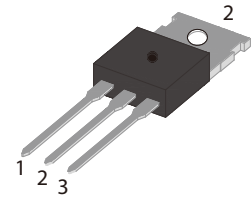


FEATURES

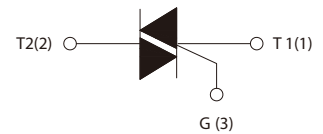
- | High current 16 A RMS current Triac
- | Low thermal resistance
- | High commutation or very high commutation capability
- | RoHS (2002/95/EC) compliant packages
- | UL-94, V0 flammability package resin compliance



TO-220C

APPLICATIONS

- | General purpose motor control circuits
- | Phase control operations in light dimmers and motor speed controllers
- | Home appliances



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|---|---------------------|----------|------------------------|
| Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$) | V_{DRM} | 600/800 | V |
| Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$) | V_{RRM} | 600/800 | V |
| RMS on-state current ($T_c=100^\circ\text{C}$) | $I_{\text{T(RMS)}}$ | 16 | A |
| Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$) | I_{TSM} | 140 | |
| I^2t value for fusing ($t_p=10\text{ms}$) | I^2t | 98 | A^2S |
| Critical rate of rise of on-state current ($I_G=2*I_{\text{GT}}$) | I - II - III | 50 | $\text{A}/\mu\text{s}$ |
| | IV | 10 | |
| Peak gate current | I_{GM} | 2 | A |
| Average gate power dissipation | $P_{\text{G(AV)}}$ | 0.5 | W |
| Peak gate power | P_{GM} | 5 | W |
| Operating junction temperature range | T_j | -40~+125 | $^\circ\text{C}$ |
| Storage junction temperature range | T_{STG} | -40~+150 | |

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ\text{C}$ unless otherwise specified)

| Symbol | Test Condition | Quadrant | Value | | | | Unit |
|-----------|---|-------------------------|------------|-----------|------------|------------|------------------|
| | | | D | E | F | B | |
| I_{GT} | $V_D=12\text{V}, R_L=33\Omega$ | I - II - III | ≤ 5 | ≤ 10 | ≤ 25 | ≤ 50 | mA |
| | | IV | ≤ 10 | ≤ 25 | ≤ 70 | ≤ 70 | |
| V_{GT} | | ALL | ≤ 1.3 | | | | V |
| V_{GD} | $V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=125^\circ\text{C}$ | ALL | ≥ 0.2 | | | | V |
| I_H | $I_t=100\text{mA}$ | | ≤ 10 | ≤ 25 | ≤ 40 | ≤ 60 | mA |
| I_L | $I_G=1.2I_{GT}$ | I - III - IV | ≤ 15 | ≤ 30 | ≤ 50 | ≤ 80 | |
| | | II | ≤ 20 | ≤ 40 | ≤ 100 | ≤ 120 | |
| dV_D/dt | $V_D=67\%V_{DRM}, T_j=125^\circ\text{C}$ | | ≥ 20 | ≥ 50 | ≥ 100 | ≥ 500 | V/ μs |
| V_{TM} | $I_{TM}=20\text{A}, t_p=380\mu\text{s}$ | | ≤ 1.6 | | | | V |
| I_{DRM} | $V_D=V_{DRM}, V_R=V_{RRM}$ | $T_j=25^\circ\text{C}$ | ≤ 5 | | | | μA |
| I_{RRM} | | $T_j=125^\circ\text{C}$ | ≤ 1 | | | | mA |

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|----------------------|-------|---------------------------|
| $R_{th(j-c)}$ | Junction to case(AC) | 1.2 | $^\circ\text{C}/\text{W}$ |

PARAMETER CHARACTERISTIC CURVE

FIG.1 Maximum power dissipation versus RMS on-state current

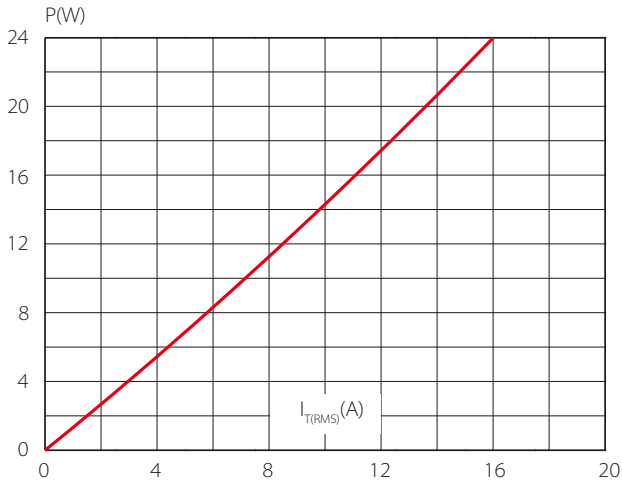


FIG.2: RMS on-state current versus case temperature

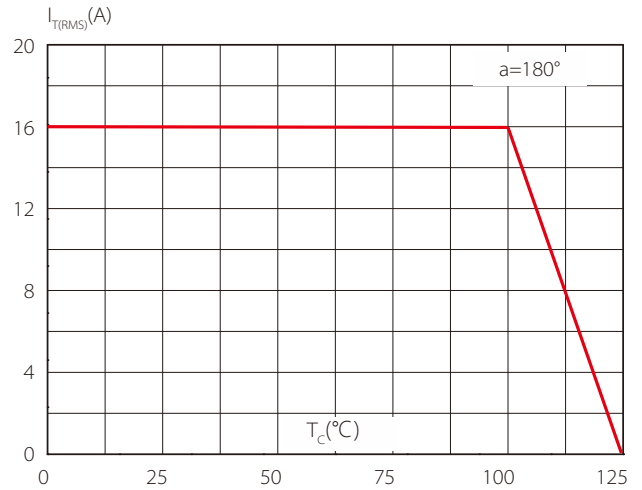


FIG.3: Surge peak on-state current versus number of cycles

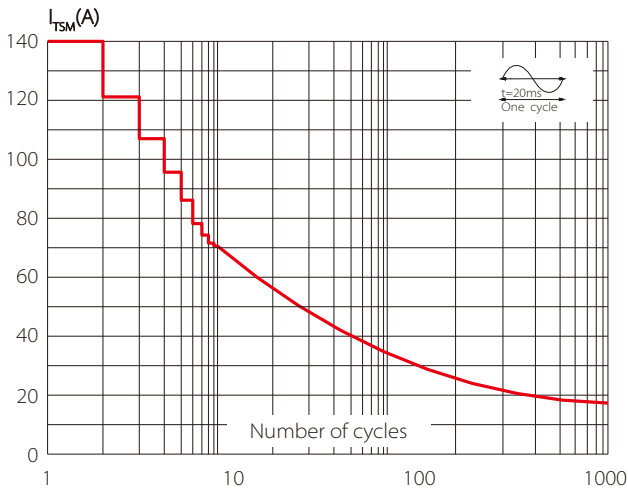


FIG.4 On-state characteristics (maximum values)

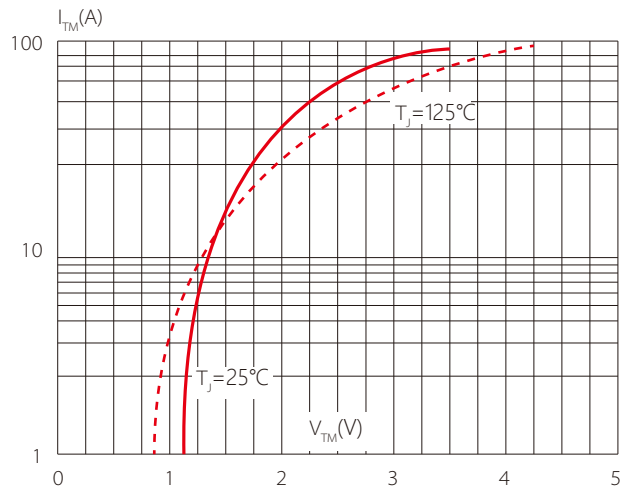


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t (I - II - III: $dI/dt < 50\text{A}/\mu\text{s}$; IV: $dI/dt < 10\text{A}/\mu\text{s}$)

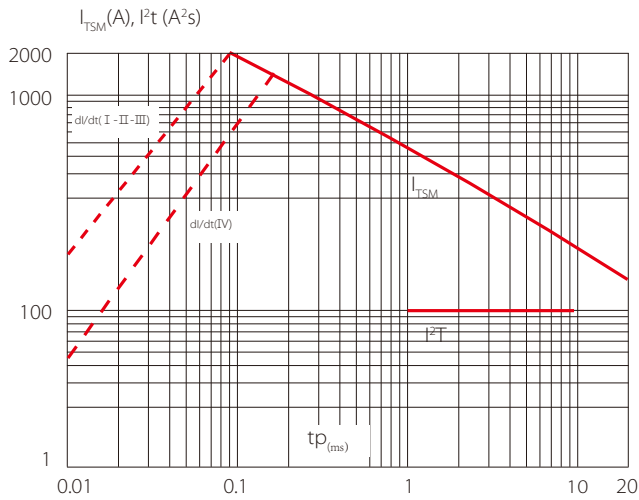


FIG.6 Relative variations of gate trigger current versus junction temperature

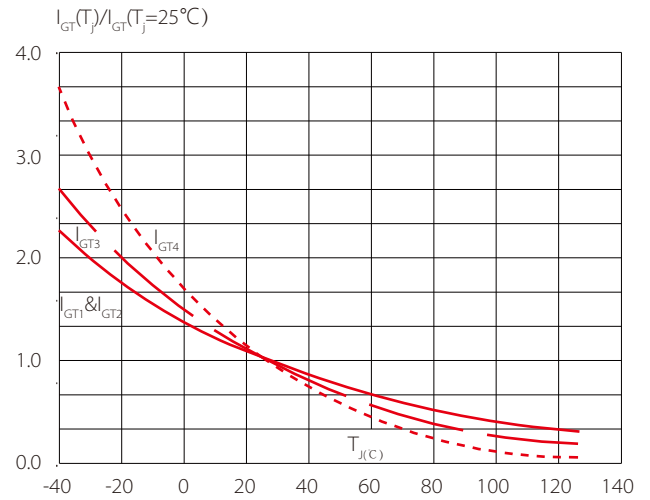


FIG.7 Relative variations of holding current versus junction temperature

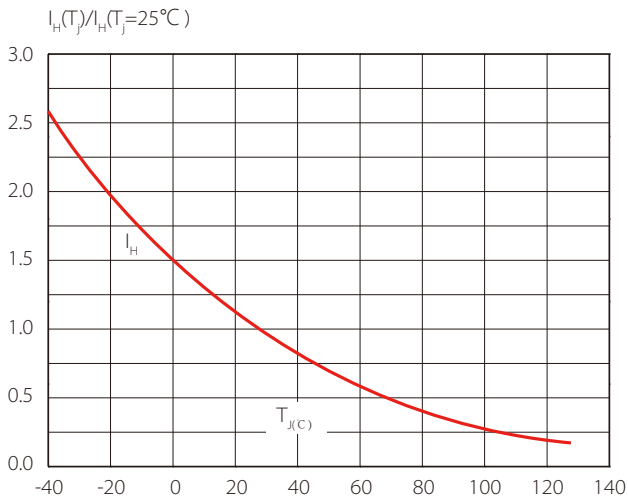
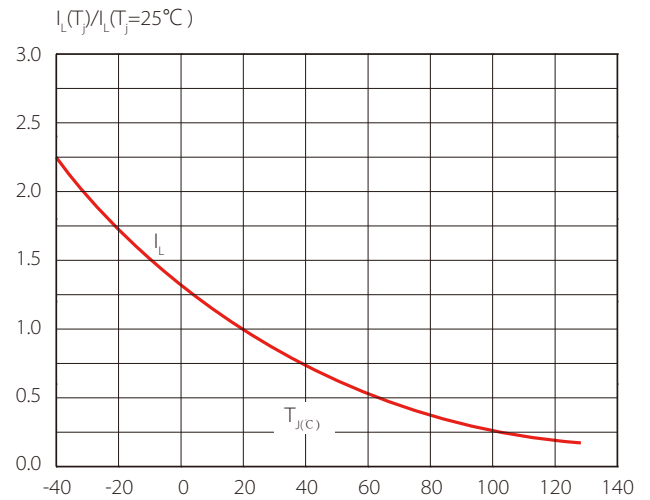
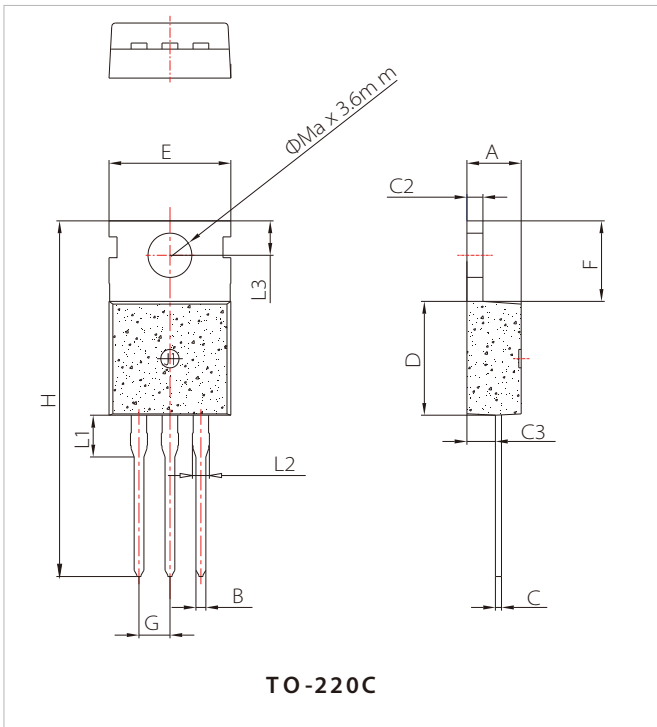


FIG.8 Relative variations of latching current versus junction temperature



PACKAGE MECHANICAL DATA



| Ref. | Dimensions | | | | | |
|------|------------------|------|------|--------|-------|-------|
| | Ref. Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.40 | | 4.60 | 0.173 | | 0.181 |
| B | 0.70 | | 0.90 | 0.028 | | 0.035 |
| C | 0.45 | | 0.60 | 0.018 | | 0.024 |
| C2 | 1.23 | | 1.32 | 0.048 | | 0.052 |
| C3 | 2.20 | | 2.60 | 0.087 | | 0.102 |
| D | 8.90 | | 9.90 | 0.350 | | 0.390 |
| E | 9.90 | | 10.3 | 0.390 | | 0.406 |
| F | 6.30 | | 6.90 | 0.248 | | 0.272 |
| G | | 2.54 | | | 0.1 | |
| H | 28.0 | | 29.8 | 1.102 | | 1.173 |
| L1 | | 3.39 | | | 0.133 | |
| L2 | 1.14 | | 1.70 | 0.045 | | 0.067 |
| L3 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| Φ | | 3.6 | | | 0.142 | |

ORDERING INFORMATION

| Part Number | Package | Qty/pcs | | |
|-----------------------|---------|---------|-----------|--------|
| | | Tube | Inner Box | Carton |
| BT139-600/800D(E/F/B) | TO-220C | 50 | 1000 | 5000 |

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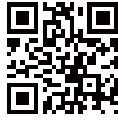
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Ext: 8868
Email: cs03@semiware.com

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Website



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