



TN4035-600G

40A SCRs

MAIN FEATURES:

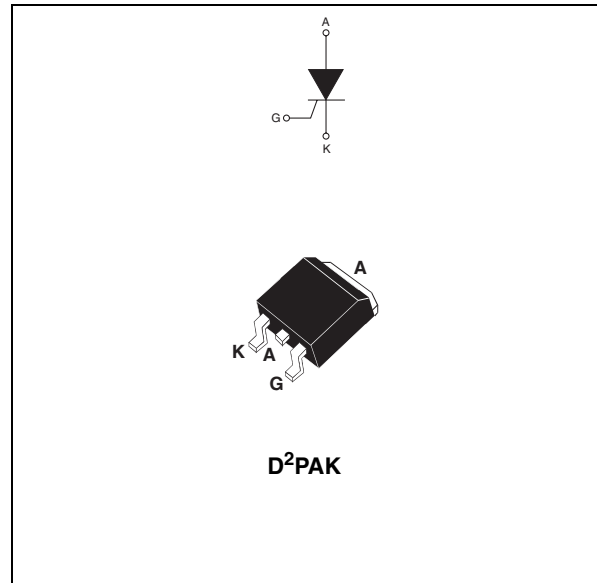
Symbol	Value	Unit
$I_{T(RMS)}$	40	A
V_{DRM}/V_{RRM}	600	V
I_{GT}	35	mA

DESCRIPTION

The TN4035-600G is designed for applications where in-rush current conditions are critical, such as overvoltage crowbar protection circuits in power supplies.

Using clip assembly technology, provides higher fusing threshold than wires.

Mounting precautions detailed in application note AN533 on www.st.com.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)		$T_c = 95^\circ\text{C}$ 40	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)		$T_c = 95^\circ\text{C}$ 25	A
I_{TSM}	Non repetitive surge peak on-state current	$t_p = 8.3 \text{ ms}$	$T_j = 25^\circ\text{C}$ 480	A
		$t_p = 10 \text{ ms}$		
I^2t	I^2t Value for fusing		$T_j = 25^\circ\text{C}$ 1060	A^2s
di/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq 100 \text{ ns}$	$F = 60 \text{ Hz}$	$T_j = 125^\circ\text{C}$ 50	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$t_p = 20 \mu\text{s}$	$T_j = 125^\circ\text{C}$ 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	$^\circ\text{C}$
V_{RGM}	Maximum peak reverse gate voltage		5	V

TN4035-600G

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

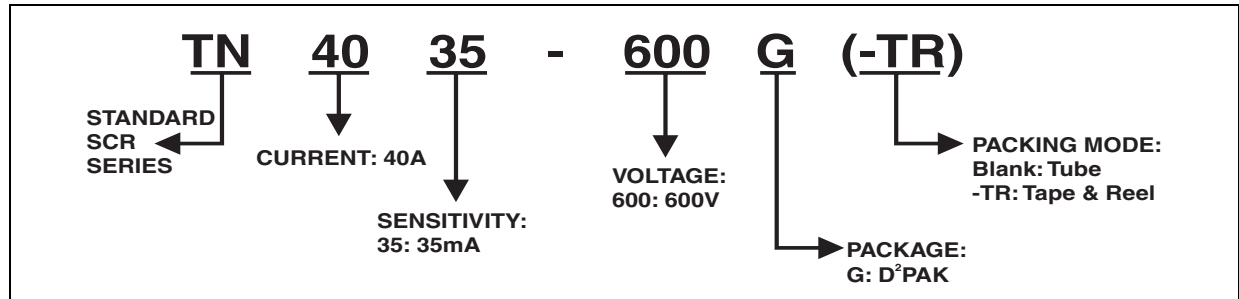
Symbol	Test Conditions			Value	Unit	
I _{GT}	V _D = 12 V	R _L = 33 Ω	MIN.	3.5	mA	
			MAX.	35		
V _{GT}			MAX.	1.3	V	
V _{GD}	V _D = V _{DRM}	R _L = 3.3 kΩ	T _j = 125°C	MIN.	0.2	V
I _H	I _T = 500 mA		Gate open	MAX.	75	mA
I _L	I _G = 1.2 I _{GT}			MAX.	150	mA
dV/dt	V _D = 67 % V _{DRM}	Gate open	T _j = 125°C	MIN.	1000	V/μs
V _{TM}	I _{TM} = 80 A	tp = 380 μs	T _j = 25°C	MAX.	1.6	V
V _{t0}	Threshold voltage		T _j = 125°C	MAX.	0.85	V
R _d	Dynamic resistance		T _j = 125°C	MAX.	10	mΩ
I _{DRM} I _{RRM}	V _{DRM} = V _{RRM}		T _j = 25°C	MAX.	5	μA
			T _j = 125°C		4	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case (DC)	0.8	°C/W
R _{th(j-a)}	Junction to ambient (DC) S = 1cm ² (*)	45	°C/W

* Surface under tab/Epoxy printed circuit board FR4, copper thickness 85μm

ORDERING INFORMATION



OTHER INFORMATION

Part Number	Marking	Weight	Base Quantity	Packing mode
TN4035-600G	TN4035-600G	1.5 g	50	Tube
TN4035-600G-TR	TN4035-600G	1.5 g	1000	Tape & Reel

- Epoxy meets UL94, V0

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

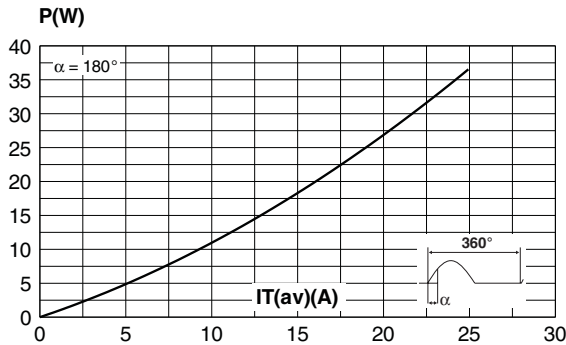


Fig. 2: Average and DC on-state current versus case temperature.

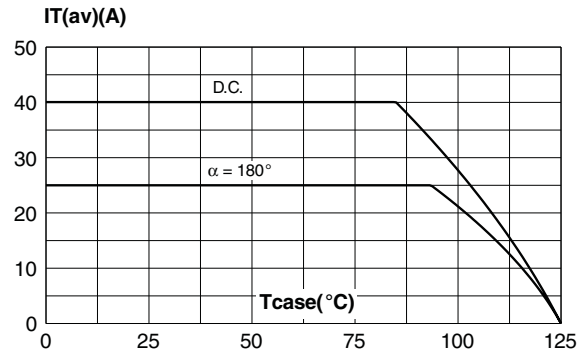


Fig. 3: Relative variation of thermal impedance versus pulse duration.

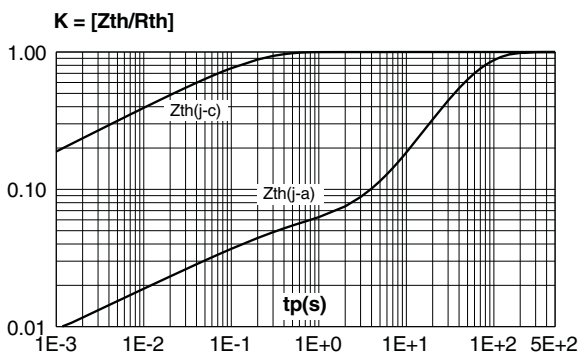


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature.

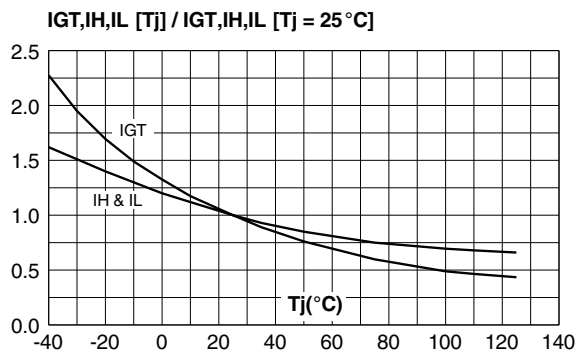


Fig. 5: Surge peak on-state current versus number of cycles.

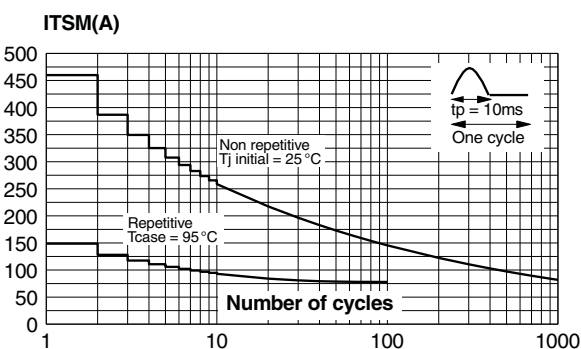


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding value of I^2t .

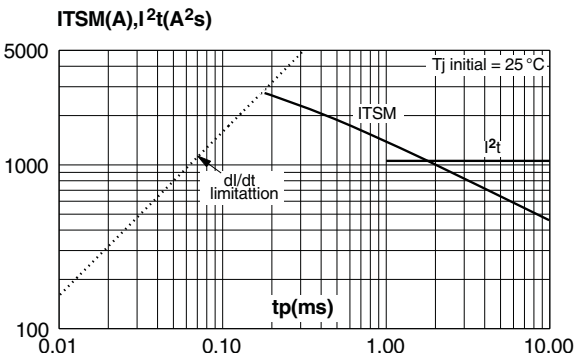


Fig. 7: On-state characteristics (maximum values).

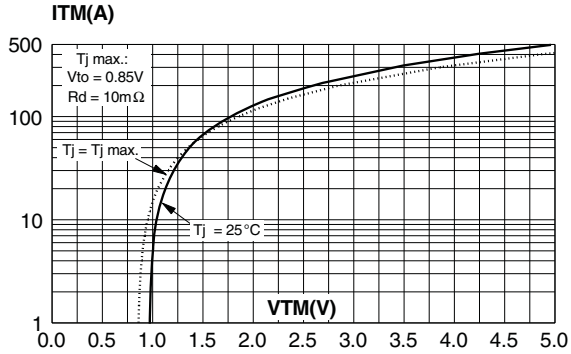
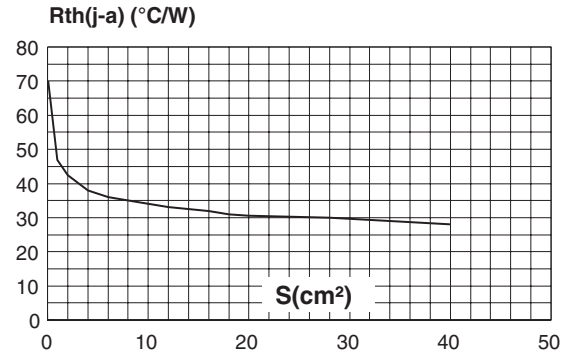


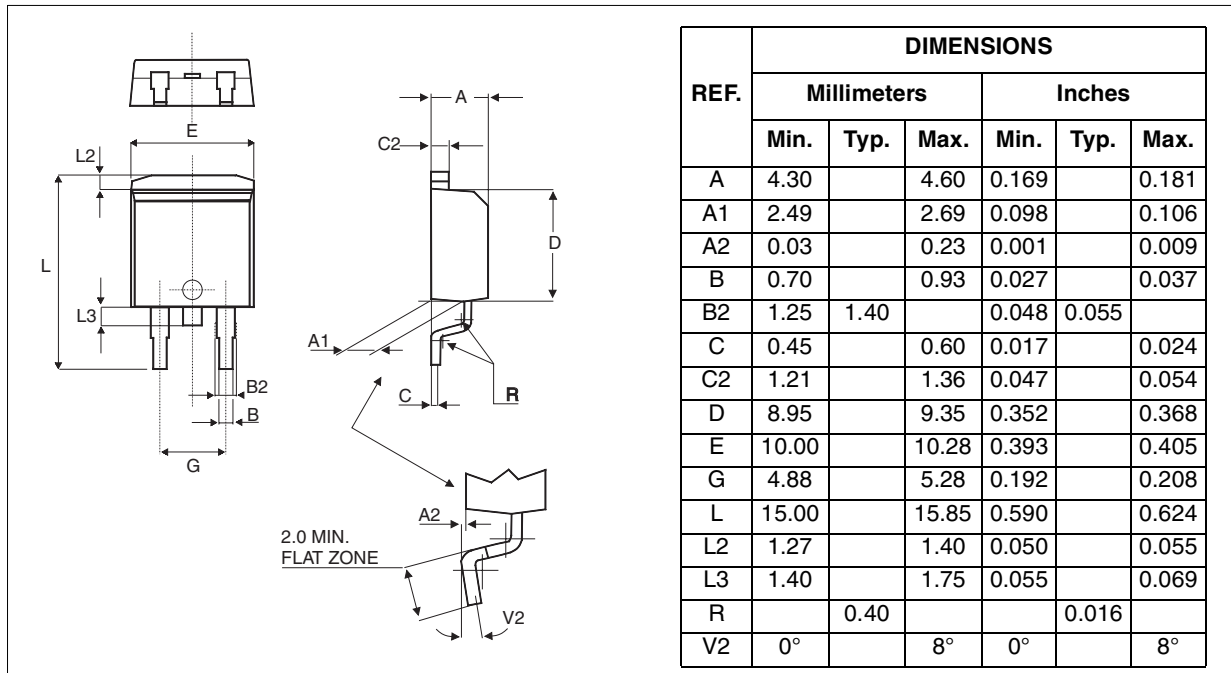
Fig. 8: Thermal resistance junction to ambient versus surface under tab (Epoxy printed circuit board FR4, copper thickness: 35μm)



PACKAGE MECHANICAL DATA

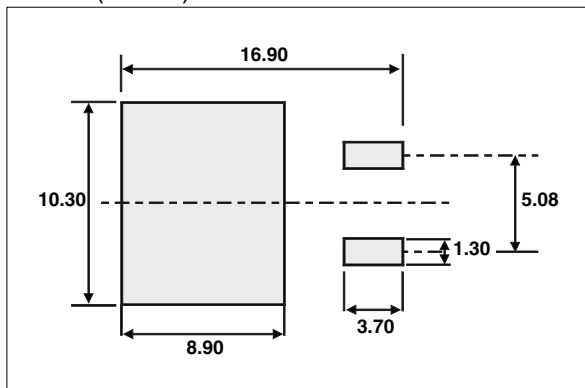
D²PAK

JEDEC REFERENCE: TO-263



FOOTPRINT DIMENSIONS (in millimeters)

D²PAK (Plastic)



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