Tables 4: 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	$I_G = 1.2 \times I_{GT}$		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

Table 5: Thermal resistance

Symbol	Parameter			Value	Unit
$R_{th(j-c)}$	Junction to case (DC)			1.0	°C/W
$R_{th(j-a)}$	Junction to ambient (DC)	S = 01 cm^2	D^2PAK	45	°C/W
			TO-220AB	60	

S = Copper surface under tab.

Figure 1: Maximum average power dissipation versus average on-state current

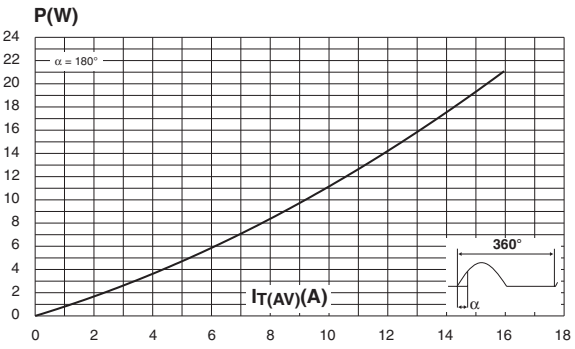


Figure 2: Average and D.C. on-state current versus case temperature

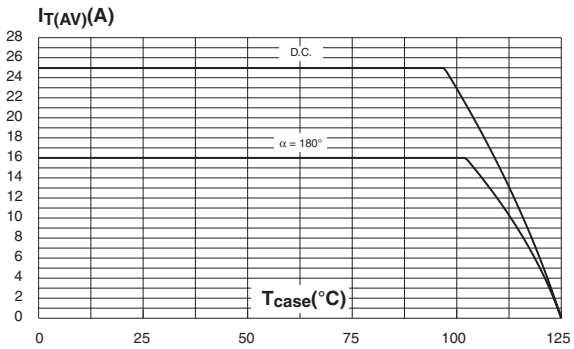


Figure 3: Average and D.C. on-state current versus ambient temperature (copper surface under tab: S=1cm^2) (D^{2}PAK)

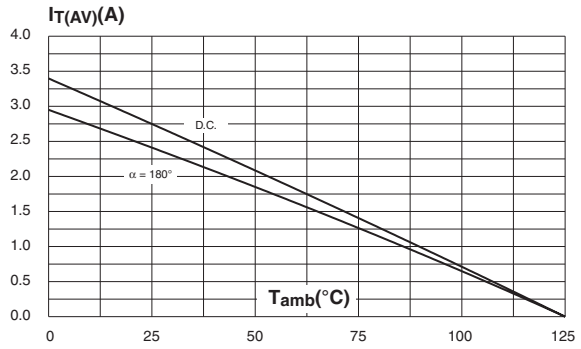


Figure 4: Relative variation of thermal impedance versus pulse duration

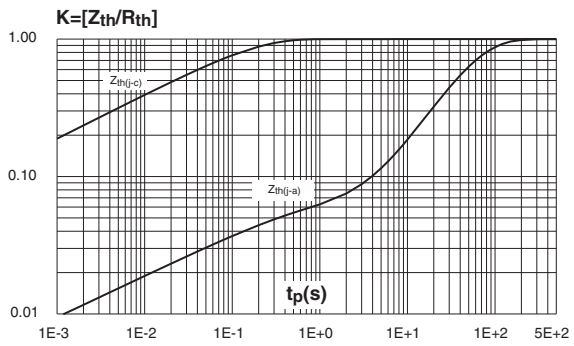


Figure 5: Relative variation of gate trigger current, holding current and latching current versus junction temperature

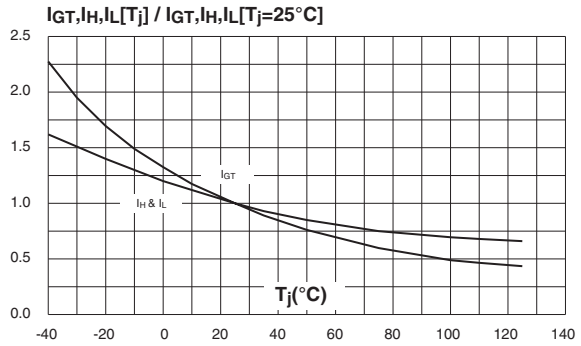


Figure 6: Surge peak on-state current versus number of cycles

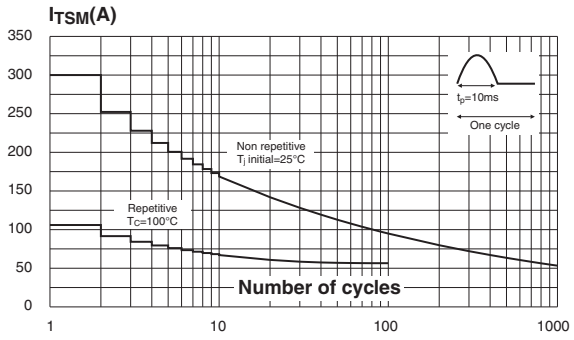


Figure 7: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding values of I²t

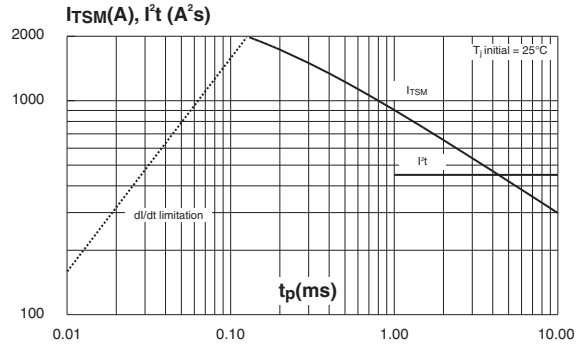


Figure 8: On-state characteristics (maximum values)

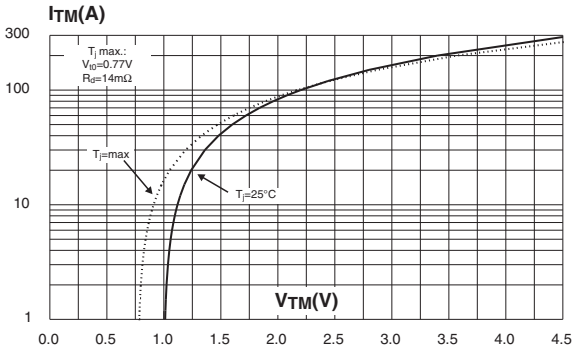


Figure 9: Thermal resistance junction to ambient versus copper surface under tab (epoxy printed circuit board FR4, copper thickness: 35µm) (D^2PAK)

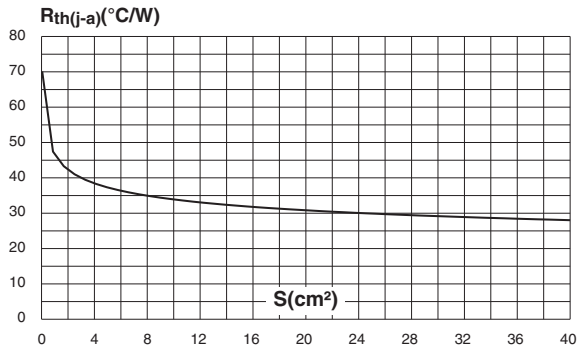


Figure 10: Ordering Information Scheme (TN25 series)

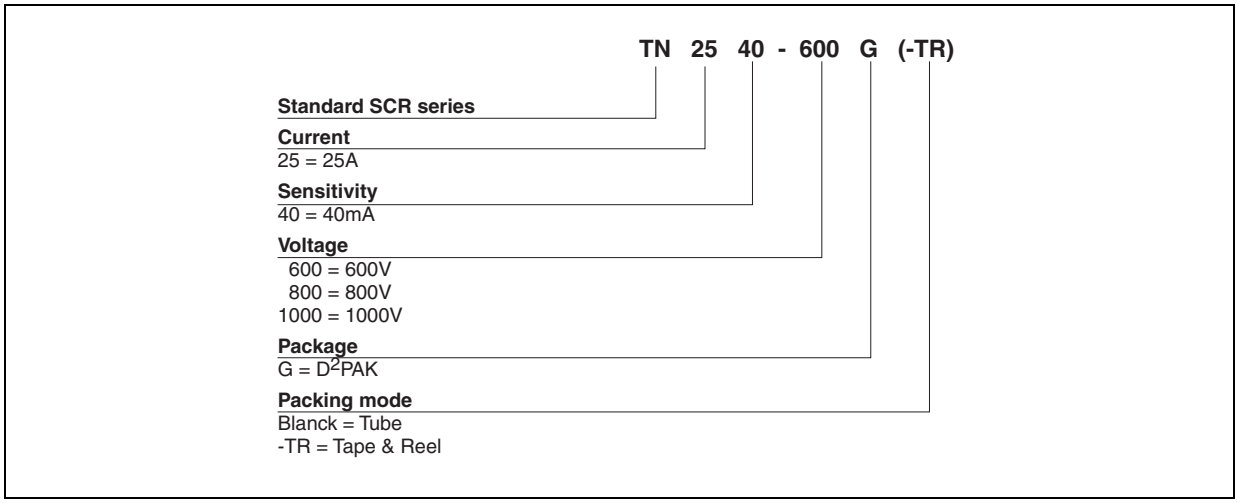


Figure 11: Ordering Information Scheme (TYN25 series)

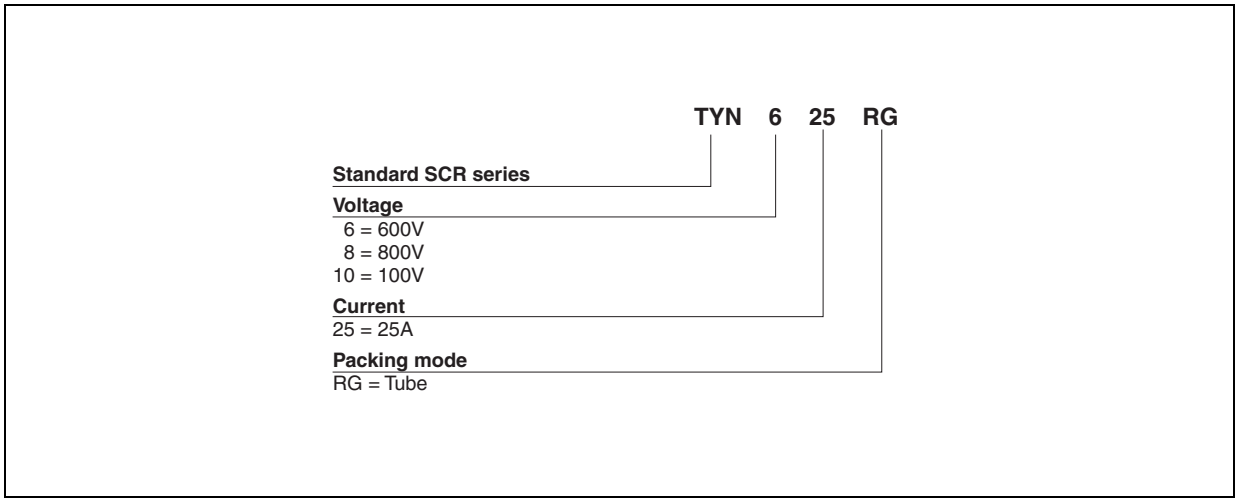
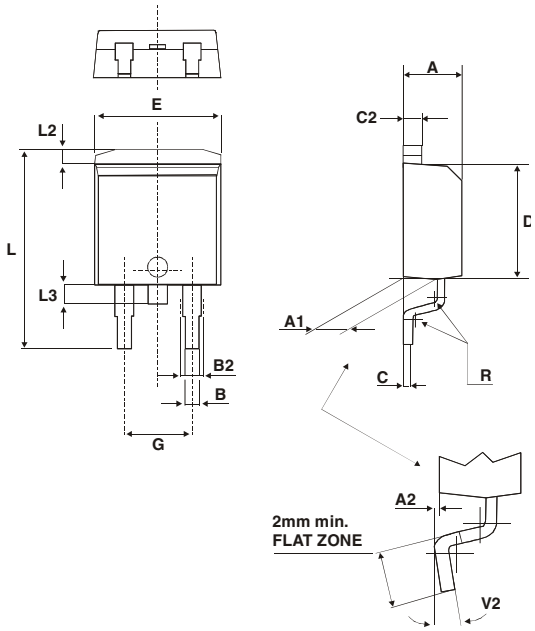


Table 6: Product Selector

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

Figure 12: D^2PAK Package Mechanical Data



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°

Figure 13: D^2PAK Foot Print Dimensions
(in millimeters)

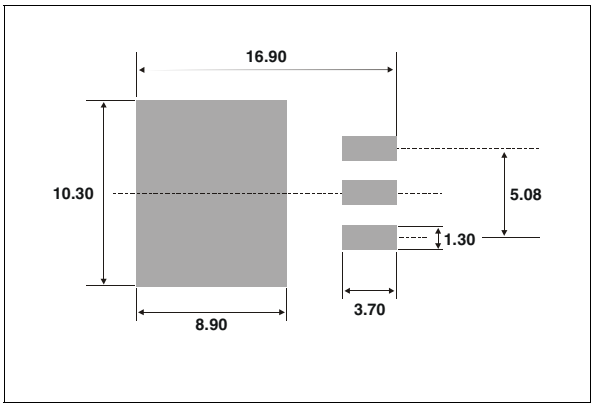
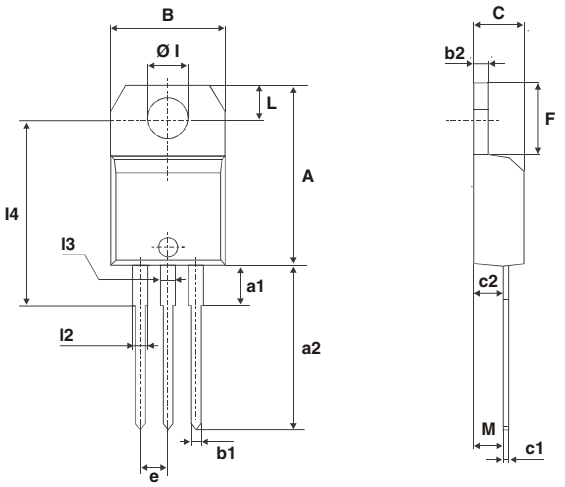


Figure 14: TO-220AB Package Mechanical Data



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
ØI	3.75		3.85	0.147		0.151
l4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
l2	1.14		1.70	0.044		0.066
l3	1.14		1.70	0.044		0.066
M		2.60			0.102	

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com.

Table 7: Ordering Information

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
TN2540-x00G	TN2540x00G	D^2PAK	1.5 g	50	Tube
TN2540-x00G-TR	TN2540x00G	D^2PAK	1.5 g	1000	Tape & reel
TYNx25RG	TYNx25	TO-220AB	2.3 g	50	Tube

Note: x = voltage

Table 8: Revision History

Date	Revision	Description of Changes
Apr-2002	4A	Last update.
13-Feb-2006	5	TO-220AB delivery mode changed from bulk to tube. ECOPACK statement added.