



TN16 and TYNx16 Series

STANDARD

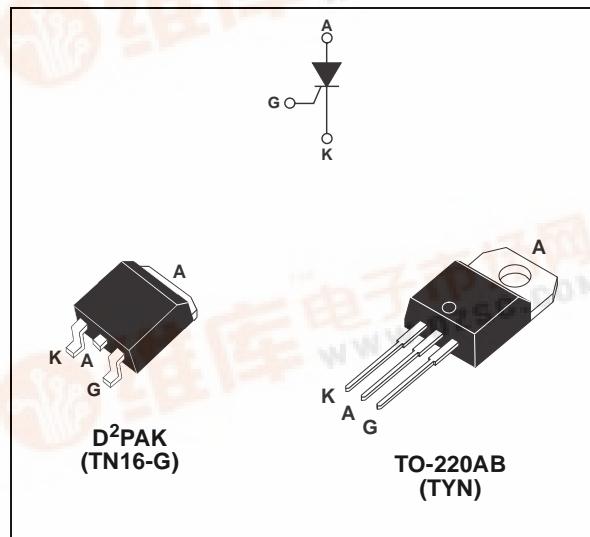
16A SCRs

MAIN FEATURES:

Symbol	Value	Unit
I _{T(RMS)}	16	A
V _{DRM/V_{RRM}}	600 to 1000	V
I _{GT}	25	mA

DESCRIPTION

The TYN / TN16 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 = 110°C	16	A
T _(AV)	Average on-state current (180° conduction angle)	T _c = 110°C	10	A
I _{TSM}	Non repetitive surge peak on-state current	tp = 8.3 ms	200	A
		tp = 10 ms		
I ² t	I ² t Value for fusing	tp = 10 ms	T _j = 25°C	180 A ² s
dl/dt	Critical rate of rise of on-state current I _G = 2 x I _{GT} , tr ≤ 100 ns	F = 60 Hz	T _j = 125°C	50 A/μs
I _{GM}	Peak gate current	tp = 20 μs	T _j = 125°C	4 A
P _{G(AV)}	Average gate power dissipation		T _j = 125°C	1 W
T _{stg} T _j	Storage junction temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 125	°C
V _{RGM}	Maximum peak reverse gate voltage		5	V

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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.	2
			MAX.	25
			MAX.	1.3
V_{GT}				V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$	$T_j = 125^\circ\text{C}$	MIN.	0.2
I_H	$I_T = 500 \text{ mA}$ Gate open		MAX.	40
I_L	$I_G = 1.2 \times I_{GT}$		MAX.	60
dV/dt	$V_D = 67\% V_{DRM}$ Gate open	$T_j = 125^\circ\text{C}$	MIN.	500
V_{TM}	$I_{TM} = 32 \text{ A}$ $t_p = 380 \mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX.	1.6
V_{t0}	Threshold voltage	$T_j = 125^\circ\text{C}$	MAX.	0.77
R_d	Dynamic resistance	$T_j = 125^\circ\text{C}$	MAX.	23
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$		MAX. ($T_j = 25^\circ\text{C}$)	5
			MAX. ($T_j = 125^\circ\text{C}$)	2
				μA
				mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (DC)	1.1	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient (DC)	TO-220AB	60
		$S = 1 \text{ cm}^2$	$^\circ\text{C}/\text{W}$
	D ² PAK	45	

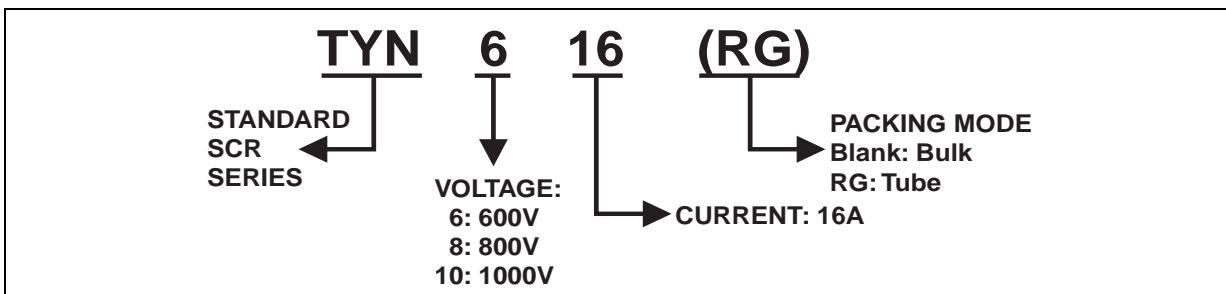
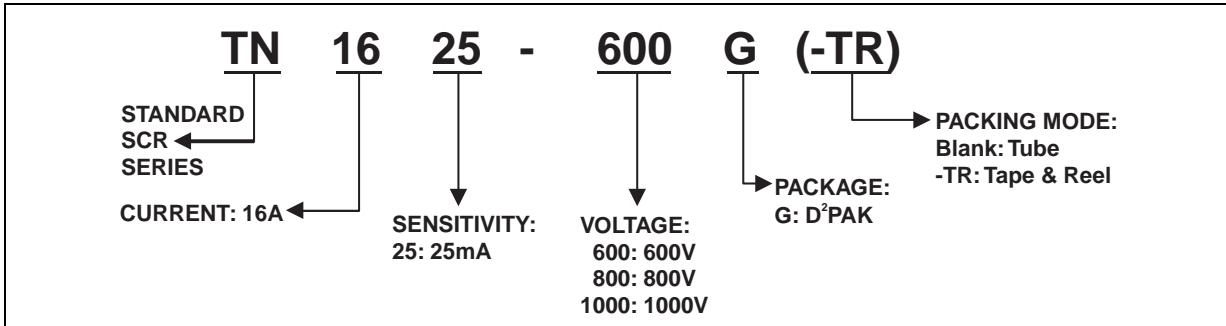
S = Copper surface under tab

PRODUCT SELECTOR

Part Number	Voltage (xxx)			Sensitivity	Package
	600 V	800 V	1000 V		
TN1625-xxxG	X	X	X	25 mA	D ² PAK
TYNx16	X	X	X	25 mA	TO-220AB

TN16 and TYNx16 Series

ORDERING INFORMATION



OTHER INFORMATION

Part Number	Marking	Weight	Base Quantity	Packing mode
TN1625-x00G	TN1625x00G	1.5 g	50	Tube
TN1625-x00G-TR	TN1625x00G	1.5 g	1000	Tape & reel
TYNx16	TYNx16	2.3 g	250	Bulk
TYNx16RG	TYNx16	2.3 g	50	Tube

Note: x = voltage

TN16 and TYNx16 Series

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

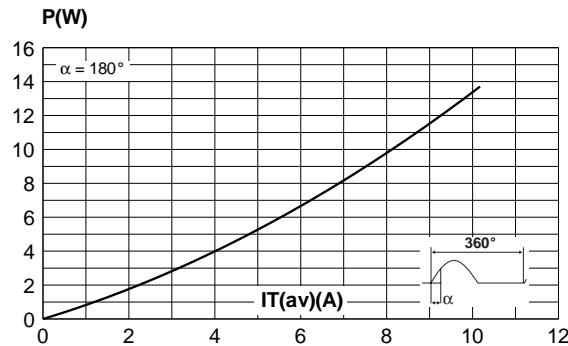


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (copper surface under tab: $S = 1 \text{ cm}^2$ (for D²PAK).

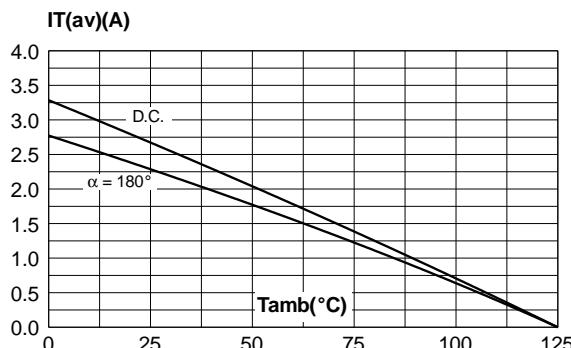


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature.

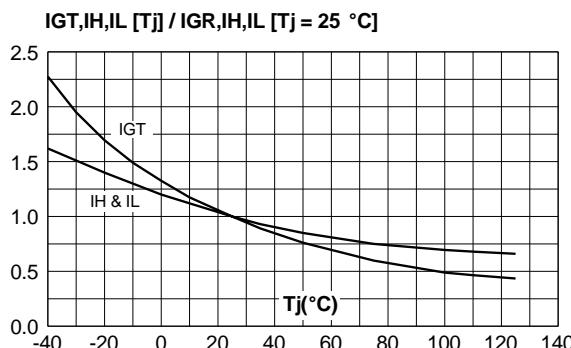


Fig. 2-1: Average and D.C. on-state current versus case temperature.

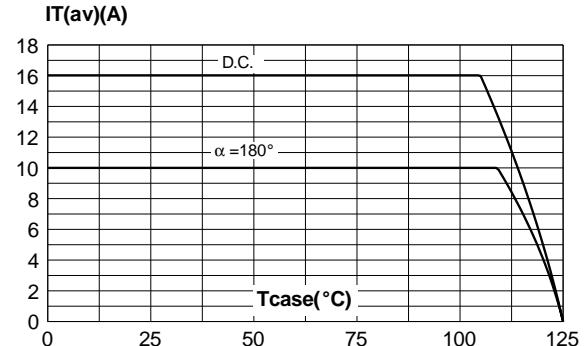


Fig. 3: Relative variation of thermal impedance versus pulse duration.

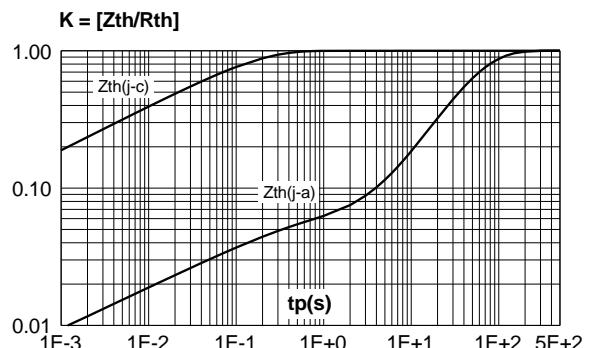


Fig. 5: Surge peak on-state current versus number of cycles.

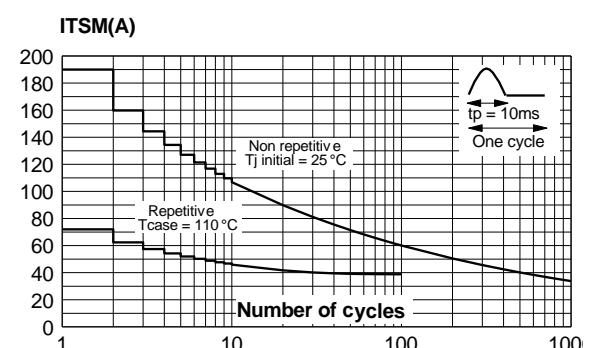


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding value of I^2t .

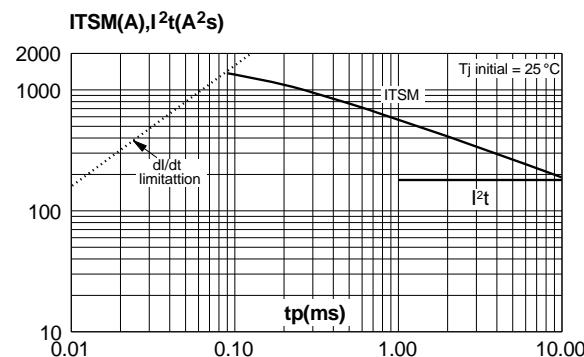


Fig. 7: On-state characteristics (maximum values).

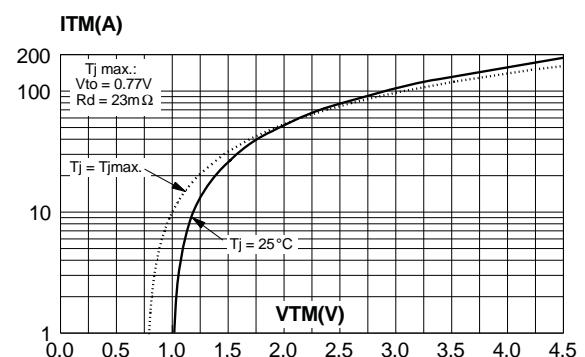
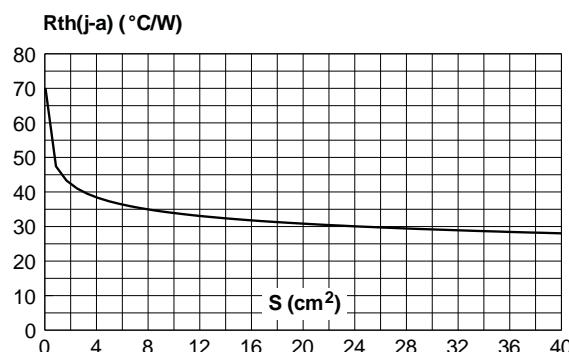


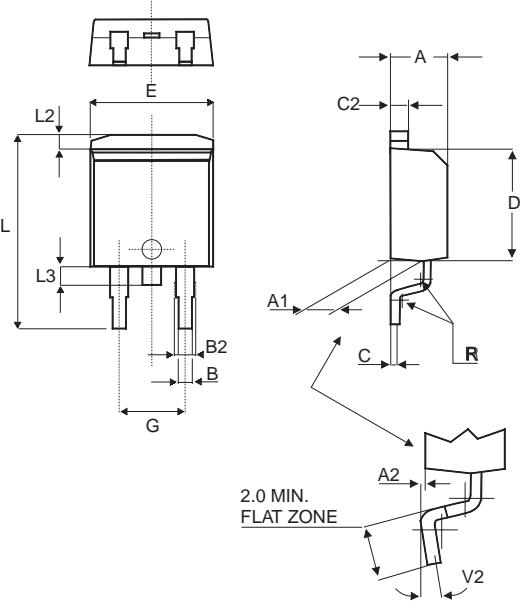
Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35 μm) (for D²PAK).



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PACKAGE MECHANICAL DATA

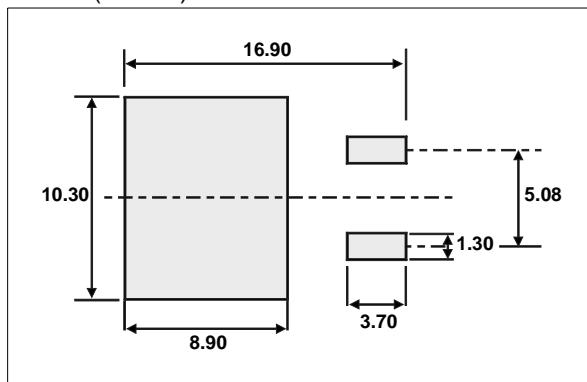
D²PAK (Plastic)



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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