



BTW67 and BTW69 Series

STANDARD

50A SCRs

MAIN FEATURES:

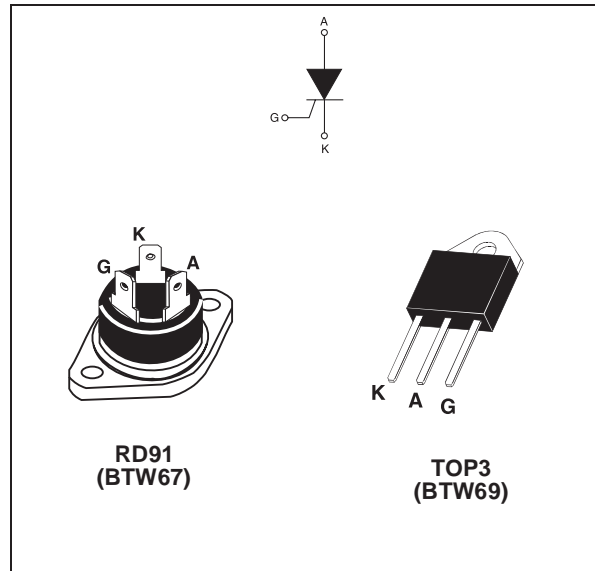
Symbol	Value	Unit
$I_{T(RMS)}$	50	A
V_{DRM}/V_{RRM}	600 to 1200	V
I_{GT}	80	mA

DESCRIPTION

Available in high power packages, the BTW67 / BTW69 Series is suitable in applications where power handling and power dissipation are critical, such as solid state relays, welding equipment, high power motor control.

Based on a clip assembly technology, they offer a superior performance in surge current handling capabilities.

Thanks to their internal ceramic pad, they provide high voltage insulation (2500V RMS), complying with UL standards (file ref: E81734).



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit	
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	RD91	$T_c = 70^\circ\text{C}$	50	A
		TOP3 Ins.	$T_c = 75^\circ\text{C}$		
$I_{T(AV)}$	Average on-state current (180° conduction angle)	RD91	$T_c = 70^\circ\text{C}$	32	A
		TOP3 Ins.	$T_c = 75^\circ\text{C}$		
I_{TSM}	Non repetitive surge peak on-state current	$t_p = 8.3 \text{ ms}$	$T_j = 25^\circ\text{C}$	610	A
		$t_p = 10 \text{ ms}$		580	
I^2t	I^2t Value for fusing		$T_j = 25^\circ\text{C}$	1680	A^2s
di/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq 100 \text{ ns}$	$F = 60 \text{ Hz}$	$T_j = 125^\circ\text{C}$	50	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$t_p = 20 \mu\text{s}$	$T_j = 125^\circ\text{C}$	8	A
$P_{G(AV)}$	Average gate power dissipation		$T_j = 125^\circ\text{C}$	1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125	$^\circ\text{C}$
V_{RGM}	Maximum peak reverse gate voltage			5	V

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ELECTRICAL CHARACTERISTICS (T_j = 25°C, unless otherwise specified)

Symbol	Test Conditions		Value	Unit	
I _{GT}	V _D = 12 V R _L = 33 Ω	MIN.	8	mA	
		MAX.	80		
V _{GT}		MAX.	1.3	V	
V _{GD}	V _D = V _{DRM} R _L = 3.3 kΩ	T _j = 125°C	MIN.	0.2	V
I _H	I _T = 500 mA Gate open		MAX.	150	mA
I _L	I _G = 1.2 I _{GT}		MAX.	200	mA
dV/dt	V _D = 67 % V _{DRM} Gate open	T _j = 125°C	MIN.	1000	V/μs
V _{TM}	I _{TM} = 100 A t _p = 380 μs	T _j = 25°C	MAX.	1.9	V
V _{t0}	Threshold voltage	T _j = 125°C	MAX.	1.0	V
R _d	Dynamic resistance	T _j = 125°C	MAX.	8.5	mΩ
I _{DRM} I _{RRM}	V _{DRM} = V _{RRM}	T _j = 25°C	MAX.	10	μA
		T _j = 125°C		5	mA

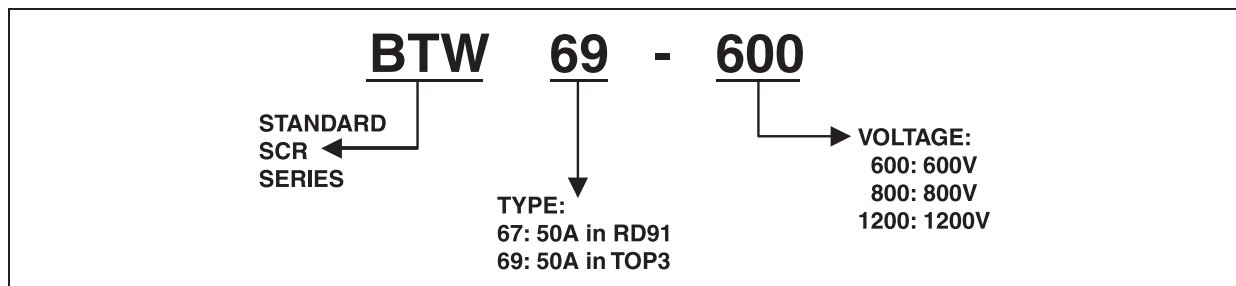
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit	
R _{th(j-c)}	Junction to case (DC)	RD91 (Insulated)	1.0	°C/W
		TOP3 Insulated	0.9	
R _{th(j-a)}	Junction to ambient	TOP3 Insulated	50	°C/W

PRODUCT SELECTOR

Part Number	Voltage (xxx)			Sensitivity	Package
	600 V	800 V	1200 V		
BTW67-xxx	X	X	X	80 mA	RD91
BTW69-xxx	X	X	X	80 mA	TOP3 Ins.

ORDERING INFORMATION



OTHER INFORMATION

Part Number	Marking	Weight	Base Quantity	Packing mode
BTW67-xxx	BTW67xxx	20.0 g	25	Bulk
BTW69-xxx	BTW69xxx	4.5 g	120	Bulk

Note: xxx = voltage

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

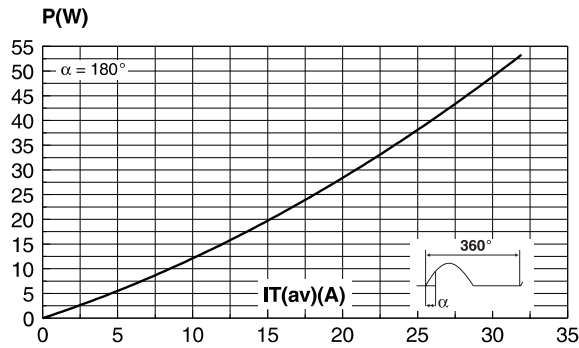


Fig. 2: Average and D.C. on-state current versus case temperature.

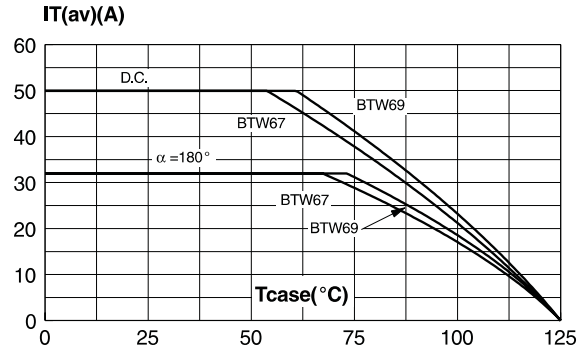


Fig. 3: Relative variation of thermal impedance versus pulse duration.

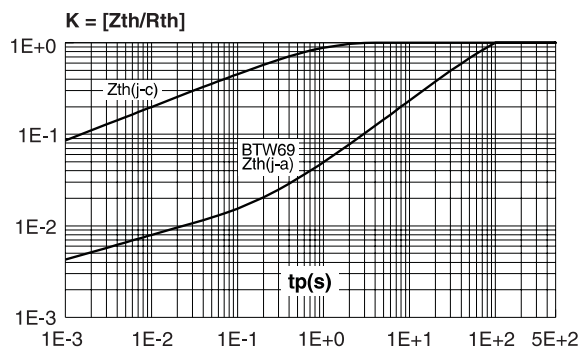


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature.

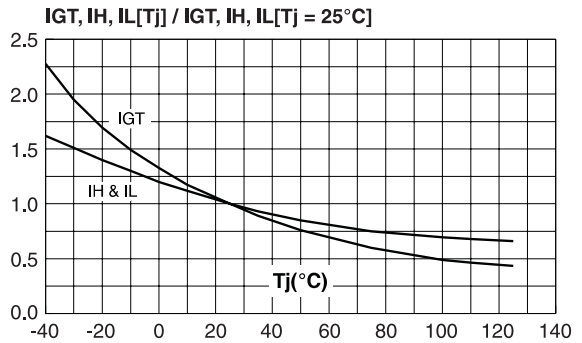


Fig. 5: Surge peak on-state current versus number of cycles.

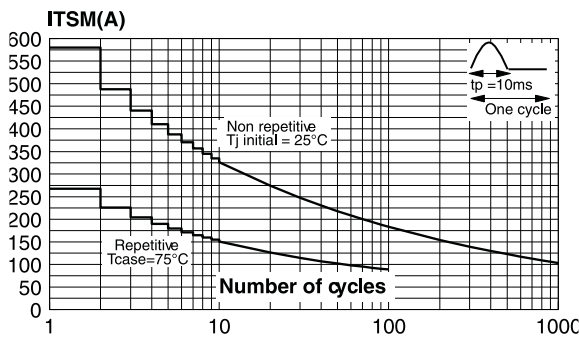
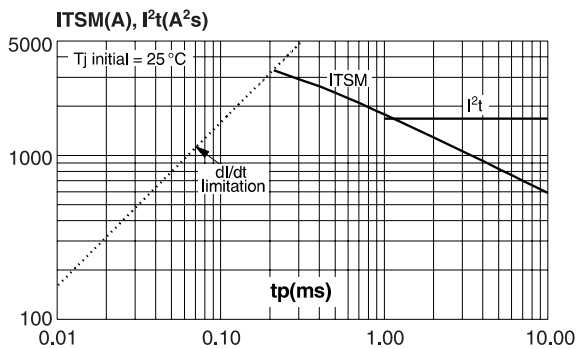
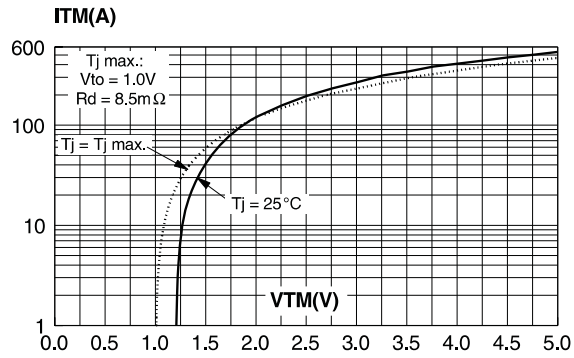


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .



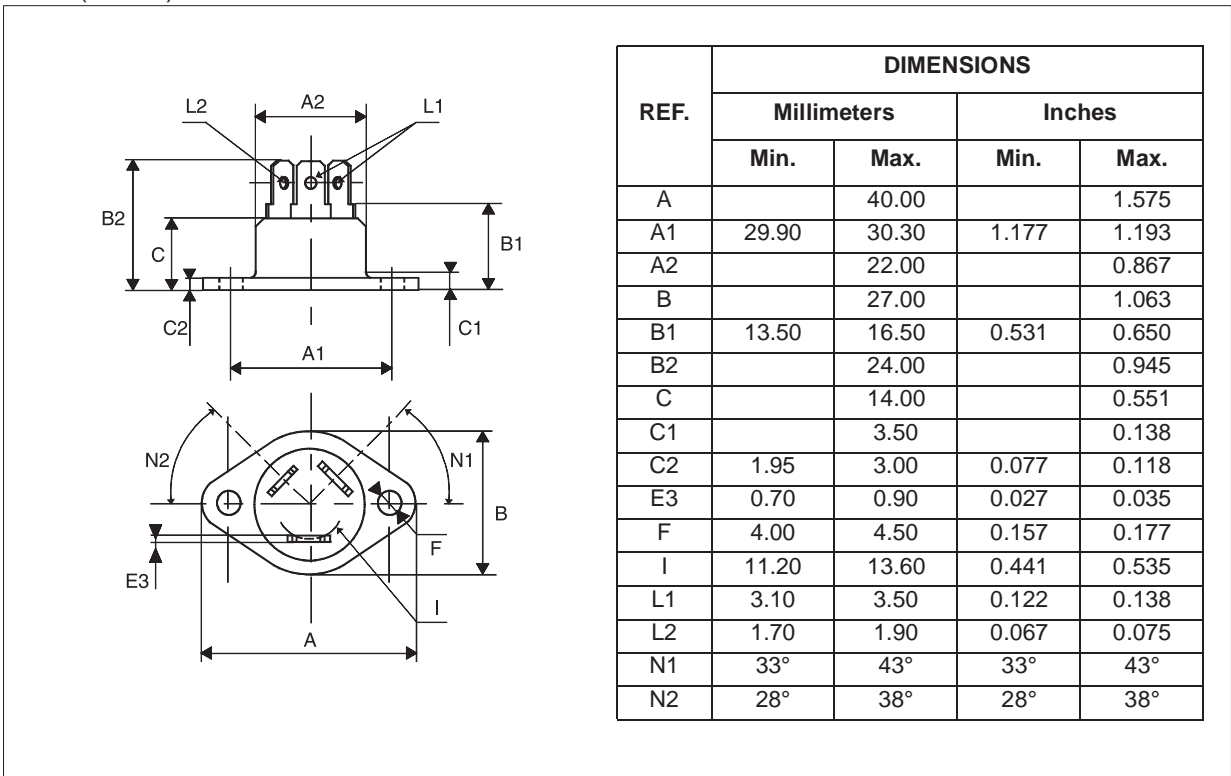
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Fig. 7: On-state characteristics (maximum values).



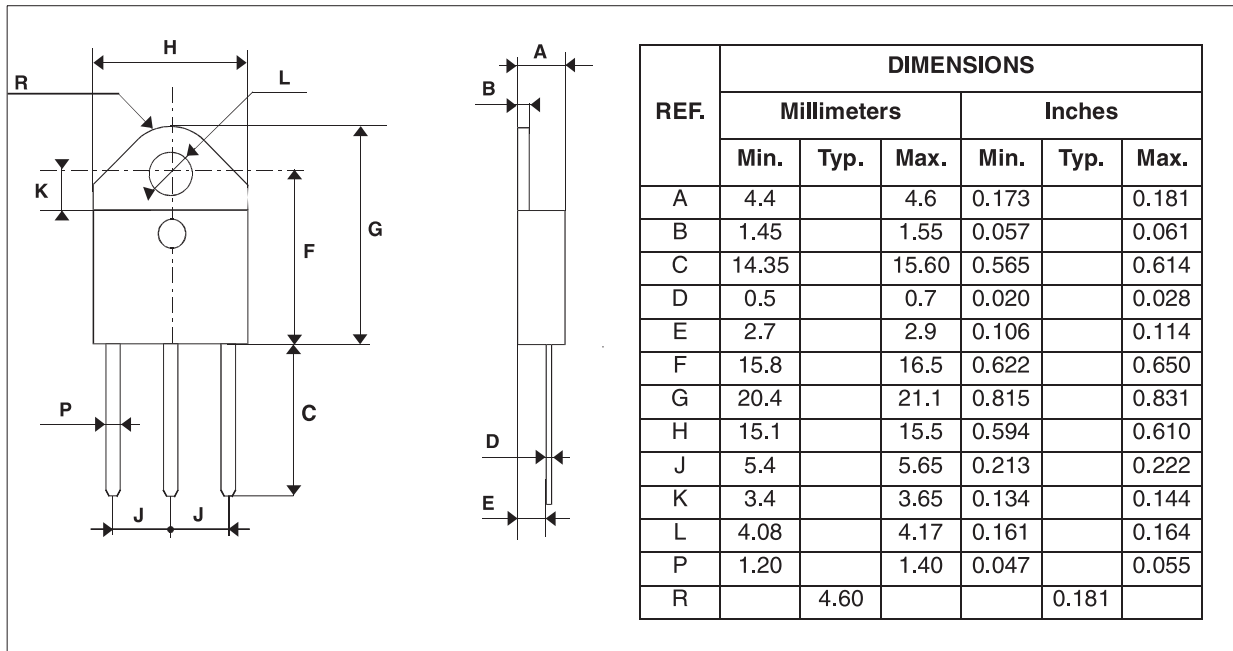
PACKAGE MECHANICAL DATA

RD91 (Plastic)



PACKAGE MECHANICAL DATA

TOP3 Ins.(Plastic)



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