



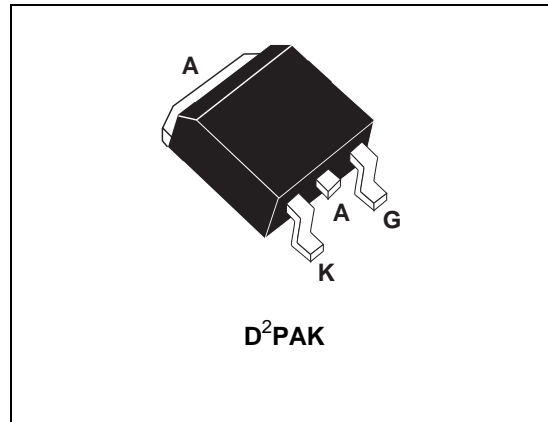
FEATURES

- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- HIGH STABILITY AND RELIABILITY

DESCRIPTION

The TN2540 series of Silicon Controlled Rectifiers uses a high performance glass passivated technology.

This SCR is designed for power supplies up to 400Hz on resistive or inductive load.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_c = 100^\circ\text{C}$	25	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	$T_c = 100^\circ\text{C}$	16	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 8.3$ ms	314	A
		$t_p = 10$ ms	300	
I^2t	I^2t Value for fusing	$t_p = 10$ ms	450	A ² s
di/dt	Critical rate of rise of on-state current $I_G = 100$ mA $di_G/dt = 1$ A/μs.		100	A/μs
T_{stg} T_j	Storage junction temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 125	°C
T_I	Maximum temperature for soldering during 10s		260	°C

Symbol	Parameter	TN2540-		Unit
		600G	800G	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125^\circ\text{C}$	600	800	V

TN2540-G

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient (S=1cm ²)	45	°C/W
Rth(j-c)	Junction to case for D.C	1.0	°C/W

GATE CHARACTERISTICS

$P_{G(AV)} = 1W$ $P_{GM} = 10W$ ($t_p = 20 \mu s$) $I_{GM} = 4A$ ($t_p = 20 \mu s$) $V_{RGM} = 5V$

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Type	Value	Unit
I_{GT}	$V_D = 12V$ (DC) $R_L = 33\Omega$	$T_j = 25^\circ C$	MIN	3	mA
			MAX	40	
V_{GT}	$V_D = 12V$ (DC) $R_L = 33\Omega$	$T_j = 25^\circ C$	MAX	1.3	V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3k\Omega$	$T_j = 125^\circ C$	MIN	0.2	V
I_H	$I_T = 200mA$ Gate open	$T_j = 25^\circ C$	MAX	50	mA
I_L	$I_G = 1.2 I_{GT}$	$T_j = 25^\circ C$	MAX	90	mA
V_{TM}	$I_{TM} = 50A$ $t_p = 380\mu s$	$T_j = 25^\circ C$	MAX	1.5	V
I_{DRM}	$V_D = V_{DRM}$	$T_j = 25^\circ C$	MAX	5	μA
I_{RRM}	$V_R = V_{RRM}$	$T_j = 125^\circ C$	MAX	4	mA
dV/dt	$V_D = 67\% V_{DRM}$ Gate open	$T_j = 125^\circ C$	MIN	500	V/ μs

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

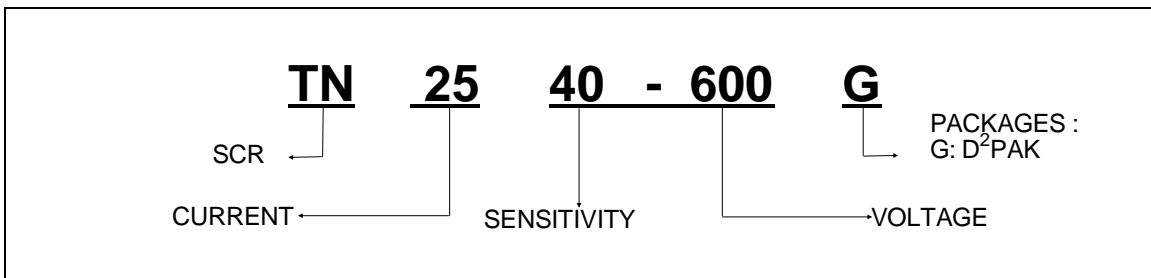


Fig. 1: Maximum average power dissipation versus average on-state current .

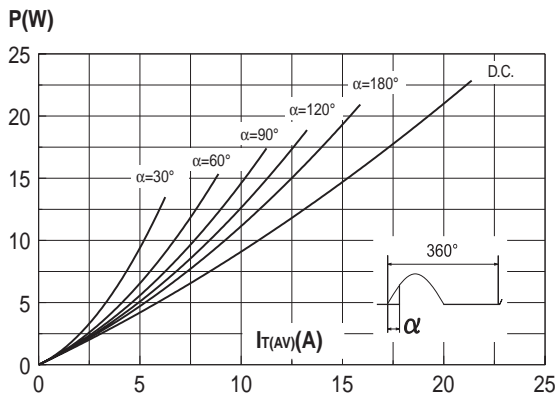


Fig. 2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink+contact.

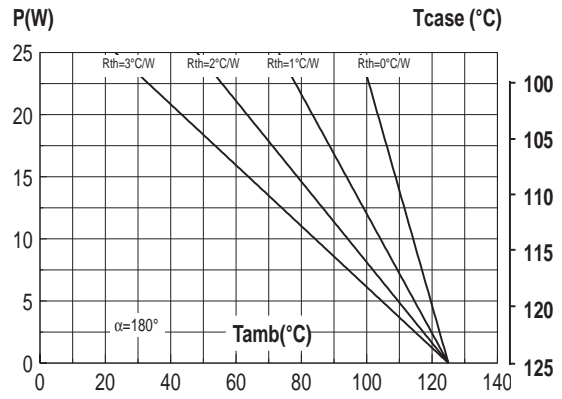


Fig. 3: Average and D.C. on-state current versus case temperature.

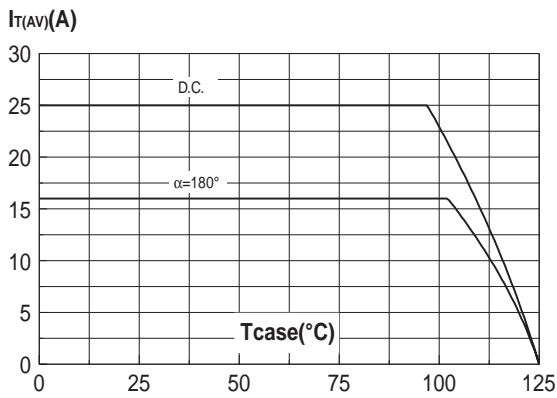


Fig. 4: Relative variation of thermal impedance versus pulse duration.

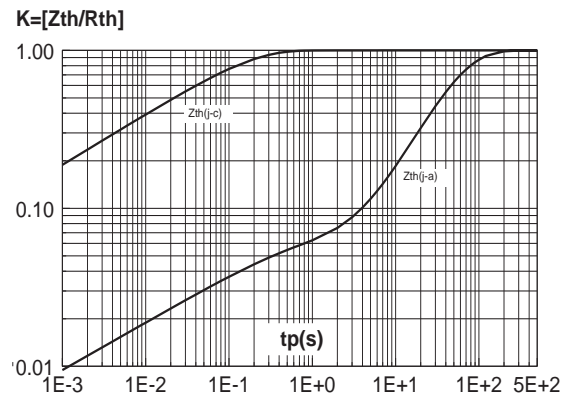


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

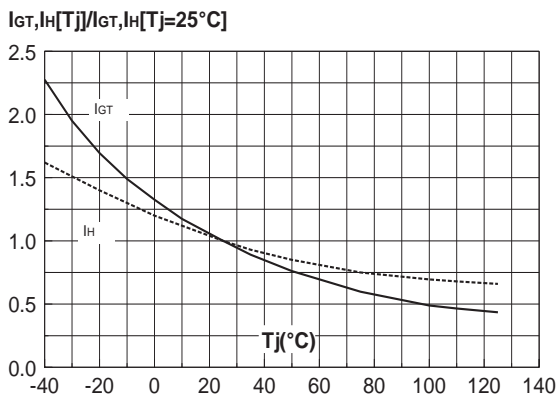


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

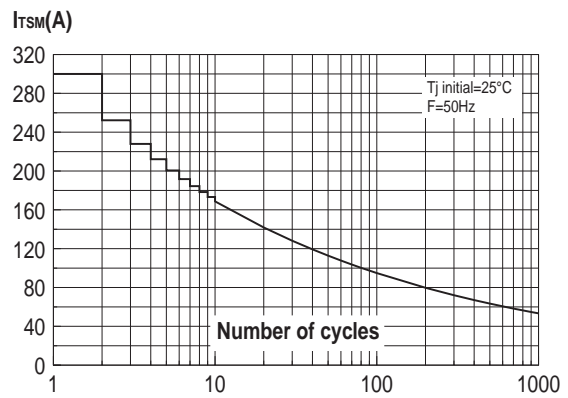


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

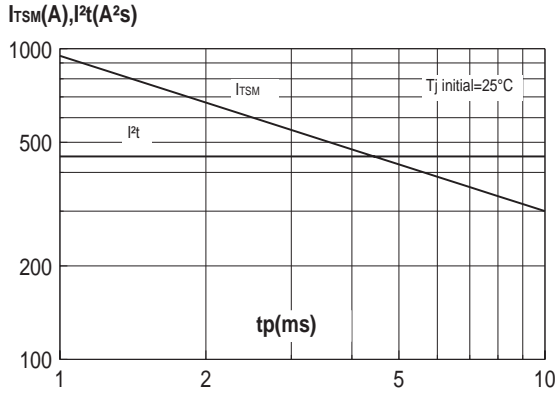


Fig. 9: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: $35\mu\text{m}$).

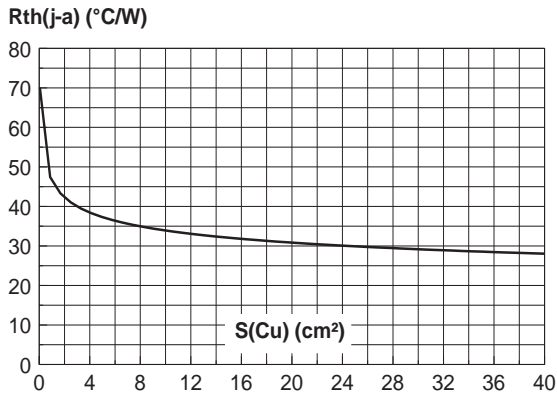


Fig. 8: On-state characteristics (maximum values).

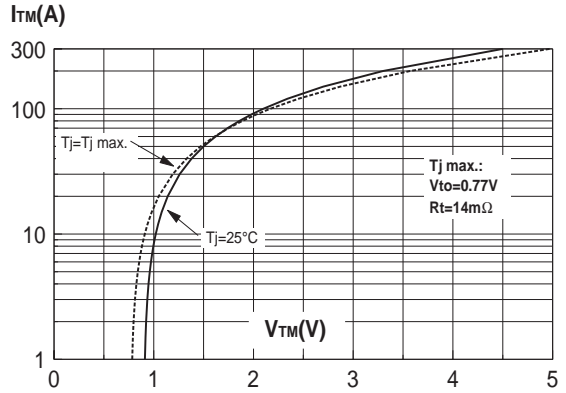
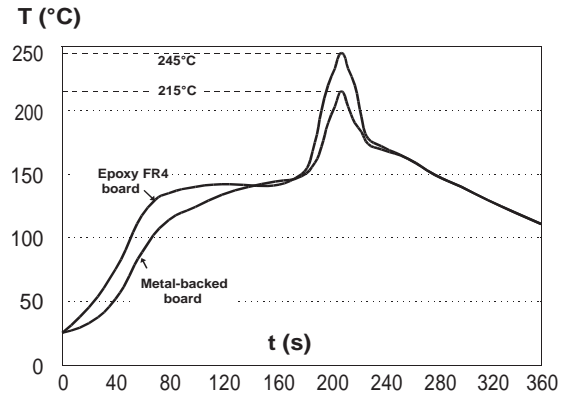
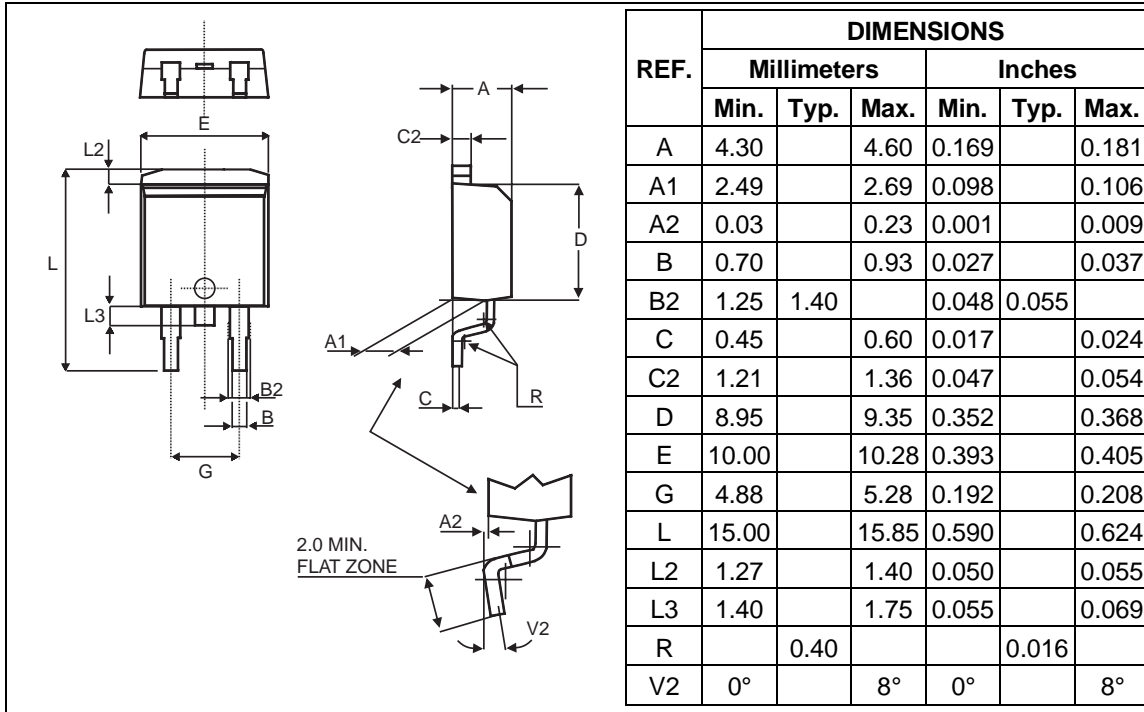


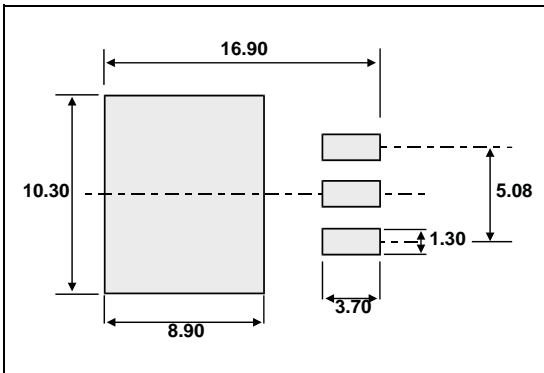
Fig. 10: Typical reflow soldering heat profile, either for mounting on FR4 or metal-backed boards.



PACKAGE MECHANICAL DATA
D²PAK



FOOT PRINT DIMENSIONS (in millimeters)



MARKING: TN2540
x00G

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