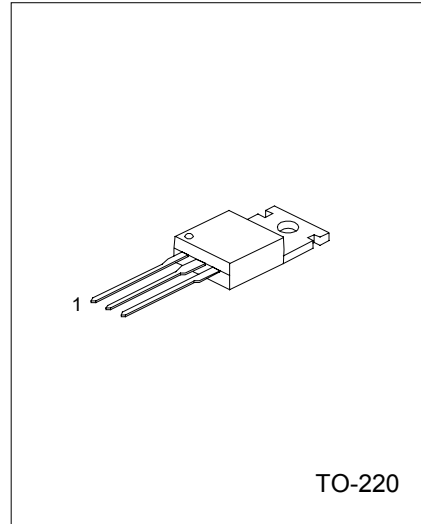
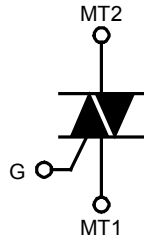


TRIACS

DESCRIPTION

Passivated triacs in a plastic envelope, intended for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting, heating voltages and static switching.

SYMBOL



1:MT1 2:MT2 3:GATE

ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | RATINGS | UNIT |
|--|--------------|----------------------------|-------------|
| Repetitive Peak Off State Voltage BT137-600 BT137-800 | V_{DRM} | 600 -600 800* -800 | V |
| RMS On-state Current (Full sine wave; $T_{mb} \leq 102^{\circ}C$) | $I_{T(RMS)}$ | 8 | A |
| Non-Repetitive Peak On-State Current (Full sine wave; $T_j = 25^{\circ}C$ prior to surge) $t = 20ms$ $t = 16.7ms$ | I_{TSM} | 65 71 | A |
| I^2t For Fusing $t = 10ms$ | I^2t | 21 | A^2s |
| Repetitive Rate of Rise of On-state Current after Triggering $I_{TM} = 12A; I_G = 0.2A; dI_G/dt = 0.2A/\mu s$ | dI_T/dt | 50 50 50 10 | $A/\mu s$ |
| 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 | $^{\circ}C$ |
| Storage Temperature | T_{stg} | -40~150 | $^{\circ}C$ |

*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 $6A/\mu s$.

THERMAL RESISTANCES

| 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 (Tj=25°C, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|-----------------------|--|------|--------------------|----------------------|------|
| STATIC CHARACTERISTICS | | | | | | |
| Gate Trigger Current | IGT | V _D =12V, I _T =0.1A T2+G+ T2+G- T2-G- T2-G+ | | 5 8 11 30 | 35 35 35 70 | mA |
| Latching Current | IL | V _D =12V, I _{GT} =0.1A T2+G+ T2+G- T2-G- T2-G+ | | 7 16 5 7 | 30 45 30 45 | mA |
| On-State Voltage | V _T | I _T =10A | | 1.3 | 1.65 | V |
| Gate Trigger Voltage | V _{GT} | V _D =12V, I _T =0.1A V _D =400V, I _T =0.1A T _j =125°C | 0.25 | 0.4 | | V |
| Holding Current | I _H | V _D =12V, I _{GT} =0.1A | | 5 | 20 | mA |
| Off-state Leakage Current | I _D | V _D =V _{DRM(max)} , T _j =125°C | | 0.1 | 0.5 | mA |
| DYNAMIC CHARACTERISTICS | | | | | | |
| Critical Rate of Rise of off-state Voltage | dV _D /dt | V _{DM} =67% V _{DRM(max)} , T _j =125°C Exponential waveform, Gate open circuit | 100 | 250 | | V/μs |
| Critical Rate of Change of commutating Voltage | dV _{com} /dt | V _{DM} =400V, T _j =95°C, I _{T(RMS)} =8A dI _{com} /dt =3.6A/ms Gate open circuit | | 20 | | V/μs |
| Gate Controlled Turn-on Time | tgt | I _{TM} =12A, V _D =V _{DRM(max)} , I _G =0.1A dI _G /dt=5A/μs | | 2 | | μs |

TYPICAL CHARACTERISTICS

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

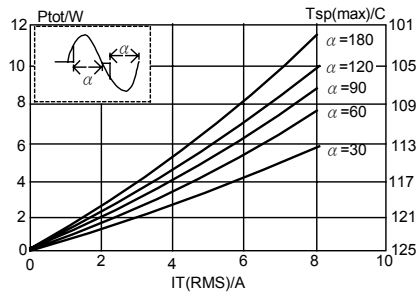


Figure 4. Maximum Permissible RMS Current $I_T(RMS)$ vs mounting base Temperature T_{mb}

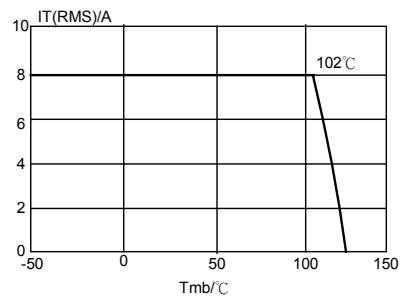


Figure 2. Maximum Permissible Non-repetitive Peak On-state Current I_{TSM} , vs Pulse Width t_p , for Sinusoidal Currents, $t_p \approx 20ms$

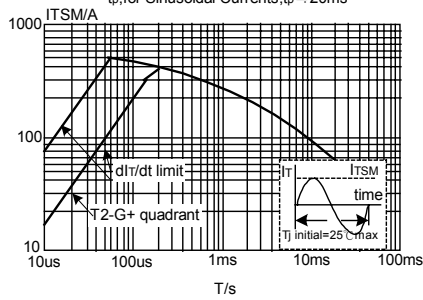


Figure 5. Maximum Permissible Repetitive RMS on-state Current $I_T(RMS)$, vs Surge Duration, for Sinusoidal Currents, $f=50Hz$; $T_{mb} \approx 102^\circ C$

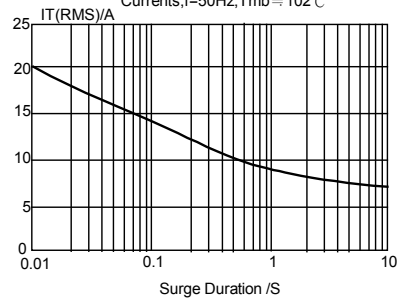


Figure 3. Maximum Permissible Non-Repetitive peak on-state Current I_{TSM} , vs Number of Cycles, for Sinusoidal Currents, $f=50Hz$

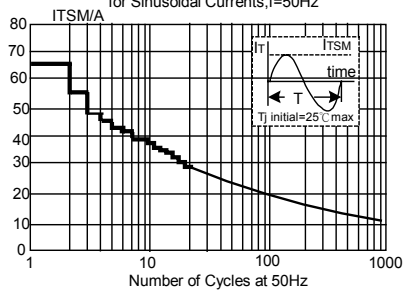
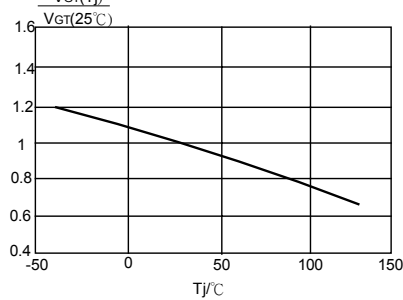
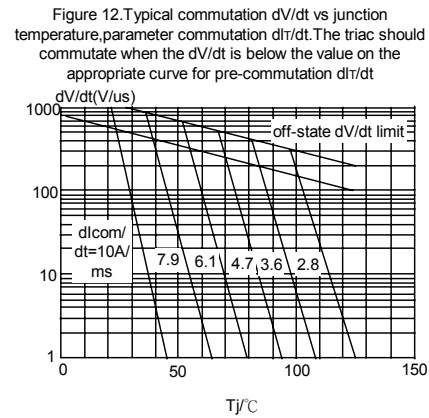
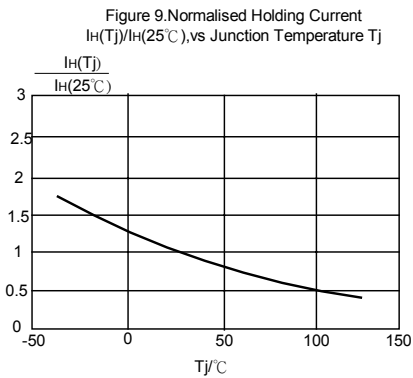
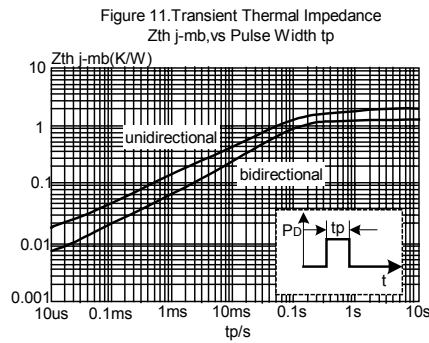
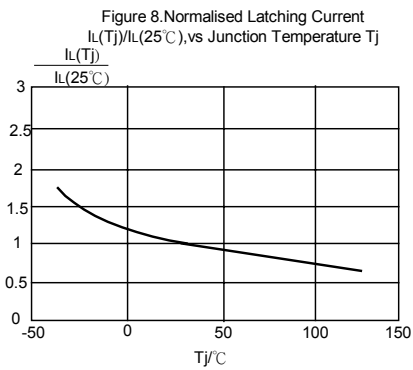
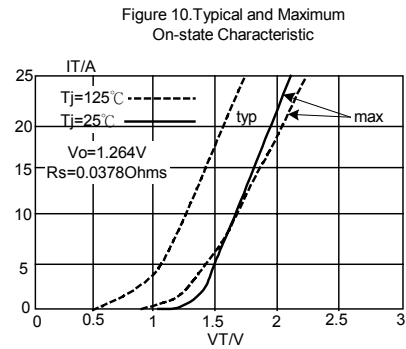
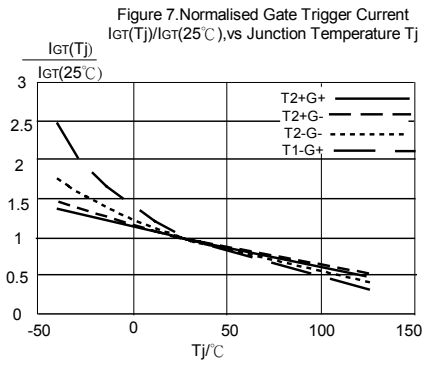


Figure 6. Normalised Gate Trigger Voltage $V_{GT}(T_j) / V_{GT}(25^\circ C)$, vs Junction Temperature T_j





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