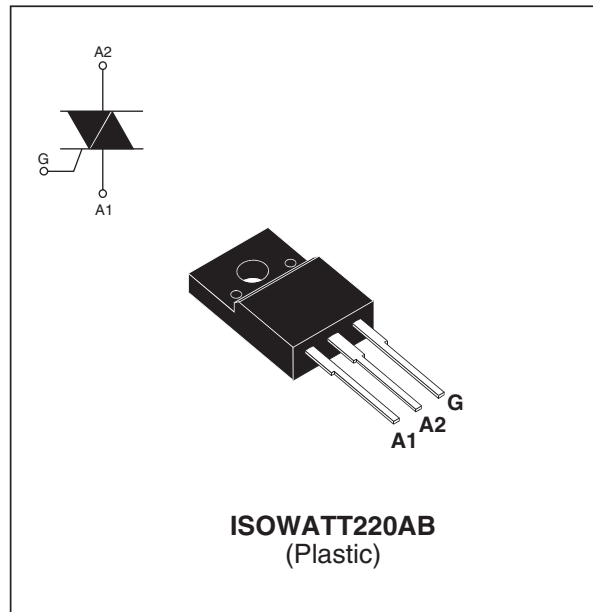


**16A SNUBBERLESS™ TRIAC**
**MAIN FEATURES**

| Symbol            | Value       | Unit |
|-------------------|-------------|------|
| $I_{T(RMS)}$      | 16          | 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 T1620-600W/800W & T1630-600W/800W are specially recommended for use on inductive loads, thanks to their high commutation performances, such as vacuum cleaners, heating regulation. 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)  |            | $T_c = 80^\circ\text{C}$  | 16 A                              |
| $I_{TSM}$          | Non repetitive surge peak on-state current (Full cycle, $T_j$ initial = $25^\circ\text{C}$ ) | F = 50Hz   | t = 20ms                  | 200 A                             |
|                    |  | F = 60Hz   | t = 16.7ms                | 218 A                             |
| $I^2t$             | $I^2t$ Value for fusing  | tp = 10 ms |                           | 220 A <sup>2</sup> s              |
| di/dt              | Critical rate of rise of on-state current<br>$I_G = 2 \times I_{GT}$ , 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                               |
| $T_{stg}$<br>$T_j$ | Storage junction temperature range<br>Operating junction temperature range                   |            |                           | - 40 to + 150<br>- 40 to + 125 °C |

## T820W / T830W

### ELECTRICAL CHARACTERISTICS (T<sub>j</sub> = 25°C, unless otherwise specified)

| Symbol                              | Test Conditions   | Quadrant |      | T1620 | T1630 | Unit |
|-------------------------------------|---|----------|------|-------|-------|------|
| I <sub>GT</sub> <sup>(1)</sup>      | V <sub>D</sub> =12V R <sub>L</sub> =30Ω                                       | I-II-III | MAX. | 20    | 30    | mA   |
| V <sub>GT</sub>                     |   | I-II-III | MAX. | 1.3   |       | V    |
| V <sub>GD</sub>                     | V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3kΩ T <sub>j</sub> = 125°C | I-II-III | MIN. | 0.2   |       | V    |
| I <sub>H</sub> <sup>(2)</sup>       | I <sub>T</sub> = 250mA  |          | MAX. | 35    | 50    | mA   |
| I <sub>L</sub>                      | I <sub>G</sub> = 1.2I <sub>GT</sub>   | I - III  | MAX. | 70    | 80    | mA   |
|                                     |   | II       | MAX. | 80    | 100   | mA   |
| dV/dt <sup>(2)</sup>                | V <sub>D</sub> =67% V <sub>DRM</sub> Gate open T <sub>j</sub> = 125°C         |          | MIN. | 300   | 500   | V/μs |
| (dI/dt) <sub>c</sub> <sup>(2)</sup> | Without snubber T <sub>j</sub> = 125°C  |          | MIN. | 8.5   | 11    | A/ms |

### STATIC CHARACTERISTICS

| Symbol                               | Test Conditions                     |            |   | Value | Unit   |          |
|--------------------------------------|-------------------------------------|------------|---|-------|--------|----------|
| V <sub>TM</sub> <sup>(2)</sup>       | I <sub>TM</sub> = 22.5 A            | tp = 380μs | T <sub>j</sub> = 25°C                           | MAX.  | 1.4    | V        |
| V <sub>TO</sub> <sup>(2)</sup>       | Threshold voltage                   |            | T <sub>j</sub> = 125°C                          | MAX.  | 0.85   | V        |
| R <sub>d</sub> <sup>(2)</sup>        | Dynamic resistance                  |            | T <sub>j</sub> = 125°C                          | MAX.  | 20     | mΩ       |
| I <sub>DRM</sub><br>I <sub>RRM</sub> | V <sub>DRM</sub> = V <sub>RRM</sub> |            | T <sub>j</sub> = 25°C<br>T <sub>j</sub> = 125°C | MAX   | 5<br>1 | μA<br>mA |

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

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

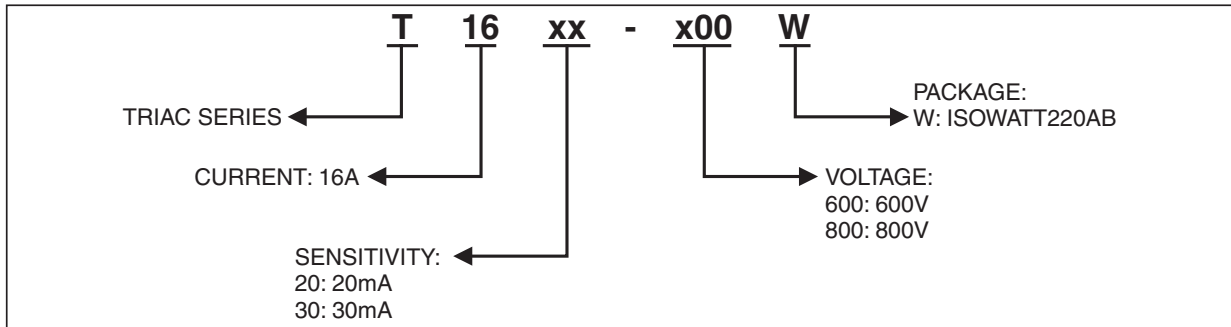
### THERMAL RESISTANCES

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

### PRODUCT SELECTOR

| Part Number | Voltage | Sensitivity | Type        | Package      |
|-------------|---------|-------------|-------------|--------------|
| T1620-600W  | 600V    | 20 mA       | Snubberless | ISOWATT220AB |
| T1620-800W  | 800V    | 20 mA       | Snubberless | ISOWATT220AB |
| T1630-600W  | 600V    | 30 mA       | Snubberless | ISOWATT220AB |
| T1630-800W  | 800V    | 30 mA       | Snubberless | ISOWATT220AB |

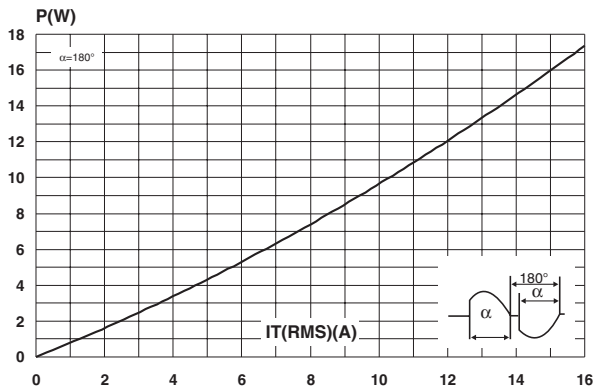
**ORDERING INFORMATION**



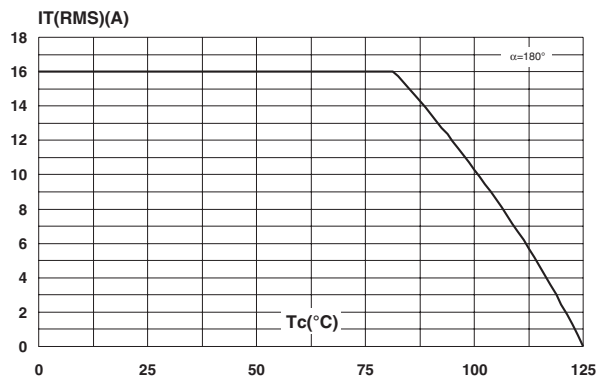
**OTHER INFORMATION**

| Part Number | Marking   | Weight | Base quantity | Packing mode |
|-------------|-----------|--------|---------------|--------------|
| T1620-600W  | T1620600W | 2.3 g  | 50            | Tube         |
| T1620-800W  | T1620800W | 2.3 g  | 50            | Tube         |
| T1630-600W  | T1630600W | 2.3 g  | 50            | Tube         |
| T1630-800W  | T1630800W | 2.3 g  | 50            | Tube         |

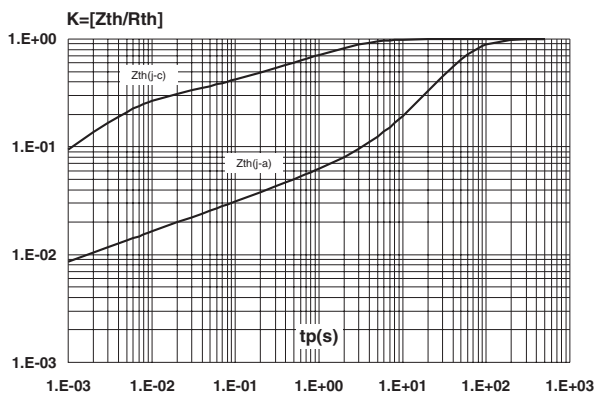
**Fig. 1:** Maximum power dissipation versus RMS on-state current.



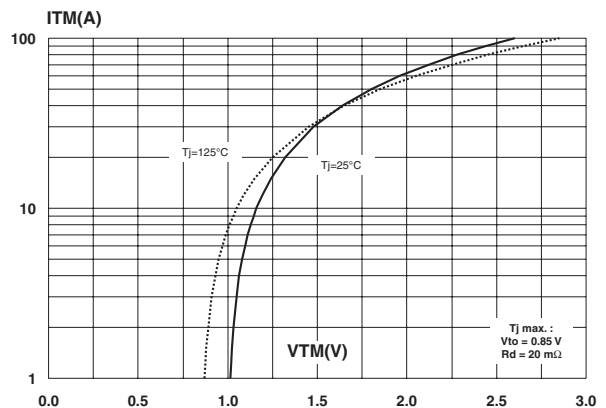
**Fig. 2:** RMS on-state current versus case temperature.



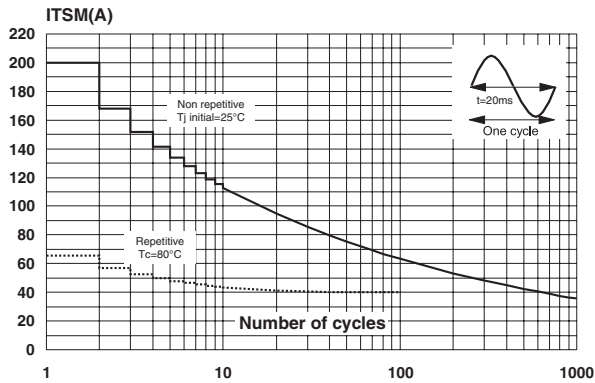
**Fig. 3:** Relative variation of thermal impedance versus pulse duration.



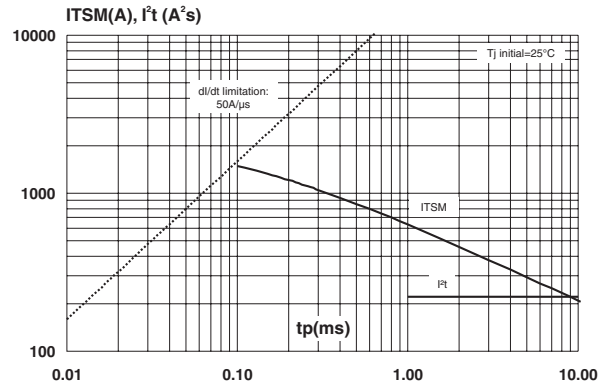
**Fig. 4:** On-state characteristics (maximum values).



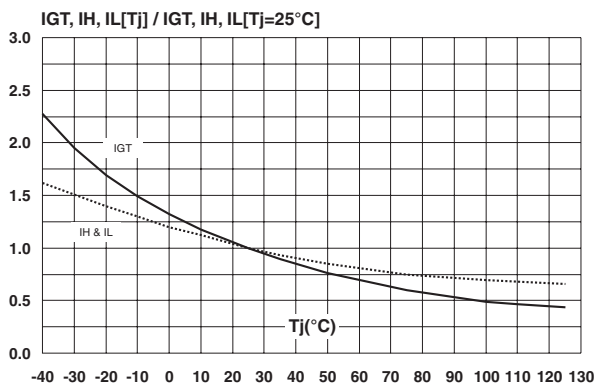
**Fig. 5:** Surge peak on-state current versus number of cycles.



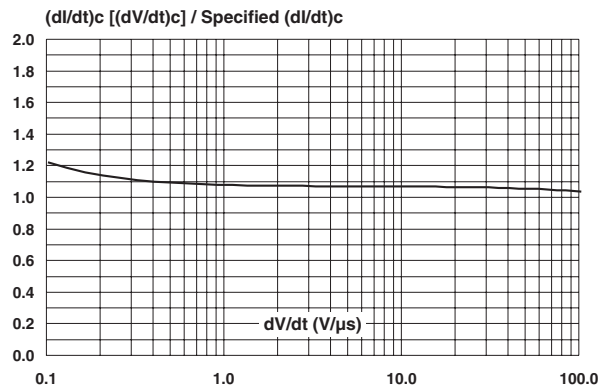
**Fig. 6:** Non repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$ .



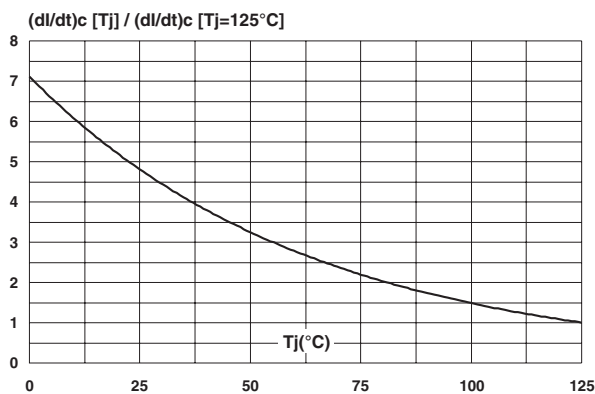
**Fig. 7:** Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

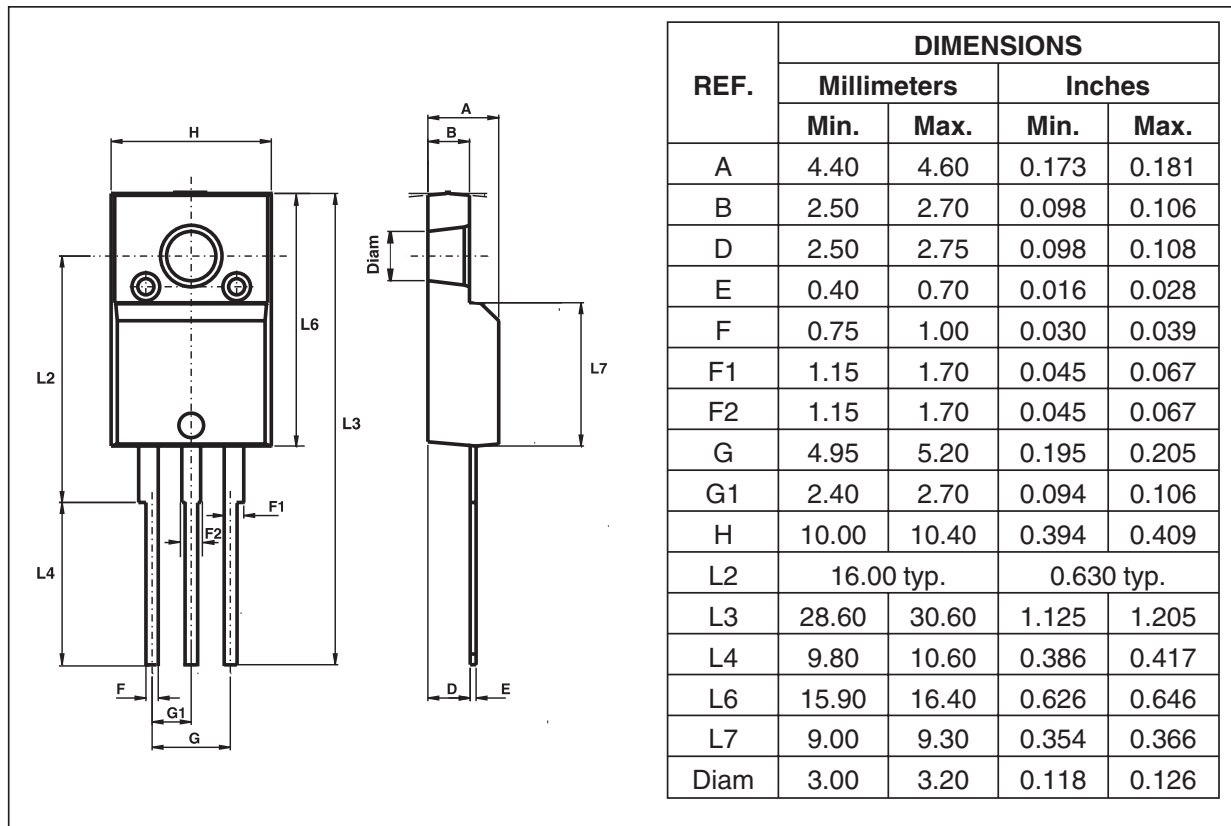


**Fig. 8:** Relative variation of critical rate of decrease of main current versus reapplied  $dV/dt$  (typical values).



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



**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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