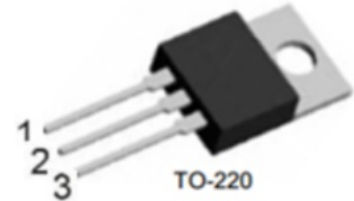


Description

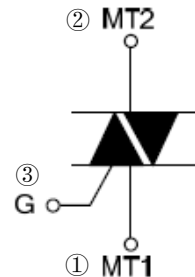
Triacs is fabricated using separation diffusion processes ,the junction termination areas are passivated with glass. Thanks to highly sensitive triggering levels and reliability,the Triacs series is suitable for domestic lighting ,heating and motor speed controllers.



Applications

Domestic lighting ,heating and motor speed controllers.

Symbol



Ordering Information

| Part No. | Package | Packing |
|-----------|---------|--------------|
| BT137-600 | TO-220 | 50pcs / Tube |
| BT137-800 | TO-220 | 50pcs / Tube |

ABSOLUTE MAXIMUM RATING

| PARAMETER | SYMBOL | RATINGS | | UNIT |
|--|---------------------|----------|------|------------------|
| | | 600 | -600 | |
| Repetitive Peak Off State Voltage | V _{DRM} | 600 | -600 | V |
| | | 800* | -800 | |
| RMS On-state Current (Full sine wave; T _{mb} ≤107°C) | I _{T(RMS)} | 8 | | A |
| Non-Repetitive Peak. On-State Current (Full sine wave; T _j =25°C prior to surge) | I _{TSM} | 65 71 | | A |
| t = 2.0 ms t = 16.7ms | | | | |
| I ² t For Fusing t=10ms | I ² t | 21 | | A ² s |
| Rate of Rise of On-state Current I _{TM} =6A; I _G =0.2A, dI _G /dt=0.2A/μs | di _T /dt | 50 | | A/μs |
| T2+G+ | | 50 | | |
| T2+G- | | 50 | | |
| T2-G- | | 10 | | |
| Peak Gate Voltage | V _{GM} | 5 | | V |
| Peak Gate Current | I _{GM} | 2 | | A |
| Peak Gate Power | P _{GM} | 5 | | W |
| Average Gate Power (Over any 20ms period) | P _{G(AV)} | 0.5 | | W |
| Operating Junction Temperature | T _j | 125 | | °C |
| Storage Temperature | T _{stg} | -40~150 | | °C |

*Although not recommended, off-state voltages up to 800V may be applied without damage, but the triac may switch to the on-state. The rate of rise of current should not exceed 6A/μs.

THERMAL CHARACTERISTICS

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT |
|--|----------|-----|-----|------------|------|
| Thermal Resistance Junction to Mounting Base Full cycle Half cycle | Rth j-mb | | | 2.0 2.4 | K/W |
| Thermal Resistance Junction to Ambient In free air | Rth j-a | | 60 | | K/W |

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, unless otherwise stated)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|--------|--|-----|--------------------|----------------------|------------------|
| STATIC CHARACTERISTICS | | | | | | |
| Gate Trigger Current | IGT | $V_D=12\text{V}$, $I_T=0.1\text{A}$ T2+G+ T2+G- T2-G- T2-G+ | | 5 8 11 30 | 35 35 35 70 | mA |
| Latching Current | IL | $V_D=12\text{V}$, $I_T=0.1\text{A}$ T2+G+ T2+G- T2-G- T2-G+ | | 7 16 5 7 | 30 45 30 45 | mA |
| Holding Current | IH | $V_D=12\text{V}$, $I_T=0.1\text{A}$ | | 5 | 20 | mA |
| Gate Trigger Voltage | VGT | $V_D=12\text{V}$, $I_T=0.1\text{A}$; $T_J=25^\circ\text{C}$ $V_D=400\text{V}$, $I_T=0.1\text{A}$; $T_J=125^\circ\text{C}$ | | 0.7 0.25 | 1.5 | V |
| On-State Voltage | VT | $I_T=10\text{A}$ | | 1.3 | 1.65 | V |
| Off-state Leakage Current | ID | $V_D=600\text{V}$, $T_J=125^\circ\text{C}$ | | 0.1 | 0.5 | mA |
| DYNAMIC CHARACTERISTICS | | | | | | |
| Critical Rate of Rise of off-state Voltage | dVd/dt | $V_{DM}=67\% V_{DRM(max)}$, $T_J=125^\circ\text{C}$ Exponential waveform, Gate open circuit | 100 | 250 | | V/ μs |
| Gate Controlled Turn-on Time | tgt | $I_{TM}=12\text{A}$, $V_D=V_{DRM}$, $I_G=0.1\text{A}$ $dI_G/dt=5\text{A}/\mu\text{s}$ | | 2 | | μs |

TYPICAL CHARACTERISTICS

Figure 1. Maximum on -state Dissipation. P_{tot} vs RMS On-state Current, $I_T(RMS)$, Where α = conduction Angle.

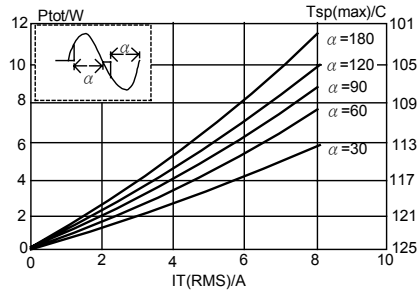


Figure 4. Maximum Permissible RMS Current $I_T(RMS)$ vs mounting base Temperature T_{mb}

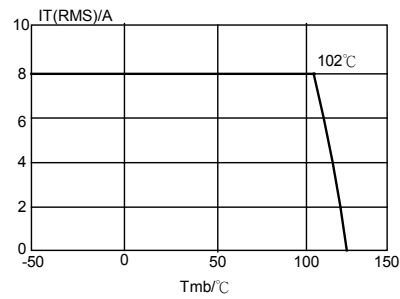


Figure 2. Maximum Permissible Non-repetitive Peak On-state Current I_{TSM} , vs Pulse Width t_p , for Sinusoidal Currents, $t_p \approx 20ms$

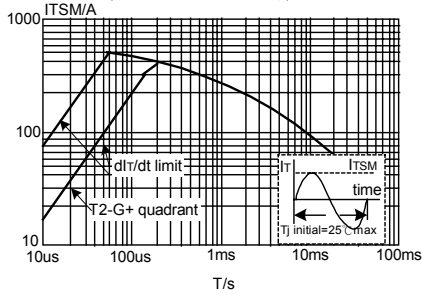


Figure 5. Maximum Permissible Repetitive RMS on-state Current $I_T(RMS)$, vs Surge Duration, for Sinusoidal Currents, $f=50Hz$; $T_{mb} \approx 102^\circ C$

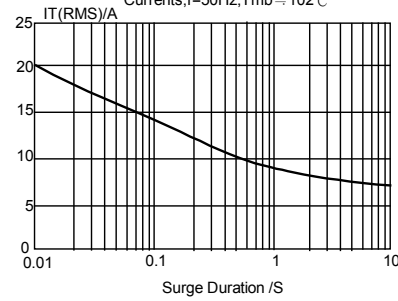


Figure 3. Maximum Permissible Non-Repetitive peak on-state Current I_{TSM} , vs Number of Cycles, for Sinusoidal Currents, $f=50Hz$

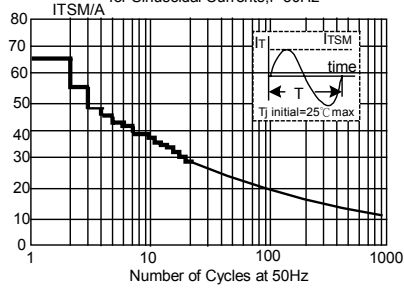
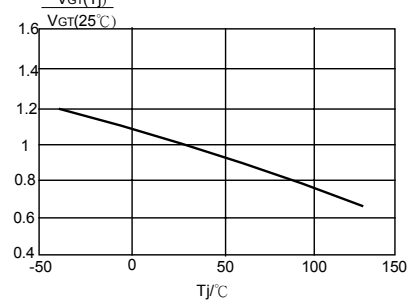


Figure 6. Normalised Gate Trigger Voltage $V_{GT}(T_j) / V_{GT}(25^\circ C)$, vs Junction Temperature T_j



TYPICAL CHARACTERISTICS

Figure 7. Normalised Gate Trigger Current
 $I_{GT}(T_j)/I_{GT}(25^\circ\text{C})$, vs Junction Temperature T_j

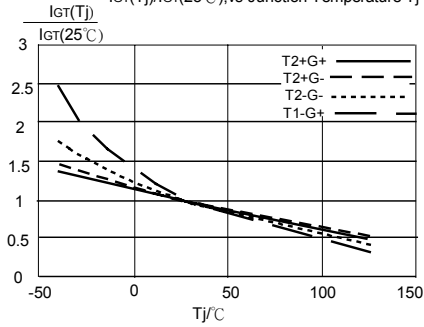


Figure 10. Typical and Maximum On-state Characteristic

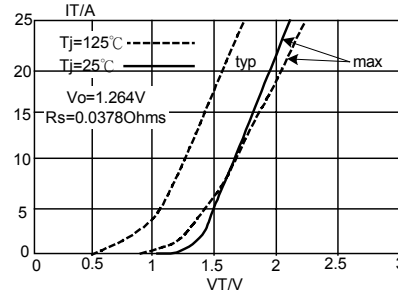


Figure 8. Normalised Latching Current
 $I_L(T_j)/I_L(25^\circ\text{C})$, vs Junction Temperature T_j

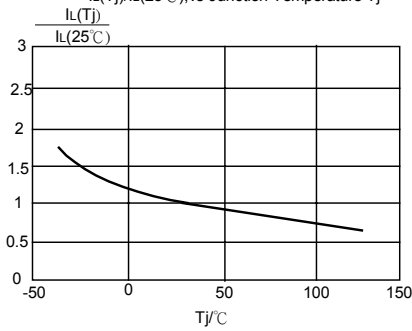


Figure 11. Transient Thermal Impedance
 $Z_{th j-mb}$, vs Pulse Width t_p

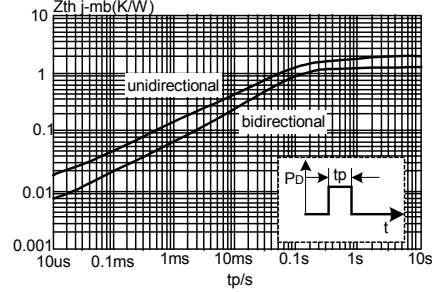


Figure 9. Normalised Holding Current
 $I_H(T_j)/I_H(25^\circ\text{C})$, vs Junction Temperature T_j

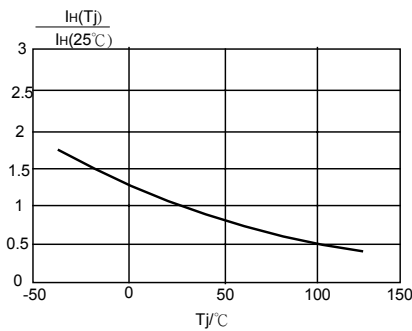
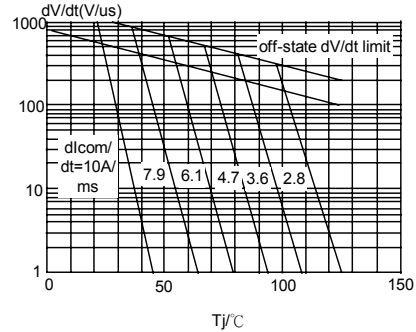


Figure 12. Typical commutation dV/dt vs junction temperature, parameter commutation dI/dt . The triac should commute when the dV/dt is below the value on the appropriate curve for pre-commutation dI/dt



TO-220 Mechanical Drawing

