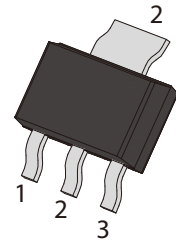


## FEATURES

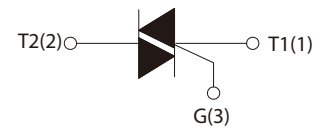
- | Direct interfacing to logic level ICs
- | Direct interfacing to low power gate drive circuits
- | High blocking voltage capability
- | Planar passivated for voltage ruggedness and reliability
- | Triggering in all four quadrant



SOT-223

## APPLICATIONS

- | General purpose motor control circuits
- | Phase control operations in light dimmers and motor speed controllers
- | Home appliances



Schematic Symbol

## 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	V
RMS on-state current ( $T_c=75^\circ\text{C}$ )	$I_{\text{T(RMS)}}$	1	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	$I_{\text{TSM}}$	20	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )	$I^2t$	2	A <sup>2</sup> S
Critical rate of rise of on-state current ( $I_G=2*I_{GT}$ )	I - II - III	50	A/ $\mu\text{s}$
	IV	10	
Peak gate current	$I_{\text{GM}}$	2	A
Average gate power dissipation	$P_{\text{G(AV)}}$	0.5	W
Peak gate power	$P_{\text{GM}}$	5	W
Operating junction temperature range	$T_j$	-40~+125	°C
Storage junction temperature range	$T_{\text{STG}}$	-40~+150	

## ELECTRICAL CHARACTERISTICS ( $T_j=25^\circ\text{C}$ unless otherwise specified)

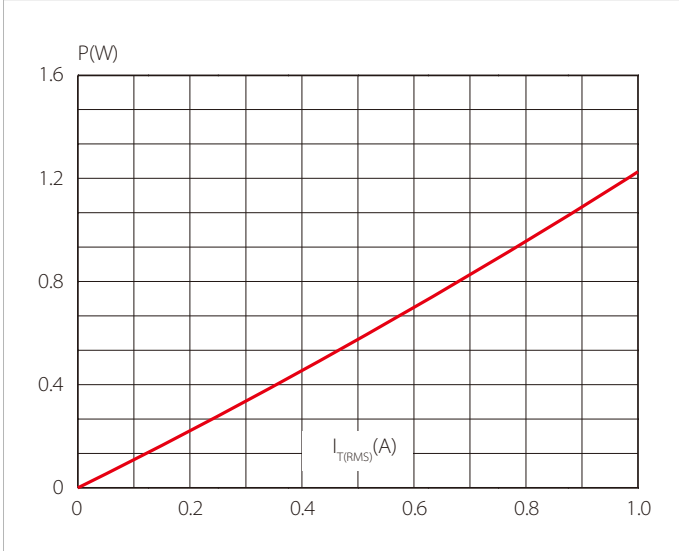
Symbol	Test Condition	Quadrant	Value			Unit
			T	D	E	
$I_{GT}$	$V_D=12\text{V}$	I - II - III	$\leq 5$	$\leq 5$	$\leq 10$	mA
		IV	$\leq 5$	$\leq 10$	$\leq 25$	
$V_{GT}$		ALL	$\leq 1.3$			V
$V_{GD}$	$V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=125^\circ\text{C}$		$\geq 0.2$			V
$I_H$	$I_t=100\text{mA}$		$\leq 5$	$\leq 10$	$\leq 20$	mA
$I_L$	$I_G=1.2I_{GT}$	I - III-IV	$\leq 8$	$\leq 10$	$\leq 20$	
		II	$\leq 12$	$\leq 15$	$\leq 35$	
$dV_D/dt$	$V_D=67\%V_{DRM}, T_j=125^\circ\text{C}$		$\geq 20$	$\geq 50$	$\geq 100$	V/ $\mu\text{s}$
$V_{TM}$	$I_{TM}=5\text{A}, t_p=380\mu\text{s}$		$\leq 1.7$			V
$I_{DRM}$	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	$\leq 5$			$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	$\leq 500$			$\mu\text{A}$

## THERMAL RESISTANCES

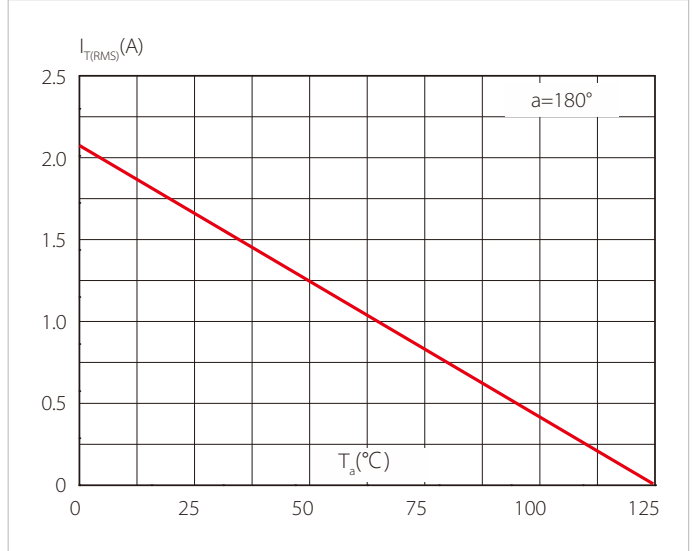
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case(AC)	7.5	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient	60	$^\circ\text{C}/\text{W}$

# PARAMETER CHARACTERISTIC CURVE

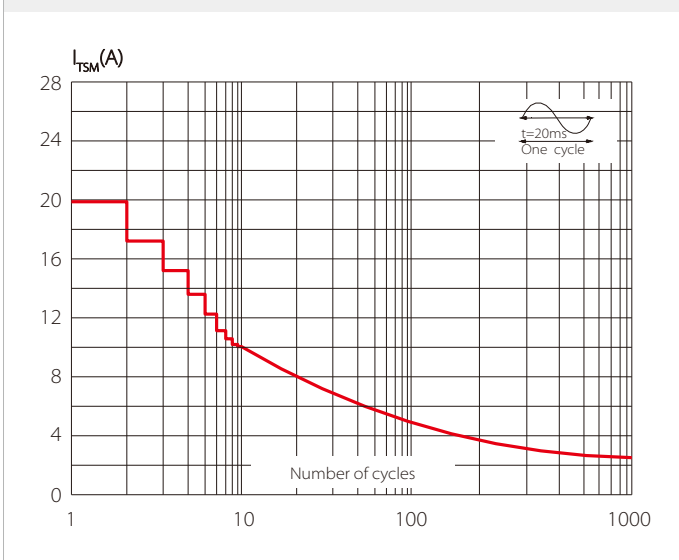
**FIG.1 Maximum power dissipation versus RMS on-state current**



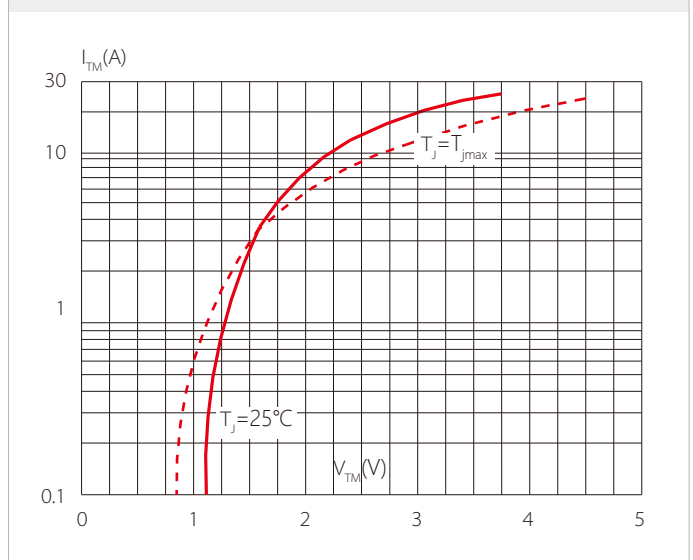
**FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35 $\mu$ m)**



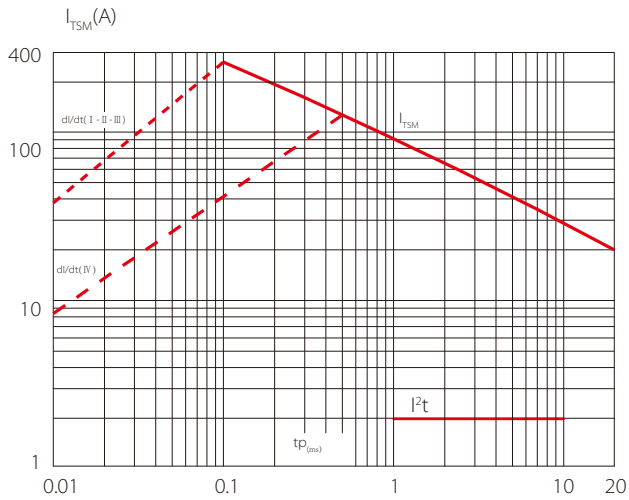
**FIG.3: Surge peak on-state current versus number of cycles**



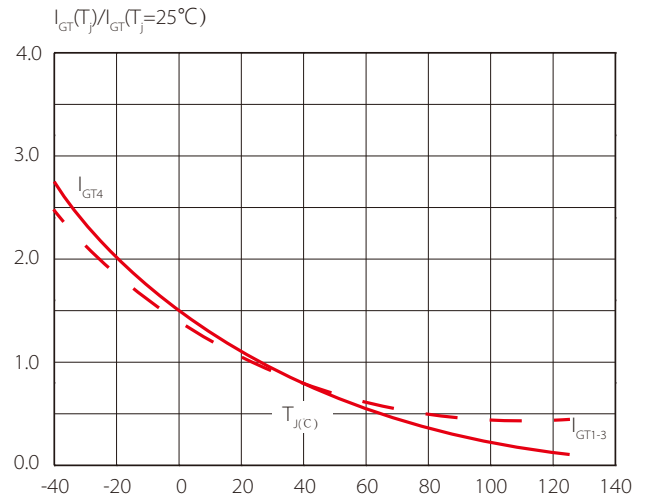
**FIG.4 On-state characteristics (maximum values)**



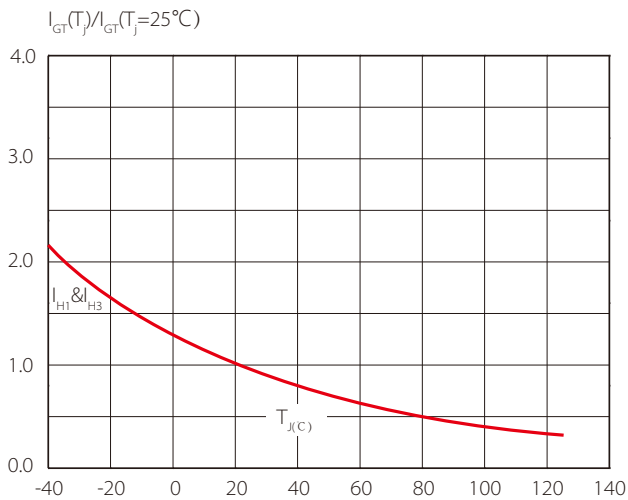
**FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$  and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )**



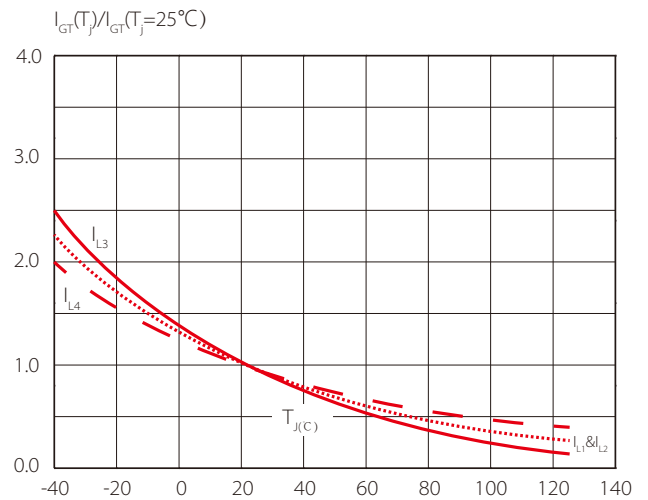
**FIG.6 Relative variations of gate trigger current versus junction temperature**



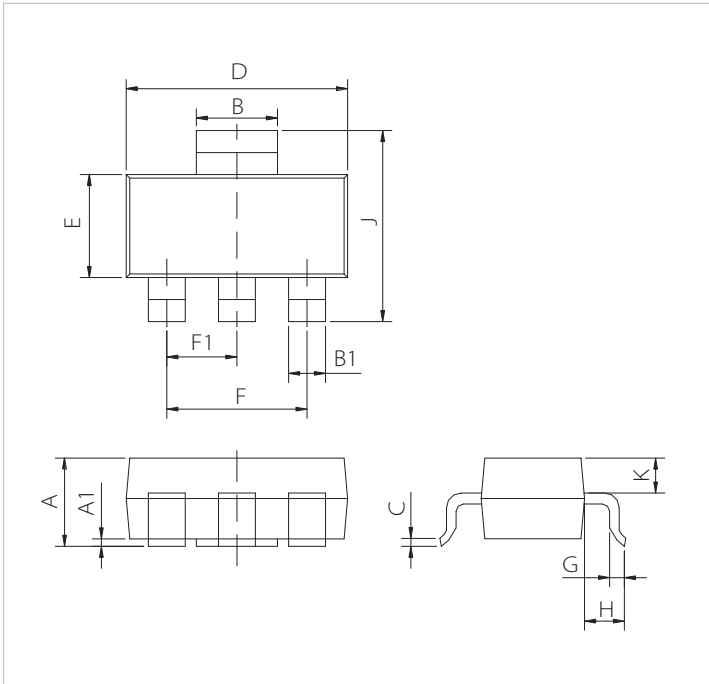
**FIG.7 Relative variations of holding current versus junction temperature**



**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		1.60	0.059		0.071
A1	0.01		0.06	0.001		0.004
B	2.90		3.10	0.118		0.122
B1	0.60		0.80	0.048		0.052
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
STV2Q60D(E/T)	SOT-223	1000PCS	7"

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