



TN25 and TYNx25 Series

STANDARD

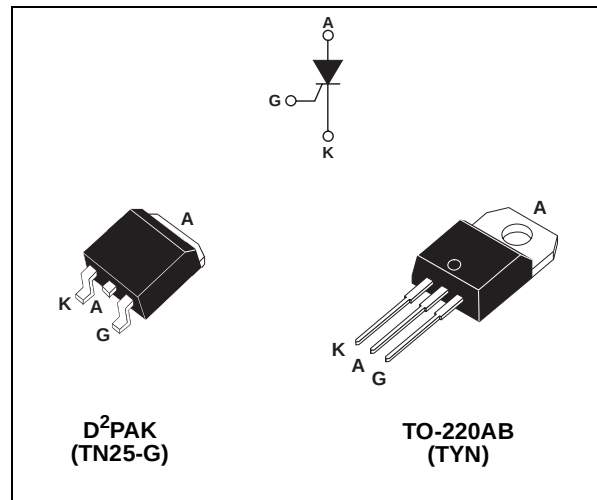
25A SCRs

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
		$t_p = 10 \text{ ms}$		300	
I^2t	I^2t 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 (Tj = 25°C, unless otherwise specified)

Symbol	Test Conditions			Value	Unit
I_{GT}	$V_D = 12\text{ V}$ $R_L = 33\ \Omega$		MIN.	4	mA
			MAX.	40	
V_{GT}			MAX.	1.3	V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$	$T_j = 125^\circ\text{C}$	MIN.	0.2	V
I_H	$I_T = 500\text{ mA}$ 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	$T_j = 125^\circ\text{C}$	MIN.	1000	V/ μs
V_{TM}	$I_{TM} = 50\text{ A}$ $t_p = 380\ \mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX.	1.6	V
V_{t0}	Threshold voltage	$T_j = 125^\circ\text{C}$	MAX.	0.77	V
R_d	Dynamic resistance	$T_j = 125^\circ\text{C}$	MAX.	14	m Ω
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$	$T_j = 25^\circ\text{C}$	MAX.	5	μA
		$T_j = 125^\circ\text{C}$		4	mA

THERMAL RESISTANCES

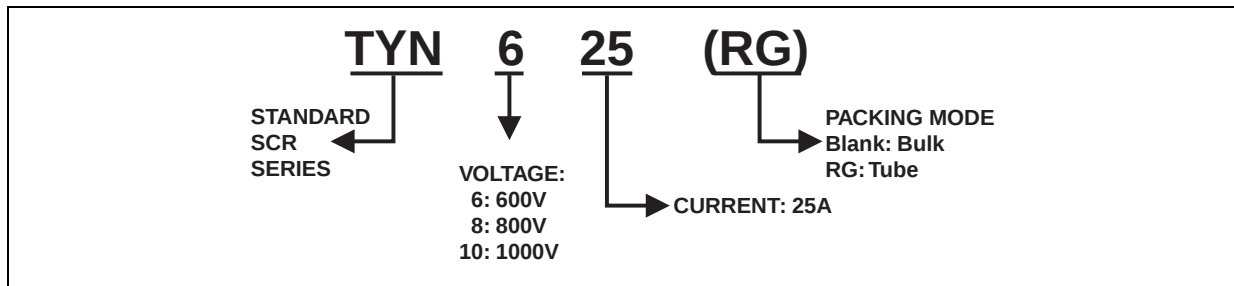
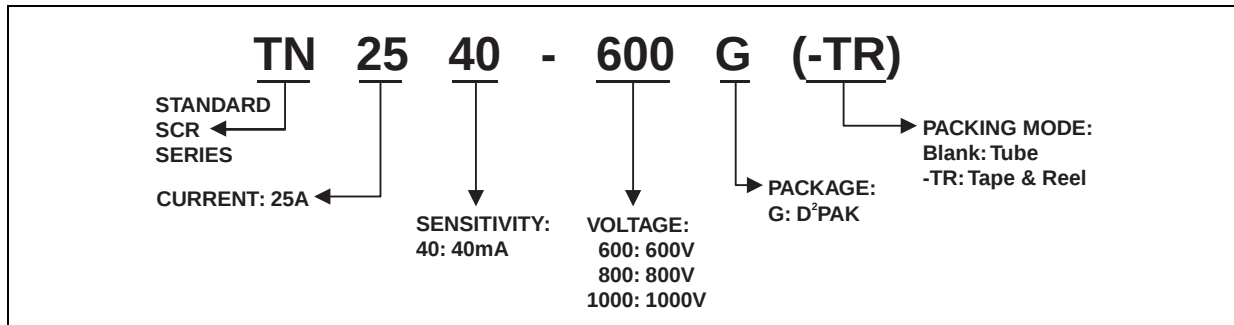
Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case (DC)		1.0	$^\circ\text{C/W}$
$R_{th(j-a)}$	Junction to ambient (DC)	TO-220AB	60	$^\circ\text{C/W}$
		$S = 1\text{ cm}^2$ D ² PAK	45	

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.

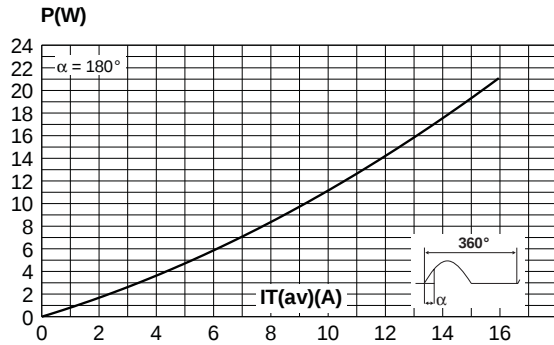


Fig. 2-1: Average and D.C. on-state current versus case temperature.

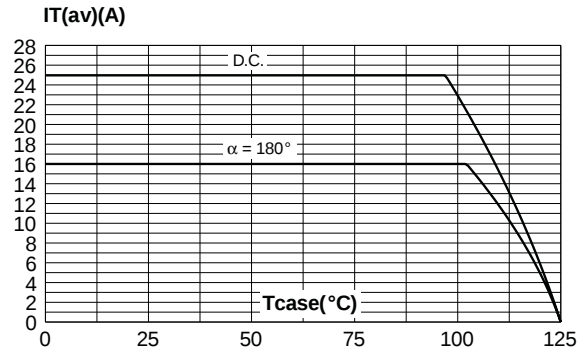


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (copper surface under tab: $S = 1 \text{ cm}^2$ (for D²PAK)).

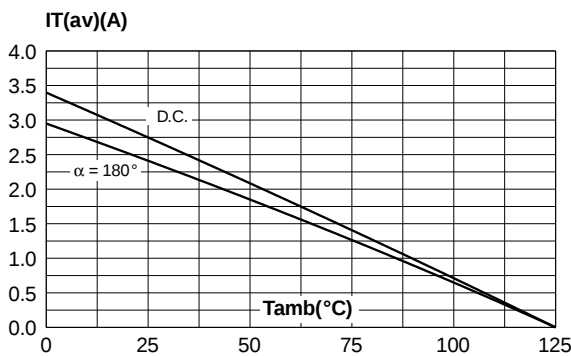


Fig. 3: Relative variation of thermal impedance versus pulse duration.

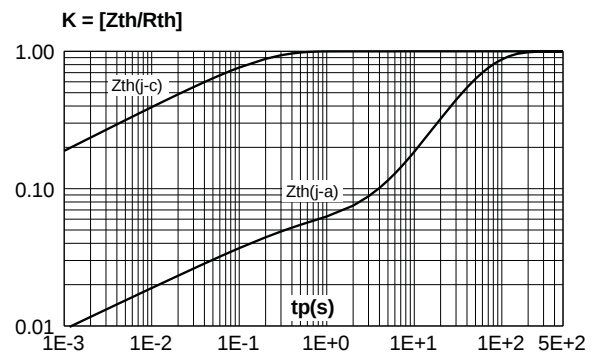


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature.

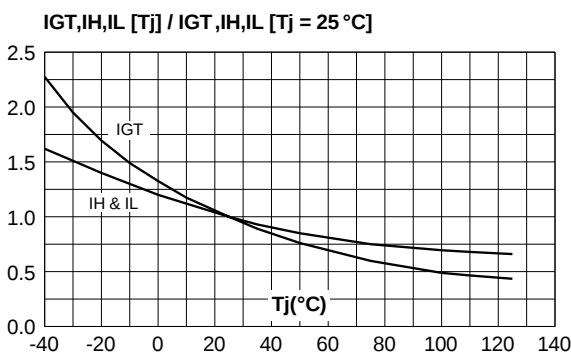


Fig. 5: Surge peak on-state current versus number of cycles.

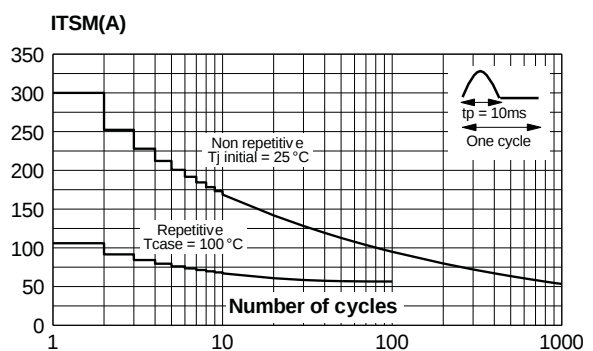


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding values of I^2t .

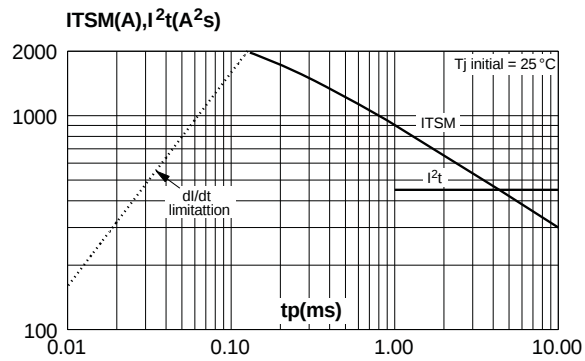


Fig. 7: On-state characteristics (maximum values).

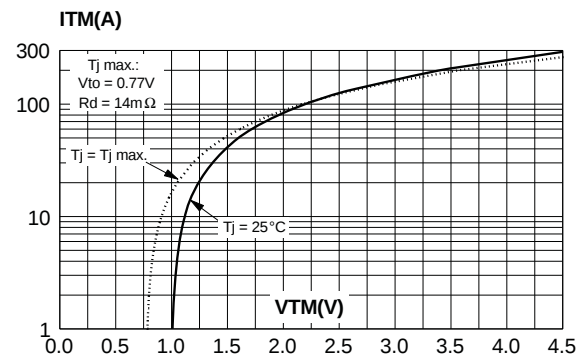
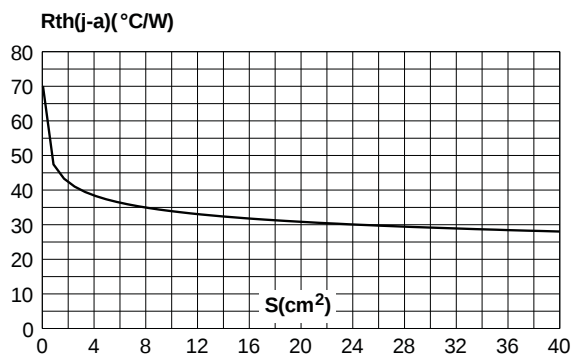


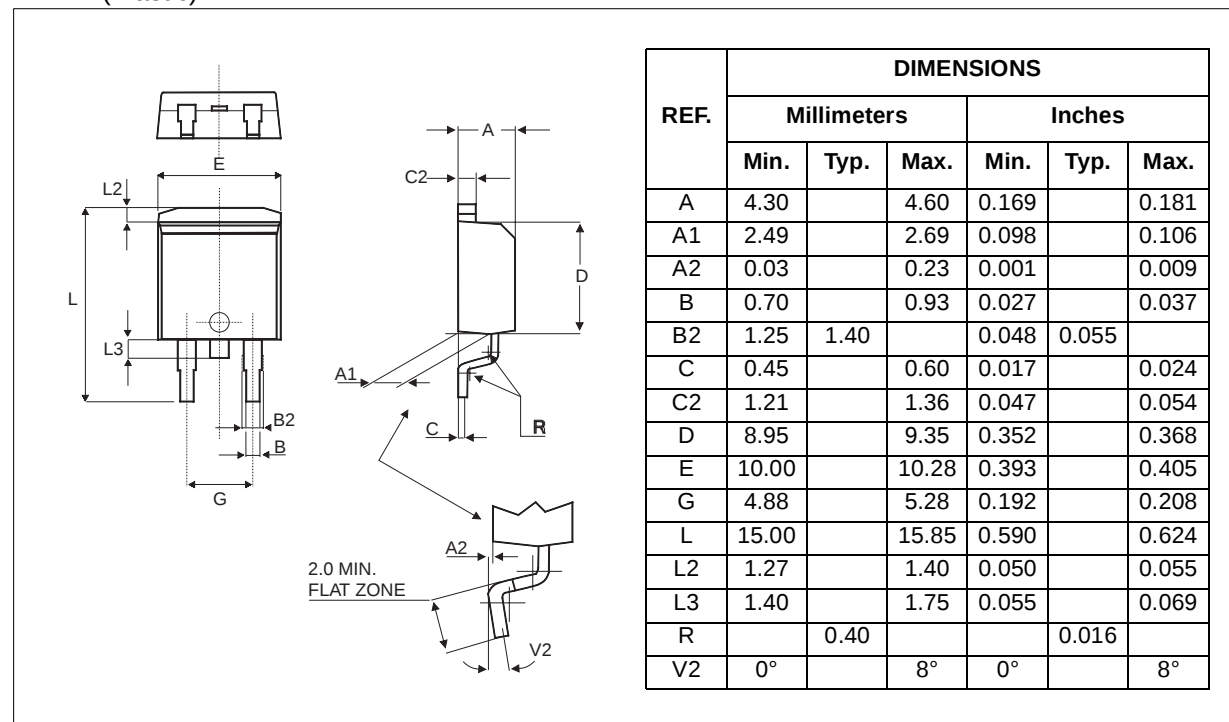
Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35 μm) (D^2PAK).



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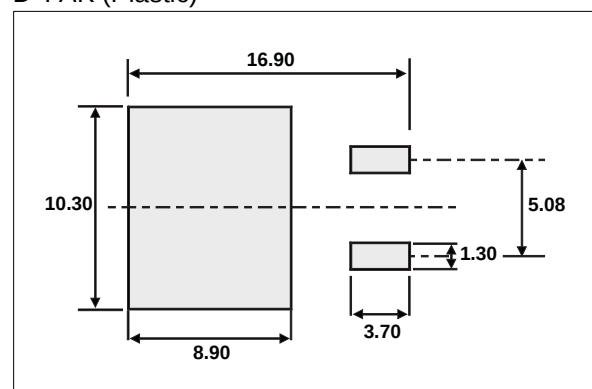
PACKAGE MECHANICAL DATA

D²PAK (Plastic)



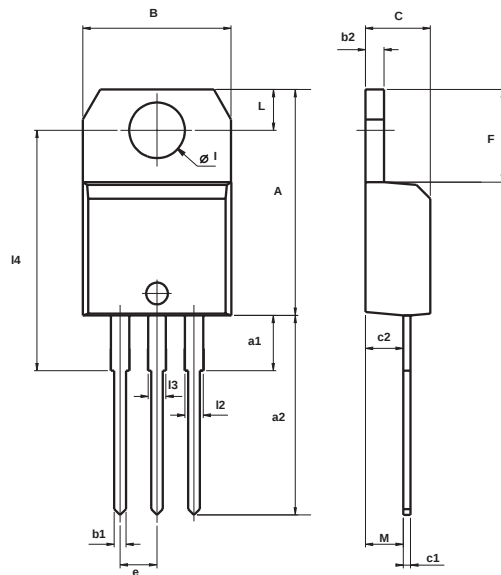
FOOTPRINT DIMENSIONS (in millimeters)

D²PAK (Plastic)



PACKAGE MECHANICAL DATA

TO-220AB (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
I	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
I3	1.14		1.70	0.044		0.066
M		2.60			0.102	

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