

**THERMAL RESISTANCES**

| Symbol       | Parameter                                             | Value | Unit |
|--------------|-------------------------------------------------------|-------|------|
| Rth (j-c) DC | Junction to case for DC                               | 1.5   | °C/W |
| Rth (j-c) AC | Junction to case for 360° conduction angle (F= 50 Hz) | 1.1   | °C/W |

**GATE CHARACTERISTICS** (maximum values)

$P_G$  (AV) = 1W     $P_{GM}$  = 40W (tp = 20 μs)     $I_{GM}$  = 8A (tp = 20 μs)     $V_{GM}$  = 16V (tp = 20 μs).

**ELECTRICAL CHARACTERISTICS**

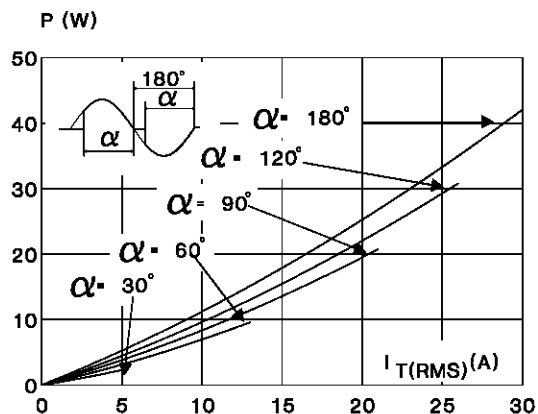
| Symbol                               | Test Conditions                                                                        |                       | Quadrant    |     | Suffix |     | Unit |
|--------------------------------------|----------------------------------------------------------------------------------------|-----------------------|-------------|-----|--------|-----|------|
|                                      |                                                                                        |                       |             |     | A      | B   |      |
| I <sub>GT</sub>                      | V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω                                           | T <sub>j</sub> =25°C  | I-II-III    | MAX | 100    | 50  | mA   |
|                                      |                                                                                        |                       | IV          | MAX | 150    | 100 |      |
| V <sub>GT</sub>                      | V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω                                           | T <sub>j</sub> =25°C  | I-II-III-IV | MAX | 1.5    |     | 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-IV | MIN | 0.2    |     | V    |
| tgt                                  | V <sub>D</sub> =V <sub>DRM</sub> I <sub>G</sub> = 500mA<br>dI <sub>G</sub> /dt = 3A/μs | T <sub>j</sub> =25°C  | I-II-III-IV | TYP | 2.5    |     | μs   |
| I <sub>L</sub>                       | I <sub>G</sub> =1.2 I <sub>GT</sub>                                                    | T <sub>j</sub> =25°C  | I-III-IV    | TYP | 70     | 60  | mA   |
|                                      |                                                                                        |                       | II          |     | 200    | 180 |      |
| I <sub>H</sub> *                     | I <sub>T</sub> = 500mA gate open                                                       | T <sub>j</sub> =25°C  |             | MAX | 100    | 80  | mA   |
| V <sub>TM</sub> *                    | I <sub>TM</sub> = 42A tp= 380μs                                                        | T <sub>j</sub> =25°C  |             | MAX | 1.8    |     | V    |
| I <sub>DRM</sub><br>I <sub>RRM</sub> | V <sub>DRM</sub> Rated<br>V <sub>RRM</sub> Rated                                       | T <sub>j</sub> =25°C  |             | MAX | 0.01   |     | mA   |
|                                      |                                                                                        | T <sub>j</sub> =125°C |             | MAX | 6      |     |      |
| dV/dt *                              | Linear slope up to V <sub>D</sub> =67%V <sub>DRM</sub><br>gate open                    | T <sub>j</sub> =125°C |             | MIN | 250    |     | V/μs |
| (dV/dt) <sub>c</sub> *               | (dI/dt) <sub>c</sub> = 13.3A/ms                                                        | T <sub>j</sub> =125°C |             | MIN | 10     |     | V/μs |

\* For either polarity of electrode A2 voltage with reference to electrode A1.

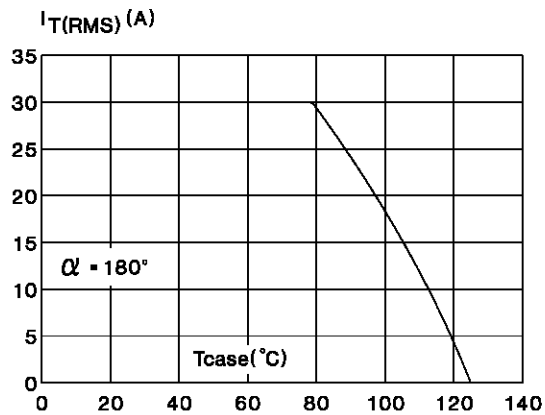
## ORDERING INFORMATION

| Package            | $I_T(\text{RMS})$ | $V_{\text{DRM}} / V_{\text{RRM}}$ | Sensitivity Specification |   |
|--------------------|-------------------|-----------------------------------|---------------------------|---|
|                    | A                 | V                                 | A                         | B |
| BTA<br>(Insulated) | 30                | 400                               | X                         | X |
|                    |                   | 600                               | X                         | X |
|                    |                   | 700                               | X                         | X |
|                    |                   | 800                               | X                         | X |

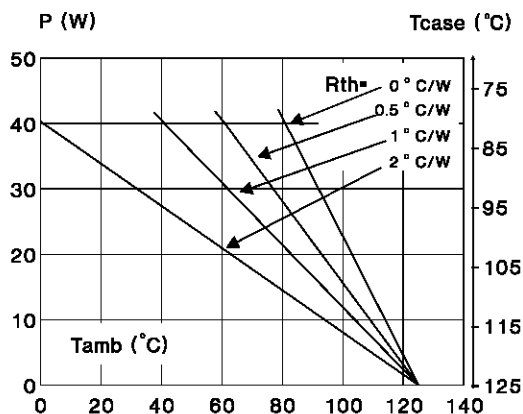
**Fig.1** : Maximum RMS power dissipation versus RMS on-state current ( $F=50\text{Hz}$ ).  
(Curves are cut off by  $(di/dt)_c$  limitation)



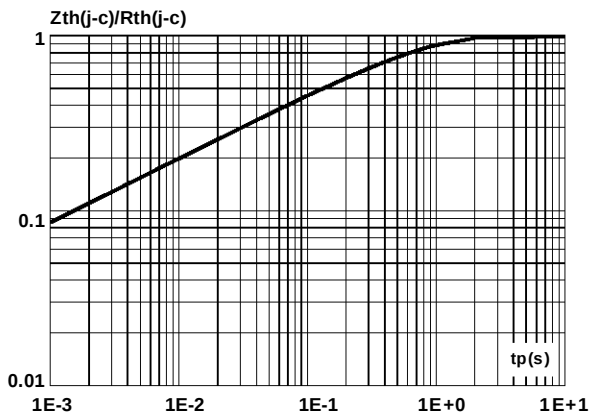
**Fig.3** : RMS on-state current versus case temperature.



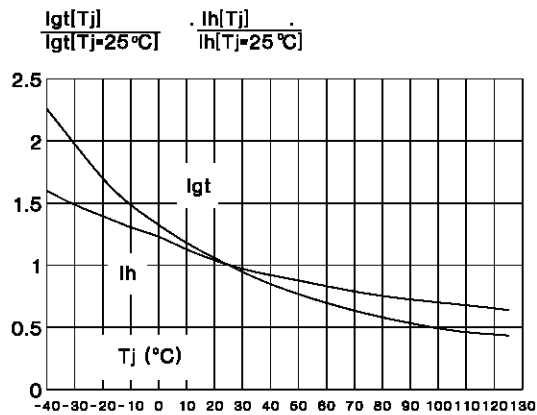
**Fig.2** : Correlation between maximum RMS power dissipation and maximum allowable temperatures ( $T_{\text{amb}}$  and  $T_{\text{case}}$ ) for different thermal resistances heatsink + contact.



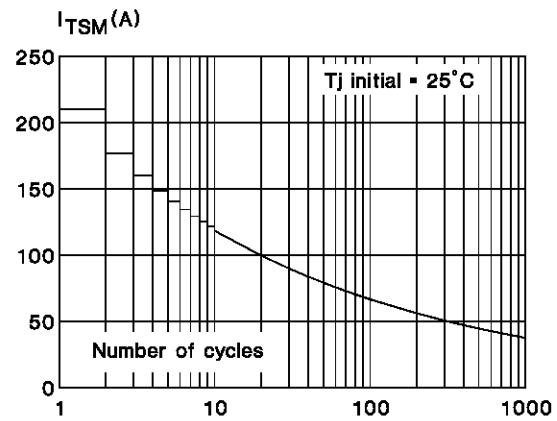
**Fig.4** : Relative variation of thermal impedance junction to case versus pulse duration.



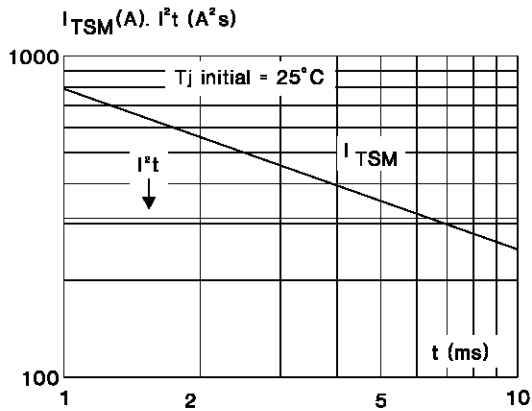
**Fig.5** : Relative variation of gate trigger current and holding current versus junction temperature.



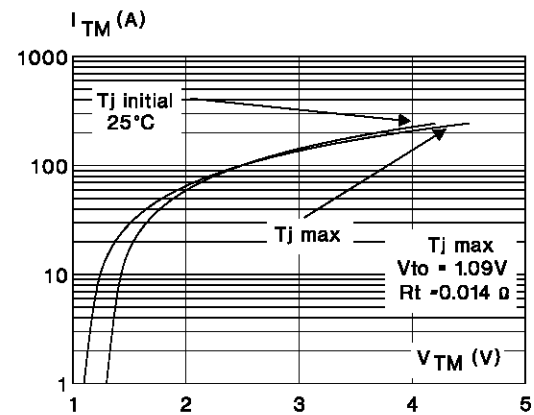
**Fig.6** : Non Repetitive surge peak on-state current versus number of cycles.



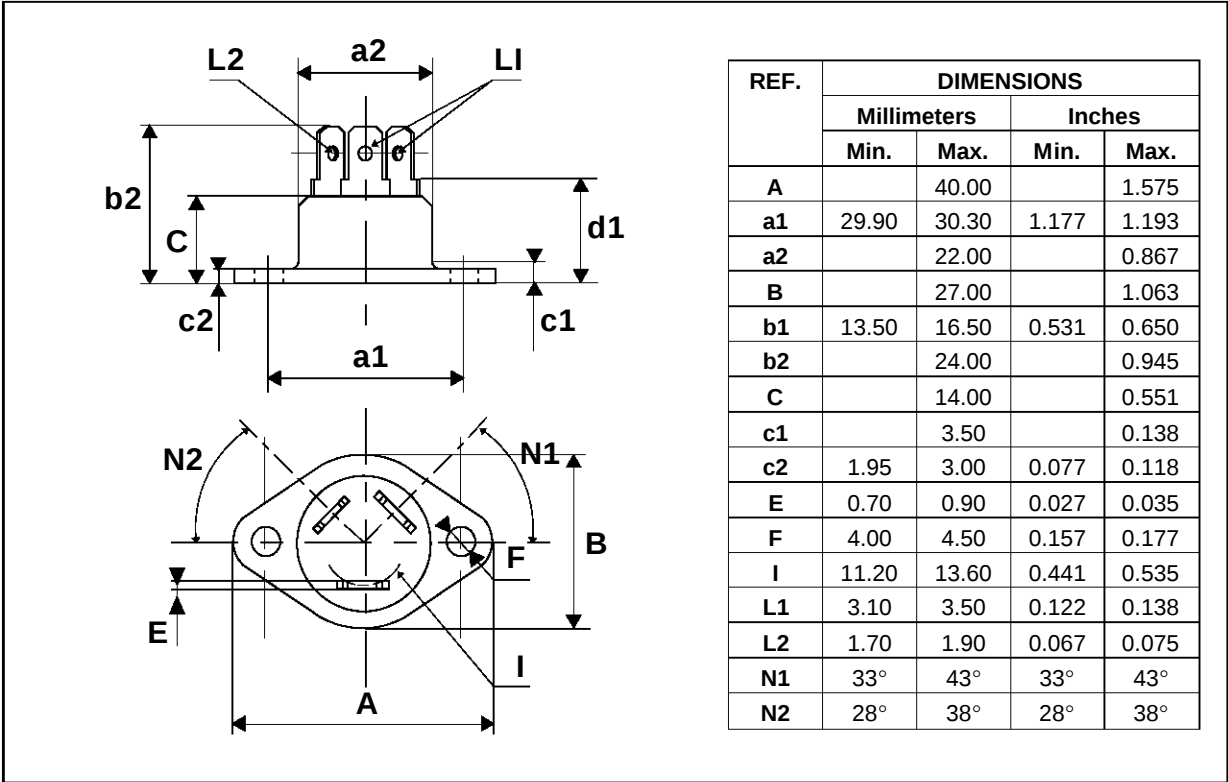
**Fig.7** : Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .



**Fig.8** : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA  
RD91 Plastic



Marking : type number  
Weight : 20 g

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