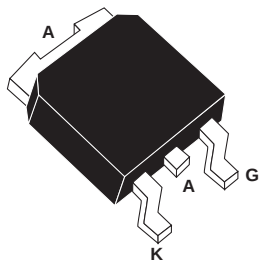
TN1215-600B

STANDARD SCR

FEATURES

- I_{TRMS} = 12 A
- V_{DRM} / V_{RRM} = 600 V
- I_{GT} < 15 mA
- I_{TSM} = 110 A



DPAK

DESCRIPTION

The TN1215-600B SCR uses a high performance TOPGLASS PNPN technology.

This part is intended for general purpose applications using surface mount technology and requiring high surge capability (power tools, crowbar protection, voltage regulation, etc...).

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{DRM} V_{RRM}	Repetitive peak off-state voltage	Tj = 125°C	600	V
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	Tc= 105°C	12	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	Tc= 105°C	8	A
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25°C)	tp = 8.3 ms	115	A
		tp = 10 ms	110	
I^2t	I^2t Value for fusing	tp = 10ms	60	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 20 mA dI_G/dt = 1 A/µs.		50	A/µs
T_{stg} T_j	Storage junction temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 125	°C
T	Maximum temperature for soldering during 10s		260	°C

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient (S=0.5cm^2)	70	°C/W
Rth(j-c)	Junction to case for D.C	1.5	°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	1.5	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	40	mA
V_{TM}	I_{TM}= 24A tp= 380µs	Tj= 25°C	MAX	1.6	V
I_{DRM}	V_D = V_{DRM}	Tj= 25°C	MAX	10	µA
I_{RRM}	V_R = V_{RRM}	Tj = 125°C	MAX	2	mA
dV/dt	Linear slope up to V_D=67%V_{DRM} Gate open	Tj= 125°C	MIN	200	V/µs

ORDERING INFORMATION

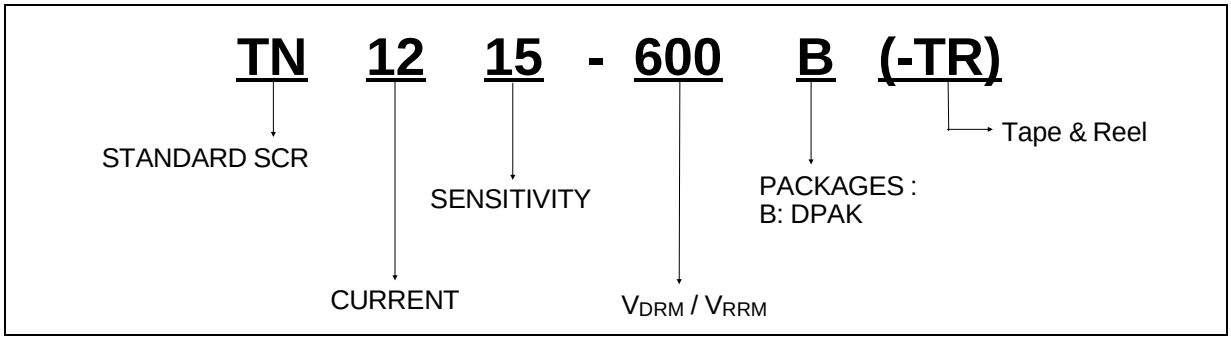


Fig. 1: Maximum average power dissipation versus average on-state current .

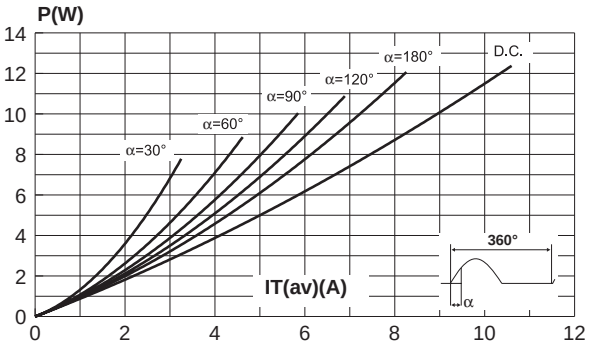


Fig. 2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances.

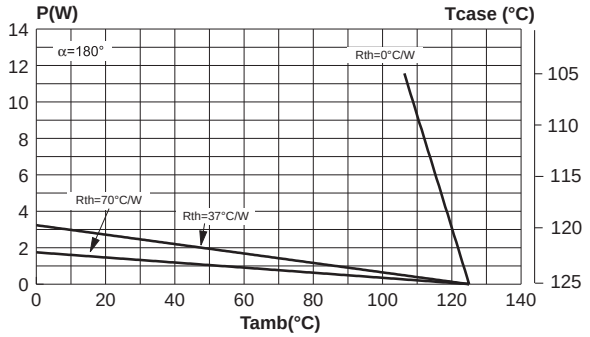


Fig. 3: Average and D.C. on-state current versus case temperature.

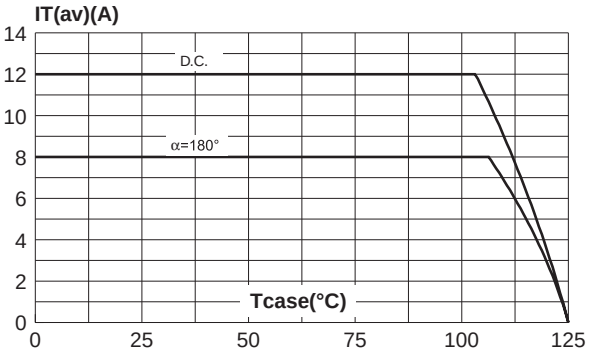


Fig. 4: Average and D.C. on-state current versus ambient temperature (Printed circuit board FR4, SCu=0.5cm2).

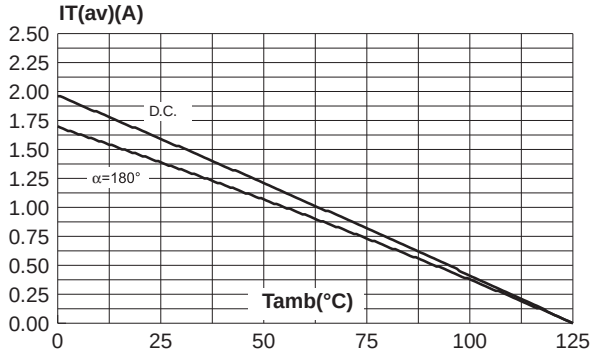


Fig. 5: Relative variation of thermal impedance junction to ambient versus pulse duration (recommended pad layout).

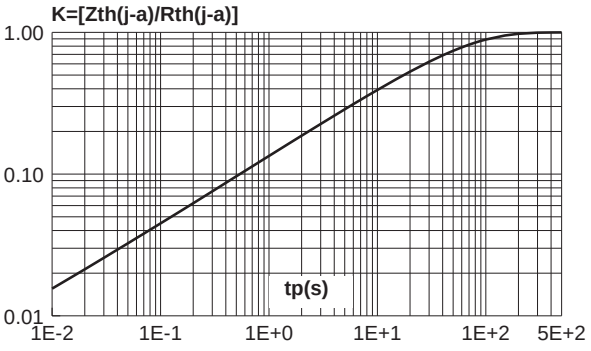


Fig. 6: Relative variation of gate trigger current and holding current versus junction temperature

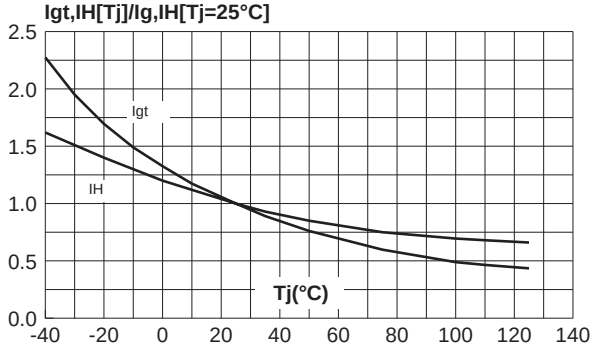


Fig 7: Non repetitive surge peak on-state current versus number of cycles.

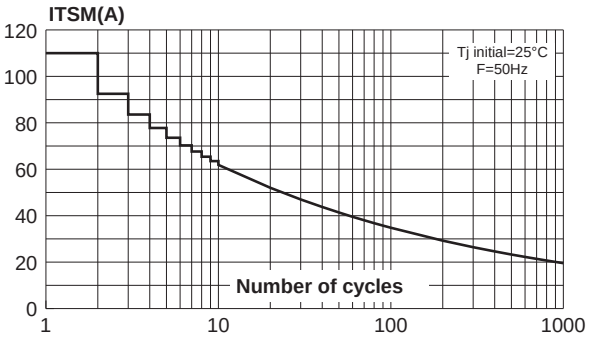


Fig 8: Non repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponding value of I2t.

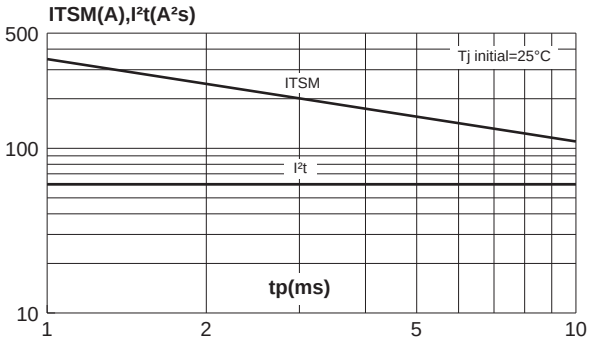


Fig 9: On-state characteristics (maximum values).

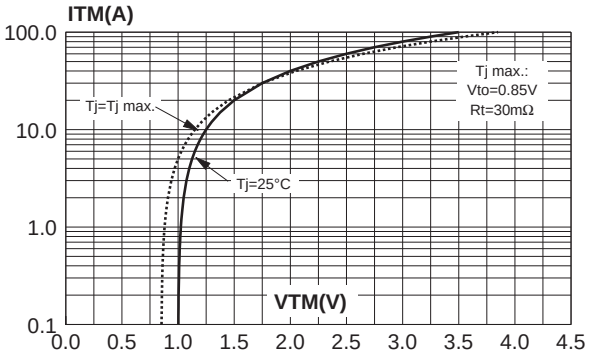
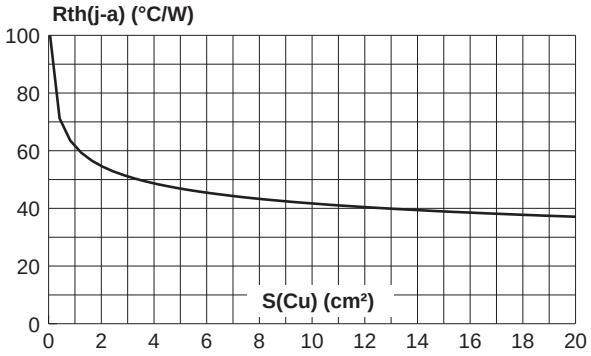
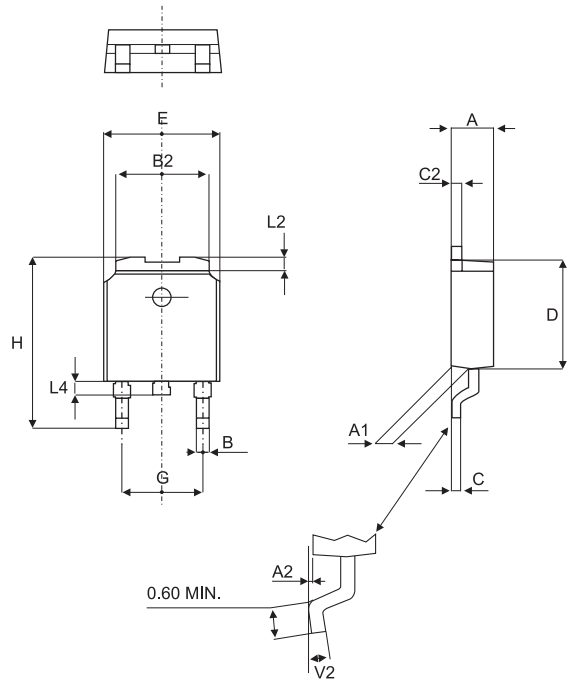


Fig 10: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35µm).



PACKAGE MECHANICAL DATA

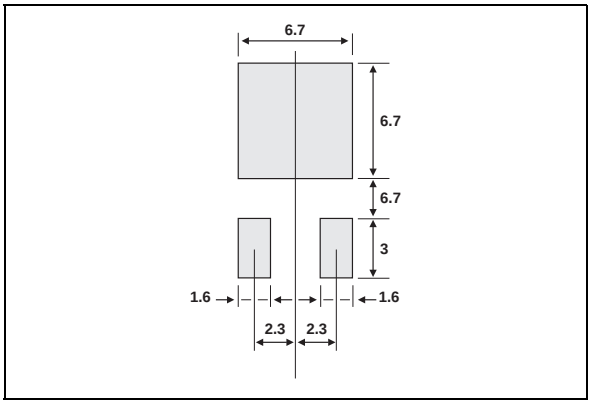
DPAK



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.094
A1	0.90		1.10	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.90	0.025		0.035
B2	5.20		5.40	0.204		0.212
C	0.45		0.60	0.017		0.023
C2	0.48		0.60	0.018		0.023
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.251		0.259
G	4.40		4.60	0.173		0.181
H	9.35		10.10	0.368		0.397
L2		0.80			0.031	
L4	0.60		1.00	0.023		0.039
V2	0°		8°	0°		8°

WEIGHT : 0.30g

FOOT PRINT DIMENSIONS (in millimeters)



MARKING

TYPE	MARKING
TN1215-600B	**TN 1215 6**