TN805/TN815-B

SCR's

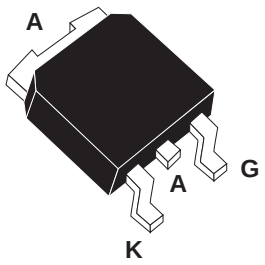
FEATURES

- I_{TRMS} = 8 A
- V_{DRM} = 400 V to 800 V
- $I_{GT} \leq$ 5 mA and 15 mA

DESCRIPTION

The TN805/TN815-B serie of Silicon Controlled Rectifiers uses a high performance TOPGLASS PNPN technology.

These parts are intended for general purpose applications using mount technology.



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ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	Tc= 105°C	8	A
$I_{T(AV)}$	Mean on-state current (180° conduction angle)	Tc= 105°C	5	A
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25°C)	tp = 8.3 ms	73	A
		tp = 10 ms	70	
I^2t	I^2t Value for fusing	tp = 10ms	24.5	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 lead temperature for soldering during 10s		260	°C

Symbol	Parameter	TN805 or TN815				Unit
		400B	600B	700B	800B	
V_{DRM} V_{RRM}	Repetitive peak-off voltage Tj = 125°C	400	600	700	800	V

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	2.5	°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
				TN805	TN815	
I_{GT}	V_D = 12V (DC) R_L= 33Ω	Tj= 25°C	MAX	5	15	µA
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
tgt	V_D = V_{DRM} I_{TM} = 3 x $I_{T(AV)}$ I_G = 40mA dIG/dt = 0.5A/us	Tj= 25°C	TYP	2		µs
I_H	I_T= 150mA Gate open	Tj= 25°C	MAX	25	30	mA
I_L	I_G = 1.2 I_{GT}	Tj= 25°C	MAX	25	30	mA
V_{TM}	I_{TM}= 16A tp= 380µs	Tj= 25°C	MAX	1.6		V
I_{DRM}	VDRM Rated	Tj= 25°C	MAX	10		µA
I_{RRM}	VRRM Rated	Tj = 125°C	MAX	2		mA
dV/dt	Linear slope up to V_D=67%V_{DRM} Gate open	Tj= 125°C	MIN	50	150	V/µs

ORDERING INFORMATION

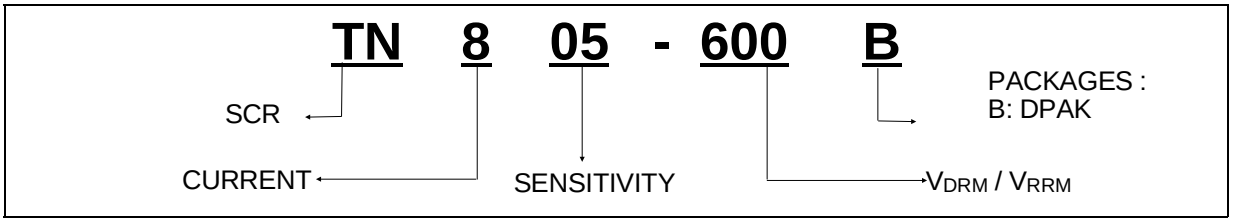


Fig. 1: Maximum average power dissipation versus average on-state current .

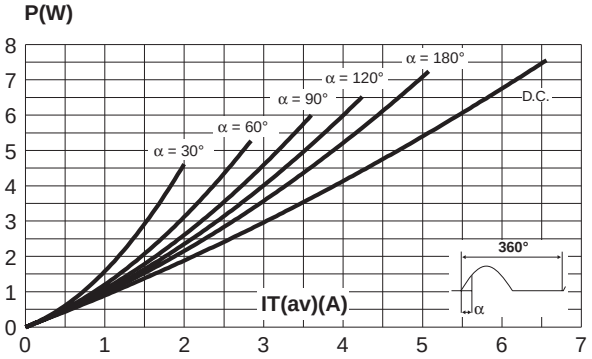


Fig. 2 : Correlation between maximum average power dissipation and maximum allowable **t**emperatures (T_{amb} and T_{case}) for different thermal resistances heatsink+contact.

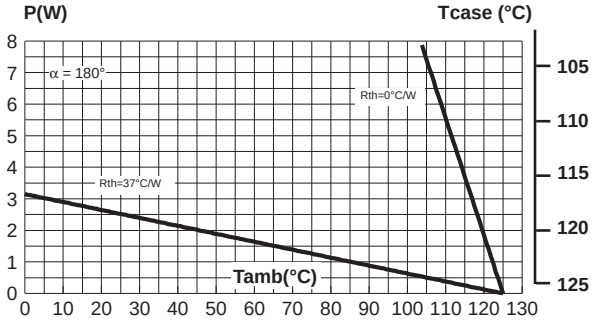


Fig. 3-1: Average and D.C. on-state current versus case temperature.

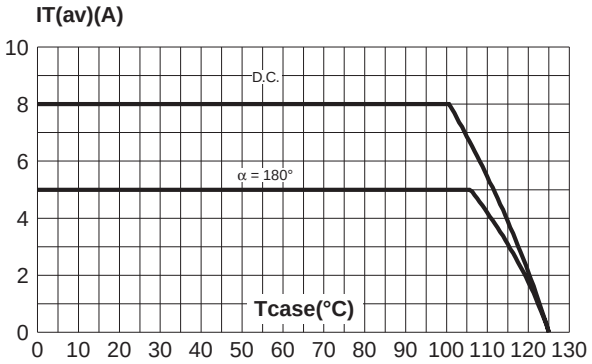


Fig. 3-2: Average and D.C. on-state current versus case temperature.

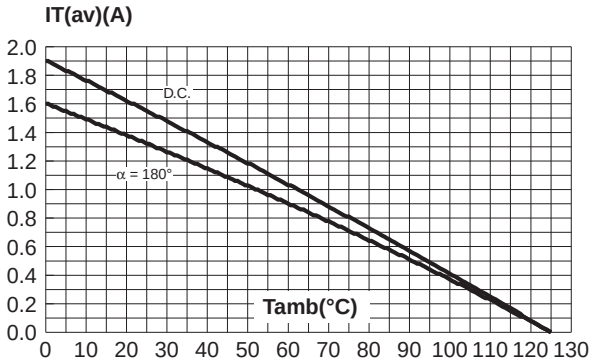


Fig. 4-1: Relative variation of thermal impedance versus pulse duration.

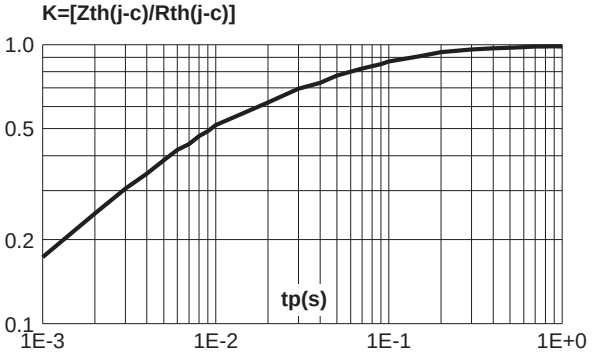


Fig. 4-2: Relative variation of thermal impedance versus pulse duration.

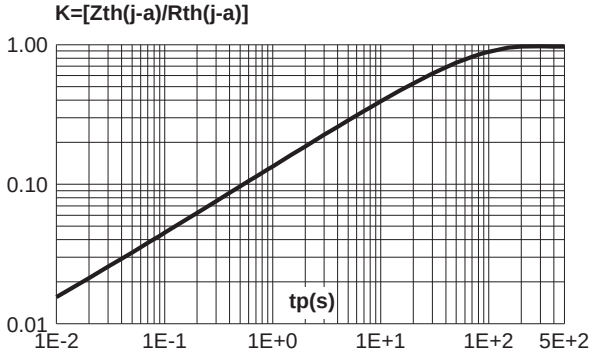


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

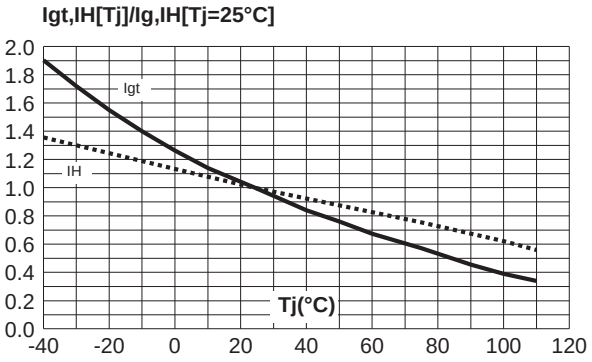


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

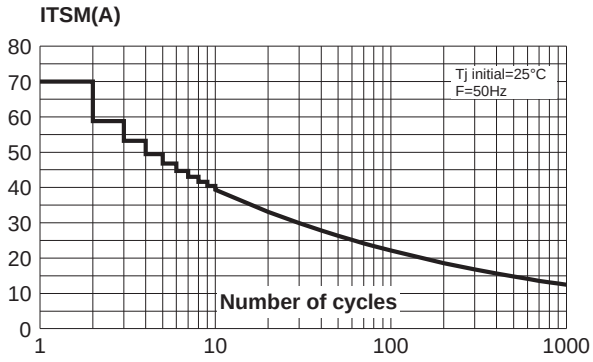


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponding value of I2t.

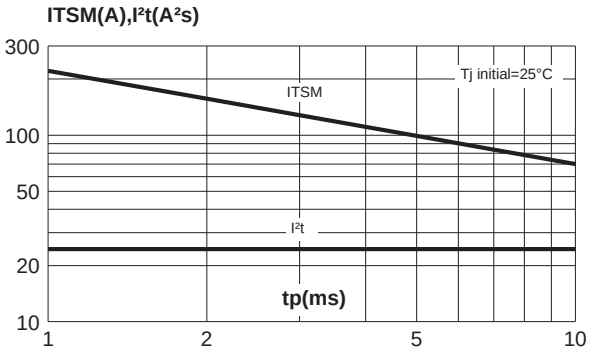


Fig. 8: On-state characteristics (maximum values).

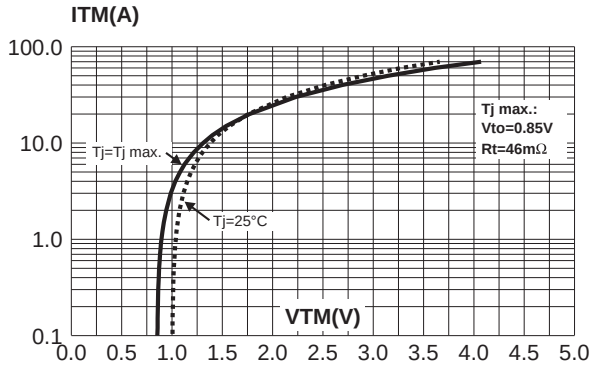
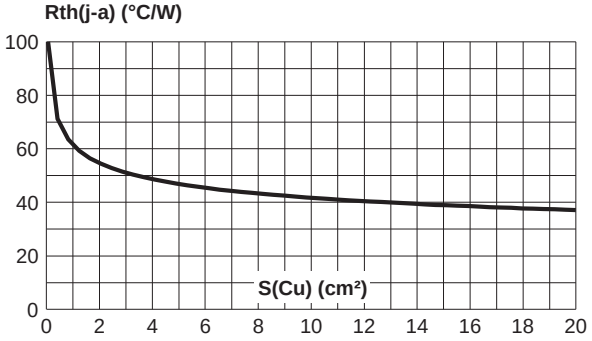
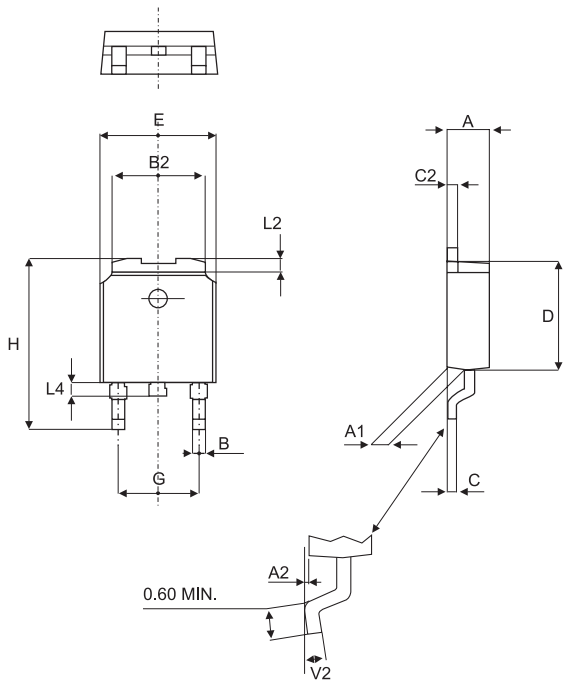


Fig. 9: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35µm).



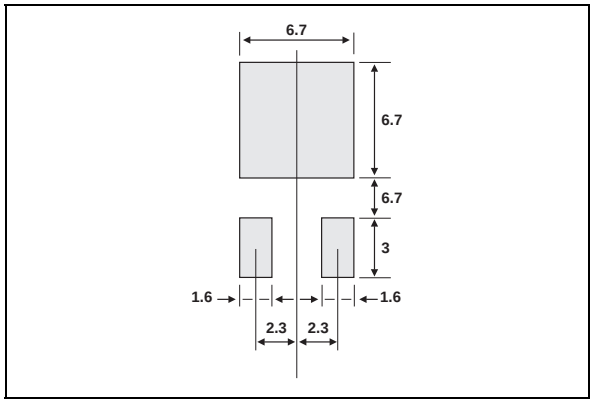
PACKAGE MECHANICAL DATA

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°

FOOT PRINT DIMENSIONS (in millimeters)



WEIGHT : 0.30g

MARKING

TYPE	MARKING
T805- x00B	**TN8 05x0**
T815-x00B	**TN8 15x0**