SGS-THOMSON MICROELECTRONICS

TN1215-G

SCR

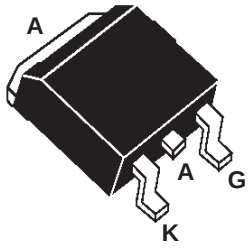
FEATURES

- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- HIGH STABILITY AND RELIABILITY

DESCRIPTION

The TN1215 series of Silicon Controlled Rectifiers uses a high performance glass passivated technology.

This SCR is designed for power supplies up to 400Hz on resistive or inductive load.



D^2PAK

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	Tc= 110°C	12	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	Tc= 110°C	8	A
I_{TSM}	Non repetitive surge peak on-state current	tp = 8.3 ms	146	A
	(Tj initial = 25°C)	tp = 10 ms	140	
I^2t	I^2t Value for fusing	tp = 10ms	98	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 100 mA dI_G/dt = 1 A/µs.		100	A/µs
T_{stg} T_j	Storage junction temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 125	°C
Tl	Maximum temperature for soldering during 10s		260	°C

Symbol	Parameter	TN1215-		Unit
		600G	800G	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage Tj = 125°C	600	800	V

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient (S=1cm^2)	45	°C/W
Rth(j-c)	Junction to case for D.C	1.3	°C/W

GATE CHARACTERISTICS

$P_{G\ (AV)}$= 1W P_{GM} = 10 W (tp = 20 µs) I_{GM} = 4 A (tp = 20 µs) V_{RGM} = 5 V

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Type	Value	Unit
I_{GT}	V_D = 12V (DC) R_L= 33Ω	Tj= 25°C	MIN	2	mA
			MAX	15	
V_{GT}	V_D = 12V (DC) R_L= 33Ω	Tj= 25°C	MAX	1.3	V
V_{GD}	V_D = V_{DRM} R_L = 3.3kΩ	Tj= 125°C	MIN	0.2	V
I_H	I_T= 100mA Gate open	Tj= 25°C	MAX	30	mA
I_L	I_G = 1.2 I_{GT}	Tj= 25°C	MAX	60	mA
V_{TM}	I_{TM}= 24A tp= 380µs	Tj= 25°C	MAX	1.5	V
I_{DRM}	V_D = V_{DRM}	Tj= 25°C	MAX	5	µA
I_{RRM}	V_R = V_{RRM}	Tj= 125°C	MAX	3	mA
dV/dt	V_D=67%V_{DRM} Gate open	Tj= 125°C	MIN	200	V/µs

ORDERING INFORMATION Add "-TR" suffix for Tape & Reel shipment

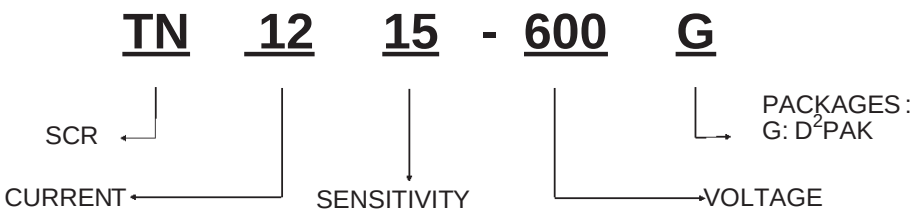


Fig. 1: Maximum average power dissipation versus average on-state current .

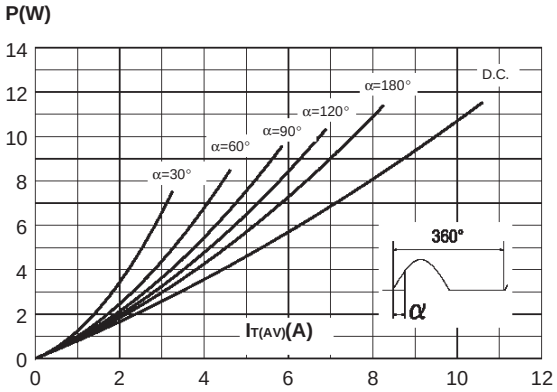


Fig. 2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink+contact.

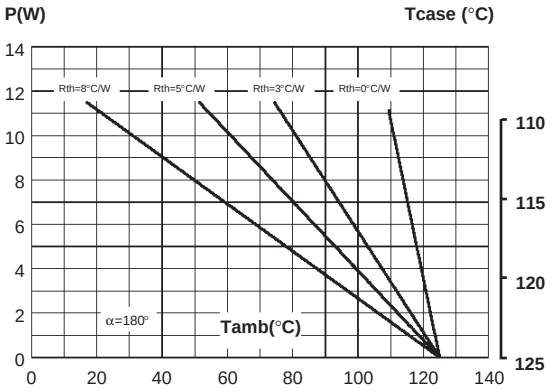


Fig. 3: Average and D.C. on-state current versus case temperature.

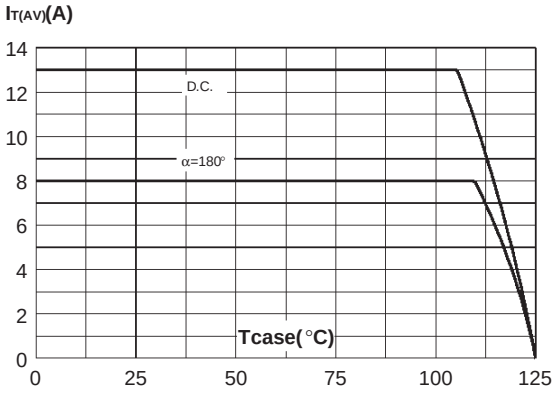


Fig. 4: Relative variation of thermal impedance versus pulse duration.

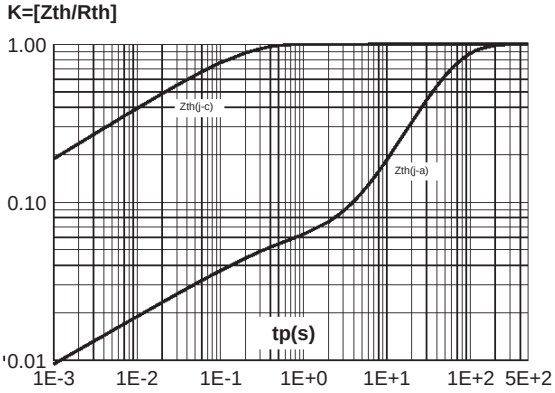


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

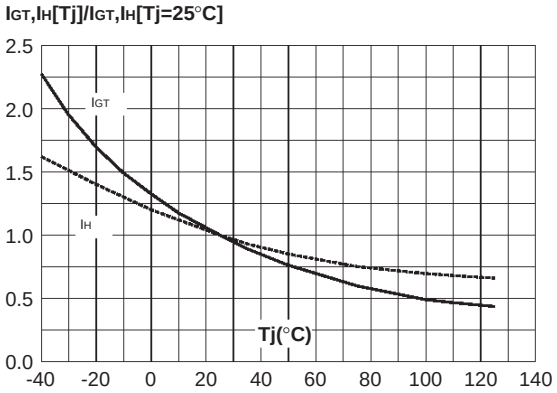


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

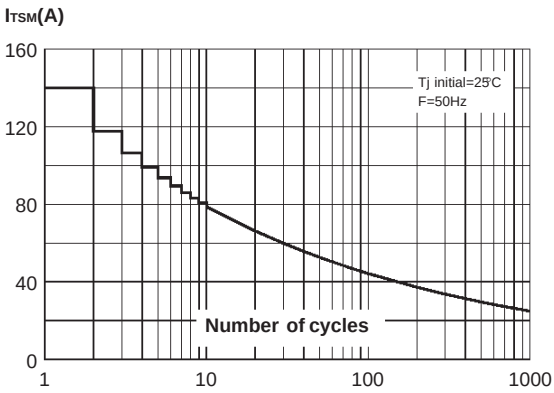


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponding value of I^2t.

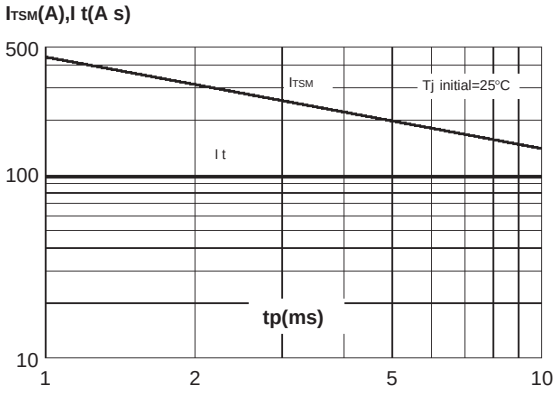


Fig. 8: On-state characteristics (maximum values).

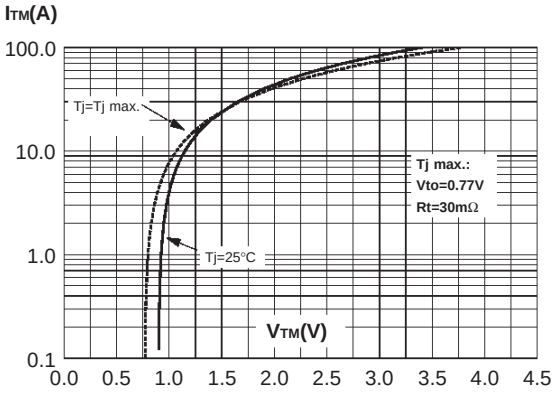


Fig. 9: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35µm).

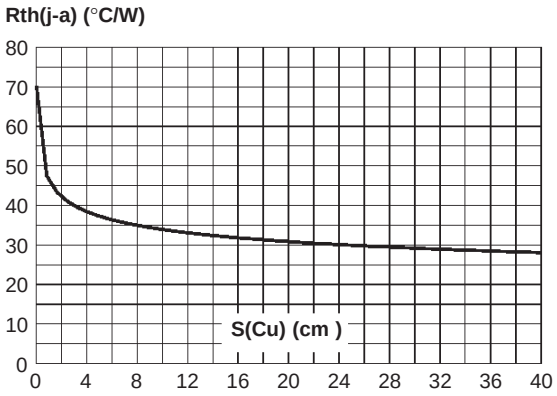
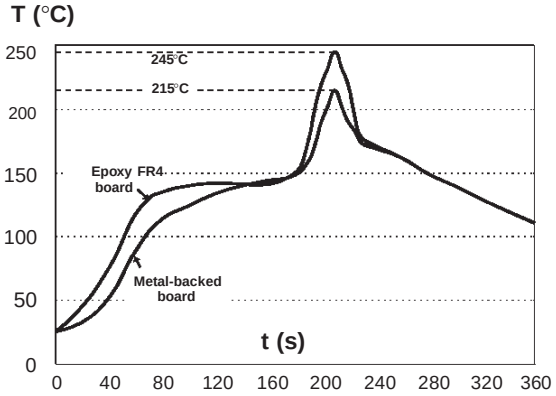
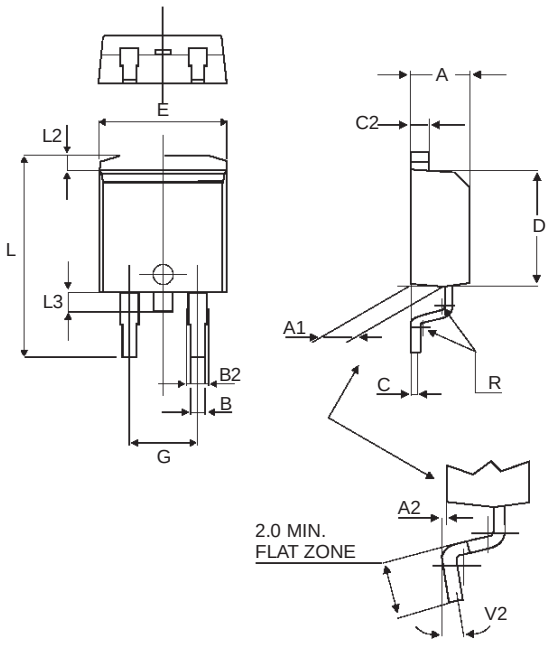


Fig. 10: Typical reflow soldering heat profile, either for mounting on FR4 or metal-backed boards.

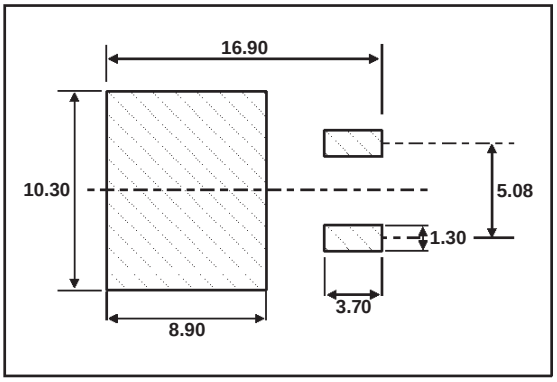


PACKAGE MECHANICAL DATA
D^2PAK



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		1.40			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°

FOOT PRINT DIMENSIONS (in millimeters)



MARKING: TN1215
x00G