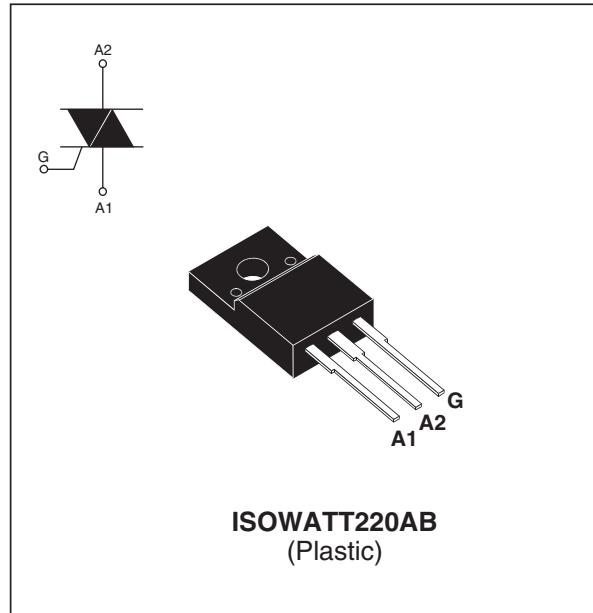


8A SNUBBERLESS™ TRIAC
MAIN FEATURES

| Symbol | Value | Unit |
|-------------------|-------------|------|
| $I_{T(RMS)}$ | 8 | A |
| V_{DRM}/V_{RRM} | 600 and 800 | V |
| I_{GT} | 20 to 30 | mA |

DESCRIPTION

Based on ST' Snubberless technology providing high commutation performances, the T820-600W/800W are specially recommended for use on inductive loads, thanks to their high commutation performances, such as washing-machines drum motor controllers. They comply with UL standards (ref. E81734).


ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | | Value | Unit | |
|--------------------|--|------------|--------------------------------|--------------------------------|------------------|
| $I_{T(RMS)}$ | RMS on-state current (Full sine wave) | | $T_c = 100^\circ\text{C}$ 8 | A | |
| I_{TSM} | Non repetitive surge peak on-state current (Full cycle, T_j initial = 25°C) | F = 50Hz | t = 20ms | 100 | A |
| | | F = 60Hz | t = 16.7ms | 105 | |
| I^2t | I^2t Value for fusing | tp = 10 ms | | 55 | A ² s |
| di/dt | Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, tr ≤ 100ns | F = 120 Hz | $T_j = 125^\circ\text{C}$ | 50 | A/μs |
| V_{DSM}/V_{RSM} | Non repetitive surge peak off-state voltage | tp = 10ms | $T_j = 25^\circ\text{C}$ | $V_{DRM}/V_{RRM} + 100$ | V |
| I_{GM} | Peak gate current | tp = 20μs | $T_j = 125^\circ\text{C}$ | 4 | A |
| $P_{G(AV)}$ | Average gate power dissipation | | $T_j = 125^\circ\text{C}$ | 1 | W |
| T_{stg} T_j | Storage junction temperature range Operating junction temperature range | | | - 40 to + 150 - 40 to + 125 | °C |

T820W / T830W

ELECTRICAL CHARACTERISTICS (T_j = 25°C, unless otherwise specified)

| Symbol | Test Conditions | Quadrant | | T820 | T830 | Unit |
|-------------------------------------|---|----------|------|------|------|------|
| I _{GT} ⁽¹⁾ | V _D =12V R _L =33Ω | I-II-III | MAX. | 20 | 30 | mA |
| V _{GT} | | I-II-III | MAX. | 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 = 250mA | | MAX. | 35 | 50 | mA |
| I _L | I _G = 1.2I _{GT} | I - III | MAX. | 50 | 70 | mA |
| | | II | MAX. | 60 | 80 | mA |
| dV/dt ⁽²⁾ | V _D =67% V _{DRM} Gate open T _j = 125°C | | MIN. | 300 | 500 | V/μs |
| (dI/dt) _c ⁽²⁾ | Without snubber T _j = 125°C | | MIN. | 4.5 | 5.5 | A/ms |

STATIC CHARACTERISTICS

| Symbol | Test Conditions | | | Value | Unit |
|--------------------------------------|--|---|------|--------|----------|
| V _{TM} ⁽²⁾ | I _{TM} = 11A t _p = 380μs | T _j = 25°C | MAX. | 1.4 | V |
| V _{TO} ⁽²⁾ | Threshold voltage | T _j = 125°C | MAX. | 0.85 | V |
| R _d ⁽²⁾ | Dynamic resistance | T _j = 125°C | MAX. | 40 | mΩ |
| I _{DRM} I _{RRM} | V _{DRM} = V _{RRM} | T _j = 25°C T _j = 125°C | MAX | 5 1 | μA mA |

Note 1: Minimum IGT is guaranteed at 5% of IGT max.

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

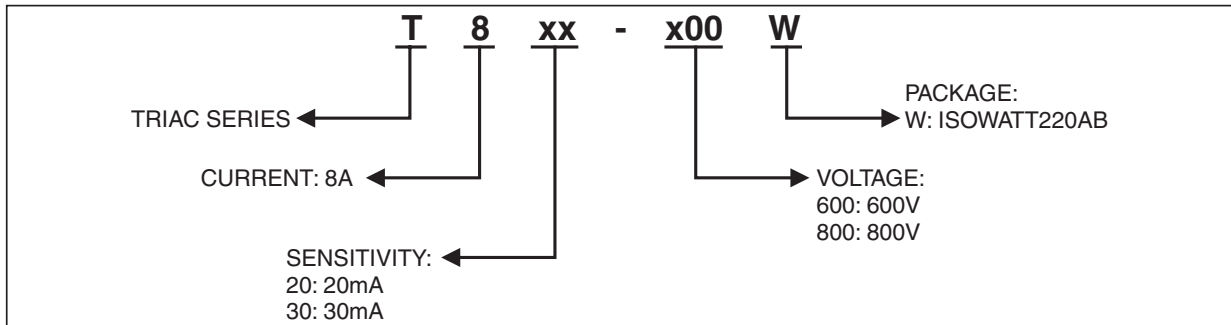
THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|----------------------|-----------------------|-------|------|
| R _{th(j-a)} | Junction to ambient | 60 | °C/W |
| R _{th(j-c)} | Junction to case (AC) | 3.1 | °C/W |

PRODUCT SELECTOR

| Part Number | Voltage | Sensitivity | Type | Package |
|-------------|---------|-------------|-------------|--------------|
| T820-600W | 600V | 20 mA | Snubberless | ISOWATT220AB |
| T820-800W | 800V | 20 mA | Snubberless | ISOWATT220AB |
| T830-600W | 600V | 30 mA | Snubberless | ISOWATT220AB |
| T830-800W | 800V | 30 mA | Snubberless | ISOWATT220AB |

ORDERING INFORMATION



OTHER INFORMATION

| Part Number | Marking | Weight | Base quantity | Packing mode |
|-------------|----------|--------|---------------|--------------|
| T820-600W | T820600W | 2.3 g | 50 | Tube |
| T820-800W | T820800W | 2.3 g | 50 | Tube |
| T830-600W | T830600W | 2.3 g | 50 | Tube |
| T830-800W | T830800W | 2.3 g | 50 | Tube |

Fig. 1: Maximum power dissipation versus RMS on-state current.

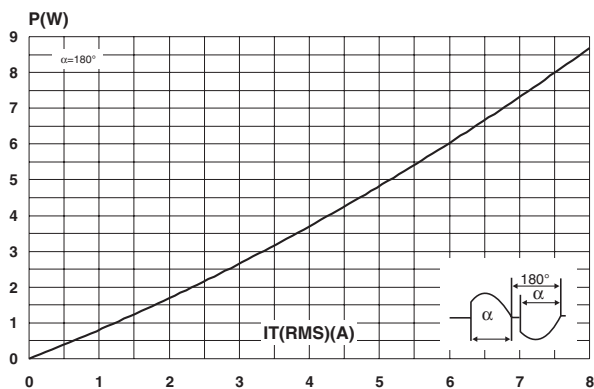


Fig. 3: Relative variation of thermal impedance versus pulse duration.

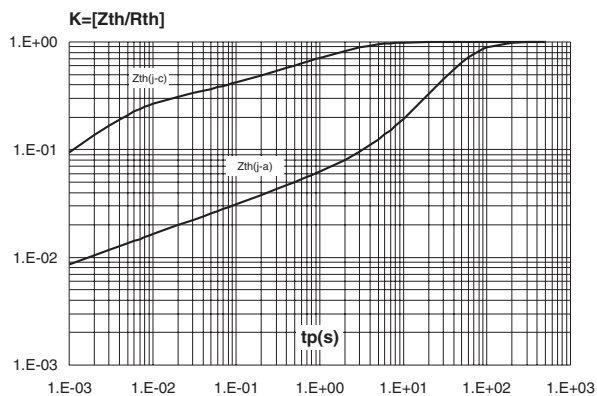


Fig. 2: RMS on-state current versus case temperature.

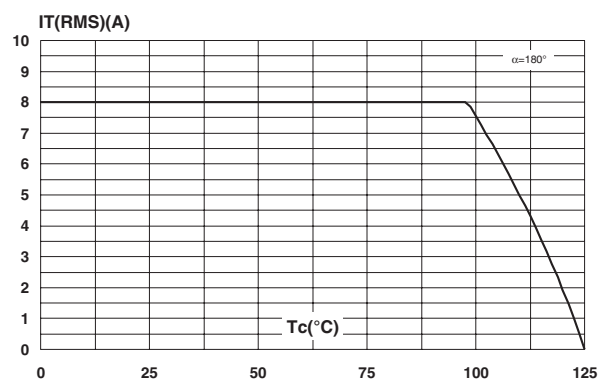


Fig. 4: On-state characteristics (maximum values).

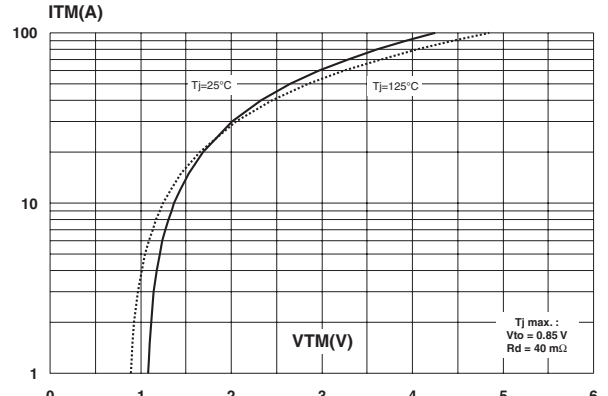


Fig. 5: Surge peak on-state current versus number of cycles.

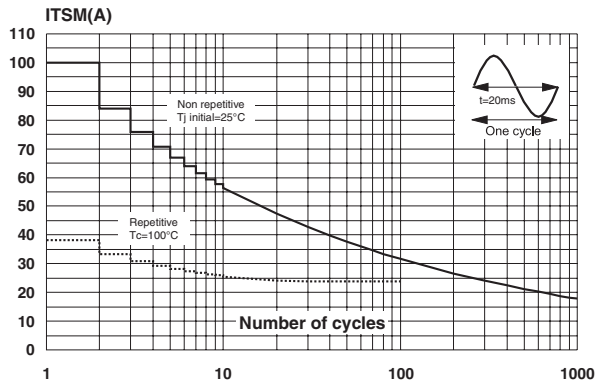


Fig. 7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

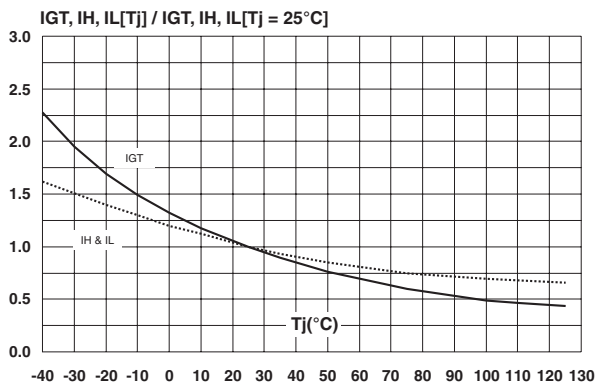


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature.

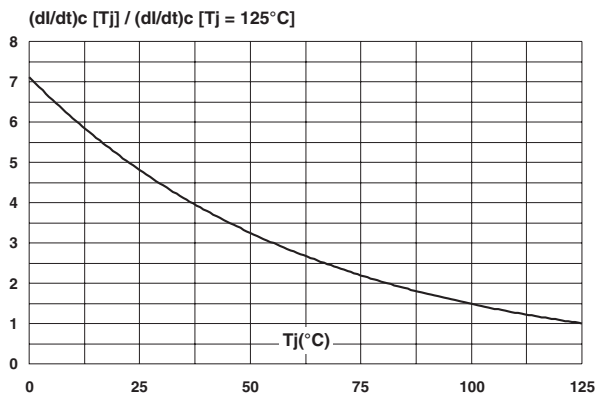


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

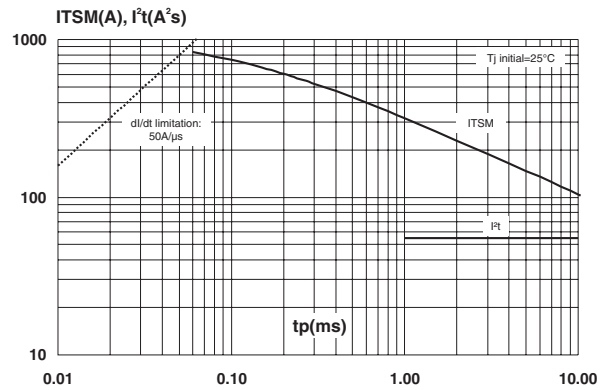
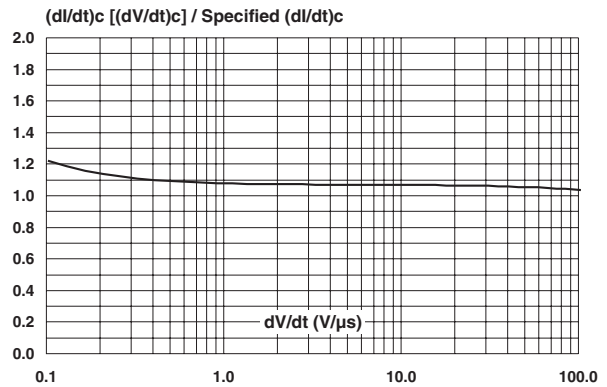
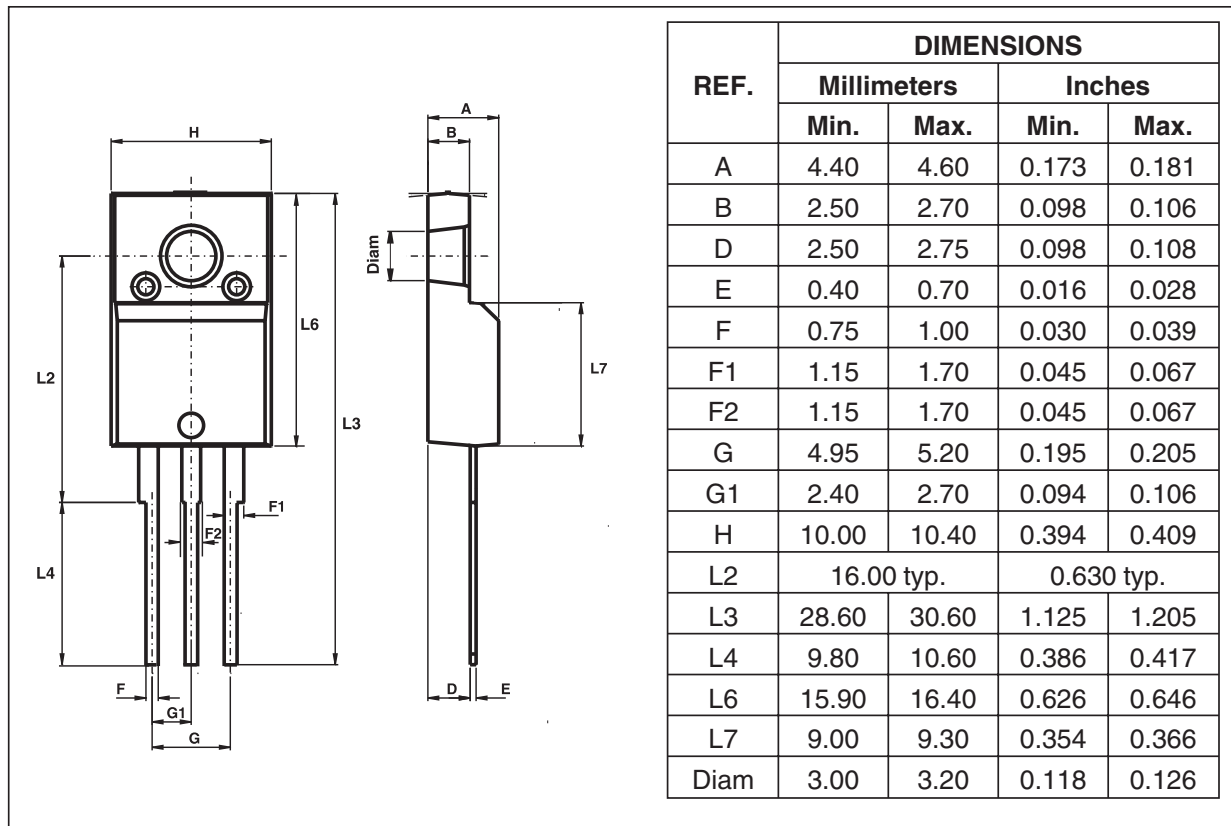


Fig. 8: Relative variation of critical rate of decrease of main current versus reapplied dV/dt (typical values).



PACKAGE MECHANICAL DATA
 ISOWATT220AB


- Cooling method : C
- Recommended torque value : 0.55 m.N.
- Maximum torque value : 0.70 m.N.

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