

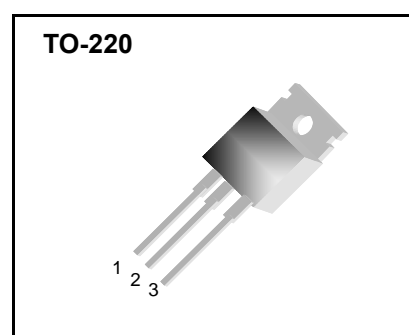
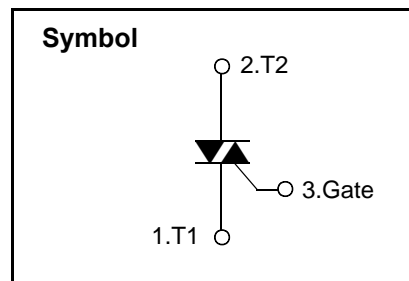
Bi-Directional Triode Thyristor

Features

- ◆ Repetitive Peak Off-State Voltage : 600V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 8\text{ A}$)
- ◆ High Commutation dv/dt
- ◆ Non-isolated Type

General Description

This device is suitable for AC switching application, phase control application such as fan speed and temperature modulation control, lighting control and static switching relay.



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

| Symbol | Parameter | Condition | Ratings | Units |
|--------------|-----------------------------------|--|------------|----------------------|
| V_{DRM} | Repetitive Peak Off-State Voltage | | 600 | V |
| $I_{T(RMS)}$ | R.M.S On-State Current | $T_C = 103^\circ\text{C}$ | 8.0 | A |
| I_{TSM} | Surge On-State Current | One Cycle, 50Hz/60Hz, Peak, Non-Repetitive | 70/77 | A |
| I^2t | I^2t for fusing | $t = 10\text{ms}$ | 24 | A^2s |
| P_{GM} | Peak Gate Power Dissipation | | 5.0 | W |
| $P_{G(AV)}$ | Average Gate Power Dissipation | Over any 20ms period | 0.5 | W |
| I_{GM} | Peak Gate Current | | 2.0 | A |
| V_{GM} | Peak Gate Voltage | | 10 | V |
| T_J | Operating Junction Temperature | | - 40 ~ 125 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | | - 40 ~ 150 | $^\circ\text{C}$ |
| | Mass | | 2.0 | g |

BT137-600

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 $T_J = 125\text{ }^\circ\text{C}$ | — | — | 1.0 | mA |
| V_{TM} | Peak On-State Voltage | | $I_T = 10\text{ A}$, Inst. Measurement | — | — | 1.6 | V |
| I_{GT1}^+ | I | Gate Trigger Current | $V_D = 6\text{ V}$, $R_L = 10\text{ }\Omega$ | — | — | 25 | mA |
| I_{GT1}^- | II | | | — | — | 25 | |
| I_{GT3}^- | III | | | — | — | 25 | |
| V_{GT1}^+ | I | Gate Trigger Voltage | $V_D = 6\text{ V}$, $R_L = 10\text{ }\Omega$ | — | — | 1.5 | V |
| V_{GT1}^- | II | | | — | — | 1.5 | |
| V_{GT3} | III | | | — | — | 1.5 | |
| 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 | | $T_J = 125\text{ }^\circ\text{C}$, $[di/dt]_c = -3.0\text{ A/ms}$, $V_D = 2/3 V_{DRM}$ | 5.0 | — | — | V/ μs |
| I_H | Holding Current | | | — | 10 | — | mA |
| $R_{th(j-c)}$ | Thermal Impedance | | Junction to case | — | — | 2.0 | $^\circ\text{C/W}$ |



Fig 1. Gate Characteristics

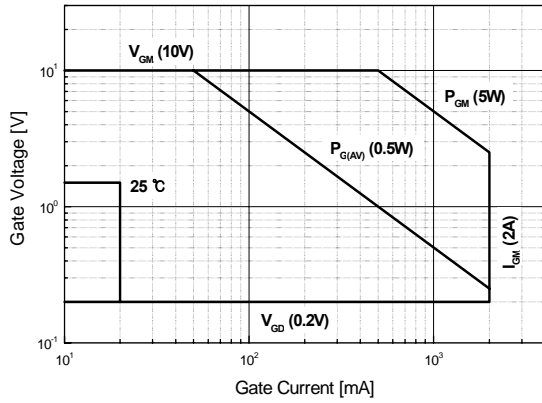


Fig 2. On-State Voltage

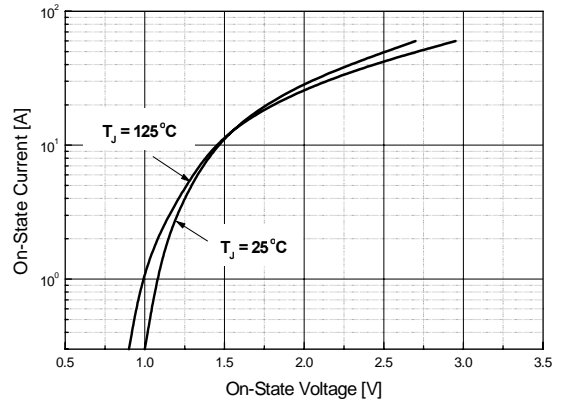


Fig 3. On State Current vs. Maximum Power Dissipation

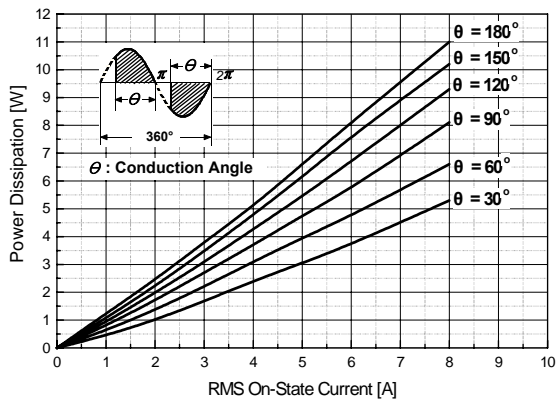


Fig 4. On State Current vs. Allowable Case Temperature

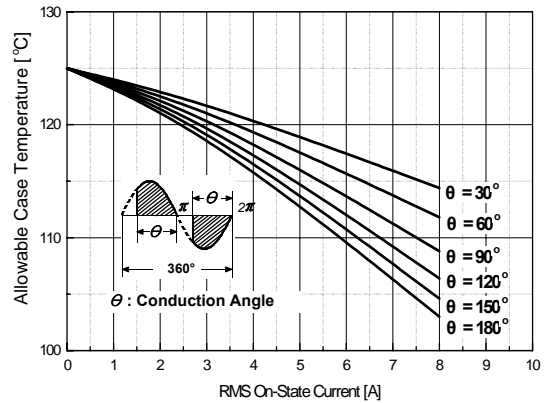


Fig 5. Surge On-State Current Rating (Non-Repetitive)

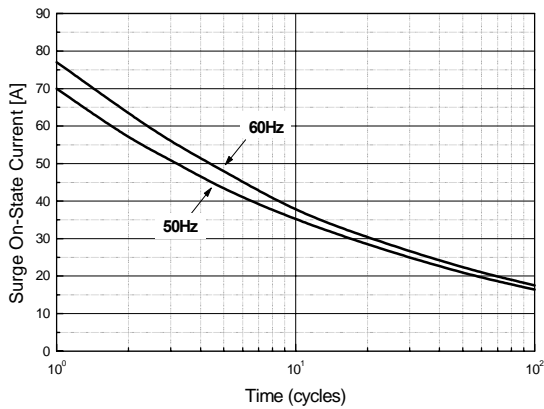
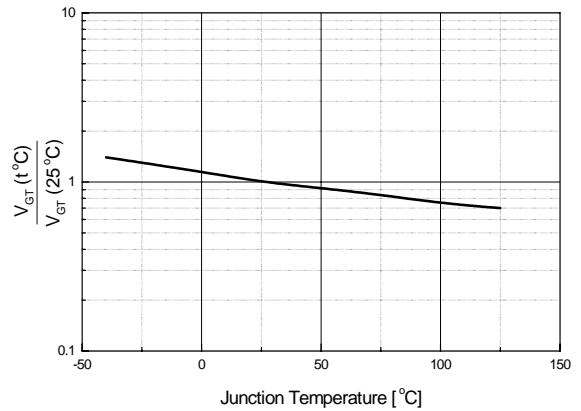


Fig 6. Gate Trigger Voltage vs. Junction Temperature



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Fig 7. Gate Trigger Current vs. Junction Temperature

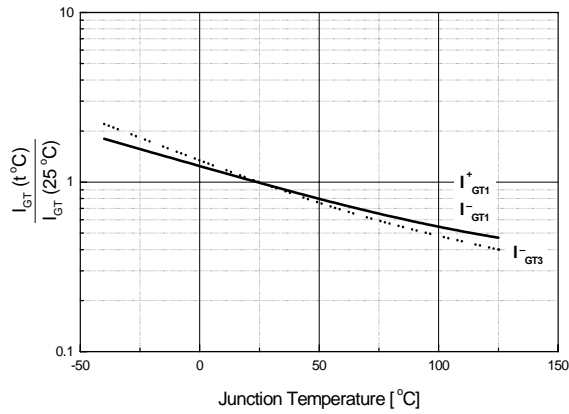


Fig 8. Transient Thermal Impedance

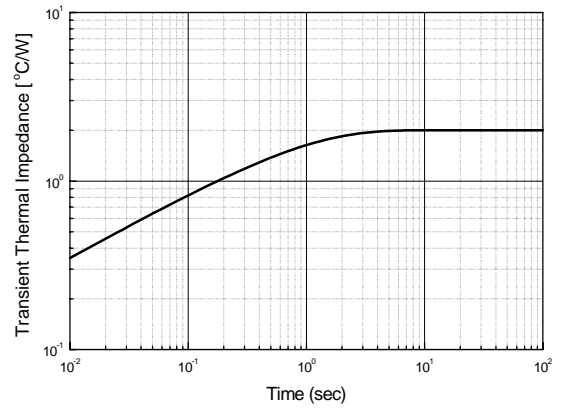
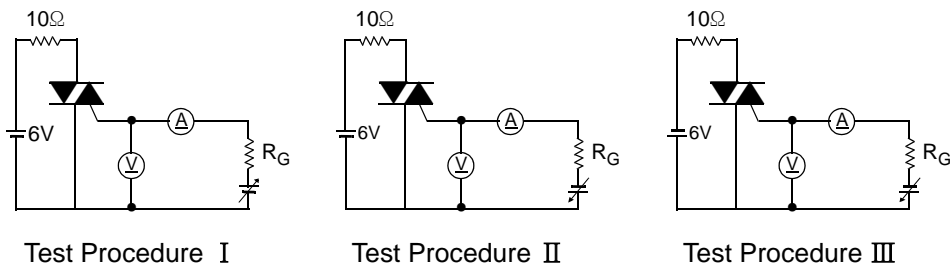


Fig 9. Gate Trigger Characteristics Test Circuit



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 |
| ϕ | | 3.6 | | | 0.142 | |

