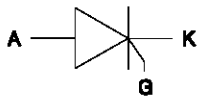
SGS-THOMSON MICROELECTRONICS

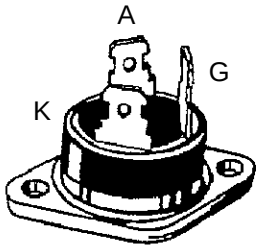
BTW 66
BTW 67

SCR

FEATURES

- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- HIGH STABILITY AND RELIABILITY
- ISOLATED PACKAGE :
  INSULATED VOLTAGE = 2500$V_{(RMS)}$
  (UL RECOGNIZED : E81734)





RD 91
(Plastic)

DESCRIPTION

The BTW 66 and BTW 67 Family Silicon Controlled Rectifiers are high performance glass passivated chips technology.
This general purpose Family Silicon Controlled Rectifiers is designed for power supply 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 66 BTW 67	Tc=75°C Tc=75°C	30 40	A
$I_{T(AV)}$	Average on-state current (180° conduction angle,single phase circuit)	BTW 66 BTW 67	Tc=75°C Tc=75°C	20 25	A
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25°C)	BTW 66 BTW 67	tp=8.3 ms	420 525	A
		BTW 66 BTW 67	tp=10 ms	400 500	
I^2t	I^2t value	BTW 66 BTW 67	tp=10 ms	800 1250	A^2s
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
Tstg Tj	Storage and operating junction temperature range			- 40 to + 150 - 40 to + 125	°C °C
Tl	Maximum lead temperature for soldering during 10 s at 4.5 mm from case			230	°C

Symbol	Parameter	BTW 66- / BTW 67-						Unit
		200	400	600	800	1000	1200	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage Tj = 125 °C	200	400	600	800	1000	1200	V

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (c-h)	Contact (case to heatsink)		0.10	°C/W
Rth (j-c) DC	Junction to case for DC	BTW 66	1.2	°C/W
		BTW 67	1.0	

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 66	BTW 67	
I_{GT}	V_D=12V (DC) R_L=33Ω		Tj=25°C	MAX	50	80	mA
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_G = 200mA dI_G/dt = 1.5A/µs		Tj=25°C	TYP	2		µs
I_L	I_G= 1.2 I_{GT}		Tj=25°C	TYP	50		mA
I_H	I_T= 500mA gate open		Tj=25°C	MAX	75	150	mA
V_{TM}	BTW 66 ITM= 60A BTW 67 I_{TM}= 80A tp= 380µs		Tj=25°C	MAX	2.2	2.0	V
I_{DRM} I_{RRM}	V_{DRM} Rated V_{RRM} Rated		Tj=25°C	MAX	0.02		mA
			Tj= 125°C		6		
dV/dt	Linear slope up to V_D=67%V_{DRM} gate open	V_{DRM}≤ 800V V_{DRM} ≥ 1000V	Tj= 125°C	MIN	500 250		V/µs
tq	V_D=67%V_{DRM} I_{TM}= 60A V_R= 75V dI_{TM}/dt=30 A/µs dV_D/dt= 20V/µs		Tj= 125°C	TYP	100		µs

Package	$I_{T(RMS)}$	V_{DRM} / V_{RRM}	Sensitivity Specification
	A	V	BTW
BTW 66 (Insulated)	30	200	X
		400	X
		600	X
		800	X
		1000	X
		1200	X
BTW 67 (Insulated)	40	200	X
		400	X
		600	X
		800	X
		1000	X
		1200	X

Fig.1 : Maximum average power dissipation versus average on-state current (BTW 66).

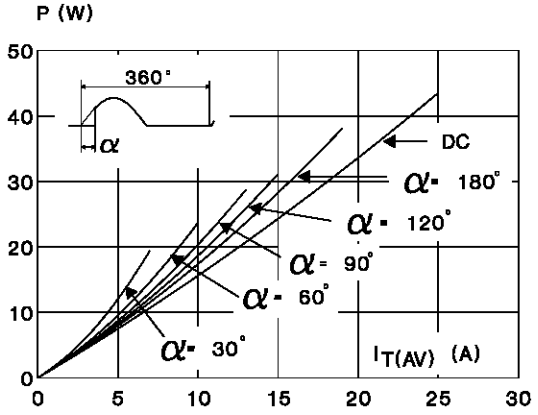


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTW 66).

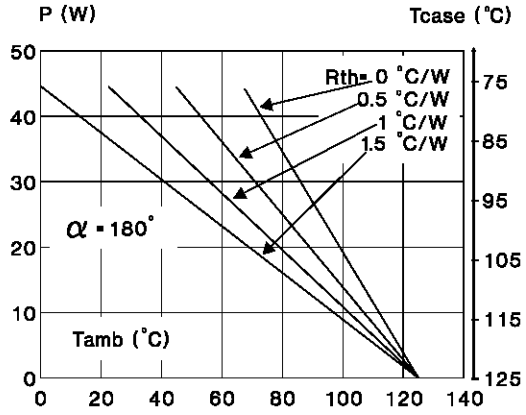


Fig.3 : Maximum average power dissipation versus average on-state current (BTW 67).

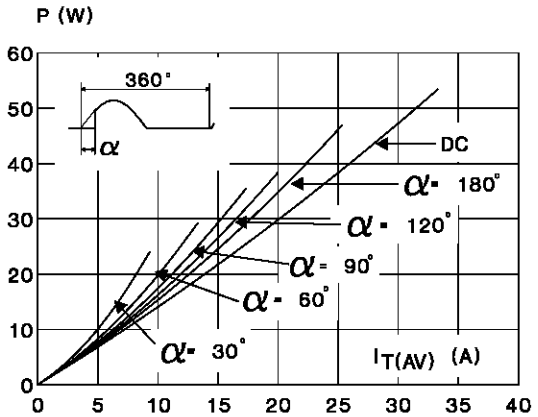


Fig.4 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTW 67).

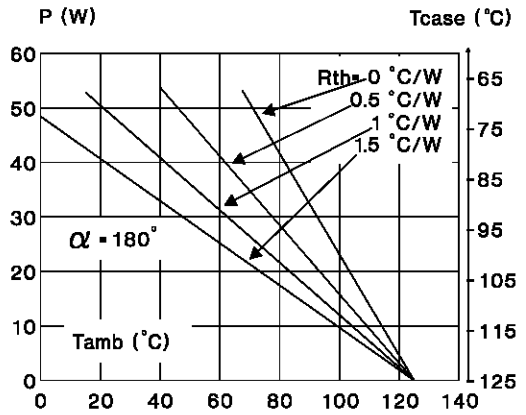


Fig.5 : Average on-state current versus case temperature (BTW 66).

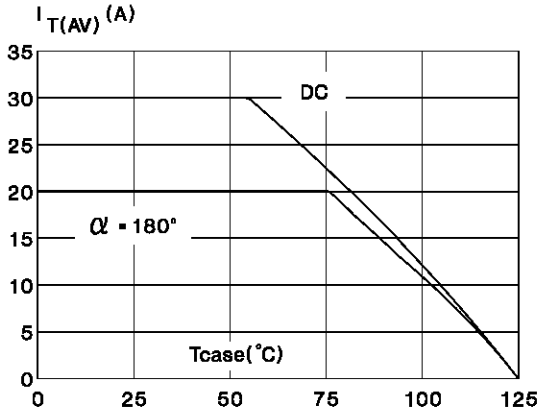


Fig.6 : Average on-state current versus case temperature (BTW 67).

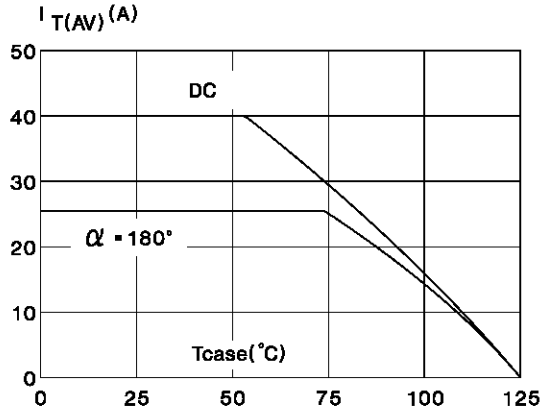


Fig.7 : Relative variation of thermal impedance junction to case versus pulse duration.

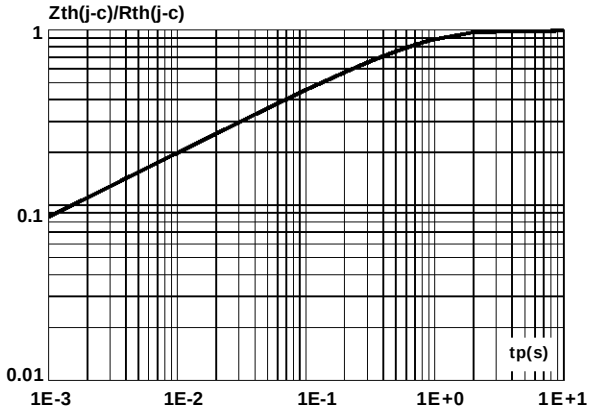


Fig.8 : Relative variation of gate trigger current versus junction temperature.

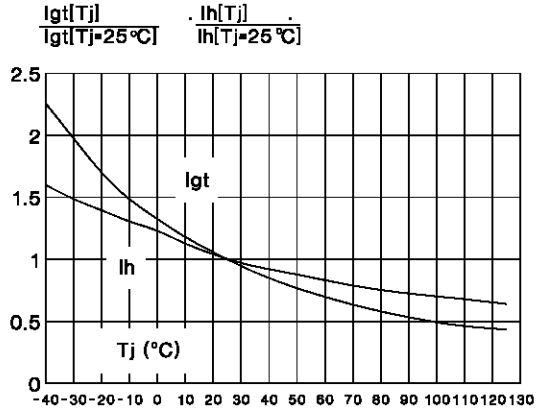


Fig.9 : Non repetitive surge peak on-state current versus number of cycles (BTW 66).

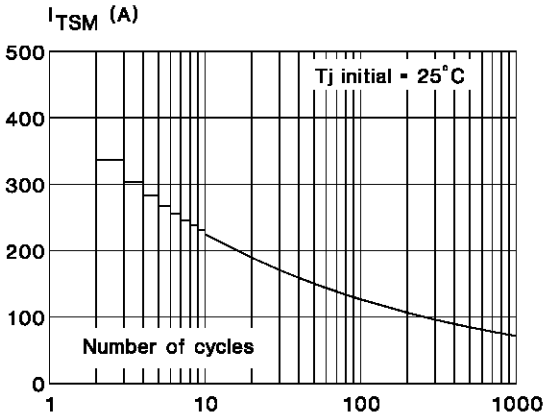


Fig10 : Non repetitive surge peak on-state current versus number of cycles (BTW 67).

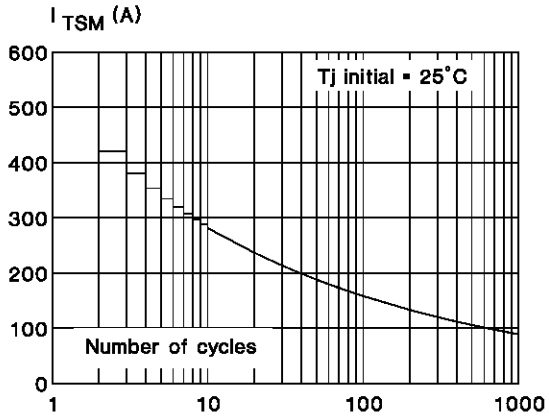


Fig.11 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ≤ 10 ms, and corresponding value of I^2t (BTW 66).

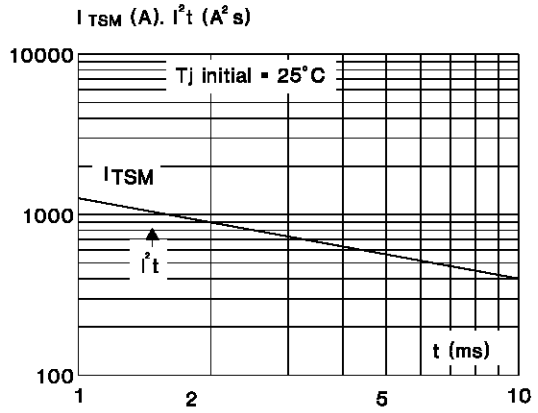


Fig.12 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ≤ 10 ms, and corresponding value of I^2t (BTW 67).

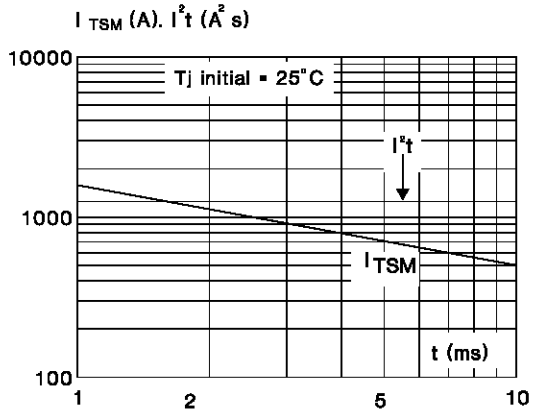


Fig.13 : On-state characteristics (maximum values) (BTW 66).

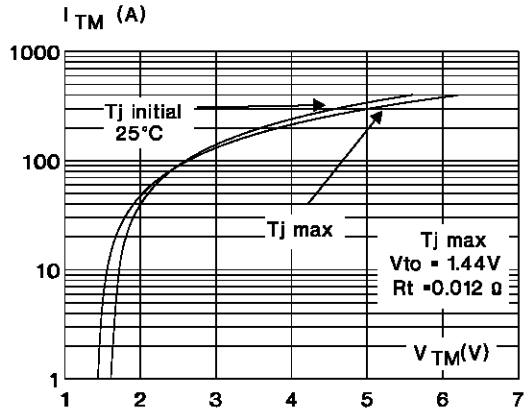
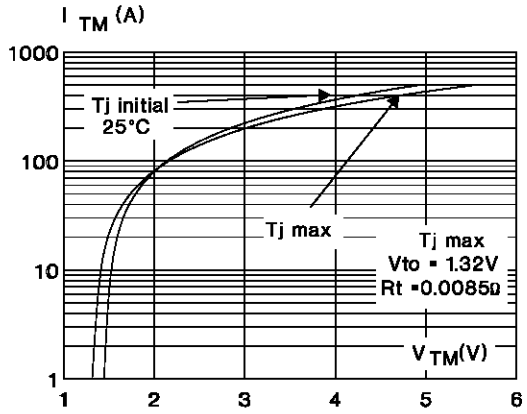
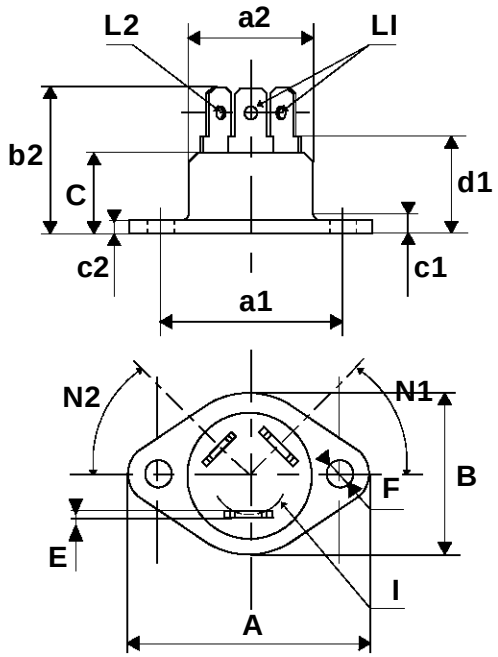


Fig.14 : On-state characteristics (maximum values) (BTW 67).



PACKAGE MECHANICAL DATA

RD 91 Plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A		40.00		1.575
a1	29.90	30.30	1.177	1.193
a2		22.00		0.867
B		27.00		1.063
b1	13.50	16.50	0.531	0.650
b2		24.00		0.945
C		14.00		0.551
c1		3.50		0.138
c2	1.95	3.00	0.077	0.118
E	0.70	0.90	0.027	0.035
F	4.00	4.50	0.157	0.177
I	11.20	13.60	0.441	0.535
L1	3.10	3.50	0.122	0.138
L2	1.70	1.90	0.067	0.075
N1	33°	43°	33°	43°
N2	28°	38°	28°	38°

Marking : type number
Weight : 20 g