

TRIACs, 80A Snubberless

FEATURES

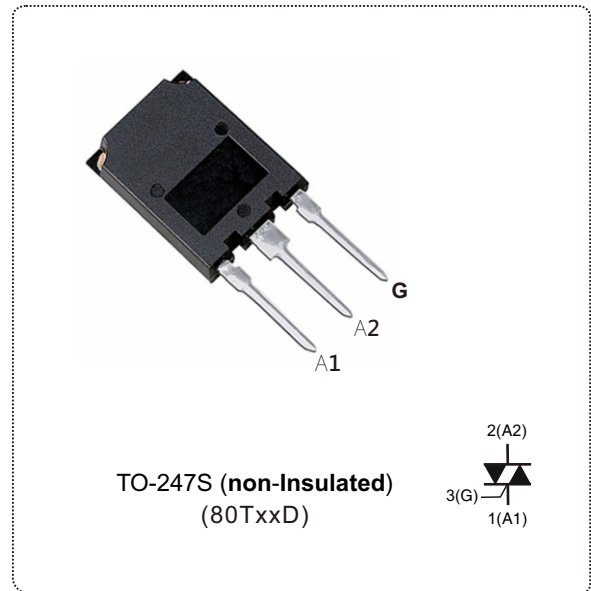
- High current triac
- Low thermal resistance with clip bonding
- Low thermal resistance for TO-247S (Super TO-247) package
- High commutation capability
- 80T series are **UL** certified (File ref: E320098)
- Packages are RoHS compliant

APPLICATIONS

The snubberless concept offer suppression of RC network and it is suitable for applications such as on/off function in static relays, heating regulation, induction motor starting circuits, phase control operation in light dimmers, motor speed controllers, and similar.

Due to their clip assembly technique, they provide a superior performance in surge current handling capabilities.

80T series are 3 Quadrants triacs. They are specially recommended for use on inductive loads.



MAIN FEATURES

| SYMBOL | VALUE | UNIT |
|-------------------|--------------|------|
| $I_{T(RMS)}$ | 80 | A |
| V_{DRM}/V_{RRM} | 1000 to 1600 | V |
| $I_{GT(Q1)}$ | 35 to 50 | mA |

ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUE | UNIT |
|--|--------------|--|---------------------------|---------------|------------------------|
| RMS on-state current (full sine wave) | $I_{T(RMS)}$ | | $T_c = 70^\circ\text{C}$ | 80 | A |
| Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C) | I_{TSM} | F = 50 Hz | t = 10 ms | 800 | A |
| | | F = 60 Hz | t = 8.3 ms | 838 | |
| I^2t Value for fusing | I^2t | $t_p = 10$ ms | t = 10 ms | 3200 | A^2s |
| Critical rate of rise of on-state current $I_G = 2xI_{GT}$, $t_r \leq 100$ ns | dI/dt | F = 120 Hz, $I_G = 2xI_{GT}$, $t_r \leq 100$ ns | $T_j = 125^\circ\text{C}$ | 100 | $\text{A}/\mu\text{s}$ |
| Peak gate current | I_{GM} | $T_p = 20$ μs | $T_j = 125^\circ\text{C}$ | 8 | A |
| Peak gate power dissipation | P_{GM} | $T_p = 20$ μs | $T_j = 125^\circ\text{C}$ | 10 | |
| Average gate power dissipation | $P_{G(AV)}$ | | $T_j = 125^\circ\text{C}$ | 2 | |
| Storage temperature range | T_{stg} | | | - 40 to + 150 | $^\circ\text{C}$ |
| Operating junction temperature range | T_j | | | - 40 to + 125 | |

© ELECTRICAL CHARACTERISTICS (T_J= 25 °C unless otherwise specified)

| SNUBBERLESS and Logic level (3 quadrants) | | | | | |
|---|---|--------------|------|--------|------|
| SYMBOL | TEST CONDITIONS | QUADRANT | | 80TxxD | Unit |
| | | | | BW | |
| I _{GT} ⁽¹⁾ | V _D = 12 V, R _L = 33Ω | I - II - III | MAX. | 50 | mA |
| V _{GT} | | I - II - III | | 1.3 | V |
| V _{GD} | V _D = V _{DRM} , R _L = 3.3KΩ T _j = 125 °C | I - II - III | MIN. | 0.2 | V |
| I _H ⁽²⁾ | I _T = 500 mA | | MAX. | 60 | mA |
| I _L | I _G = 1.2 I _{GT} | I - III | MAX. | 80 | mA |
| | | II | | 120 | |
| dV/dt ⁽²⁾ | V _D = 67% V _{DRM} , gate open, T _j = 125 °C | | MIN. | 1000 | V/μs |
| (dI/dt) ⁽²⁾ | Without snubber, T _j = 125 °C | | | 20 | A/ms |

| STATIC CHARACTERISTICS | | | | | | |
|--------------------------------------|--|-------------------------|--|-------|------|----|
| SYMBOL | TEST CONDITIONS | | | VALUE | UNIT | |
| V _{TM} ⁽²⁾ | I _{TM} = 120 A, t _p = 380 μs | T _j = 25 °C | | MAX. | 1.75 | V |
| V _{t0} ⁽²⁾ | Threshold voltage | T _j = 125 °C | | MAX. | 0.92 | V |
| R _d ⁽²⁾ | Dynamic resistance | T _j = 125 °C | | MAX. | 8.8 | mΩ |
| I _{DRM} I _{RRM} | V _D = V _{DRM} V _R = V _{RRM} | T _j = 25 °C | | MAX. | 50 | μA |
| | | T _j = 125 °C | | | 10 | mA |

Note 1: Minimum I_{GT} is guaranteed at 5% of I_{GT} max.

Note 2: For both polarities of A2 referenced to A1.

| THERMAL RESISTANCE | | | | | |
|----------------------|-----------------------|---------|--|-------|------|
| SYMBOL | | | | VALUE | UNIT |
| R _{th(j-c)} | Junction to case (AC) | | | 0.35 | °C/W |
| R _{th(j-a)} | Junction to ambient | TO-247S | | 40 | |

| PRODUCT SELECTOR | | | | | | |
|------------------|--------------|--------|--------|-------------|-------------|---------|
| PART NUMBER | VOLTAGE (xx) | | | SENSITIVITY | TYPE | PACKAGE |
| | 1000 V | 1200 V | 1600 V | | | |
| 80TxxD-BW | V | V | V | 50 mA | Snubberless | TO-247S |

| ORDERING INFORMATION | | | | | |
|----------------------|-----------|---------|--------|-----------|---------------|
| ORDERING TYPE | MARKING | PACKAGE | WEIGHT | BASE Q'TY | DELIVERY MODE |
| 80TxxD-yy | 80TxxD-yy | TO-247S | 6.5g | 30 | Tube |

Note: xx = voltage, yy = sensitivity

ORDERING INFORMATION SCHEME

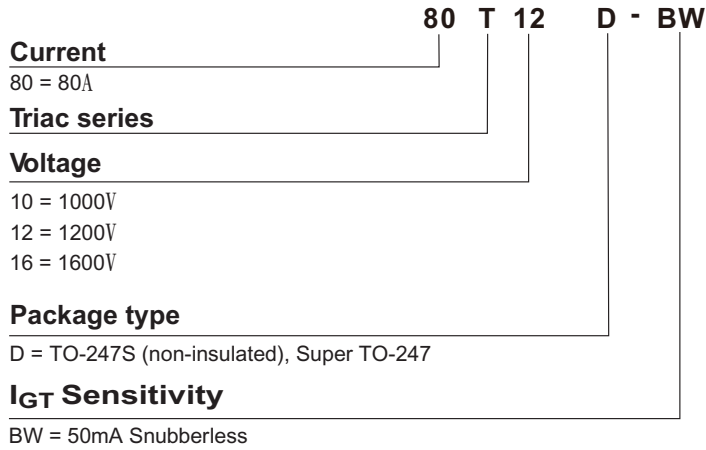


Fig.1 Maximum power dissipation versus on-state RMS current (full cycle)

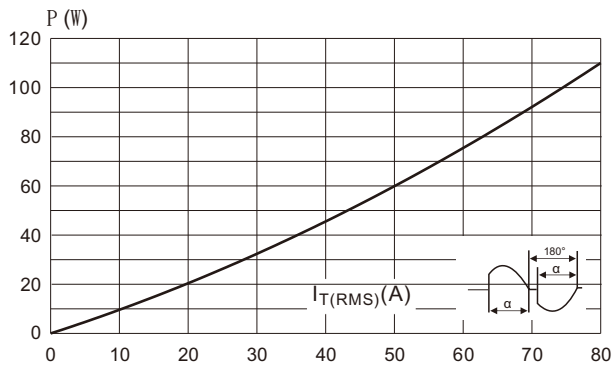


Fig.2 On-state rms current versus case temperature (full cycle)

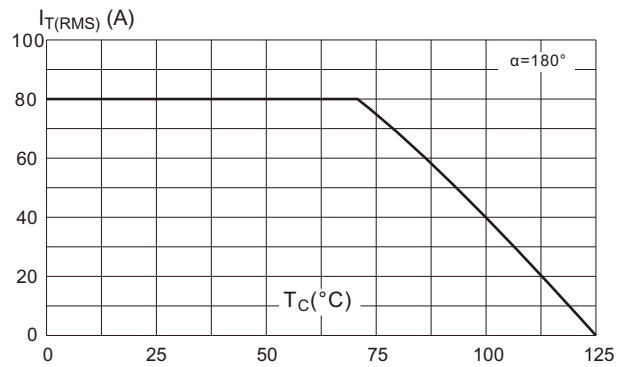


Fig.3 On-state characteristics (maximum values).

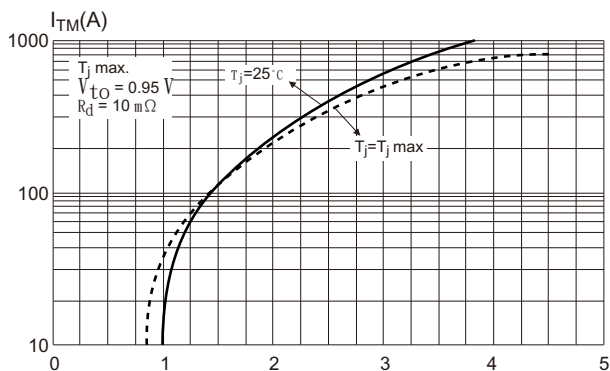


Fig.4 Surge peak on-state current versus number of cycles.

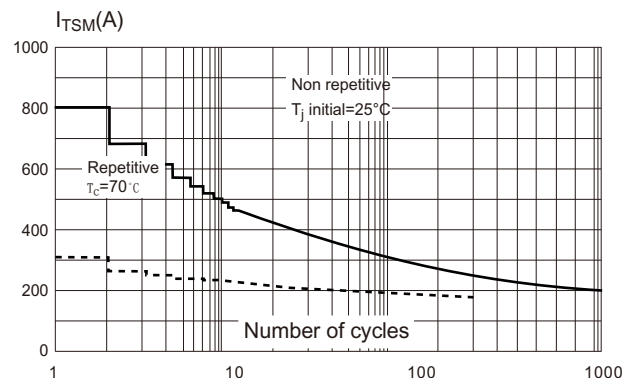


Fig.5 Non-repetitive surge peak on-state current for a sinusoidal pulse and corresponding value of I^2t .

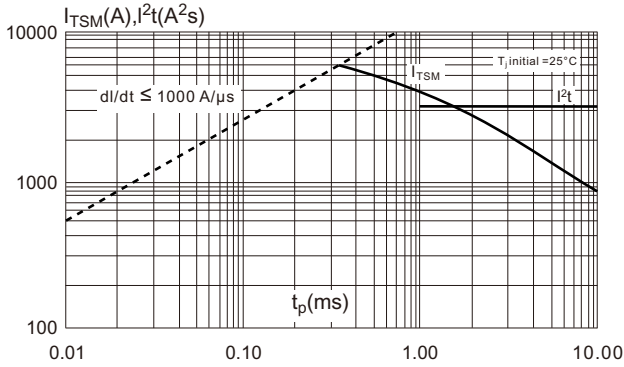
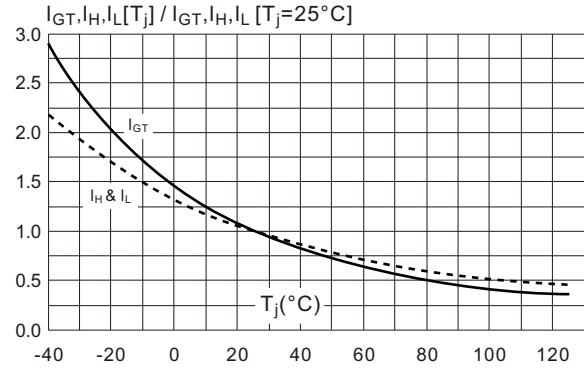


Fig.6 Relative variation of gate trigger, holding and latching current versus junction temperature (typical values)



Case Style

