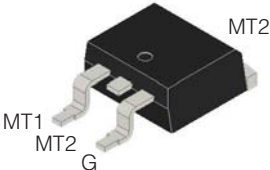
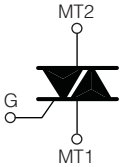


STANDARD TRIAC

| | | |
|--|---|--|
| <p>D²PAK</p>   | <p>On-State Current 8 Amp</p> | <p>Gate Trigger Current ≤ 75 mA</p> |
| | <p>Off-State Voltage 200 V ÷ 800 V</p> | |
| <p>This series of TRIACs uses a high performance PNPN technology.</p> <p>These parts are intended for general purpose AC switching applications with highly inductive loads.</p> | | |

Absolute Maximum Ratings, according to IEC publication No. 134

| SYMBOL | PARAMETER | CONDITIONS | Value | Unit |
|--------------|---|---|------------|------------------|
| $I_{T(RMS)}$ | RMS On-state Current (full sine wave) | All Conduction Angle, $T_c = 95\text{ °C}$ | 8 | A |
| I_{TSM} | Non-repetitive On-State Current | Full Cycle, 60 Hz ($t = 16.7\text{ ms}$) | 88 | A |
| I_{TSM} | Non-repetitive On-State Current | Full Cycle, 50 Hz ($t = 20\text{ ms}$) | 80 | A |
| I^2t | Fusing Current | $t_p = 10\text{ ms}$, Half Cycle | 32 | A ² s |
| I_{GM} | Peak Gate Current | 20 μs max. $T_j = 125\text{ °C}$ | 4 | A |
| $P_{G(AV)}$ | Average Gate Power Dissipation | $T_j = 125\text{ °C}$ | 1 | W |
| di/dt | Critical rate of rise of on-state current | $I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ ns}$ $f = 120\text{ Hz}$, $T_j = 125\text{ °C}$ | 50 | A/ μs |
| T_j | Operating Temperature | | (-40 +125) | °C |
| T_{stg} | Storage Temperature | | (-40 +150) | °C |
| T_{sld} | Soldering Temperature | 10s max | 260 | °C |

| SYMBOL | PARAMETER | VOLTAGE | | | | | Unit |
|-----------|-----------------------------------|---------|-----|-----|-----|-----|------|
| | | B | D | M | S | N | |
| V_{DRM} | Repetitive Peak Off State Voltage | 200 | 400 | 600 | 700 | 800 | V |
| V_{RRM} | | | | | | | |

STANDARD TRIAC

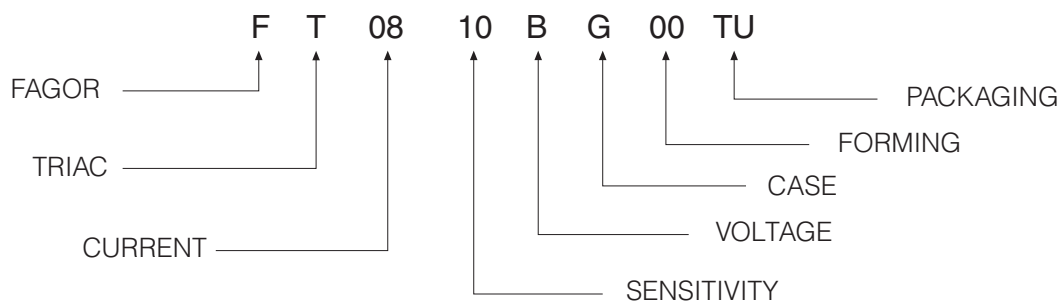
Electrical Characteristics

| SYMBOL | PARAMETER | CONDITIONS | Quadrant | | SENSITIVITY | | Unit |
|-------------------------------------|---|---|----------|-----|-------------|------|------|
| | | | | | 10 | 13 | |
| I _{GT} ⁽¹⁾ | Gate Trigger Current | V _D = 12 V _{DC} , R _L = 33Ω, T _j = 25 °C | Q1÷Q3 | MAX | 25 | 50 | mA |
| | | | Q4 | MAX | 25 | 75 | mA |
| V _{GT} | Gate Trigger Voltage | V _D = 12 V _{DC} , R _L = 33Ω, T _j = 25 °C | Q1÷Q4 | MAX | 1.3 | | V |
| V _{GD} | Gate Non Trigger Voltage | V _D = V _{DRM} , R _L = 3.3 KΩ, T _j = 125 °C | Q1÷Q4 | MIN | 0.2 | | V |
| I _H ⁽²⁾ | Holding Current | I _T = 100 mA, Gate open, T _j = 25 °C | | MAX | 25 | 50 | mA |
| I _L | Latching Current | I _G = 1.2 I _{GT} , T _j = 25 °C | Q1,Q3,Q4 | MAX | 40 | 70 | mA |
| | | | Q2 | MAX | 60 | 80 | mA |
| dV/dt ⁽²⁾ | Critical Rate of Voltage Rise | V _D = 0.67 x V _{DRM} , Gate open T _j = 125 °C | | MIN | 400 | 1000 | V/μs |
| (dV/dt) _c ⁽²⁾ | Critical Rise Rate of Commutating off-state voltage | (dI/dt) _c = 2.7 A/ms T _j = 125 °C | | MIN | 3 | 8 | V/μs |
| V _{TM} ⁽²⁾ | On-state Voltage | I _T = 11 Amp, t _p = 380 μs, T _j = 25 °C | | MAX | 1.6 | | V |
| V _{t(o)} ⁽²⁾ | Threshold Voltage | T _j = 125 °C | | MAX | 0.85 | | V |
| r _d ⁽²⁾ | Dynamic resistance | T _j = 125 °C | | MAX | 90 | | mΩ |
| I _{DRM} /I _{RRM} | Off-State Leakage Current | V _D = V _{DRM} , T _j = 125 °C V _R = V _{RRM} , T _j = 25 °C | | MAX | 1 | | mA |
| | | | | MAX | 5 | | μA |
| R _{th(j-c)} | Thermal Resistance Junction-Case | for AC 360° conduction angle | | | 1.6 | | °C/W |
| R _{th(j-a)} | Thermal Resistance Junction-Ambient | | | | 45 | | °C/W |

(1) Minimum I_{GT} is guaranteed at 5% of I_{GT} max.

(2) For either polarity of electrode MT2 voltage with reference to electrode MT1.

PART NUMBER INFORMATION



STANDARD TRIAC

Fig. 1: Maximum power dissipation versus RMS on-state current (full cycle)

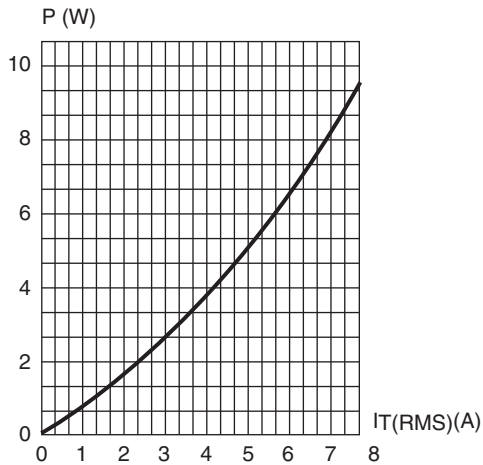


Fig. 2: RMS on-state current versus case temperature (full cycle).

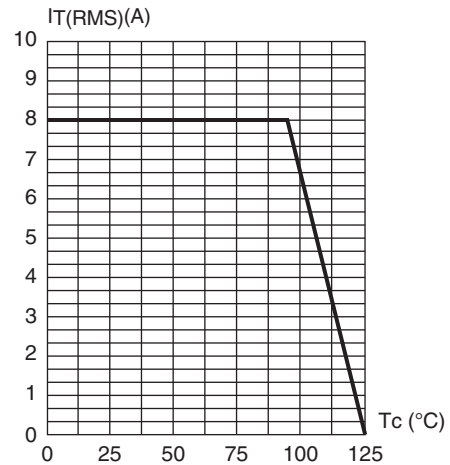


Fig. 3: Relative variation of thermal impedance versus pulse duration.

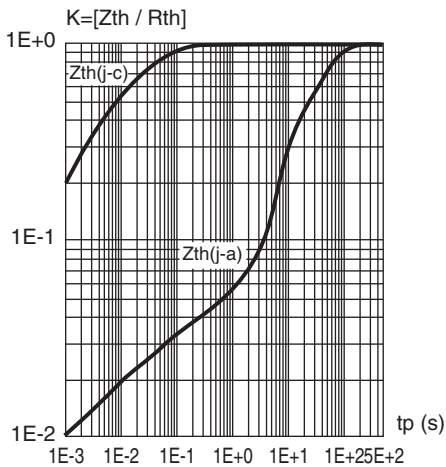


Fig. 5: Surge peak on-state current versus number of cycles

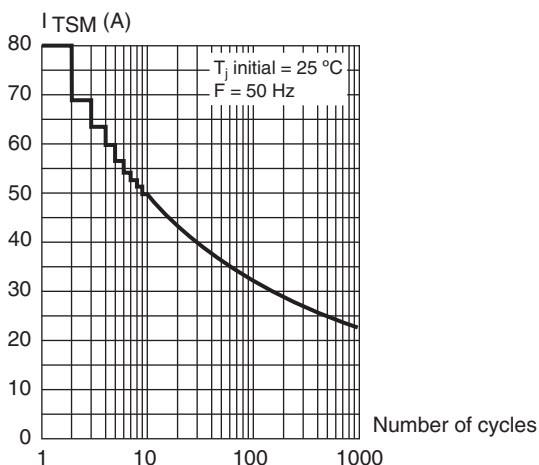


Fig. 4: On-state characteristics (maximum values)

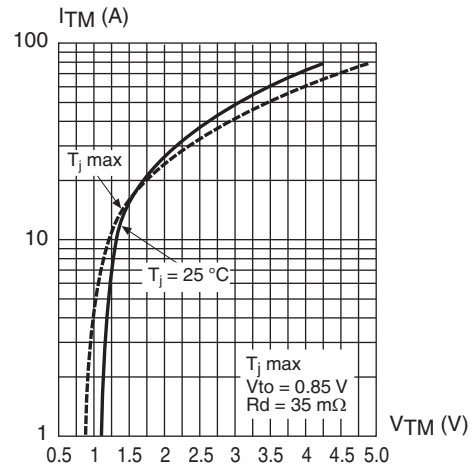
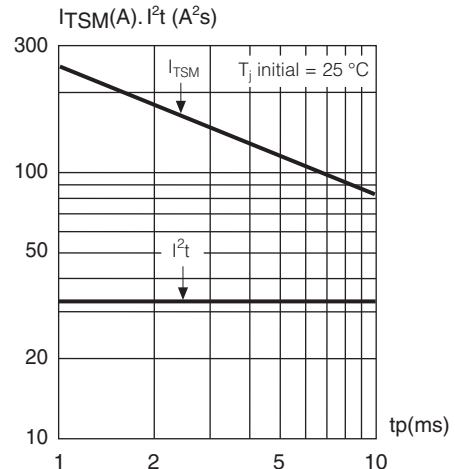


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10 \text{ ms}$, and corresponding value of I^2t .



STANDARD TRIAC

Fig. 7: Relative variation of gate trigger current, holding current and latching versus junction temperature (typical values)

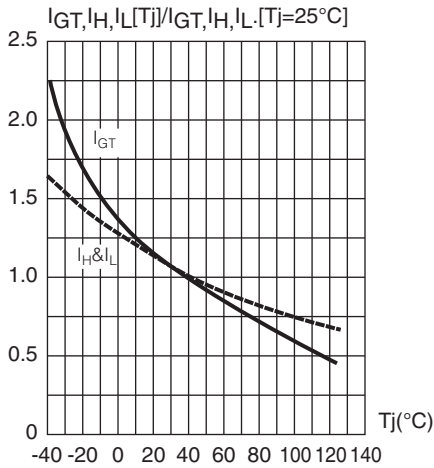


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature

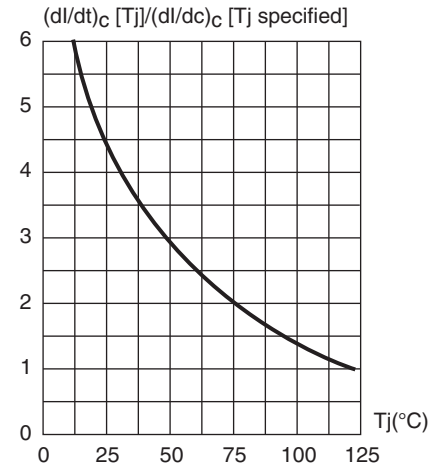
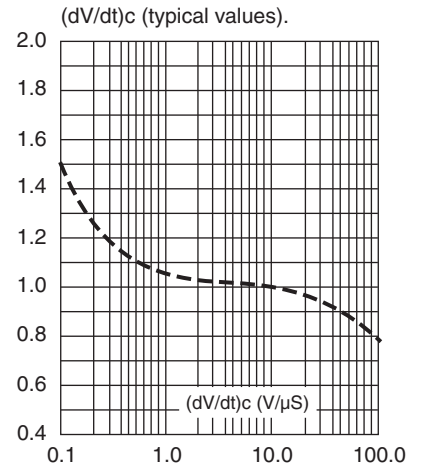
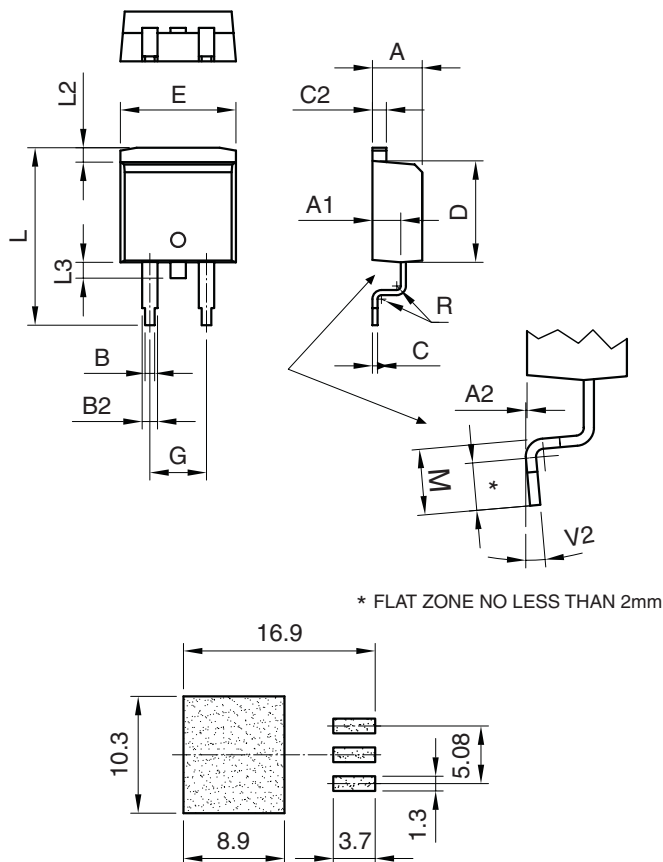


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature



PACKAGE MECHANICAL DATA

D²PAK



| REF. | DIMENSIONS | | |
|------|-------------|---------|-------|
| | Millimeters | | |
| | Min. | Nominal | Max. |
| A | 4.40 | 4.45 | 4.60 |
| A1 | 2.49 | 2.50 | 2.69 |
| A2 | 0.03 | 0.10 | 0.23 |
| B | 0.70 | 0.90 | 0.93 |
| B2 | 1.14 | 1.03 | 1.70 |
| C | 0.45 | 0.45 | 0.60 |
| C2 | 1.23 | 1.23 | 1.36 |
| D | 8.95 | 9.00 | 9.35 |
| E | 10.00 | 10.25 | 10.40 |
| G | 4.88 | 5.15 | 5.28 |
| L | 15.00 | 15.40 | 15.85 |
| L2 | 1.27 | 1.27 | 1.40 |
| L3 | 1.40 | 1.55 | 1.75 |
| M | 2.40 | 3.00 | 3.20 |
| R | 0.40 typ | | |
| V2 | 0° | | 8° |

NOTE: LIMITING VALUES AND LIFE SUPPORT APPLICATIONS (SEE WEB PAGE).