



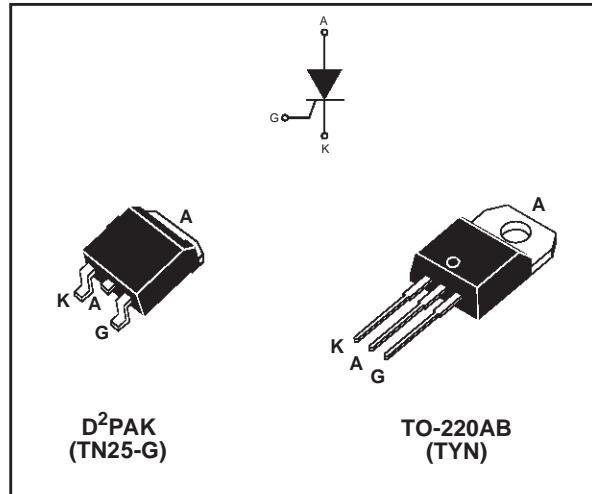
TN25 and TYNx25 Series

STANDARD

25A SCRs

MAIN FEATURES:

Symbol	Value	Unit
$I_T(\text{RMS})$	25	A
$V_{\text{DRM}}/V_{\text{RRM}}$	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
$I_T(\text{RMS})$	RMS on-state current (180° conduction angle)	$T_c = 100^\circ\text{C}$	25	A
$T_{(\text{AV})}$	Average on-state current (180° conduction angle)	$T_c = 100^\circ\text{C}$	16	A
I_{TSM}	Non repetitive surge peak on-state current	$t_p = 8.3 \text{ ms}$	314	A
		$t_p = 10 \text{ ms}$	300	
I_t	I_t Value for fusing	$t_p = 10 \text{ ms}$	$T_j = 25^\circ\text{C}$	A^2s
dI/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{\text{GT}}, t_r \leq 100 \text{ ns}$	$F = 60 \text{ Hz}$	$T_j = 125^\circ\text{C}$	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$t_p = 20 \mu\text{s}$	$T_j = 125^\circ\text{C}$	A
$P_{\text{G(AV)}}$	Average gate power dissipation		$T_j = 125^\circ\text{C}$	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

TN25 and TYNx25 Series

ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions			Value	Unit
I_{GT}	$V_D = 12 \text{ V}$ $R_L = 33 \Omega$		MIN.	4	mA
			MAX.	40	
			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	$\text{V}/\mu\text{s}$
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	$\text{m}\Omega$
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

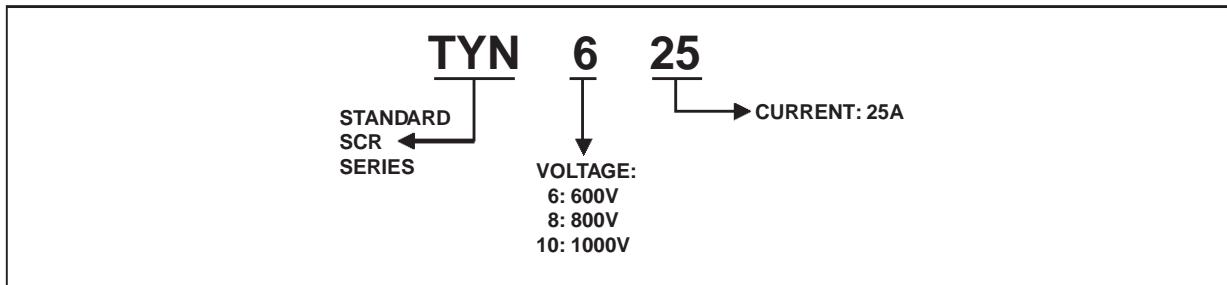
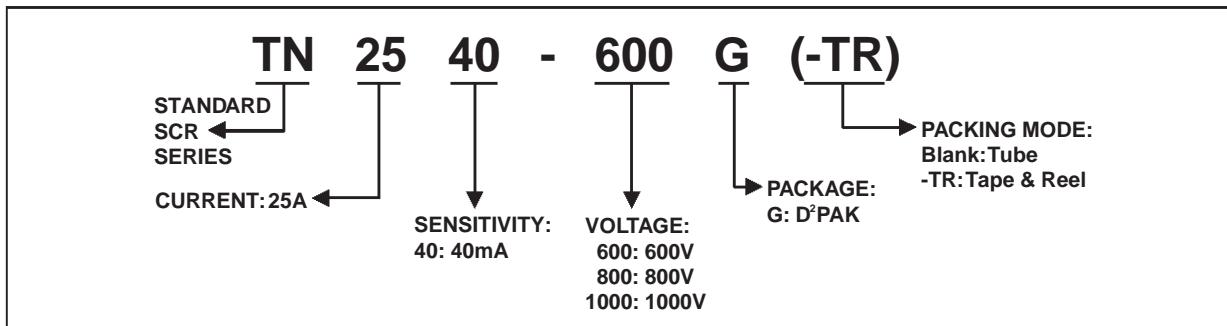
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (DC)	1.0	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient (DC)	TO-220AB	60
		S = 1 cm	45
		D PAK	$^\circ\text{C}/\text{W}$

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 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

Note: x = voltage

TN25 and TYNx25 Series

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

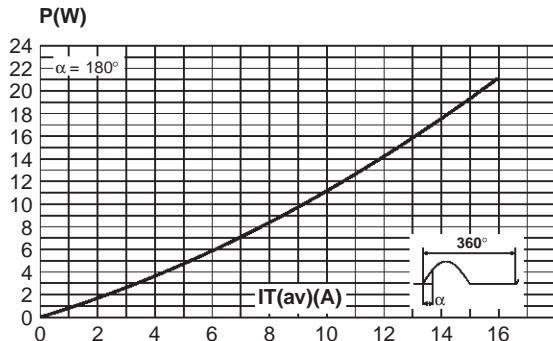


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (copper surface under tab: $S = 1 \text{ cm}$ (for D PAK).

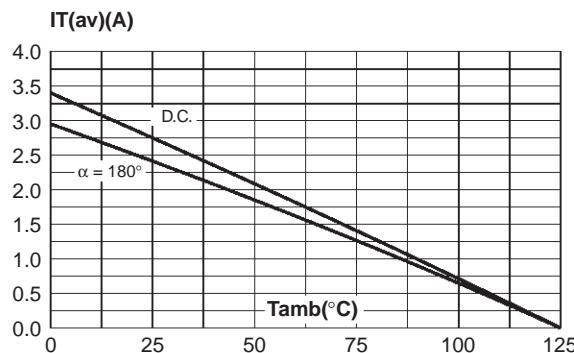


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature.

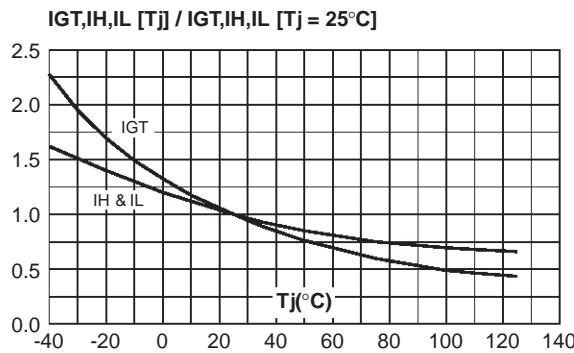


Fig. 2-1: Average and D.C. on-state current versus case temperature.

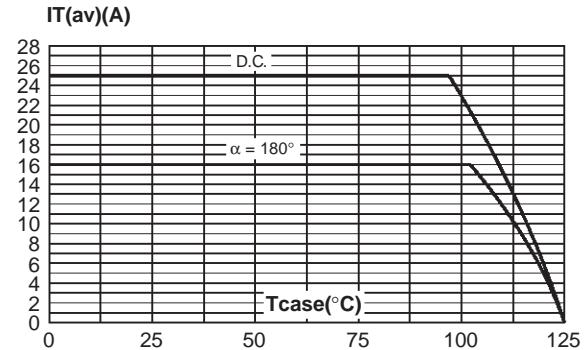


Fig. 3: Relative variation of thermal impedance versus pulse duration.

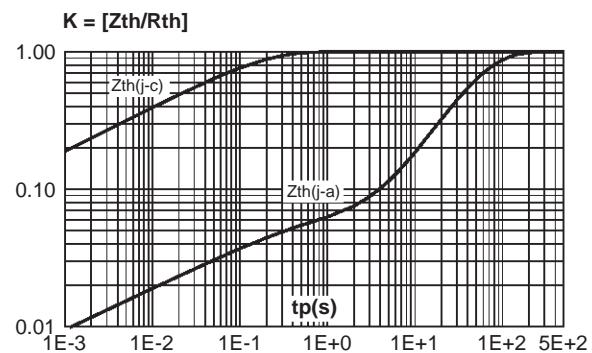


Fig. 5: Surge peak on-state current versus number of cycles.

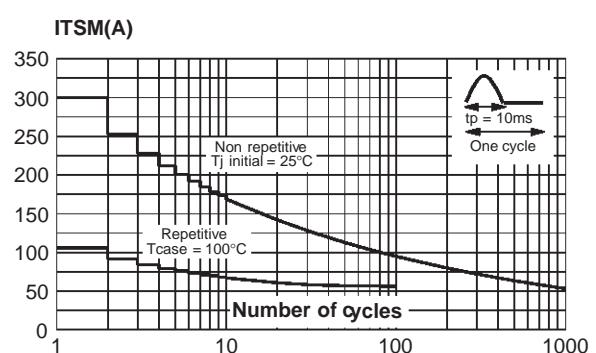


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding values of I^2t .

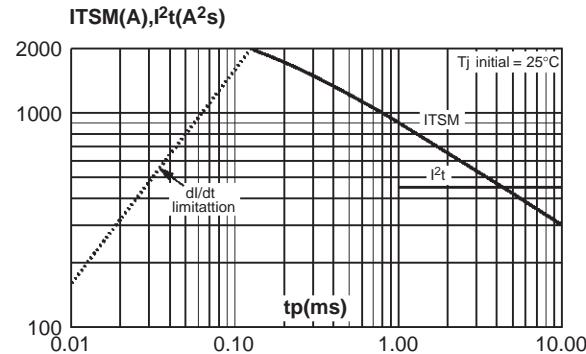


Fig. 7: On-state characteristics (maximum values).

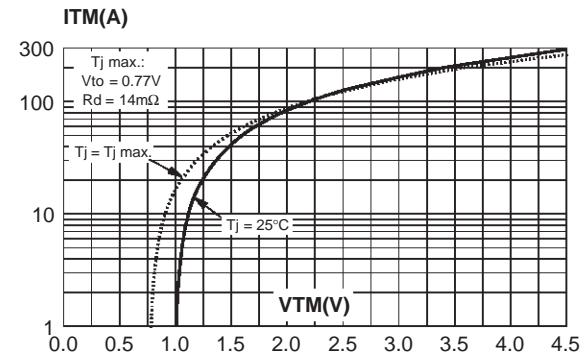
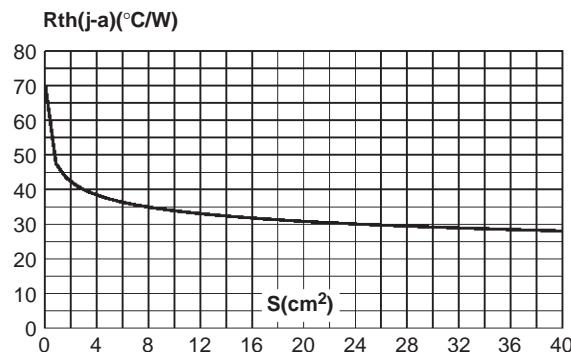


Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35 μm) (D²PAK).



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PACKAGE MECHANICAL DATA

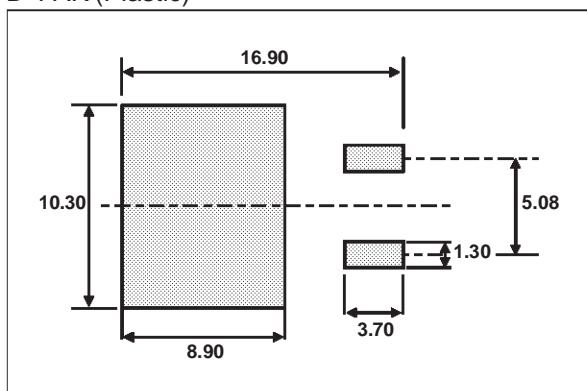
D²PAK (Plastic)

The diagram illustrates the 3D mechanical dimensions of the D²PAK package. It shows a top view with lead spacing L, lead height E, and lead thickness L3. A side view shows height D, lead width A, lead thickness C2, and lead pitch B2. An enlarged view of the lead tip shows lead angle A1, lead radius C, lead width A2, and lead tip angle V2. A note specifies a "2.0 MIN. FLAT ZONE" at the lead tip.

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.60	0.169		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.70		0.93	0.027		0.037
B2	1.25	1.40		0.048	0.055	
C	0.45		0.60	0.017		0.024
C2	1.21		1.36	0.047		0.054
D	8.95		9.35	0.352		0.368
E	10.00		10.28	0.393		0.405
G	4.88		5.28	0.192		0.208
L	15.00		15.85	0.590		0.624
L2	1.27		1.40	0.050		0.055
L3	1.40		1.75	0.055		0.069
R		0.40			0.016	
V2	0°		8°	0°		8°

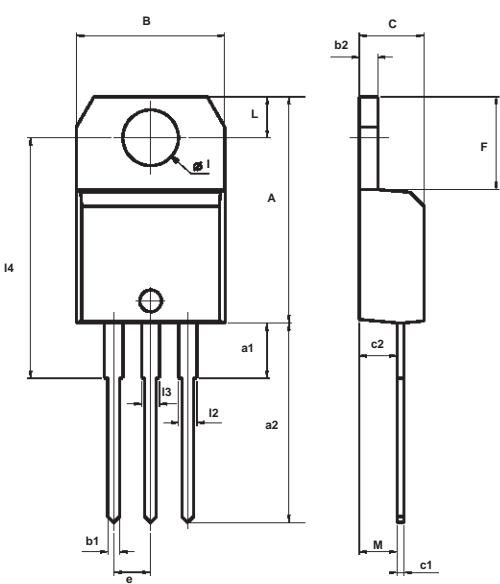
FOOTPRINT DIMENSIONS (in millimeters)

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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