

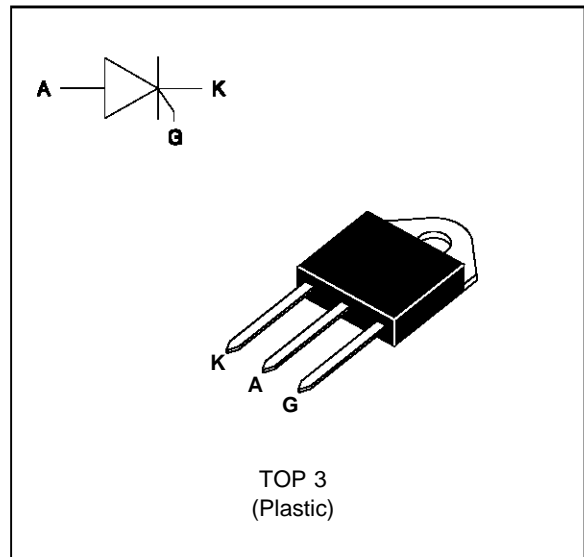
FEATURES

- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- HIGH STABILITY AND RELIABILITY
- BTW 68 Serie :
INSULATED VOLTAGE = 2500V(RMS)
(UL RECOGNIZED : E81734)

DESCRIPTION

The BTW 68 (N) Family of Silicon Controlled Rectifiers uses a high performance glass passivated technology.

This general purpose Family of Silicon Controlled Rectifiers is designed for power supplies up to 400Hz on resistive or inductive load.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit	
I _{T(RMS)}	RMS on-state current (180° conduction angle)	BTW 68	T _c =80°C	30	A
		BTW 68 N	T _c =85°C	35	
I _{T(AV)}	Average on-state current (180° conduction angle, single phase circuit)	BTW 68	T _c =80°C	19	A
		BTW 68 N	T _c =85°C	22	
I _{TSM}	Non repetitive surge peak on-state current (T _j initial = 25°C)		tp=8.3 ms	420	A
			tp=10 ms	400	
I ² t	I ² t value		tp=10 ms	800	A ² s
di/dt	Critical rate of rise of on-state current Gate supply : I _G = 100 mA di _G /dt = 1 A/μs			100	A/μs
T _{stg} T _j	Storage and operating junction temperature range			- 40 to + 150 - 40 to + 125	°C °C
T _l	Maximum lead temperature for soldering during 10 s at 4.5 mm from case			230	°C

Symbol	Parameter	BTW 68		BTW 68 / BTW 68 N				Unit
		200	400	600	800	1000	1200	
V _{DRM} V _{RRM}	Repetitive peak off-state voltage T _j = 125 °C	200	400	600	800	1000	1200	V

BTW 68 (N)

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (j-a)	Junction to ambient		50	°C/W
Rth (j-c) DC	Junction to case for DC	BTW 68	1.1	°C/W
		BTW 68 N	0.8	

GATE CHARACTERISTICS (maximum values)

PG (AV) = 1W PGM = 40W (tp = 20 μs) IFGM = 8A (tp = 20 μs) VRGM = 5 V.

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Value		Unit
				BTW 68	BTW 68 N	
IGT	VD=12V (DC) RL=33Ω	Tj=25°C	MAX	50		mA
VGT	VD=12V (DC) RL=33Ω	Tj=25°C	MAX	1.5		V
VGD	VD=VDRM RL=3.3kΩ	Tj= 125°C	MIN	0.2		V
tgt	VD=VDRM IG = 200mA dIG/dt = 1.5A/μs	Tj=25°C	TYP	2		μs
IL	IG= 1.2 IGT	Tj=25°C	TYP	40		mA
IH	IT= 500mA gate open	Tj=25°C	MAX	75		mA
VTM	BTW 68 ITM= 60A BTW 68 N ITM= 70A tp= 380μs	Tj=25°C	MAX	2.1	2.2	V
IDRM IRRM	VDRM Rated VRRM Rated	Tj=25°C	MAX	0.02		mA
		Tj= 125°C		6		
dV/dt	Linear slope up to VD=67%VDRM gate open	VDRM ≤ 800V VDRM ≥ 1000V	Tj= 125°C	MIN	500 250	V/μs
tq	VD=67%VDRM dITM/dt=30 A/μs	ITM= 60A VR= 75V dVD/dt= 20V/μs	Tj= 125°C	TYP	100	μs

Package	$I_T(\text{RMS})$	$V_{\text{DRM}} / V_{\text{RRM}}$	Sensitivity Specification
	A	V	BTW
BTW 68 (Insulated)	30	200	X
		400	X
		600	X
		800	X
		1000	X
		1200	X
BTW 68 N (Uninsulated)	35	600	X
		800	X
		1000	X
		1200	X

Fig.1 : Maximum average power dissipation versus average on-state current (BTW 68).

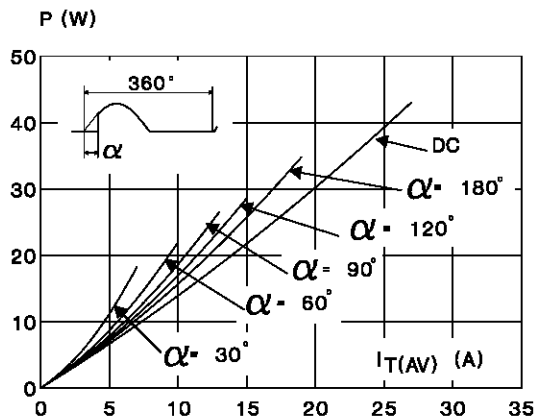


Fig.3 : Maximum average power dissipation versus average on-state current (BTW 68 N).

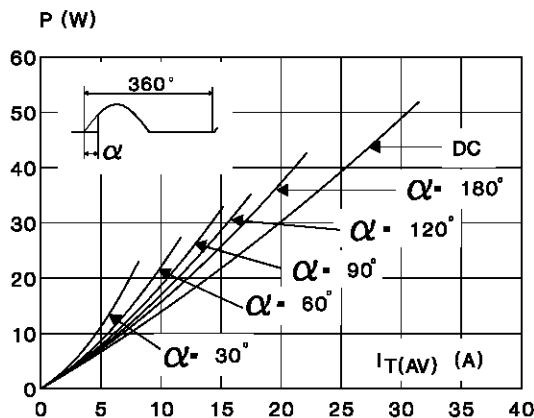


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTW 68).

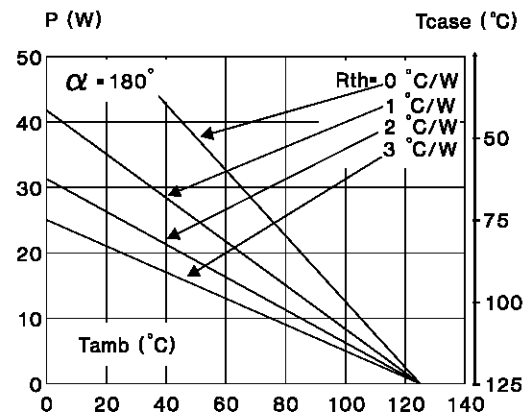
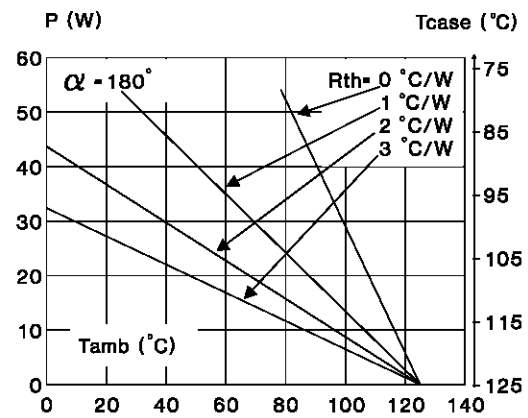


Fig.4 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTW 68 N).



BTW 68 (N)

Fig.5 : Average on-state current versus case temperature (BTW 68).

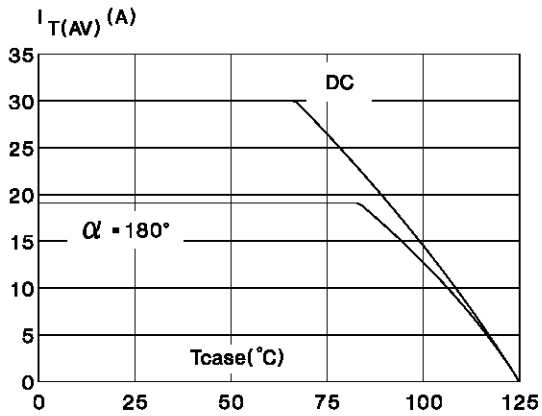


Fig.6 : Average on-state current versus case temperature (BTW 68 N).

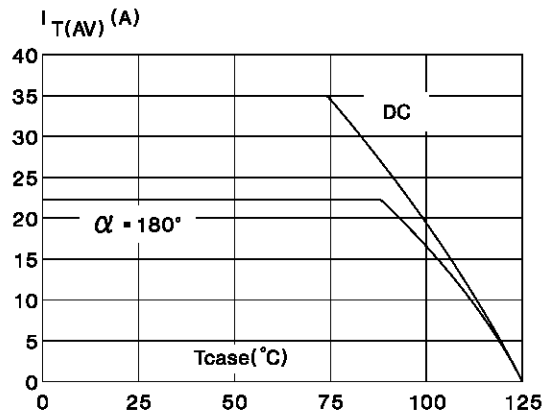


Fig.7 : Relative variation of thermal impedance versus pulse duration.

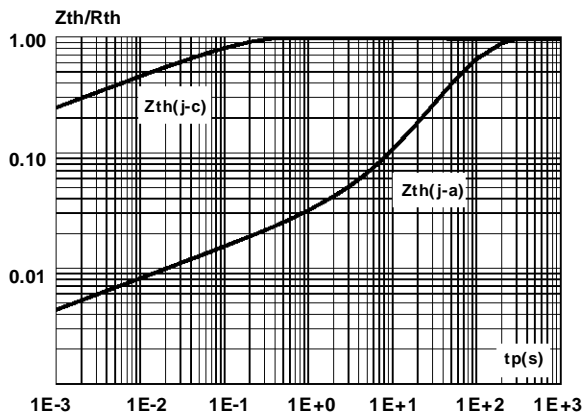


Fig.8 : Relative variation of gate trigger current versus junction temperature.

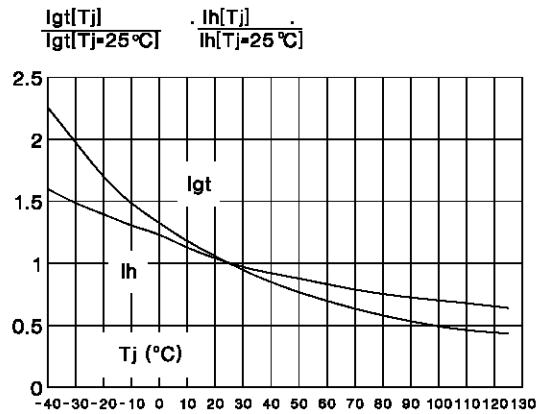


Fig.9 : Non repetitive surge peak on-state current versus number of cycles.

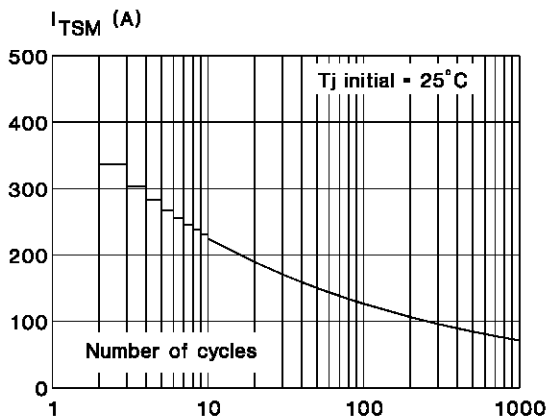


Fig.10 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

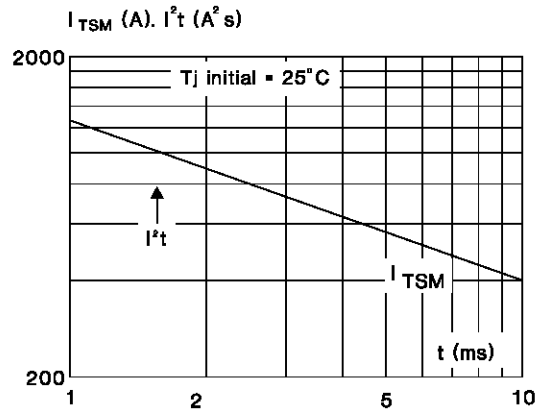
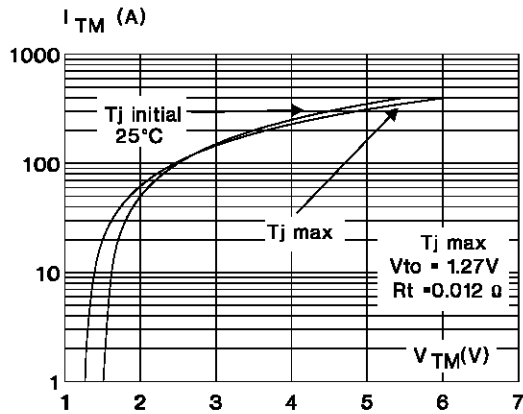
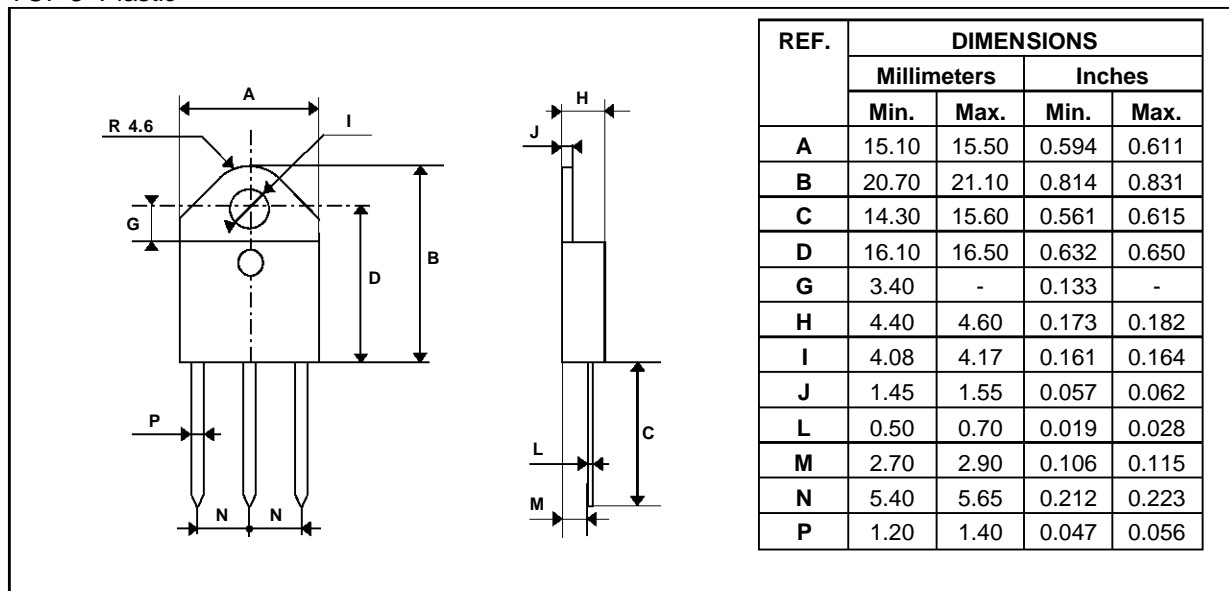


Fig11 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : C
 Marking : type number
 Weight : 4.7 g

Recommended torque value : 0.8 m.N.
 Maximum torque value : 1 m.N.

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