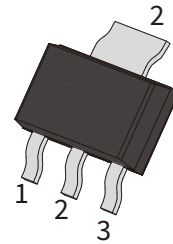


## FEATURES

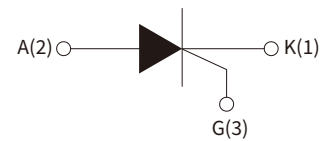
- | Glass-passivated mesa chip for reliability and uniform
- | High current output up to 1.0 A



SOT-223

## APPLICATIONS

- | Flash lamp
- | Electronic ballast
- | Igniter



Schematic Symbol

## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )	$V_{\text{DRM}}$	600	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{\text{RRM}}$	600	
RMS on-state current ( $T_c=75^\circ\text{C}$ )	$I_{\text{T(RMS)}}$	1	A
Non repetitive surge peak on-state current ( $180^\circ$ conduction angle, $F=50\text{Hz}$ , $t=10\text{ms}/60\text{Hz}$ , $8.3\text{ms}$ )	$I_{\text{TSM}}$	12	
I <sup>2</sup> t value for fusing ( $t_p=10\text{ms}$ )	I <sup>2</sup> t	0.72	A <sup>2</sup> S
Critical rate of rise of on-state current ( $I_G=2 \cdot I_{GT}$ , $t_r \leq 100\text{ns}$ )	$dI/dt$	50	A/ $\mu\text{s}$
Peak gate current	$I_{\text{GM}}$	0.5	A
Average gate power dissipation	$P_{\text{G(AV)}}$	0.1	W
Storage junction temperature range	$T_{\text{STG}}$	-40~+150	°C
Operating junction temperature range	$T_j$	-40~+125	

## ELECTRICAL CHARACTERISTICS (T<sub>j</sub>=25°C unless otherwise specified)

Symbol	Test Condition	Value			Unit
		Min.	Typ.	Max.	
I <sub>GT</sub>	V <sub>D</sub> =12V, R <sub>L</sub> =140Ω	20	40	120	μA
V <sub>GT</sub>		-	-	1.0	V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> , R <sub>L</sub> =1KΩ, T <sub>j</sub> =125°C	0.2	-	-	
I <sub>H</sub>	I <sub>T</sub> =50mA	-	-	5	
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	-	-	6	
dV <sub>D</sub> /dt	V <sub>D</sub> =2/3V <sub>DRM</sub> Gate Open T <sub>j</sub> =125°C	50	-	-	V/μs

## STATIC CHARACTERISTICS

Symbol	Parameter	Value	Unit
V <sub>TM</sub>	I <sub>TM</sub> =2A, tp=380μs	1.7	V
I <sub>DRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> , V <sub>R</sub> =V <sub>RRM</sub>		
I <sub>RRM</sub>			0.5

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Junction to case(AC)	25	°C/W
R <sub>th(j-a)</sub>	Junction to ambient	60	°C/W

## PARAMETER CHARACTERISTIC CURVE

FIG.1 Maximum power dissipation versus RMS on-state current

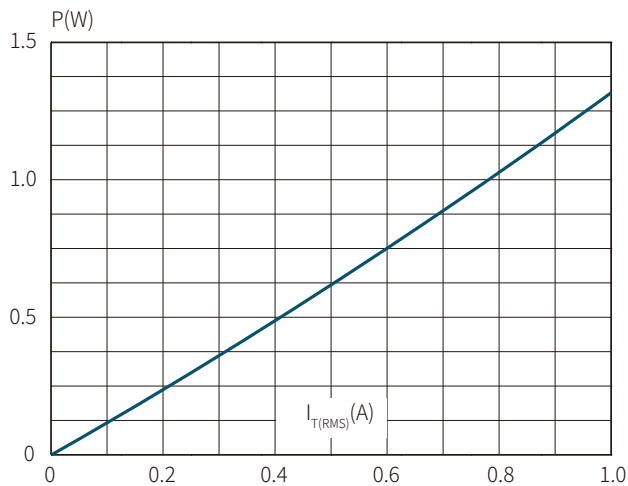


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35 $\mu$ m)(full cycle)

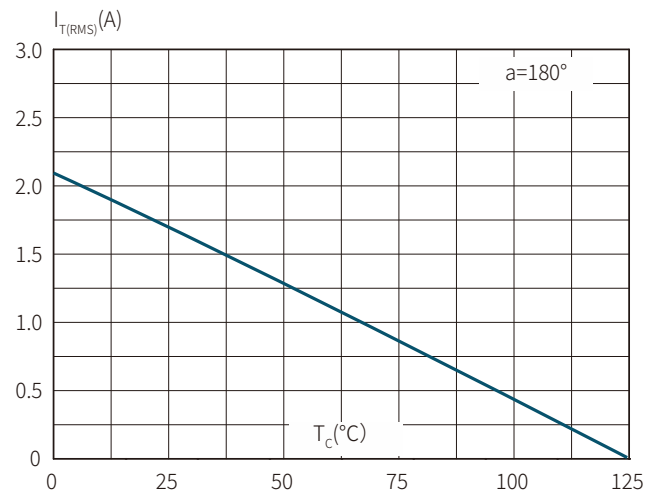


FIG.3: Surge peak on-state current versus number of cycles

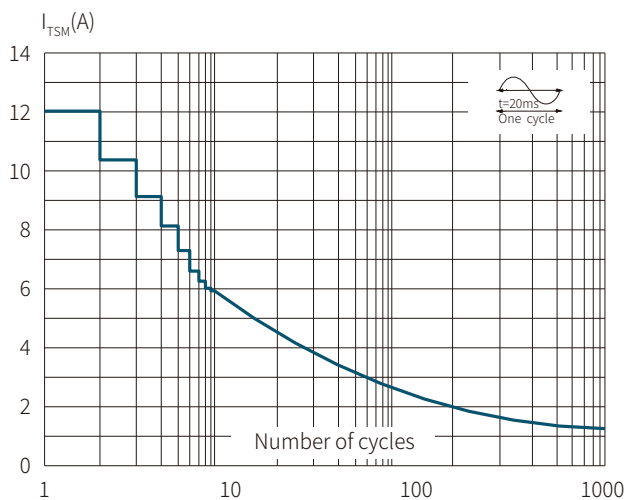


FIG.4 On-state characteristics (maximum values)

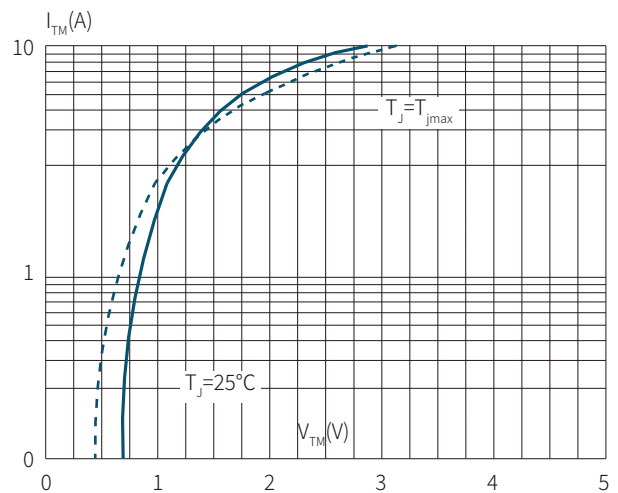


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$  and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )

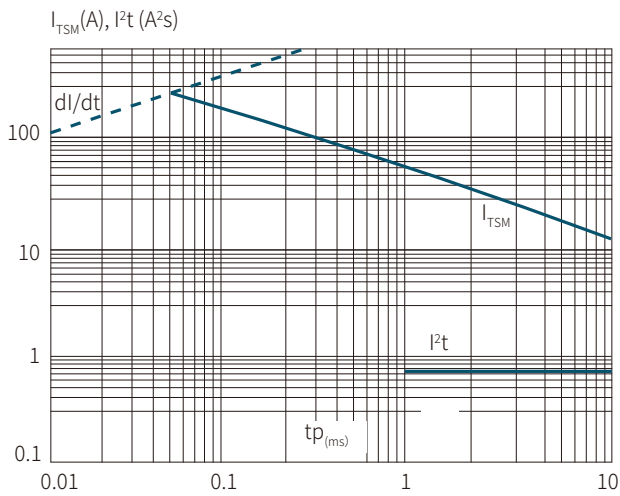


FIG.6 Relative variations of gate trigger current versus junction temperature

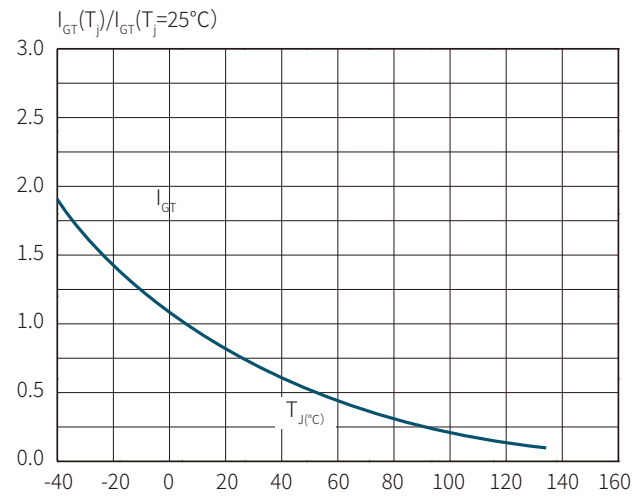


FIG.7 Relative variations of holding current versus junction temperature

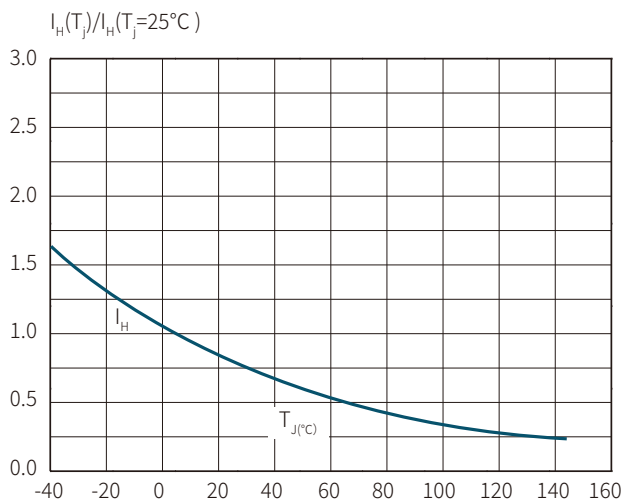
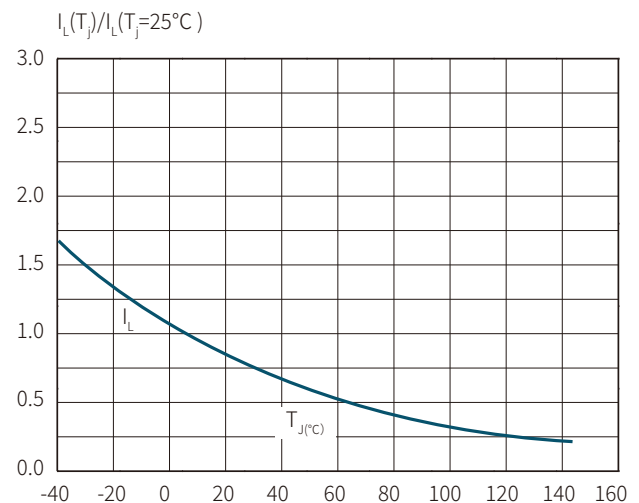
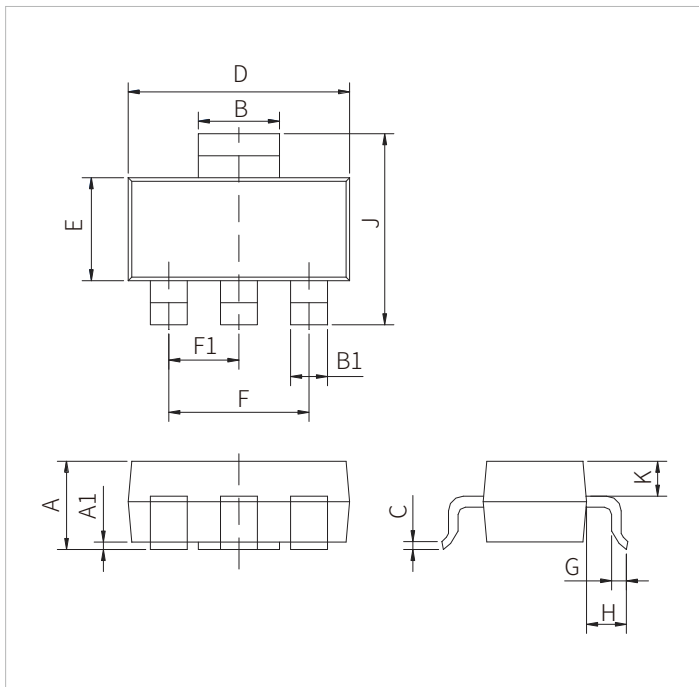


FIG.8 Relative variations of latching current versus junction temperature



## SOT-223 PACKAGE DIMENSIONS



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.50		1.80	0.059		0.071
A1	0.01		0.06	0.001		0.002
B	2.90		3.10	0.114		0.122
B1	0.60		0.80	0.024		0.031
C	0.22		0.32	0.009		0.013
D	6.30		6.70	0.248		0.264
E	3.30		3.70	0.130		0.146
F		4.60			0.181	
F1		2.30			0.091	
G	0.70		1.10	0.028		0.043
H	1.50		2.00	0.059		0.079
J	6.70		7.30	0.264		0.287
K		0.90			0.035	

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
BT168GW	SOT-223	1000PCS	7"

To find your local partner within Semiwell' s website : [www.semiwell.com.cn](http://www.semiwell.com.cn)  
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