Tables 4: Electrical Characteristics (T_j = 25°C, unless otherwise specified)

Symbol	Test Conditions			Value	Unit
I_{GT}	V_D = 12 V (D.C.) R_L = 33 Ω		MAX.	15	mA
V_{GT}			MAX.	1.5	V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3 kΩ	T_j = 110°C	MIN.	0.2	V
t_{gt}	$V_D = V_{DRM}$ I_G = 40 mA dI_G/dt = 0.5 A/µs		TYP.	2	µs
I_H	I_T = 100 mA Gate open		MAX.	30	mA
I_L	$I_G = 1.2 \times I_{GT}$		TYP.	50	mA
dV/dt	Linear slope up to: V_D = 67 % V_{DRM} Gate open	T_j = 110°C	MIN.	200	V/µs
V_{TM}	I_{TM} = 20 A tp = 380 µs		MAX.	1.6	V
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$	T_j = 25°C	MAX.	10	µA
		T_j = 110°C		2	mA
t_q	V_D = 67 % V_{DRM} I_{TM} = 20 A V_R = 25 V dI_{TM}/dt = 30 A/µs dV_D/dt = 50 V/µs	T_j = 110°C	TYP.	70	µs

Table 5: Thermal Resistance

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (D.C.)	2.5	°C/W
$R_{th(j-a)}$	Junction to ambient	60	°C/W

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

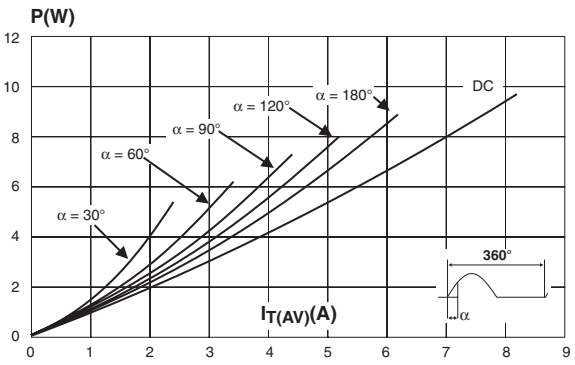


Figure 2: Correlation between maximum average power dissipation and maximum allowable temperature (T_{amb} and T_{lead})

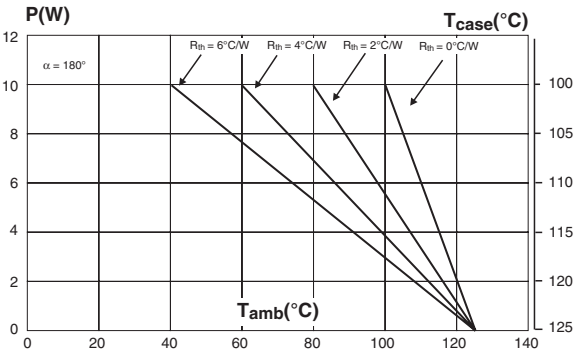


Figure 3: Average on-state current versus case temperature

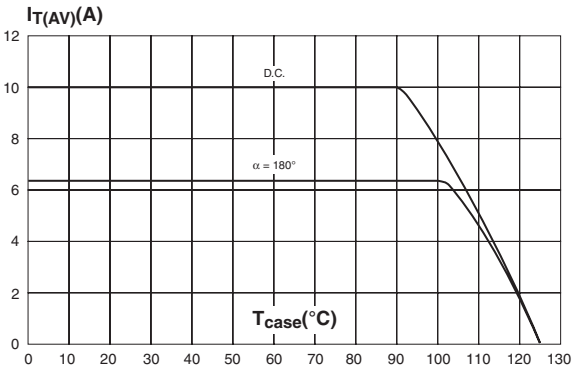


Figure 4: Relative variation of thermal impedance versus pulse duration

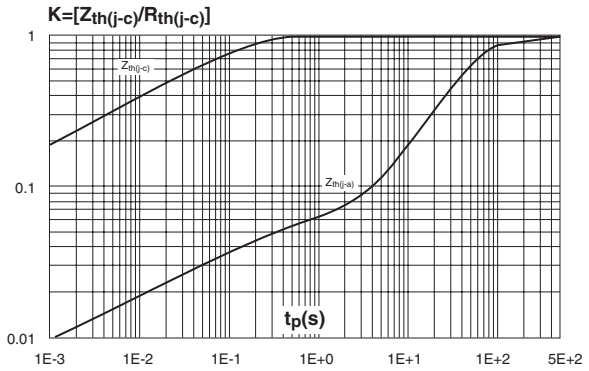


Figure 5: Relative variation of gate trigger current versus junction temperature

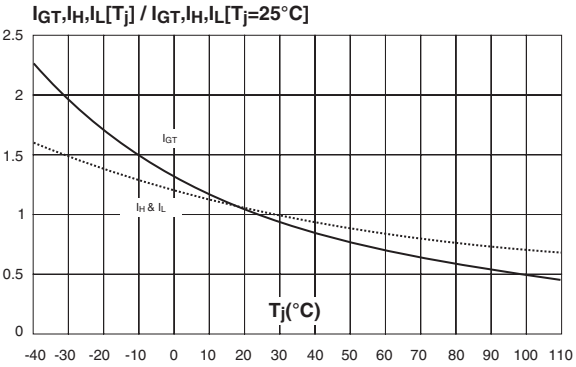


Figure 6: Surge peak on-state current versus number of cycles

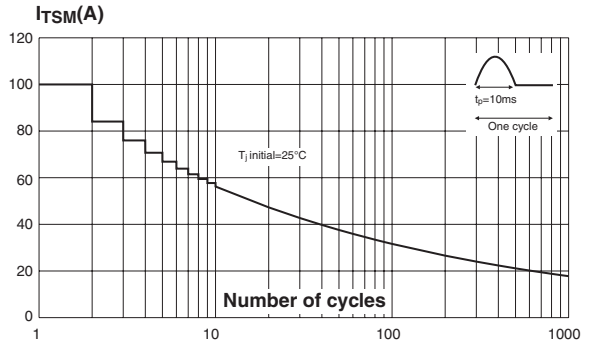


Figure 7: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding values of I²t

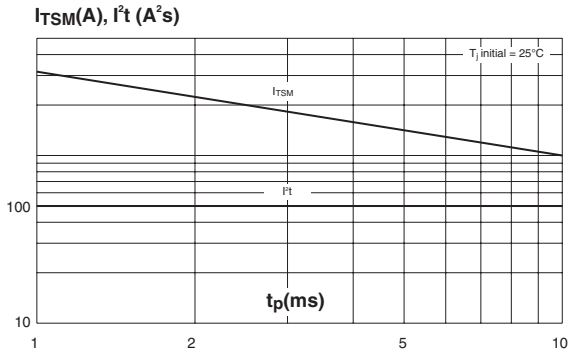


Figure 8: On-state characteristics (maximum values)

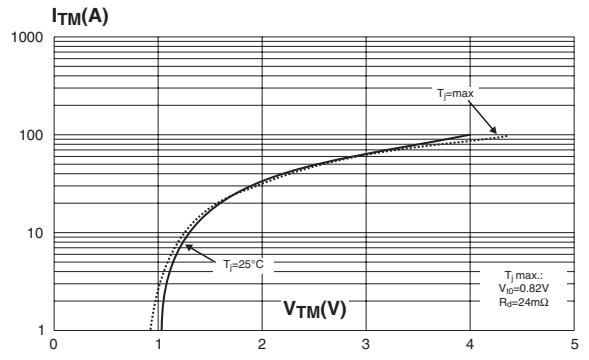


Figure 9: Ordering Information Scheme

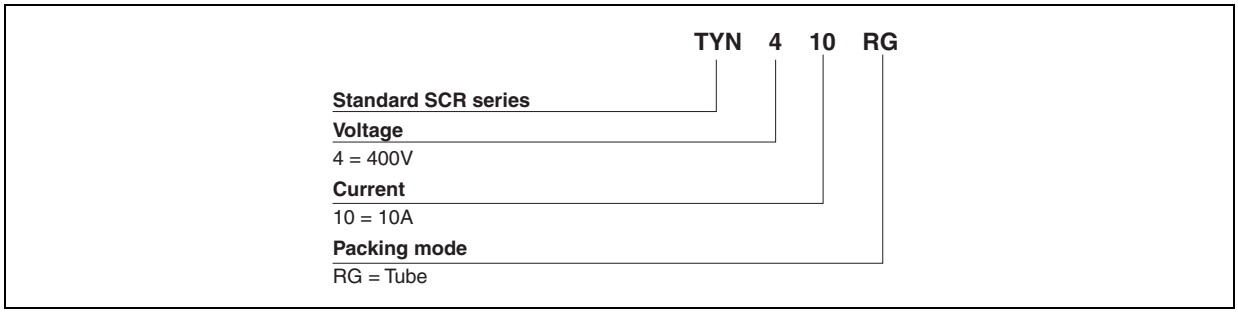
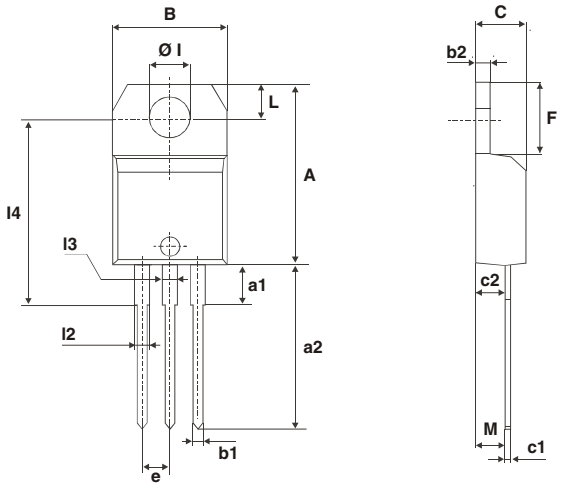


Table 6: Product Selector

Part Numbers	Voltage (xxx)			Sensitivity	Package
	400 V	600 V	800V		
TYN410RG	X			15 mA	TO-220AB
TYN610RG		X			
TYN810RG			X		

Figure 10: 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
TYN410RG	TYN410	TO-220AB	2.3 g	50	Tube
TYN610RG	TYN610				
TYN810RG	TYN810				

Table 8: Revision History

Date	Revision	Description of Changes
Sep-2001	1A	First issue.
13-Feb-2006	2	TO-220AB delivery mode changed from bulk to tube. ECOPACK statement added.

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics.
All other names are the property of their respective owners

© 2006 STMicroelectronics - All rights reserved

STMicroelectronics group of companies
Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America
www.st.com

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

STMicroelectronics:

TYN810RG