

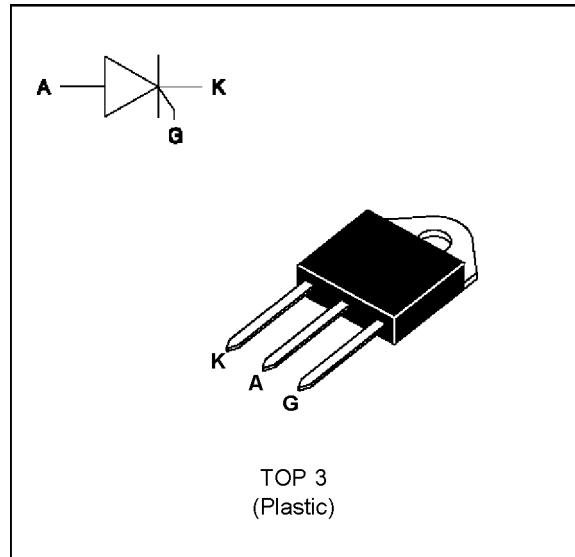
**SCR****FEATURES**

- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- HIGH STABILITY AND RELIABILITY
- BTW69 Serie :
INSULATED VOLTAGE = 2500V_(RMS)
(UL RECOGNIZED : E81734)

DESCRIPTION

The BTW 69 (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 69	T _c =70°C	50	A
		BTW 69 N	T _c =75°C	55	
I _T (AV)	Average on-state current (180° conduction angle, single phase circuit)	BTW 69	T _c =70°C	32	A
		BTW 69 N	T _c =75°C	35	
I _{TSM}	(T _j initial = 25°C)		tp=8.3 ms	525	A
			tp=10 ms	500	
I _{2t}	I _{2t} value	tp=10 ms	1250	A ₂ s	
dI/dt	Critical rate of rise of on-state current Gate supply : I _G = 100 mA dI _G /dt = 1 A/ μ s		100	A/ μ s	
T _{stg} T _j	Storage and operating junction temperature range	- 40 to + 150	- 40 to + 125	°C °C	
T _I	Maximum lead temperature for soldering during 10 s at 4.5 mm from case	230			°C

Symbol	Parameter	BTW 69		BTW 69 / BTW 69 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 69 (N)

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-a)	Junction to ambient	50	°C/W
R _{th} (j-c) DC	Junction to case for DC	BTW 69	0.9
		BTW 69 N	0.8

GATE CHARACTERISTICS (maximum values)

P_G (AV) = 1W P_{GM} = 40W (tp = 20 μs) I_{FGM} = 8A (tp = 20 μs) V_{RGM} = 5 V.

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Value		Unit
		BTW 69	BTW 69 N	
I _{GT}	V _D =12V (DC) R _L =33Ω	T _j =25°C	MAX	80 mA
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 _G = 200mA dI _G /dt = 1.5A/μs	T _j =25°C	TYP	2 μs
I _L	I _G = 1.2 I _{GT}	T _j =25°C	TYP	50 mA
I _H	I _T = 500mA gate open	T _j =25°C	MAX	150 mA
V _{TM}	BTW 69 I _{TM} = 100A BTW 69 N I _{TM} = 110A tp= 380μs	T _j =25°C	MAX	1.9 2.0 V
I _{DRM} I _{RRM}	V _{DRM} Rated V _{RRM} Rated	T _j =25°C	MAX	0.02 mA
		T _j = 125°C		6
dV/dt	Linear slope up to V _D =67%V _{DRM} gate open	V _{DRM} ≤ 800V V _{DRM} ≥ 1000V	T _j = 125°C	500 250 V/μs
t _q	V _D =67%V _{DRM} I _{TM} = 110A V _R = 75V dI _{TM} /dt=30 A/μs	dV _D /dt= 20V/μs	T _j = 125°C	100 μs

Package	$I_T(\text{RMS})$	$V_{\text{DRM}} / V_{\text{RRM}}$	Sensitivity Specification
	A	V	BTW
BTW 69 (Insulated)	50	200	X
		400	X
		600	X
		800	X
		1000	X
		1200	X
BTW 69 N (Uninsulated)	55	600	X
		800	X
		1000	X
		1200	X

Fig.1 : Maximum average power dissipation versus average on-state current (BTW 69).

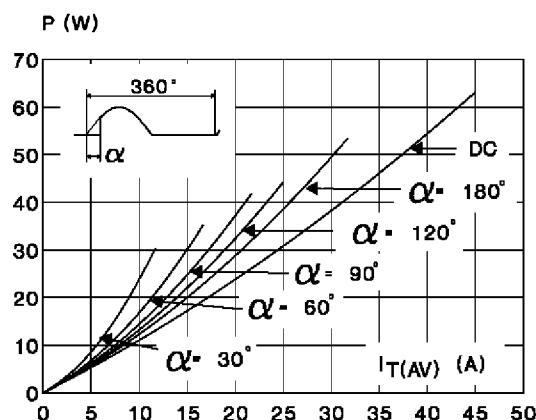


Fig.3 : Maximum average power dissipation versus average on-state current (BTW 69 N).

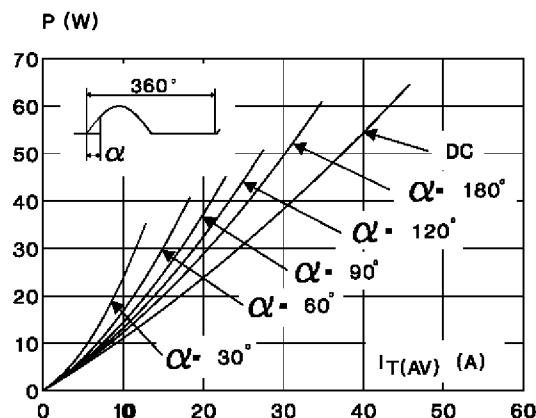


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTW 69).

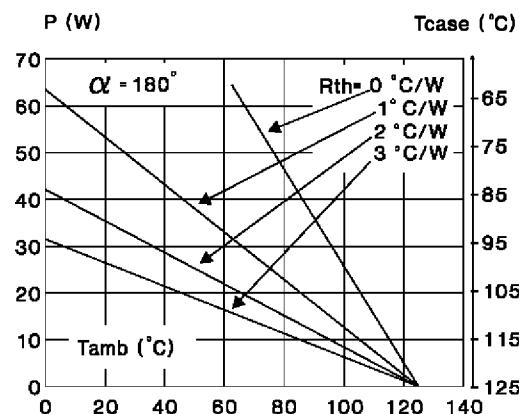
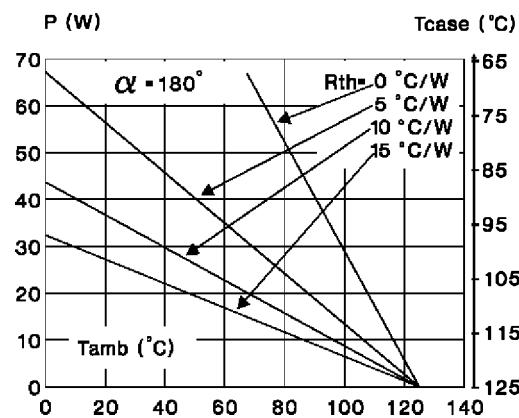


Fig.4 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTW 69 N).



BTW 69 (N)

Fig.5 : Average on-state current versus case temperature (BTW 69).

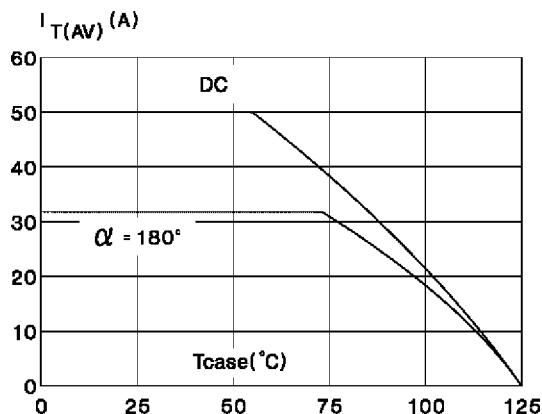


Fig.7 : Relative variation of thermal impedance versus pulse duration.

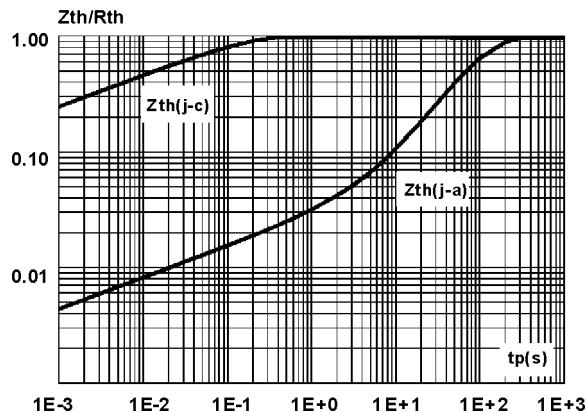


Fig.9 : Non repetitive surge peak on-state current versus number of cycles.

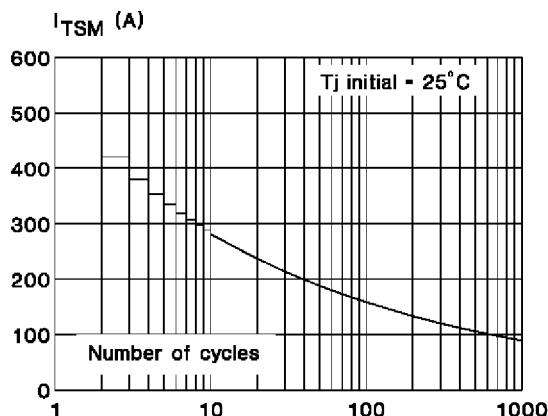


Fig.6 : Average on-state current versus case temperature (BTW 69 N).

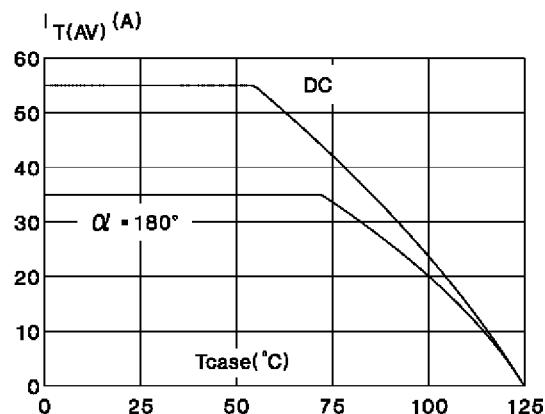


Fig.8 : Relative variation of gate trigger current versus junction temperature.

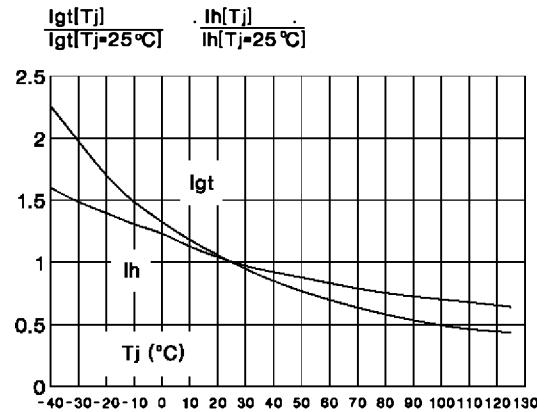


Fig.10 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

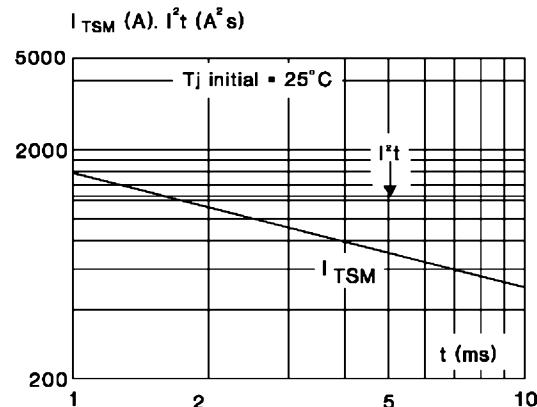
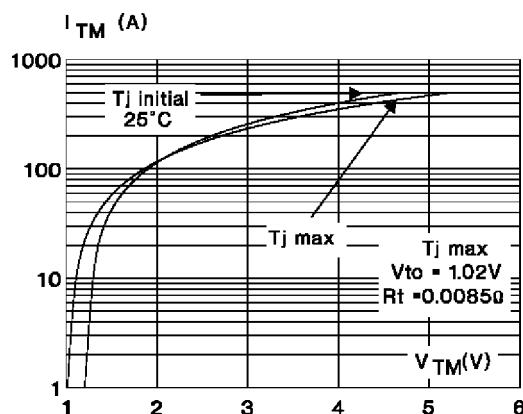


Fig11 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TOP 3 Plastic

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	15.10	15.50	0.594	0.611
B	20.70	21.10	0.814	0.831
C	14.30	15.60	0.561	0.615
D	16.10	16.50	0.632	0.650
G	3.40	-	0.133	-
H	4.40	4.60	0.173	0.182
I	4.08	4.17	0.161	0.164
J	1.45	1.55	0.057	0.062
L	0.50	0.70	0.019	0.028
M	2.70	2.90	0.106	0.115
N	5.40	5.65	0.212	0.223
P	1.20	1.40	0.047	0.056

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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