



TN25 and TYNx25 Series

STANDARD

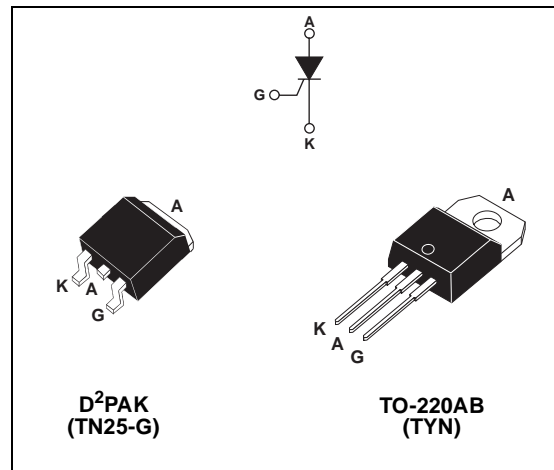
25A SCRs

MAIN FEATURES:

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
V_{DRM}/V_{RRM}	600 to 1000	V
I_{GT}	40	mA

DESCRIPTION

The TYN / TN25 SCR Series is suitable for general purpose applications. Using clip assembly technology, they provide a superior performance in surge current capabilities.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)		$T_c = 100^\circ\text{C}$ 25	A
$T_{(AV)}$	Average on-state current (180° conduction angle)		$T_c = 100^\circ\text{C}$ 16	A
I_{TSM}	Non repetitive surge peak on-state current	$t_p = 8.3 \text{ ms}$	$T_j = 25^\circ\text{C}$ 314	A
		$t_p = 10 \text{ ms}$		
I_t^2	I_t^2 Value for fusing	$t_p = 10 \text{ ms}$	$T_j = 25^\circ\text{C}$ 450	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

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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.	4	mA	
		MAX.	40		
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.	50	mA
I _L	I _G = 1.2 I _{GT}		MAX.	90	mA
dV/dt	V _D = 67 % V _{DRM} Gate open	T _j = 125°C	MIN.	1000	V/μs
V _{TM}	I _{TM} = 50 A tp = 380 μs	T _j = 25°C	MAX.	1.6	V
V _{t0}	Threshold voltage	T _j = 125°C	MAX.	0.77	V
R _d	Dynamic resistance	T _j = 125°C	MAX.	14	mΩ
I _{DRM} I _{RRM}	V _{DRM} = V _{RRM}	T _j = 25°C	MAX.	5	μA
		T _j = 125°C		4	mA

THERMAL RESISTANCES

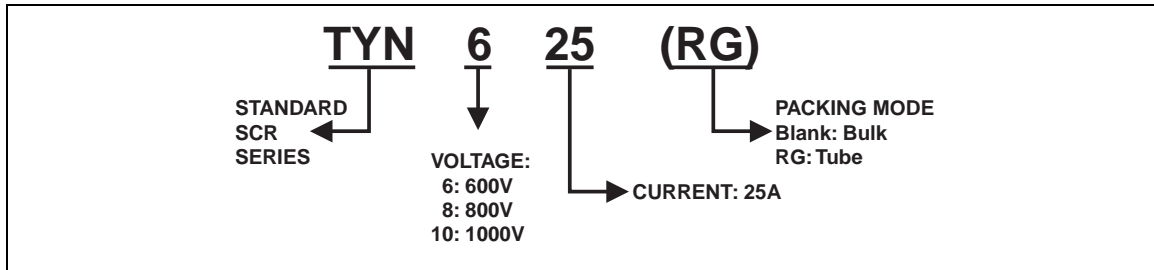
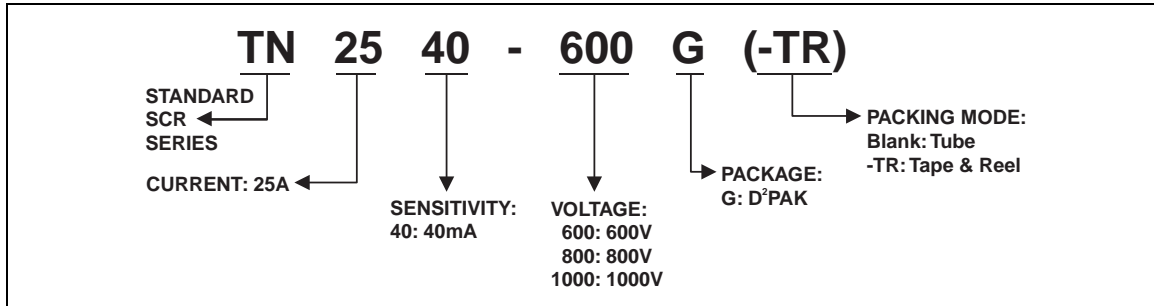
Symbol	Parameter		Value	Unit
R _{th(j-c)}	Junction to case (DC)		1.0	°C/W
R _{th(j-a)}	Junction to ambient (DC)	TO-220AB	60	°C/W
		S = 1 cm ² D ² PAK	45	

S = Copper surface under tab

PRODUCT SELECTOR

Part Number	Voltage (xxx)			Sensitivity	Package
	600 V	800 V	1000 V		
TN2540-xxxG	X	X	X	40 mA	D ² PAK
TYNx25	X	X	X	40 mA	TO-220AB

ORDERING INFORMATION



OTHER INFORMATION

Part Number	Marking	Weight	Base Quantity	Packing mode
TN2540-x00G	TN2540x00G	1.5 g	50	Tube
TN2540-x00G-TR	TN2540x00G	1.5 g	1000	Tape & reel
TYNx25	TYNx25	2.3 g	250	Bulk
TYNx25RG	TYNx25	2.3 g	50	Tube

Note: x = voltage

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

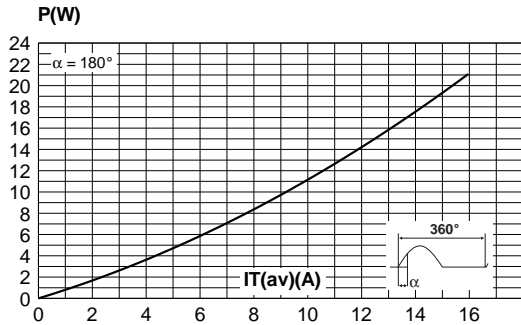


Fig. 2-1: Average and D.C. on-state current versus case temperature.

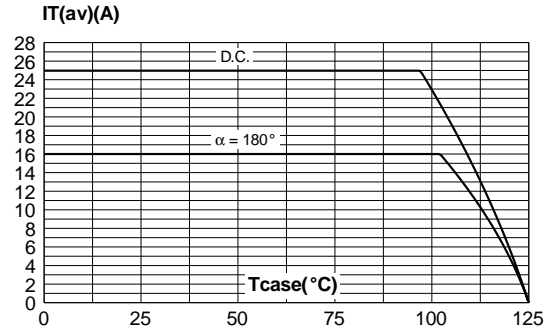


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (copper surface under tab: S = 1 cm² (for D²PAK)).

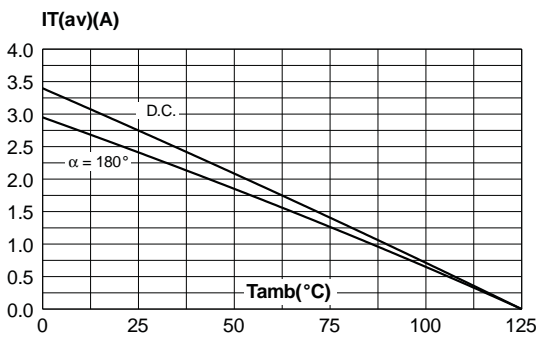


Fig. 3: Relative variation of thermal impedance versus pulse duration.

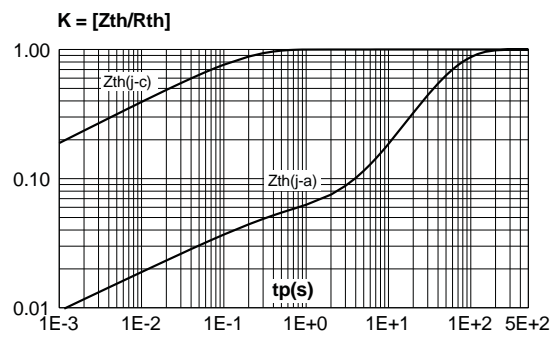


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature.

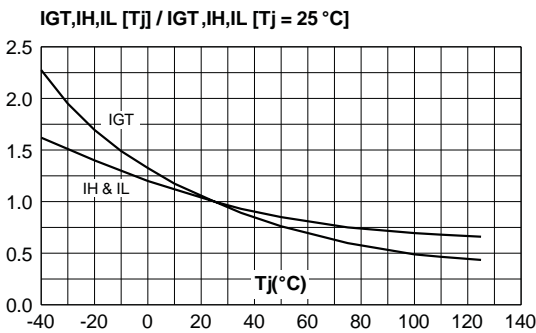


Fig. 5: Surge peak on-state current versus number of cycles.

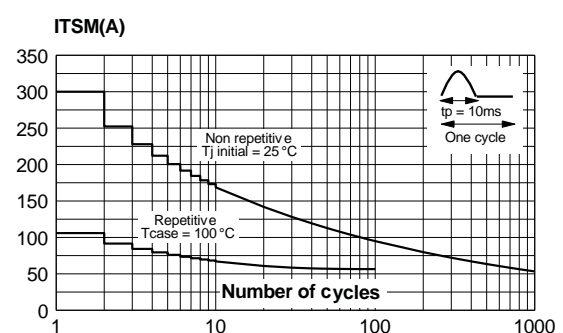


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding values of I^2t .

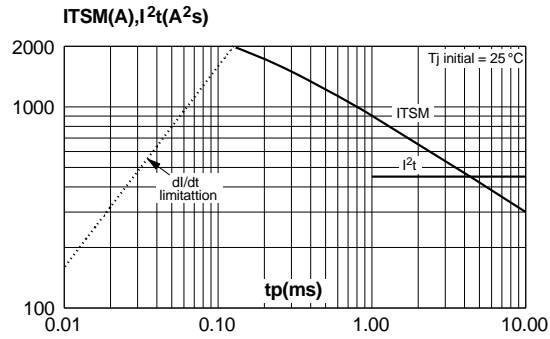


Fig. 7: On-state characteristics (maximum values).

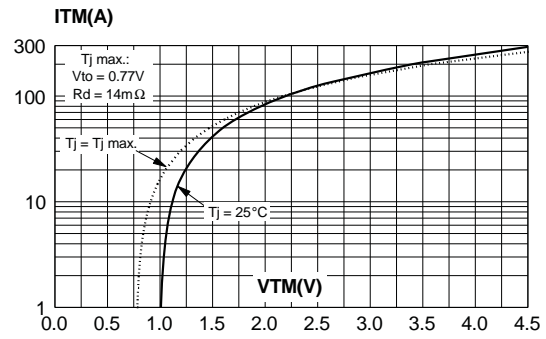
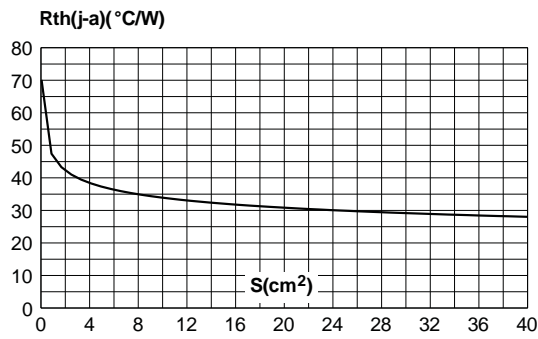


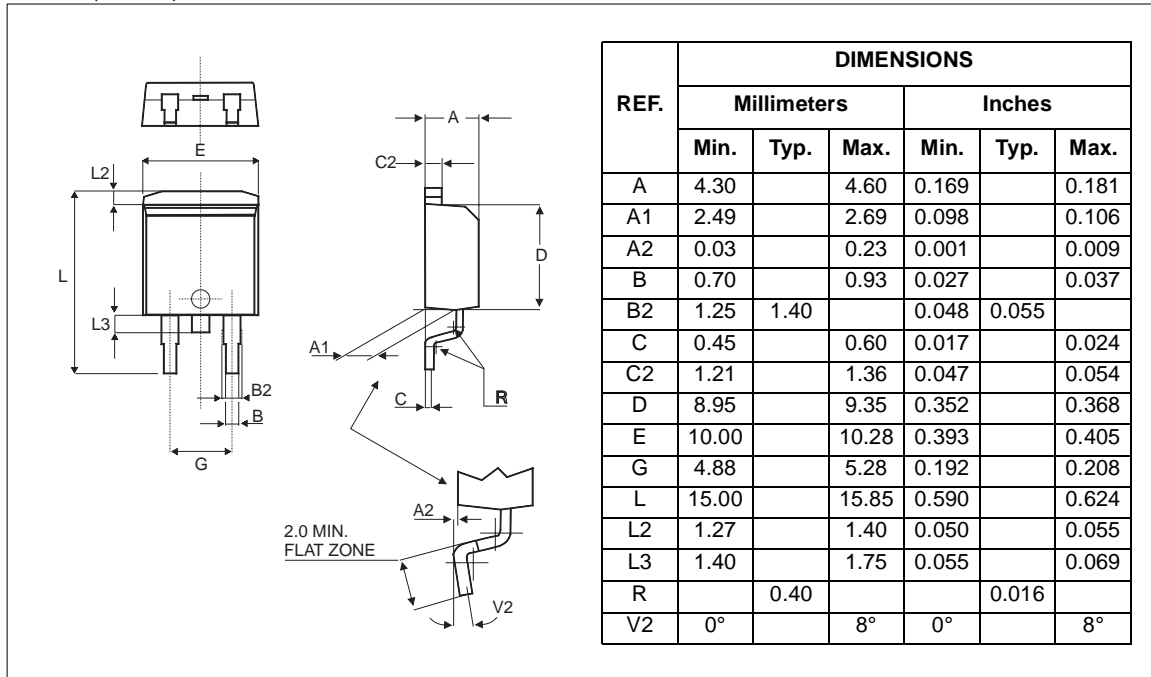
Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35 μm) (D^2PAK).



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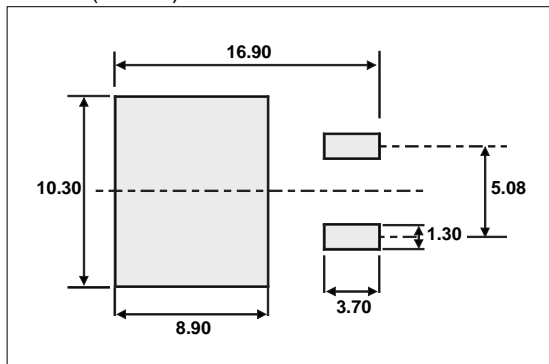
PACKAGE MECHANICAL DATA

D²PAK (Plastic)



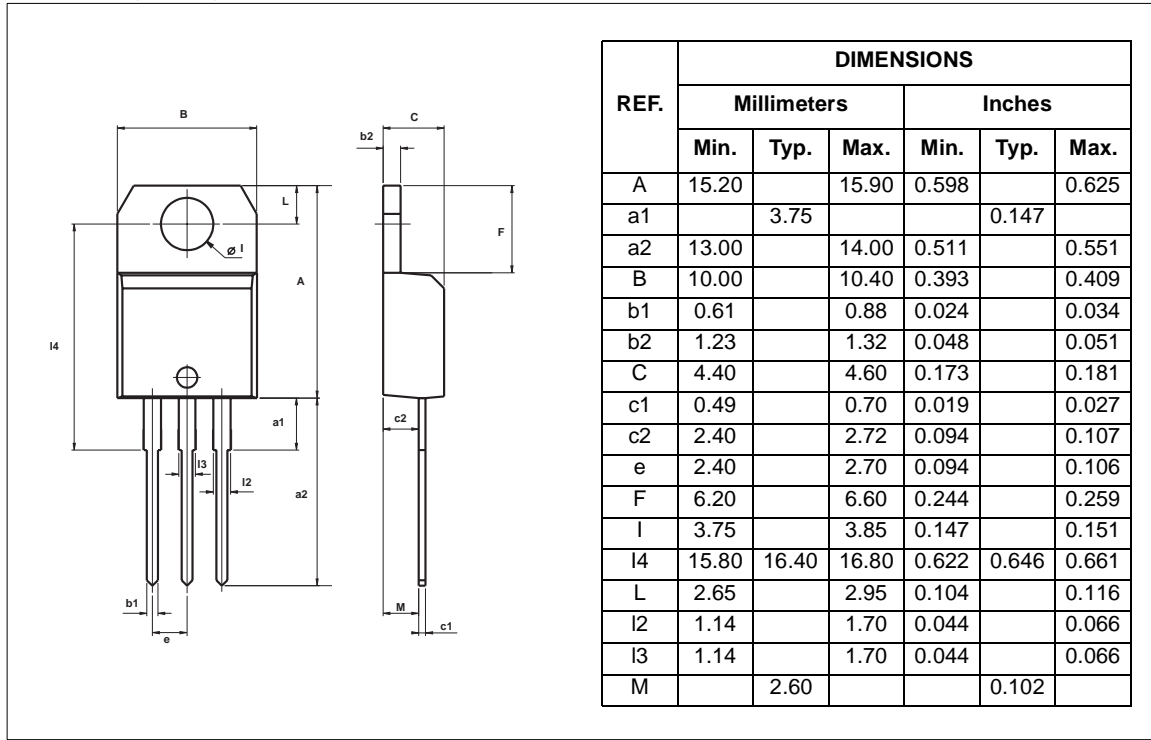
FOOTPRINT DIMENSIONS (in millimeters)

D²PAK (Plastic)



PACKAGE MECHANICAL DATA

TO-220AB (Plastic)



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