



TN805/TN815-B

SCR's

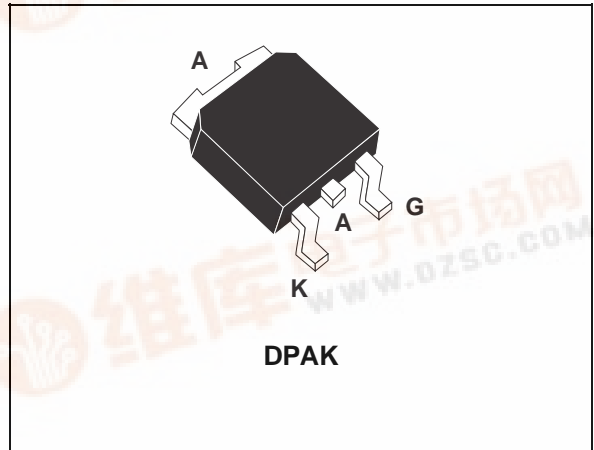
FEATURES

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

DESCRIPTION

The TN805/TN815-B serie of Silicon Controlled Rectifiers uses a high performance TOPGLASS PNP 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	$^\circ\text{C}$
T_l	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

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

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Type	Value		Unit
			TN805	TN815	
I _{GT}	V _D = 12V (DC) R _L = 33Ω T _j = 25°C	MAX	5	15	μA
V _{GT}	V _D = 12V (DC) R _L = 33Ω T _j = 25°C	MAX	1.5		V
V _{GD}	V _D = V _{DRM} R _L = 3.3kΩ T _j = 125°C	MIN	0.2		V
t _{gt}	V _D = V _{DRM} I _{TM} = 3 x I _{T(AV)} I _G = 40mA dI _G /dt = 0.5A/μs T _j = 25°C	TYP	2		μs
I _H	I _T = 150mA Gate open T _j = 25°C	MAX	25	30	mA
I _L	I _G = 1.2 I _{GT} T _j = 25°C	MAX	25	30	mA
V _{TM}	I _{TM} = 16A tp = 380μs T _j = 25°C	MAX	1.6		V
I _{DRM}	V _{DRM} Rated T _j = 25°C	MAX	10		μA
I _{R_{RRM}}	V _{R_{RRM}} Rated T _j = 125°C	MAX	2		mA
dV/dt	Linear slope up to V _D = 67% V _{DRM} Gate open T _j = 125°C	MIN	50	150	V/μs

ORDERING INFORMATION

<p>TN 8 05 - 600 B</p> <p>SCR ← ← CURRENT SENSITIVITY → V_{DRM} / V_{R_{RRM}}</p>	<p>PACKAGES : B: DPAK</p>
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Fig. 1: Maximum average power dissipation versus average on-state current .

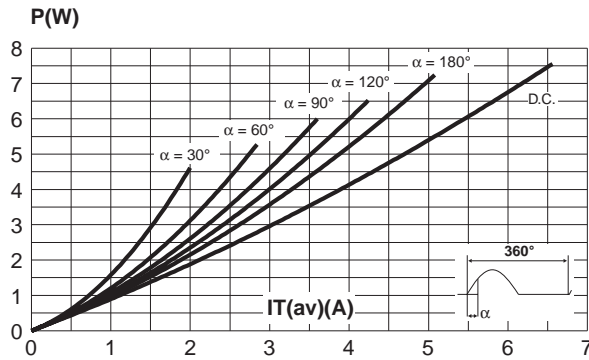


Fig. 2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink+contact.

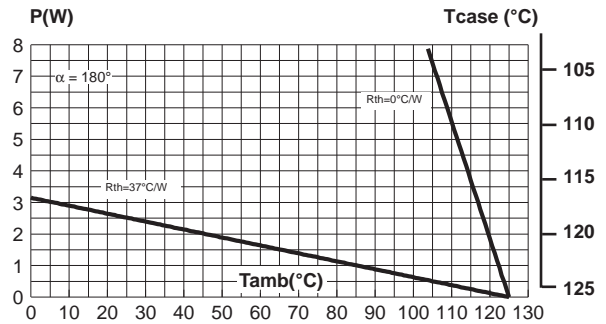


Fig. 3-1: Average and D.C. on-state current versus case temperature.

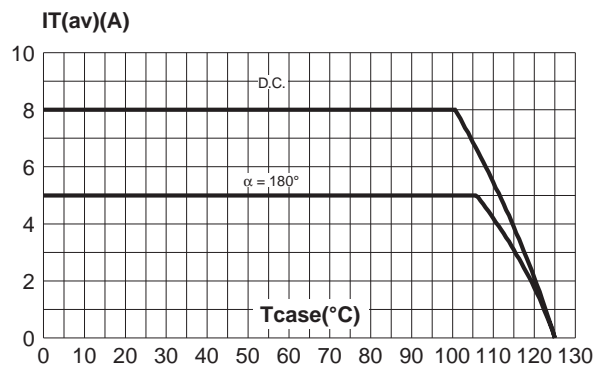


Fig. 3-2: Average and D.C. on-state current versus case temperature.

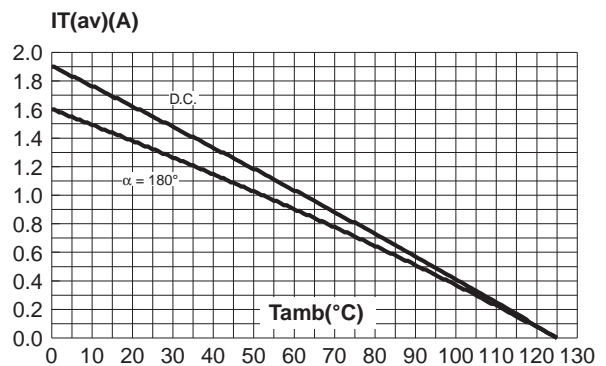


Fig. 4-1: Relative variation of thermal impedance versus pulse duration.

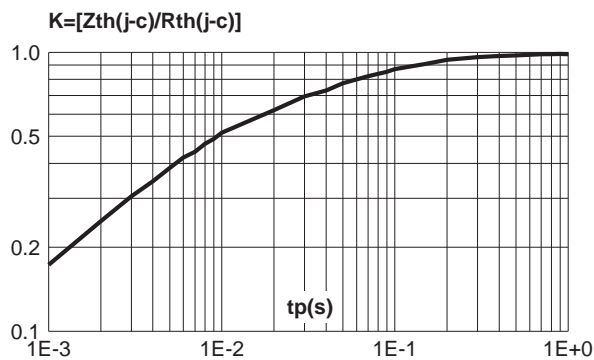
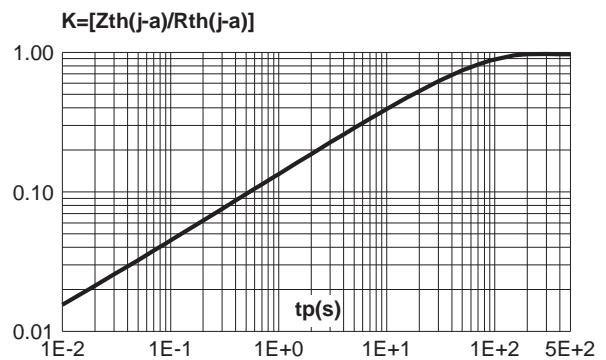


Fig. 4-2: Relative variation of thermal impedance versus pulse duration.



TN805/TN815-B

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

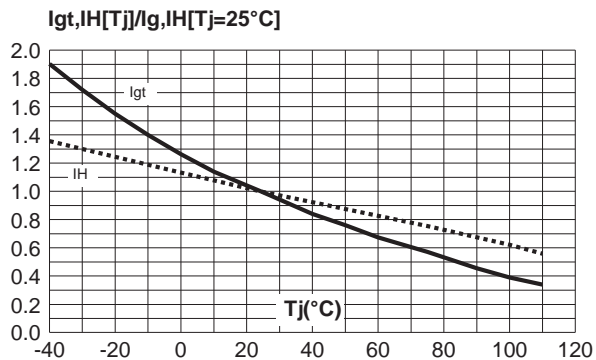


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $I_2 t$.

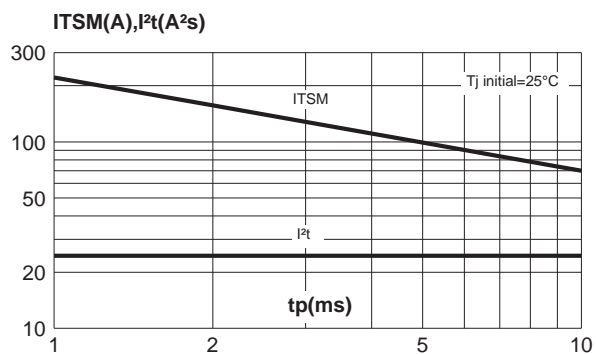


Fig. 9: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: $35\mu\text{m}$).

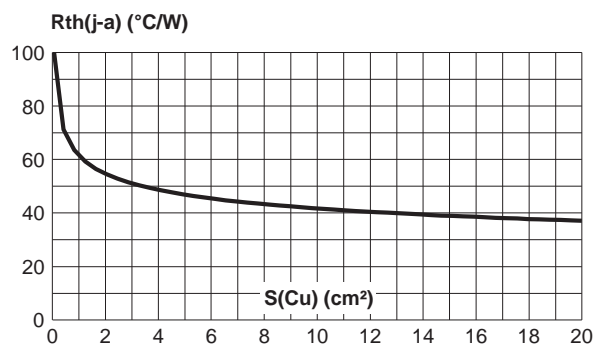


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

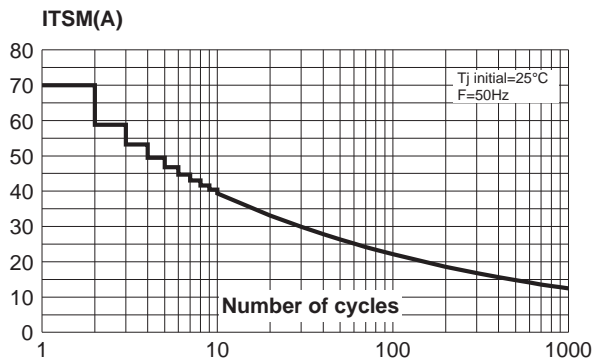
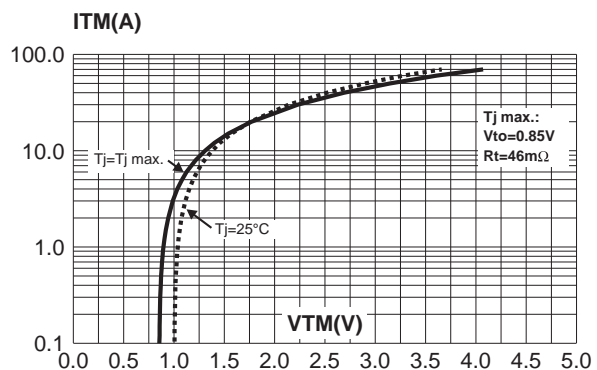
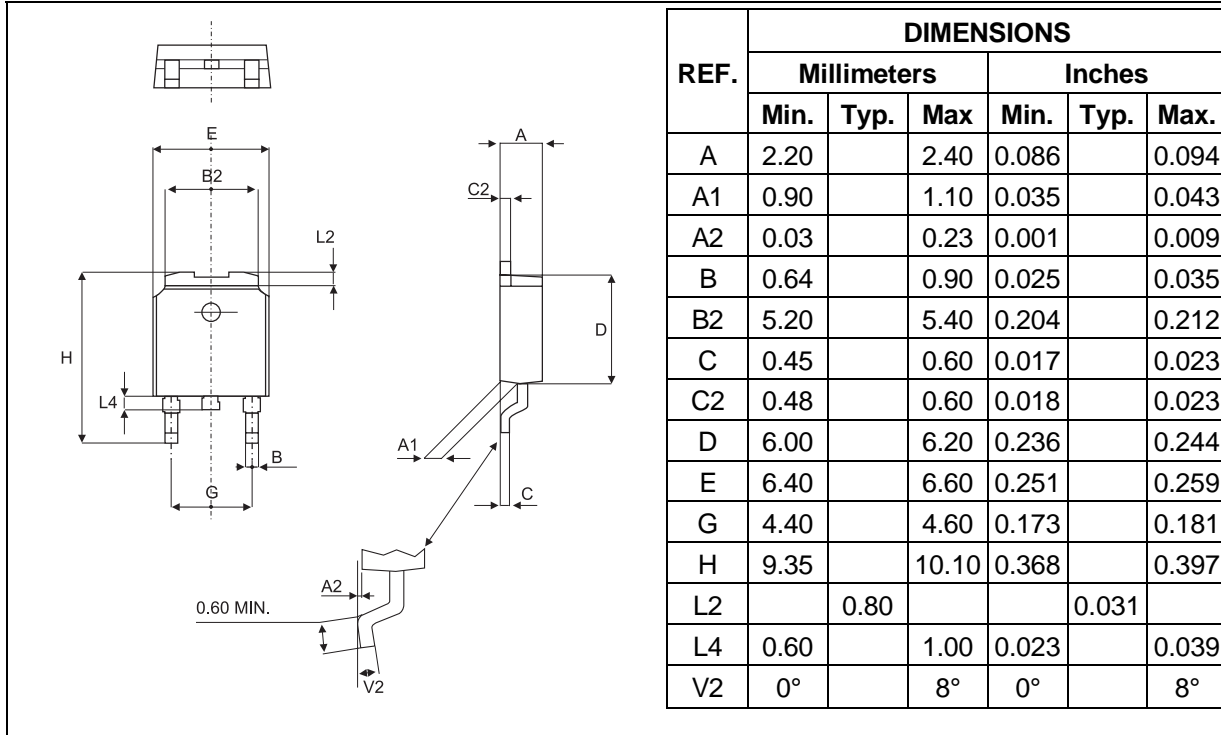


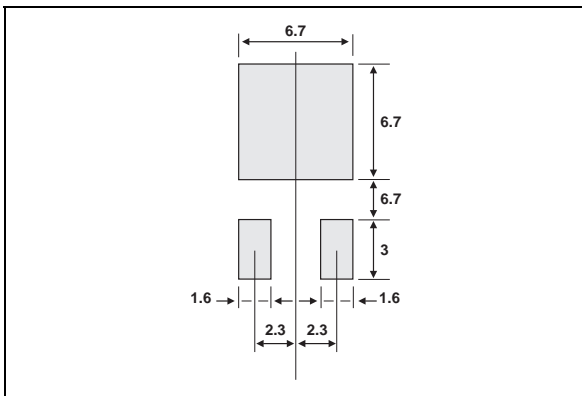
Fig. 8: On-state characteristics (maximum values).



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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