



TN805/TN815-B

SCR's

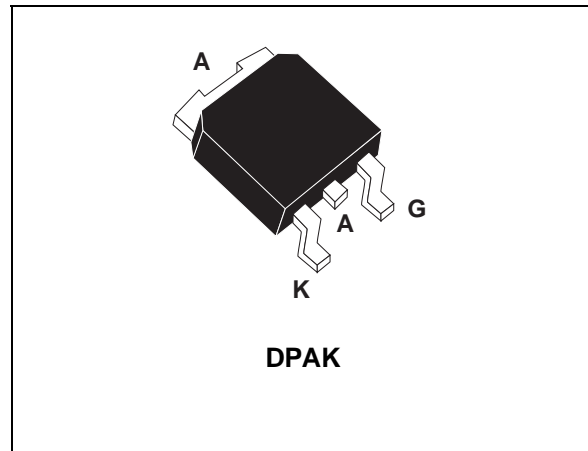
FEATURES

- $I_{T(RMS)} = 8\text{ A}$
- $V_{DRM} = 400\text{ V to } 800\text{ V}$
- $I_{GT} \leq 5\text{ mA and } 15\text{ mA}$

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.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_c = 105^\circ\text{C}$	8	A
$I_{T(AV)}$	Mean on-state current (180° conduction angle)	$T_c = 105^\circ\text{C}$	5	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 8.3\text{ ms}$	73	A
		$t_p = 10\text{ ms}$	70	
I^2t	I^2t Value for fusing	$t_p = 10\text{ms}$	24.5	A^2s
di/dt	Critical rate of rise of on-state current $I_G = 100\text{ mA}$ $di_G/dt = 1\text{ A}/\mu\text{s}$.		100	$\text{A}/\mu\text{s}$
T_{stg} T_j	Storage junction temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 125	$^\circ\text{C}$
TI	Maximum lead temperature for soldering during 10s		260	$^\circ\text{C}$

Symbol	Parameter	TN805 or TN815				Unit
		400B	600B	700B	800B	
V_{DRM} V_{RRM}	Repetitive peak-off voltage $T_j = 125^\circ\text{C}$	400	600	700	800	V

TN805/TN815-B

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

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

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Type	Value		Unit	
			TN805	TN815		
I_{GT}	$V_D = 12V$ (DC) $R_L = 33\Omega$	$T_j = 25^\circ C$	MAX	5	15	μA
V_{GT}	$V_D = 12V$ (DC) $R_L = 33\Omega$	$T_j = 25^\circ C$	MAX	1.5		V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3k\Omega$	$T_j = 125^\circ C$	MIN	0.2		V
tgt	$V_D = V_{DRM}$ $I_{GM} = 3 \times I_{T(AV)}$ $I_G = 40mA$ $dI_G/dt = 0.5A/\mu s$	$T_j = 25^\circ C$	TYP	2		μs
I_H	$I_T = 150mA$ Gate open	$T_j = 25^\circ C$	MAX	25	30	mA
I_L	$I_G = 1.2 I_{GT}$	$T_j = 25^\circ C$	MAX	25	30	mA
V_{TM}	$I_{TM} = 16A$ $t_p = 380\mu s$	$T_j = 25^\circ C$	MAX	1.6		V
I_{DRM}	V_{DRM} Rated	$T_j = 25^\circ C$	MAX	10		μA
I_{RRM}	V_{RRM} Rated	$T_j = 125^\circ C$	MAX	2		mA
dV/dt	Linear slope up to $V_D = 67\% V_{DRM}$ Gate open	$T_j = 125^\circ C$	MIN	50	150	V/ μs

ORDERING INFORMATION

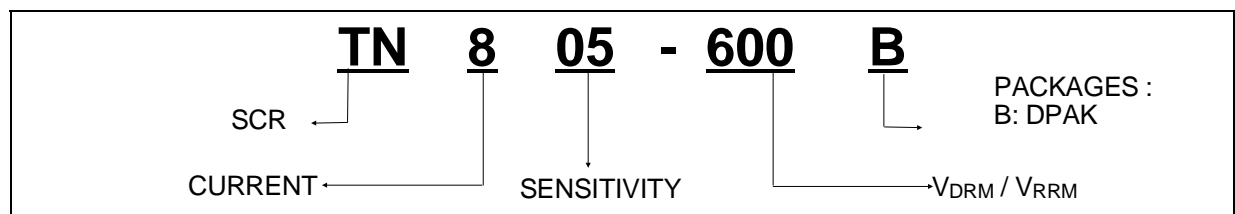


Fig. 1: Maximum average power dissipation versus average on-state current .

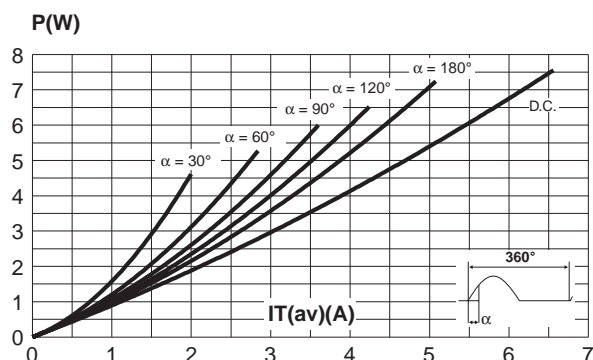


Fig. 2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink+contact.

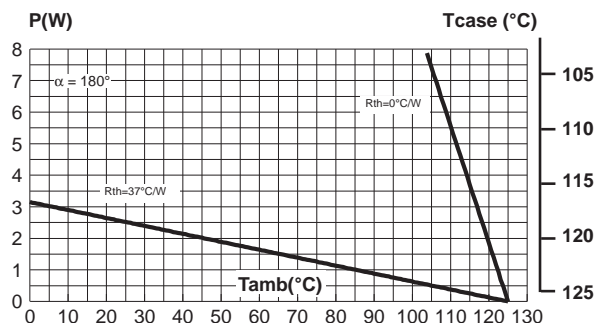


Fig. 3-1: Average and D.C. on-state current versus case temperature.

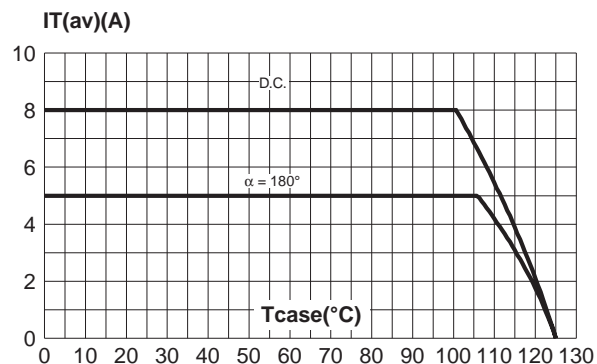


Fig. 3-2: Average and D.C. on-state current versus case temperature.

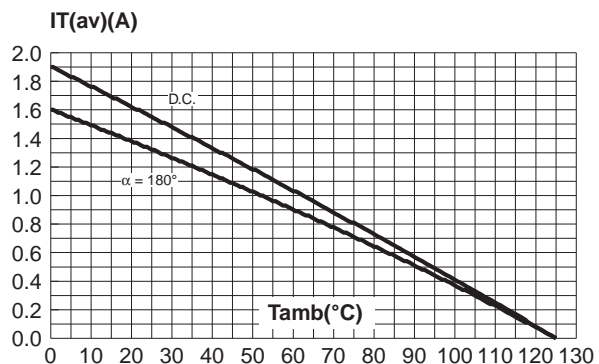


Fig. 4-1: Relative variation of thermal impedance versus pulse duration.

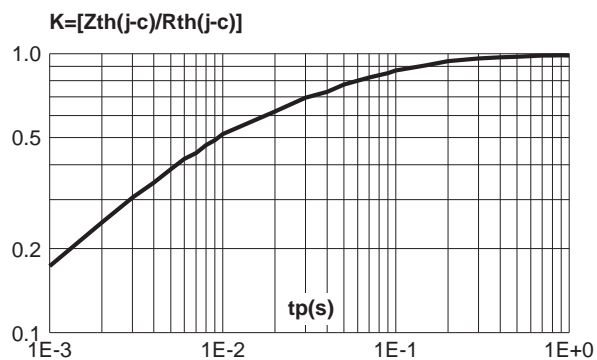


Fig. 4-2: Relative variation of thermal impedance versus pulse duration.

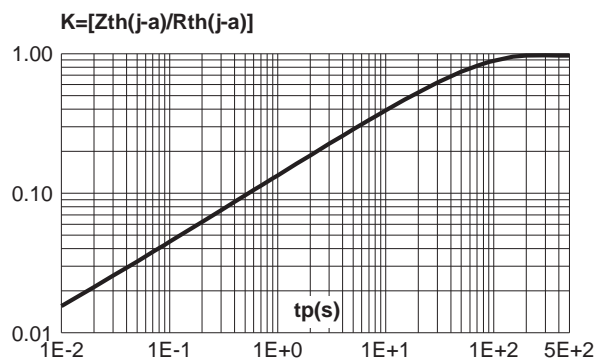


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

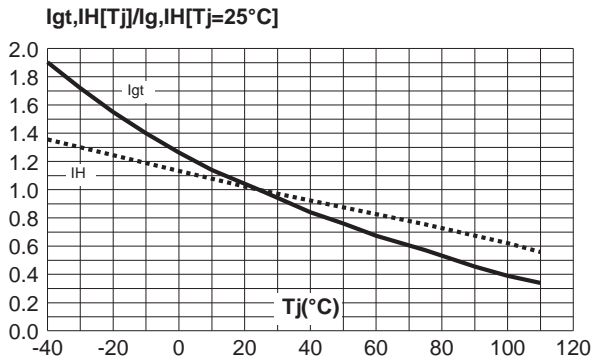


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

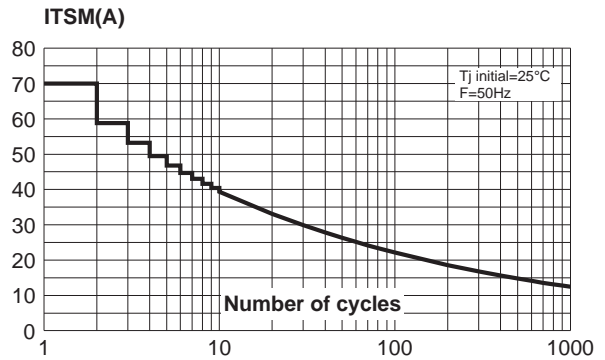


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

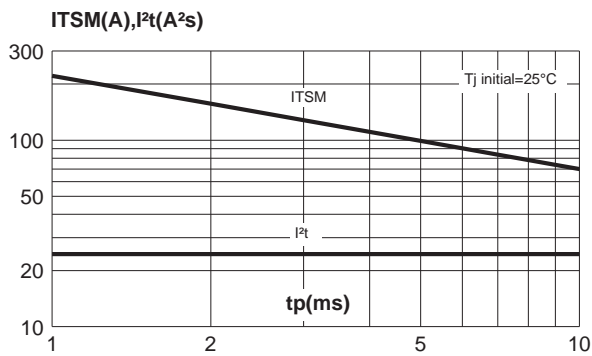


Fig. 8: On-state characteristics (maximum values).

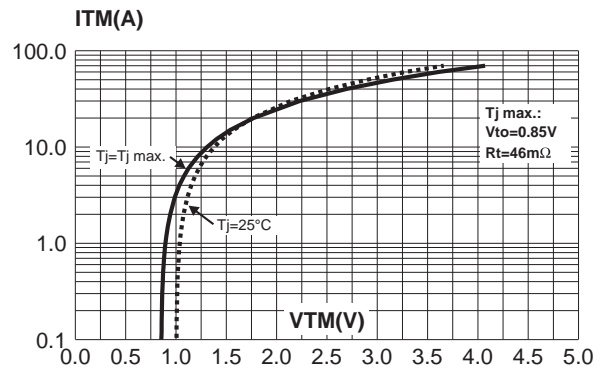
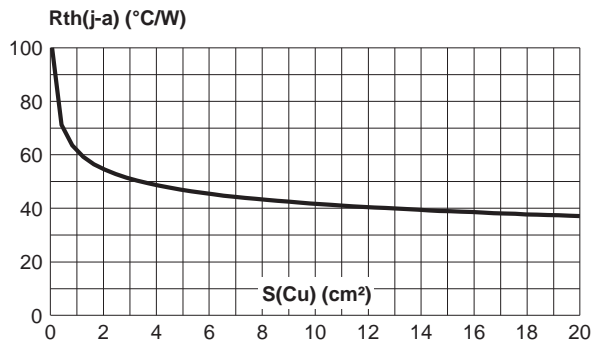
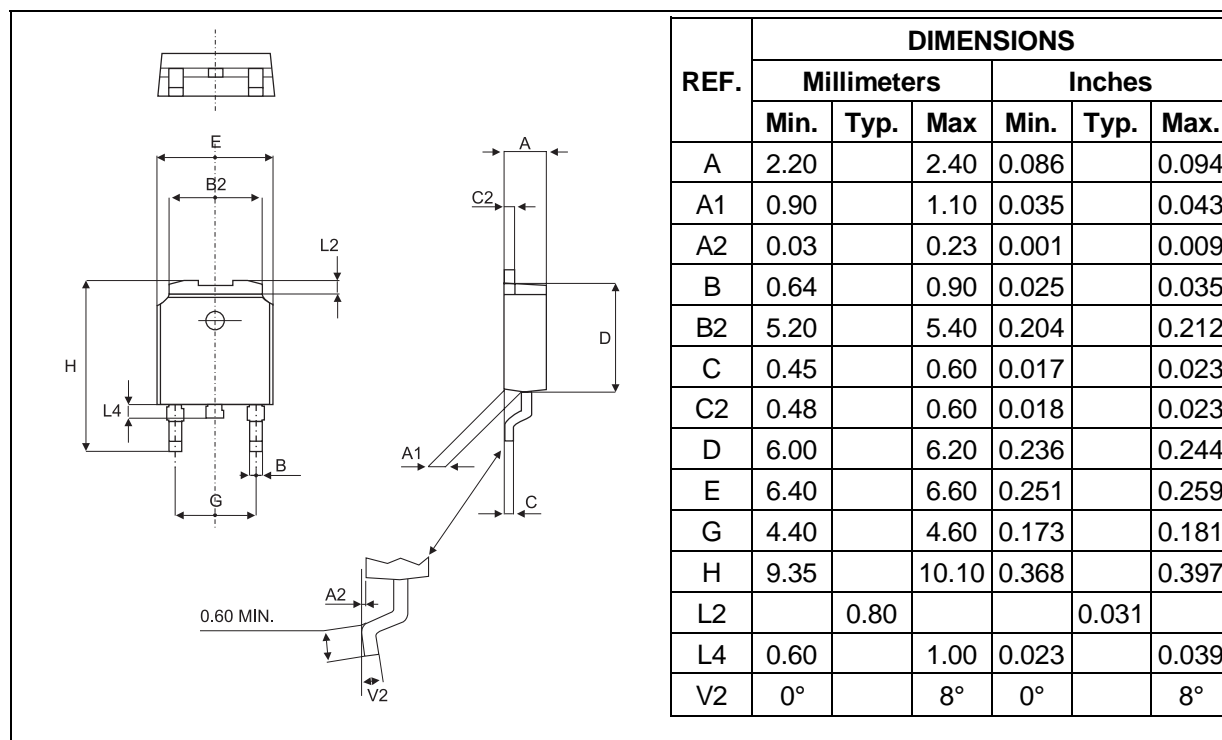


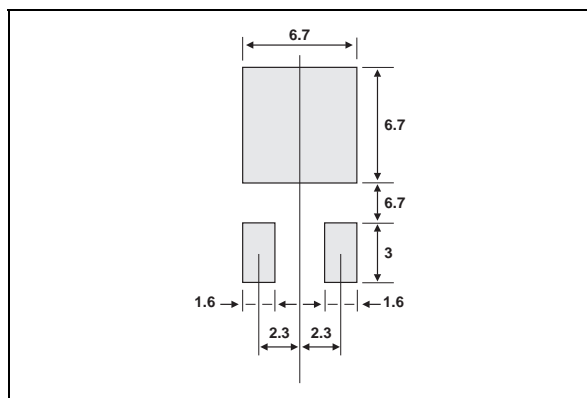
Fig. 9: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35µm).



PACKAGE MECHANICAL DATA
DPAK



FOOT PRINT DIMENSIONS (in millimeters)



WEIGHT : 0.30g

MARKING

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

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