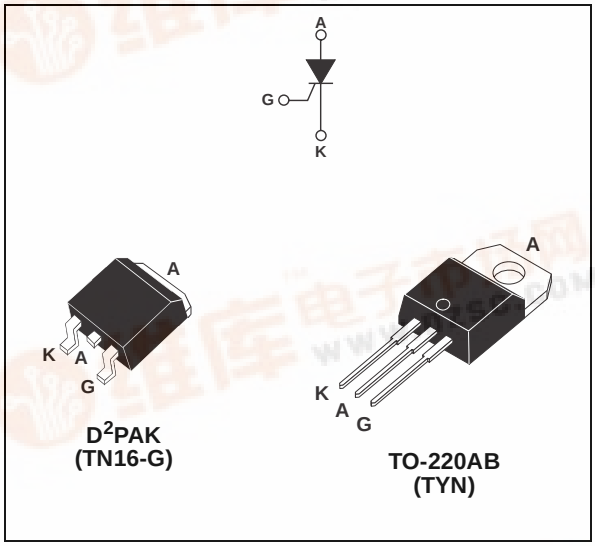
TN16 and TYNx16 Series

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)		Tc = 110°C	16	A
$T_{(AV)}$	Average on-state current (180° conduction angle)		Tc = 110°C	10	A
I_{TSM}	Non repetitive surge peak on-state current	tp = 8.3 ms	Tj = 25°C	200	A
		tp = 10 ms		190	
I^2t	I^2t Value for fusing	tp = 10 ms	Tj = 25°C	180	A^2S
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT} , tr ≤ 100 ns	F = 60 Hz	Tj = 125°C	50	A/µs
I_{GM}	Peak gate current	tp = 20 µs	Tj = 125°C	4	A
$P_{G(AV)}$	Average gate power dissipation		Tj = 125°C	1	W
T_{stg} Tj	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125	°C
V_{RGM}	Maximum peak reverse gate voltage			5	V

ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

Symbol	Test Conditions			Value	Unit
I_{GT}	V_D = 12 V R_L = 33 Ω		MIN.	2	mA
			MAX.	25	
V_{GT}			MAX.	1.3	V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3 kΩ	Tj = 125°C	MIN.	0.2	V
I_H	I_T = 500 mA Gate open		MAX.	40	mA
I_L	$I_G = 1.2 \times I_{GT}$		MAX.	60	mA
dV/dt	V_D = 67 % V_{DRM} Gate open	Tj = 125°C	MIN.	500	V/µs
V_{TM}	I_{TM} = 32 A tp = 380 µs	Tj = 25°C	MAX.	1.6	V
V_{t0}	Threshold voltage	Tj = 125°C	MAX.	0.77	V
R_d	Dynamic resistance	Tj = 125°C	MAX.	23	mΩ
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$	Tj = 25°C	MAX.	5	µA
		Tj = 125°C		2	mA

THERMAL RESISTANCES

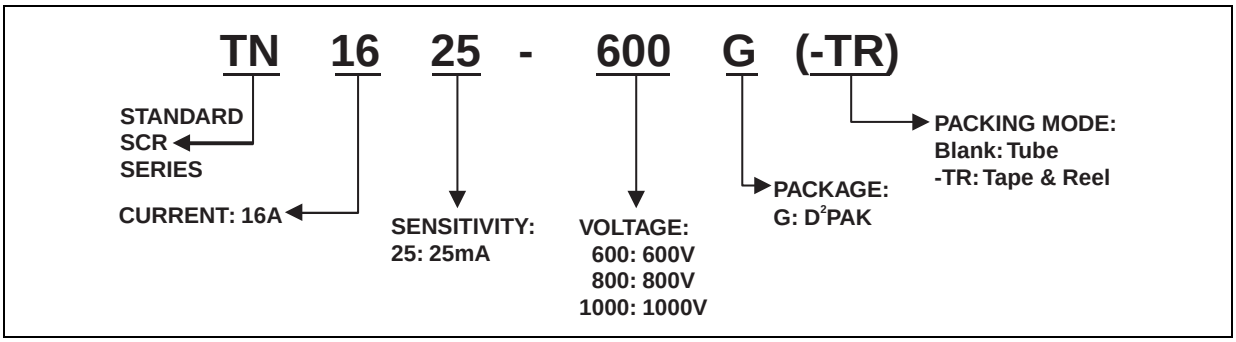
Symbol	Parameter			Value	Unit
$R_{th(j-c)}$	Junction to case (DC)			1.1	°C/W
$R_{th(j-a)}$	Junction to ambient (DC)		TO-220AB	60	°C/W
		S = 1 cm^2	D^2PAK	45	

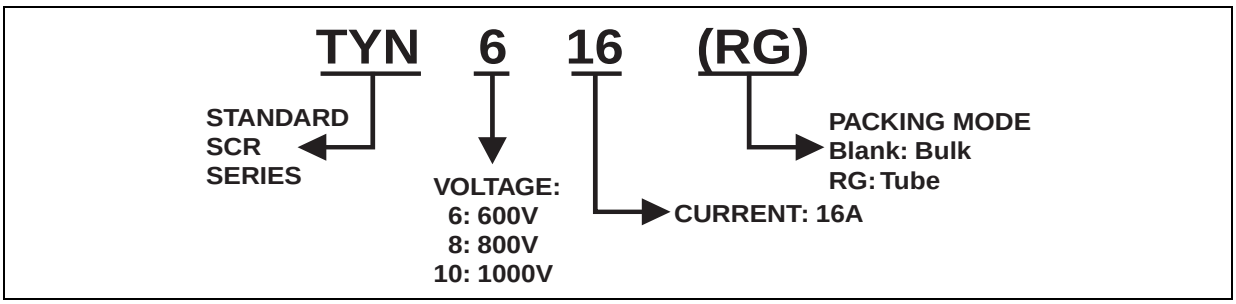
S = Copper surface under tab

PRODUCT SELECTOR

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

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

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

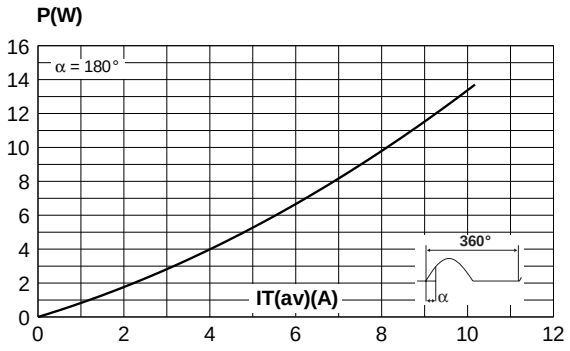


Fig. 2-1: Average and D.C. on-state current versus case temperature.

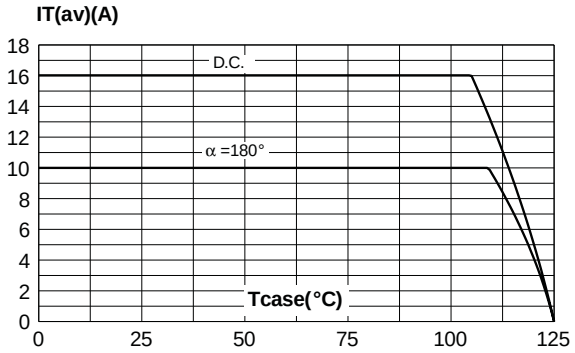


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (copper surface under tab: S = 1 cm² (for D²PAK).

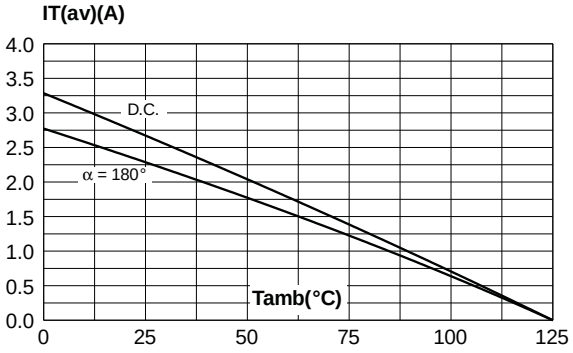


Fig. 3: Relative variation of thermal impedance versus pulse duration.

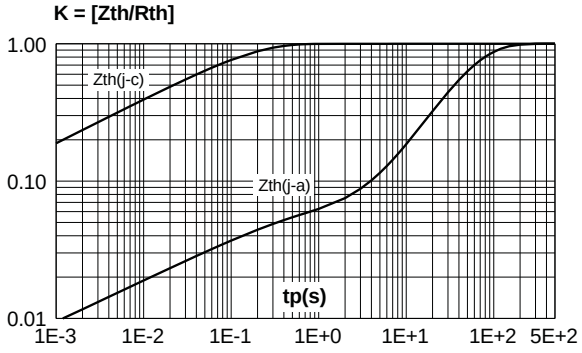


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature.

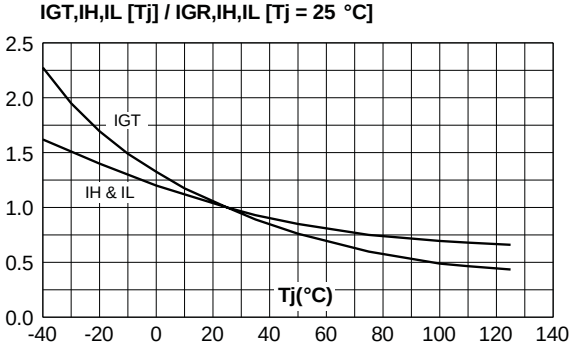


Fig. 5: Surge peak on-state current versus number of cycles.

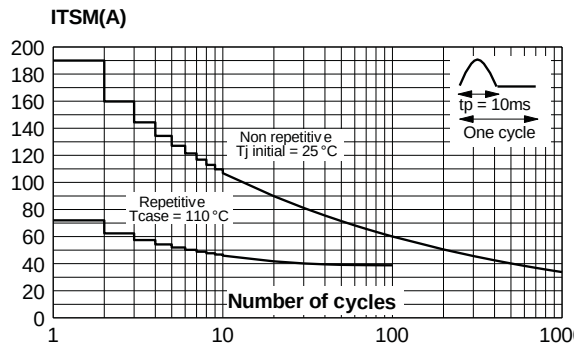


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding value of I^2t.

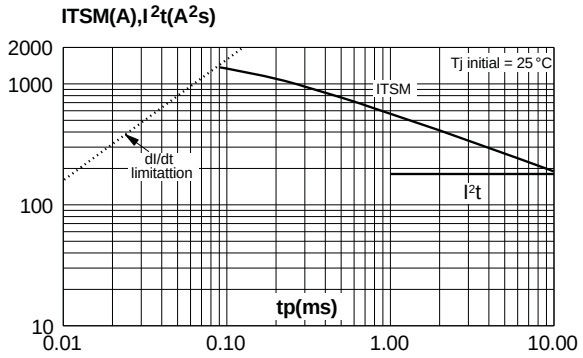


Fig. 7: On-state characteristics (maximum values).

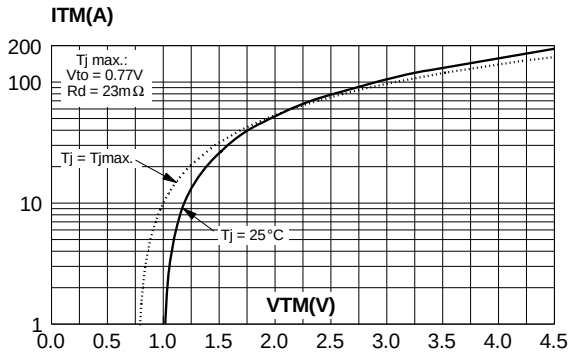
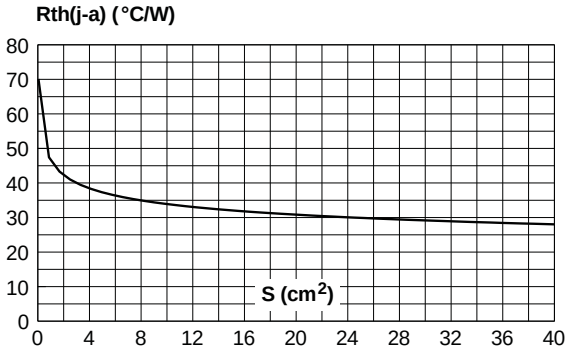
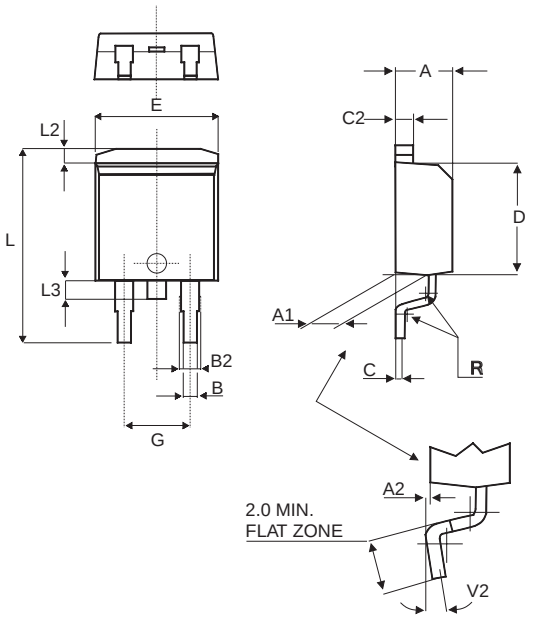


Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35 µm) (for D²PAK).



PACKAGE MECHANICAL DATA

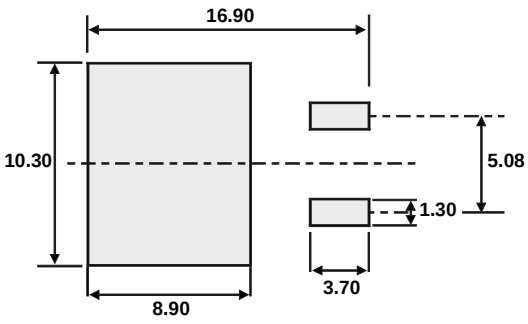
D²PAK (Plastic)



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°

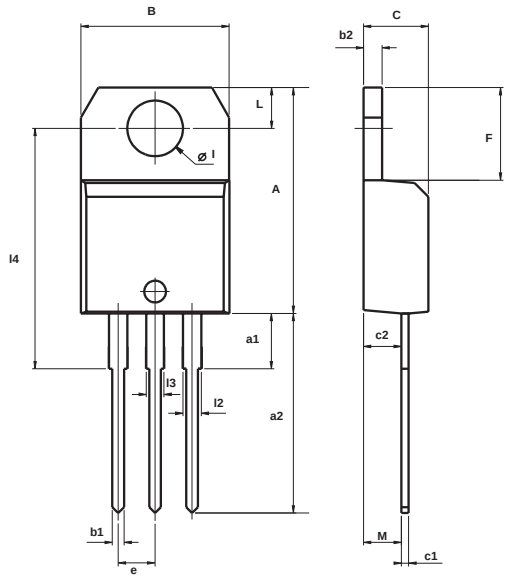
FOOTPRINT DIMENSIONS (in millimeters)

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	