

**SNUBBERLESS TRIACS**

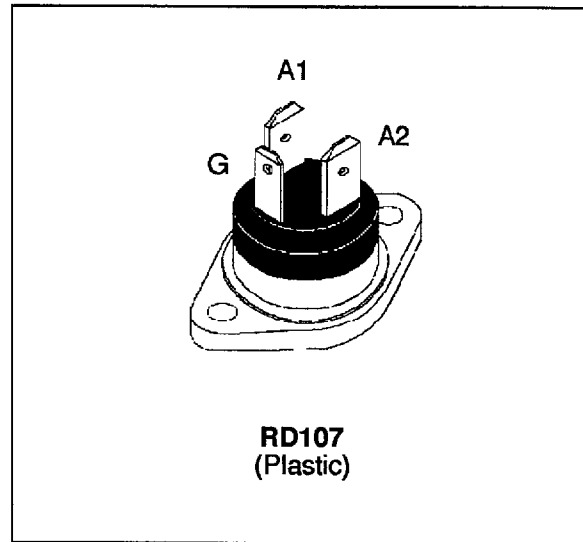
**FEATURES**

- $I_{T(RMS)} = 40A$
- HIGH COMMUTATION :  $(di/dt)_c \geq 22A/ms$
- INSULATING VOLTAGE =  $2500V_{(RMS)}$   
(UL RECOGNIZED : E81734)

**DESCRIPTION**

The T4016xKS series of isolated triacs uses a high performance MESA GLASS technology.

The SNUBBERLESS<sup>TM</sup> concept offer suppression of RC network and it is suitable for application such as phase control and static switching on inductive or resistive load.



**ABSOLUTE RATINGS** (limiting values)

| Symbol             | Parameter                                                                            |                           | Value                          | Unit       |
|--------------------|--------------------------------------------------------------------------------------|---------------------------|--------------------------------|------------|
| $I_{T(RMS)}$       | RMS on-state current<br>(360° conduction angle)                                      | $T_c = 75^\circ C$        | 40                             | A          |
| $I_{TSM}$          | Non repetitive surge peak on-state current<br>( $T_j$ initial = $25^\circ C$ )       | $t_p = 8.3 ms$            | 330                            | A          |
|                    |                                                                                      | $t_p = 10 ms$             | 300                            |            |
| $I^2 t$            | $I^2 t$ Value for fusing                                                             | $t_p = 10 ms$             | 450                            | $A^2 s$    |
| $di/dt$            | Critical rate of rise of on-state current<br>$I_G = 50 mA$ $di_G/dt = 0.1 A/\mu s$ . | Repetitive<br>$F = 50 Hz$ | 20                             | $A/\mu s$  |
|                    |                                                                                      | Non Repetitive            | 100                            |            |
| $T_{stg}$<br>$T_j$ | Storage and operating junction temperature range                                     |                           | - 40 to + 125<br>- 40 to + 125 | $^\circ C$ |
| $TI$               | Maximum lead temperature for soldering during 10s                                    |                           | 260                            | $^\circ C$ |

| Symbol                 | Parameter                                                | Voltage |     |     |     | Unit |
|------------------------|----------------------------------------------------------|---------|-----|-----|-----|------|
|                        |                                                          | D       | M   | S   | N   |      |
| $V_{DRM}$<br>$V_{RRM}$ | Repetitive peak off-state voltage<br>$T_j = 125^\circ C$ | 400     | 600 | 700 | 800 | V    |

# T4016xKS

## THERMAL RESISTANCES

| Symbol   | Parameter                                               | Value | Unit |
|----------|---------------------------------------------------------|-------|------|
| Rth(j-c) | Junction to case for D.C                                | 1.2   | °C/W |
| Rth(j-c) | Junction to case for A.C 360° conduction angle (F=50Hz) | 0.9   | °C/W |

## GATE CHARACTERISTICS (maximum values)

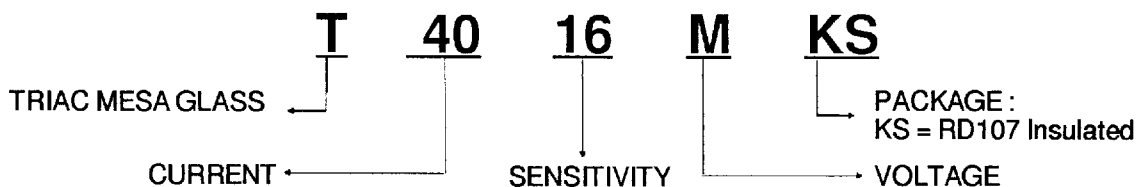
$P_G (AV) = 1W$   $P_{GM} = 10W$  ( $t_p = 20 \mu s$ )  $I_{GM} = 4A$  ( $t_p = 20 \mu s$ )

## ELECTRICAL CHARACTERISTICS

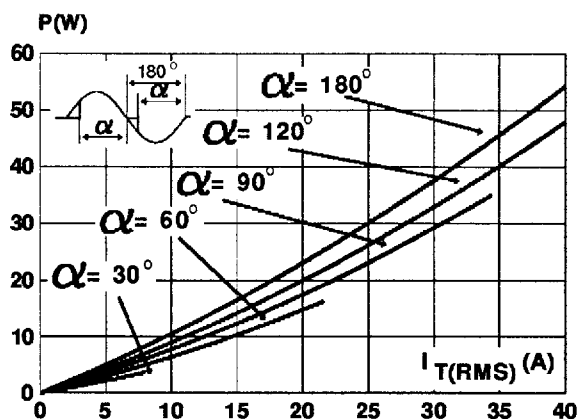
| Symbol                 | Test Conditions                                                      |                     | Quadrant |     | Sensitivity | Unit       |
|------------------------|----------------------------------------------------------------------|---------------------|----------|-----|-------------|------------|
|                        |                                                                      |                     |          |     | 16          |            |
| $I_{GT}$               | $V_D = 12V$ (DC) $R_L = 33\Omega$                                    | $T_j = 25^\circ C$  | I-II-III | MIN | 2           | mA         |
|                        |                                                                      |                     |          | MAX | 50          |            |
| $V_{GT}$               | $V_D = 12V$ (DC) $R_L = 33\Omega$                                    | $T_j = 25^\circ C$  | I-II-III | MAX | 1.5         | V          |
| $V_{GD}$               | $V_D = V_{DRM}$ $R_L = 3.3k\Omega$                                   | $T_j = 125^\circ C$ | I-II-III | MIN | 0.2         | V          |
| $t_{gt}$               | $V_D = V_{DRM}$ $I_T = 56A$<br>$I_G = 500mA$<br>$dI_G/dt = 3A/\mu s$ | $T_j = 25^\circ C$  | I-II-III | TYP | 2           | $\mu s$    |
| $I_H^*$                | $I_T = 250mA$ Gate open                                              | $T_j = 25^\circ C$  |          | MAX | 50          |            |
| $I_L$                  | $I_G = 1.2 I_{GT}$                                                   | $T_j = 25^\circ C$  | I-III    | TYP | 50          | mA         |
|                        |                                                                      |                     | II       | TYP | 100         |            |
| $V_{TM}^*$             | $I_{TM} = 56A$ $t_p = 380\mu s$                                      | $T_j = 25^\circ C$  |          | MAX | 1.7         | V          |
| $I_{DRM}$<br>$I_{RRM}$ | $V_D = V_{DRM}$<br>$V_R = V_{RRM}$                                   | $T_j = 25^\circ C$  |          | MAX | 10          | $\mu A$    |
|                        |                                                                      | $T_j = 125^\circ C$ |          | MAX | 3           | mA         |
| $dV/dt^*$              | $V_D = 67\% V_{DRM}$ Gate open                                       | $T_j = 125^\circ C$ |          | MIN | 750         | V/ $\mu s$ |
| $(dI/dt)_c^*$          | Without snubber                                                      | $T_j = 125^\circ C$ |          | MIN | 22          | A/ms       |
|                        |                                                                      |                     |          | TYP | 44          |            |

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

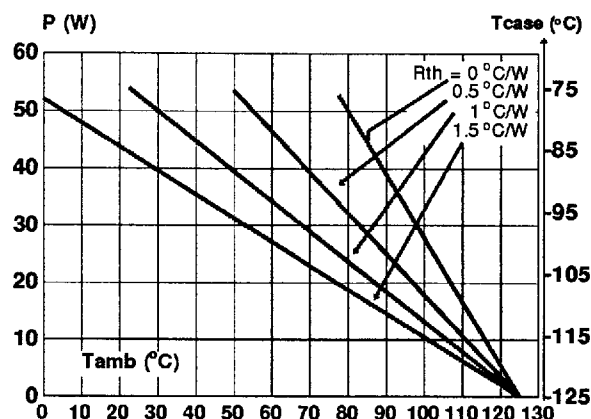
## ORDERING INFORMATION



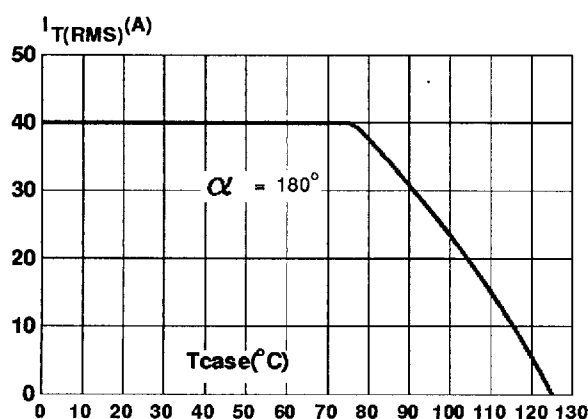
**Fig.1 :** Maximum power dissipation versus RMS on-state current.



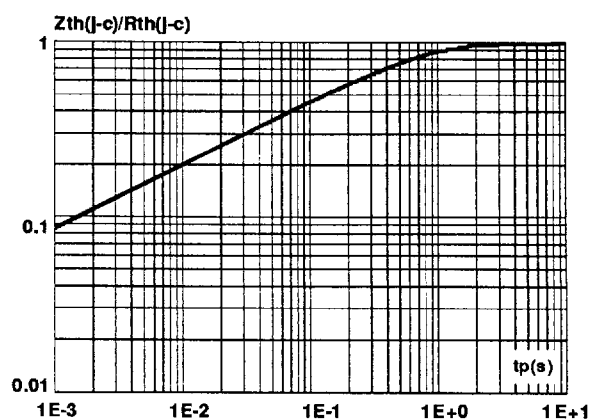
**Fig.2 :** Correlation between maximum power dissipation and maximum allowable temperature ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact.



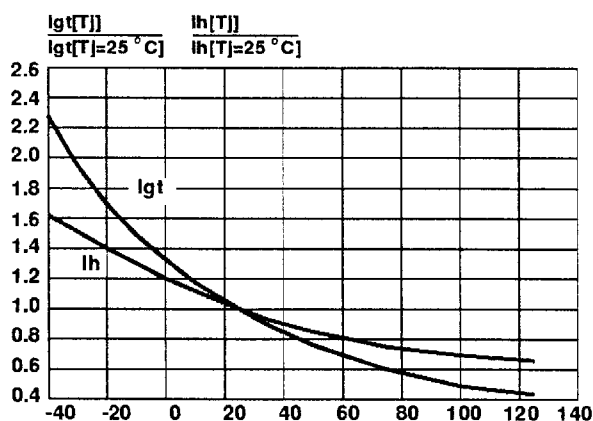
**Fig.3 :** RMS on-state current versus case temperature.



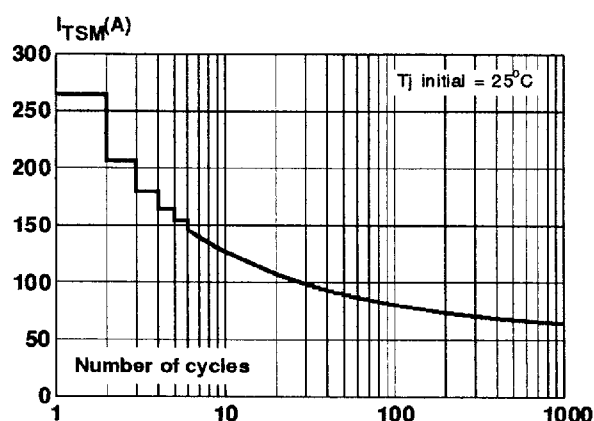
**Fig.4 :** Relative variation of thermal impedance junction to case versus pulse duration.



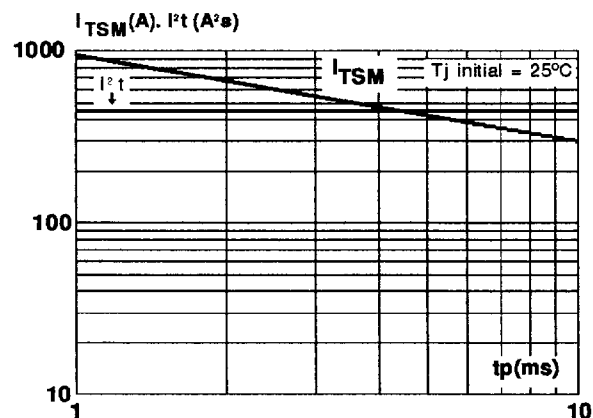
**Fig.5 :** Relative variation of gate trigger current and holding current versus junction temperature.



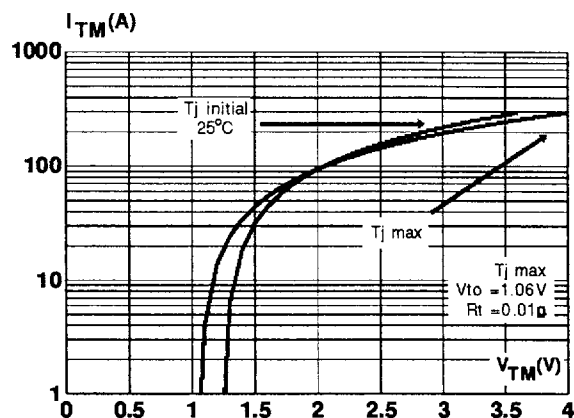
**Fig.6 :** Non repetitive surge peak on-state current versus number of cycles.

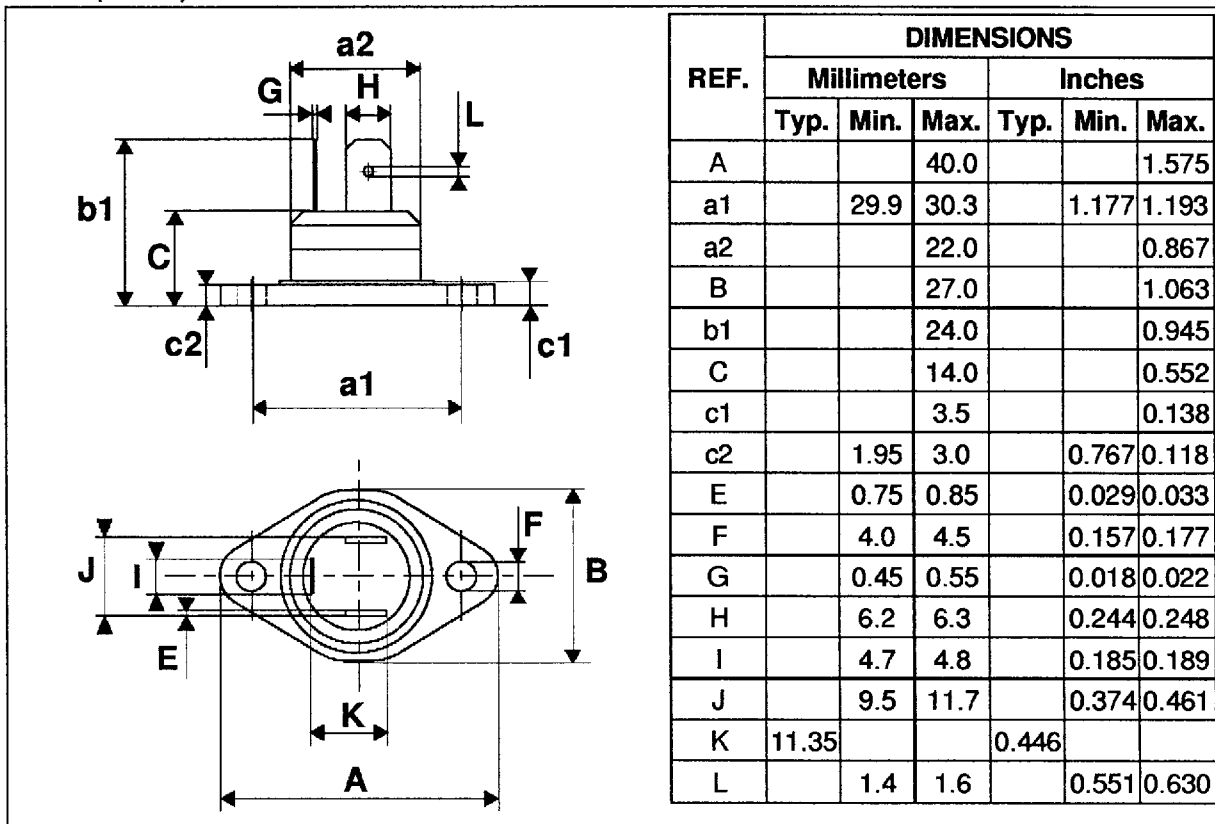


**Fig.7 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t_p \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .



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



**PACKAGE MECHANICAL DATA**  
 RD 107(Plastic)


Marking : type number  
 Weight : 20g

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