

## HIGH PERFORMANCE TRIAC

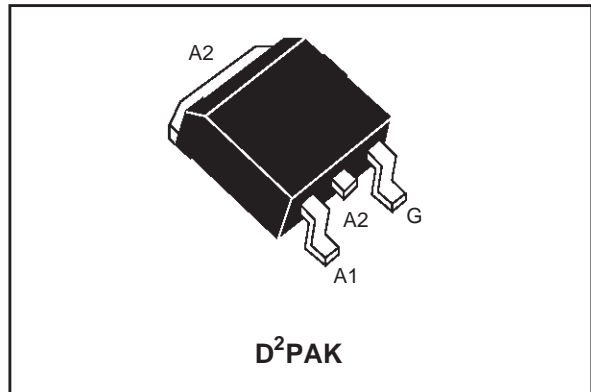
### FEATURES

- HIGH COMMUTATION  $(di/dt)_c > 11$  A/ms without snubber
- HIGH STATIC  $dV/dt > 500$  V/ $\mu$ s

### DESCRIPTION

The T2035-600G triac uses a high performance SNUBBERLESS<sup>TM</sup> technology.

The part is intended for general purpose applications using surface mount technology.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage	$T_j = 125^\circ\text{C}$ 600	V	
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	$T_c = 100^\circ\text{C}$ 20	A	
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = 25°C)	$t_p = 8.3\text{ms}$	210	A
		$t_p = 10\text{ms}$	200	
$I^2t$	$I^2t$ Value (half-cycle, 50 Hz)	$t_p = 10\text{ms}$ 200	$\text{A}^2\text{s}$	
$di/dt$	Critical rate of rise of on-state current $I_G = 500\text{mA}$ $dI_G/dt = 1\text{A}/\mu\text{s}$ .	Repetitive $F = 50\text{Hz}$	20	$\text{A}/\mu\text{s}$
		Non Repetitive	100	
$T_{stg}$ $T_j$	Storage temperature range Operating junction temperature range	- 40, + 150 - 40, + 125	$^\circ\text{C}$	
TI	Maximum temperature for soldering during 10s	260	$^\circ\text{C}$	

## T2035-600G

### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient (S=1cm <sup>2</sup> )	45	°C/W
Rth(j-c)	Junction to case for DC	1.5	°C/W
Rth(j-c)	Junction to case for AC 360° conduction angle (F=50Hz)	1.1	°C/W

### GATE CHARACTERISTICS (maximum values)

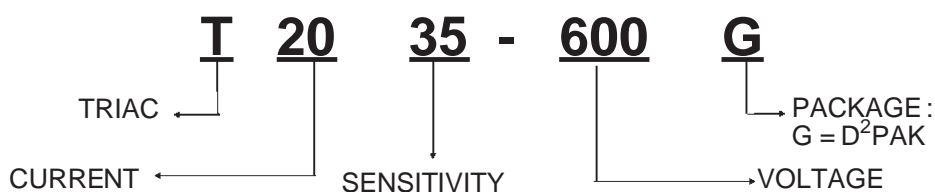
$P_{G(AV)} = 1 \text{ W}$     $P_{GM} = 10 \text{ W}$  (tp = 20 μs)    $I_{GM} = 4 \text{ A}$  (tp = 20 μs)

### ELECTRICAL CHARACTERISTICS

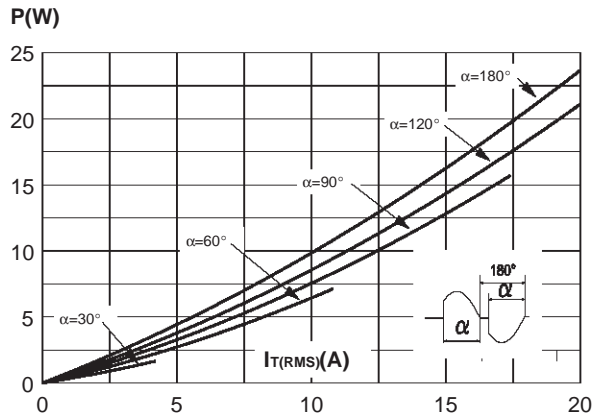
Symbol	Test Conditions		Quadrant		Sensitivity	Unit
I <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>j</sub> = 25°C	I-II-III	MIN	2	mA
				MAX	35	
V <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>j</sub> = 25°C	I-II-III	MAX	1.3	V
V <sub>GD</sub>	V <sub>D</sub> =V <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> *	I <sub>T</sub> = 500mA   Gate open	T <sub>j</sub> = 25°C		MAX	35	mA
I <sub>L</sub>	I <sub>G</sub> = 1.2 I <sub>GT</sub>	T <sub>j</sub> = 25°C	I-II-III	MAX	80	mA
V <sub>TM</sub> *	I <sub>TM</sub> = 28A   tp= 380μs	T <sub>j</sub> = 25°C		MAX	1.5	V
I <sub>DRM</sub>	V <sub>D</sub> = V <sub>DRM</sub>	T <sub>j</sub> = 25°C		MAX	5	μA
I <sub>RRM</sub>	V <sub>R</sub> = V <sub>RRM</sub>	T <sub>j</sub> = 125°C		MAX	2	mA
dV/dt *	Linear slope up to V <sub>D</sub> =67%V <sub>DRM</sub> Gate open	T <sub>j</sub> = 125°C		MIN	500	V/μs
(di/dt) <sub>c</sub> *	Without snubber	T <sub>j</sub> = 125°C		MIN	11	A/ms

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

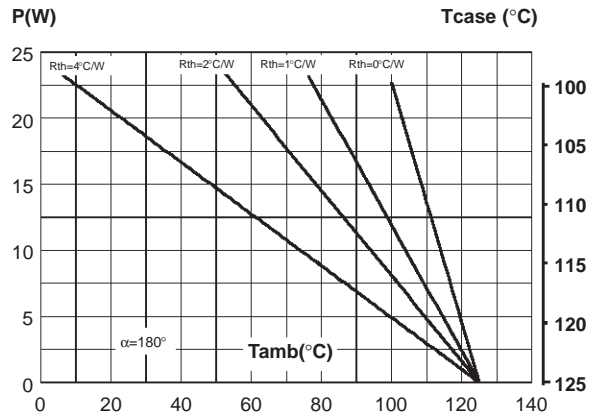
### ORDERING INFORMATION    Add "-TR" suffix for Tape & Reel shipment



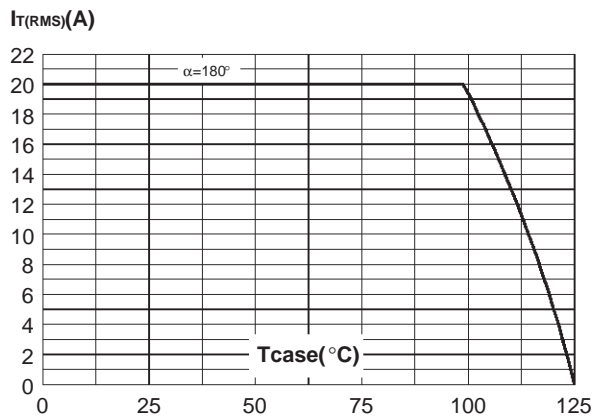
**Fig. 1:** Maximum power dissipation versus RMS on-state current.



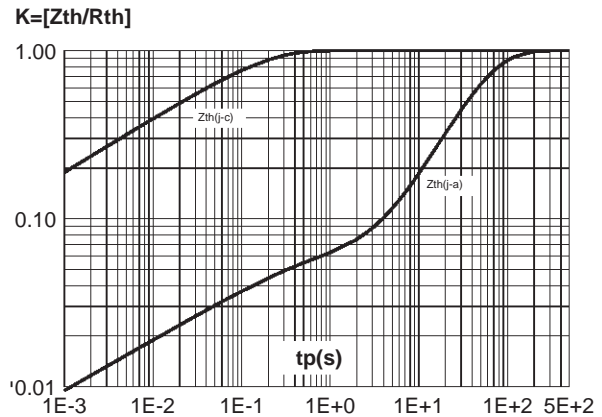
**Fig. 2:** Correlation between maximum power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink+contact.



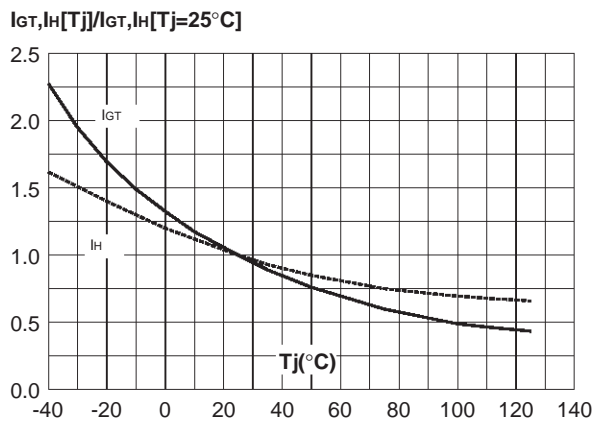
**Fig. 3:** RMS on-state current versus case temperature.



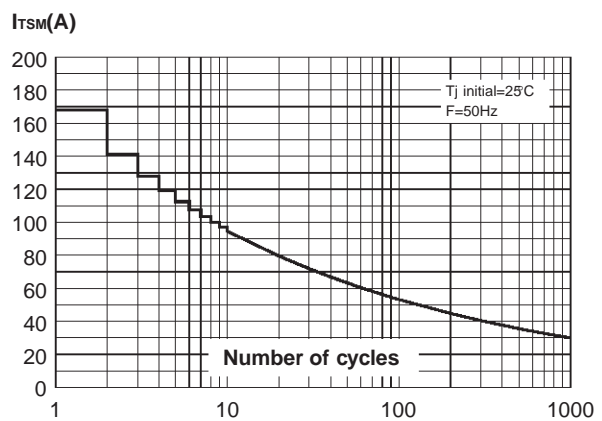
**Fig. 4:** Relative variation of thermal impedance versus pulse duration.



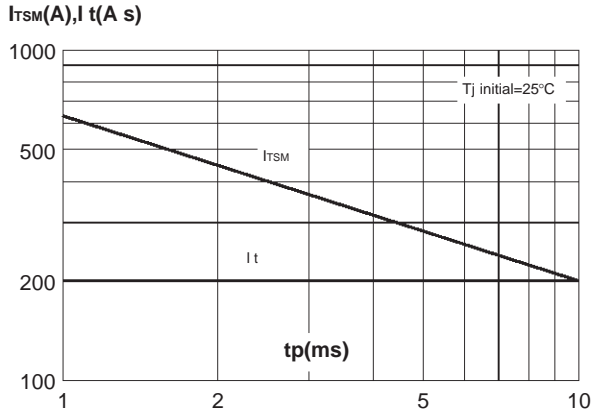
**Fig. 5:** Relative variation of gate trigger current and holding current versus junction temperature (typical values).



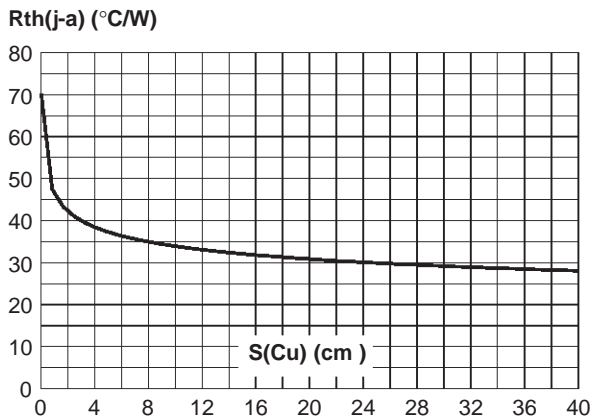
**Fig. 6:** Non repetitive surge peak on-state current versus number of cycles.



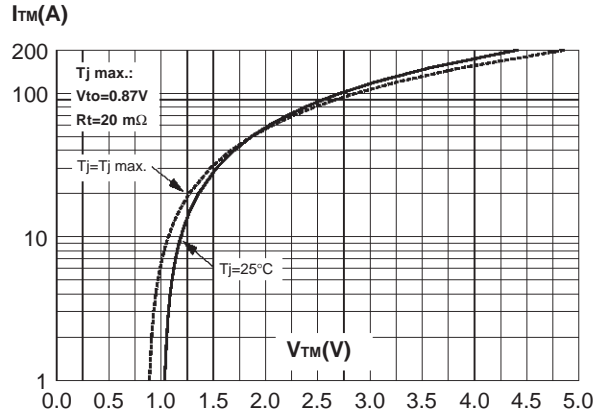
**Fig. 7:** Non repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$ .



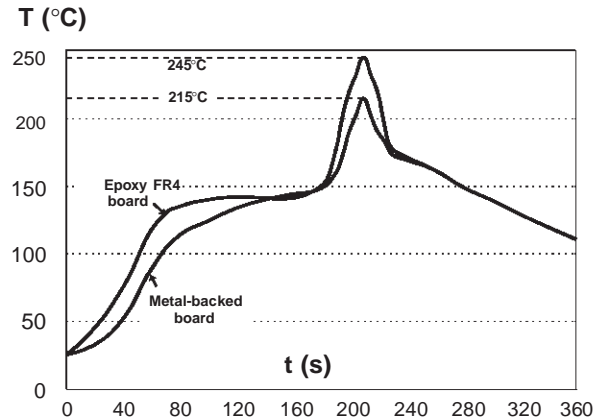
**Fig. 9:** Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness:  $35\mu\text{m}$ ).



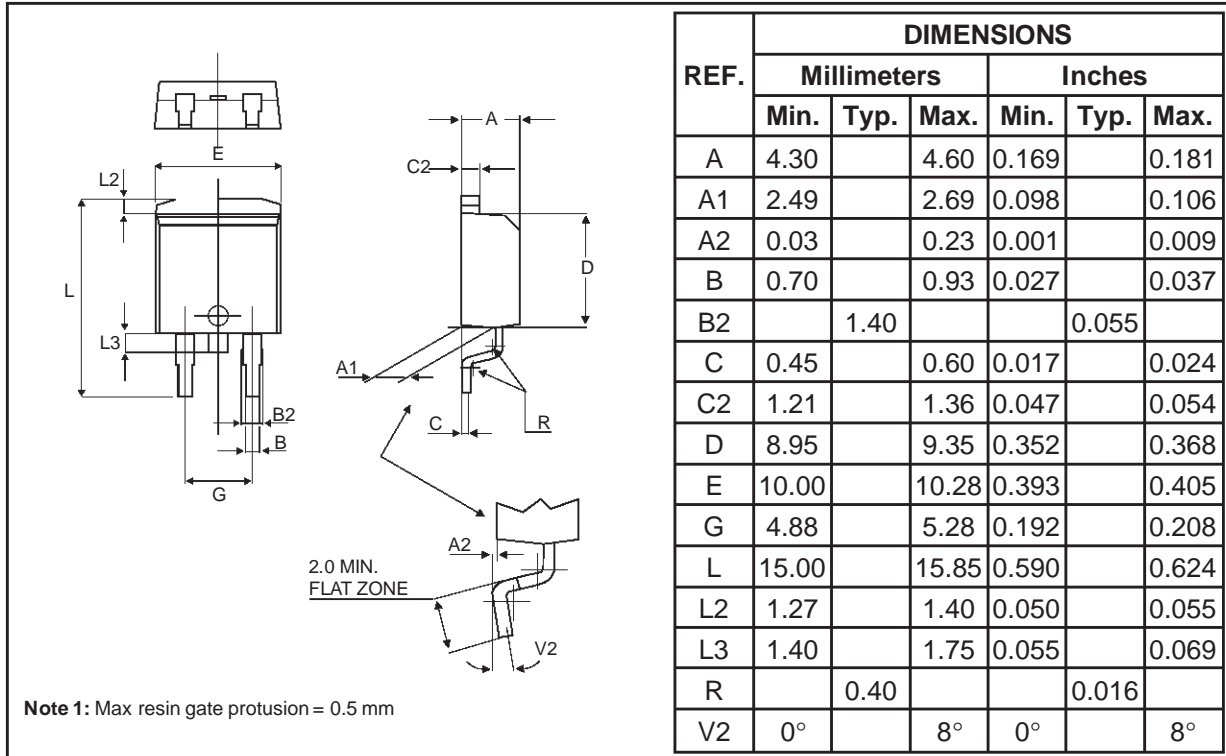
**Fig. 8:** On-state characteristics (maximum values).



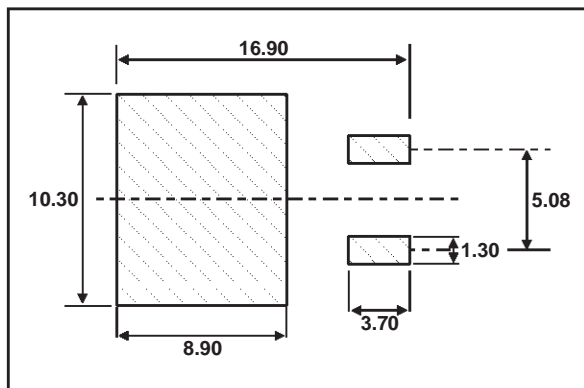
**Fig. 10:** Typical reflow soldering heat profile, either for mounting on FR4 or metal-backed boards.



**PACKAGE MECHANICAL DATA**  
D<sup>2</sup>PAK



**FOOT PRINT DIMENSIONS (in millimeters)**



**MARKING :** T2035  
600G

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