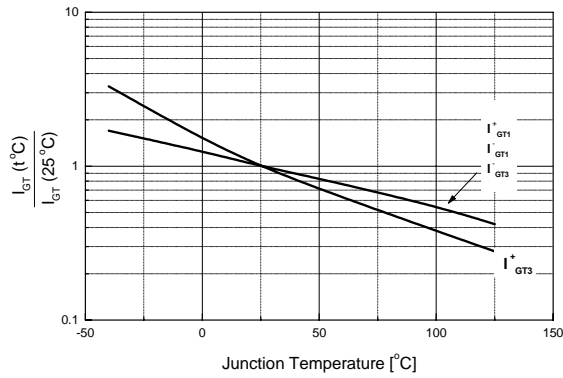


Fig 8. Transient Thermal Impedance

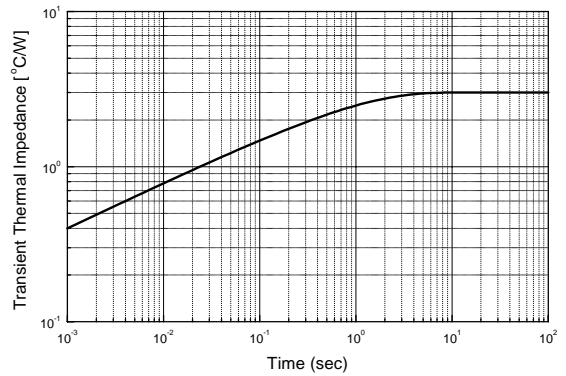
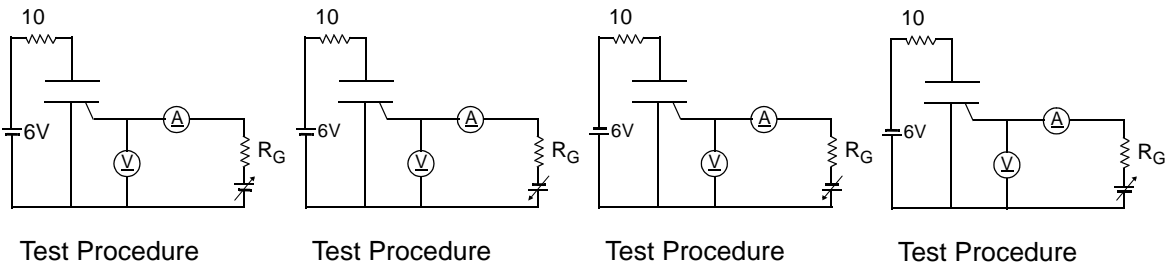


Fig 9. Gate Trigger Characteristics Test Circuit



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TO-220 Package Dimension

| Dim. | mm | | | Inch | | |
|------|------|------|------|-------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 9.7 | | 10.1 | 0.382 | | 0.398 |
| B | 6.3 | | 6.7 | 0.248 | | 0.264 |
| C | 9.0 | | 9.47 | 0.354 | | 0.373 |
| D | 12.8 | | 13.3 | 0.504 | | 0.524 |
| E | 1.2 | | 1.4 | 0.047 | | 0.055 |
| F | | 1.7 | | | 0.067 | |
| G | | 2.5 | | | 0.098 | |
| H | 3.0 | | 3.4 | 0.118 | | 0.134 |
| I | 1.25 | | 1.4 | 0.049 | | 0.055 |
| J | 2.4 | | 2.7 | 0.094 | | 0.106 |
| K | 5.0 | | 5.15 | 0.197 | | 0.203 |
| L | 2.2 | | 2.6 | 0.087 | | 0.102 |
| M | 1.25 | | 1.55 | 0.049 | | 0.061 |
| N | 0.45 | | 0.6 | 0.018 | | 0.024 |
| O | 0.6 | | 1.0 | 0.024 | | 0.039 |
| | | 3.6 | | | 0.142 | |

