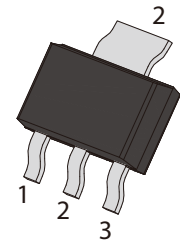


FEATURES

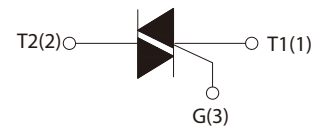
- Direct interfacing to logic level ICs
- Direct interfacing to low power gate drive circuits
- High blocking voltage capability
- Planar passivated for voltage ruggedness and reliability
- Triggering in all four quadrant



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_{DRM}	600/800	V
Repetitive peak reverse voltage ($T_J=25^\circ\text{C}$)	V_{RRM}	600/800	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, $F=50\text{Hz}$)	I_{TSM}	16	
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	1.28	A^2S
Critical rate of rise of on-state current ($I_G=2 \times I_{\text{GT}}$)	dI/dt	20	$\text{A}/\mu\text{s}$
Peak gate current	I_{GM}	2	A
Average gate power dissipation	$P_{\text{G(AV)}}$	0.5	W
Peak gate power	P_{GM}	5	W
Operating junction temperature range	T_J	-40~+125	$^\circ\text{C}$
Storage junction temperature range	T_{STG}	-40~+150	

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

Symbol	Test Condition	Quadrant	Value		Unit
			D	T	
I_{GT}	$V_D=12\text{V}$	I - II - III	≤ 5	≤ 5	mA
		IV	≤ 10	≤ 5	
V_{GT}		ALL	≤ 1.3		V
V_{GD}	$V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=125^{\circ}\text{C}$		≥ 0.2		V
I_H	$I_T=100\text{mA}$		≤ 7	≤ 5	mA
I_L	$I_G=1.2I_{GT}$	I - III	≤ 5	≤ 5	
		II - IV	≤ 20	≤ 10	
dV_D/dt	$V_D=67\%V_{DRM}, T_j=125^{\circ}\text{C}$		≥ 20	≥ 15	V/ μs
V_{TM}	$I_{TM}=1.4\text{A}, t_p=380\mu\text{s}$		≤ 1.5		V
I_{DRM}	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	≤ 5		μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	≤ 500		μA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case(AC)	31	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient	60	$^{\circ}\text{C}/\text{W}$

PARAMETER CHARACTERISTIC CURVE

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

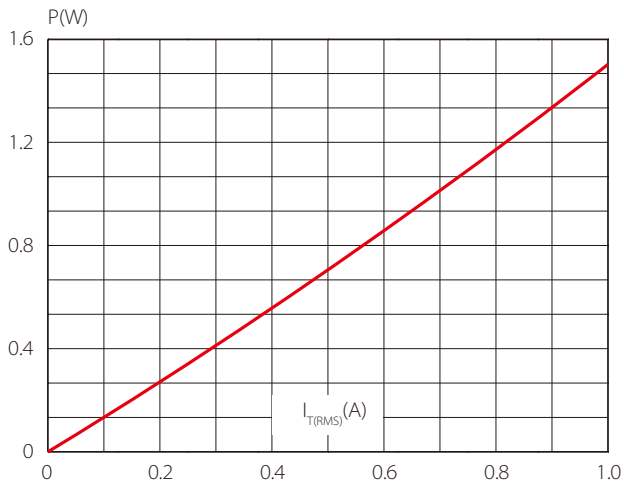


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35μm)

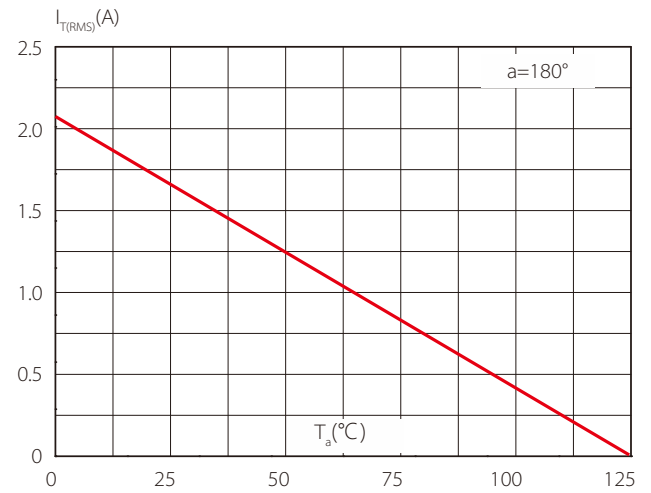


FIG.3: Surge peak on-state current versus number of cycles

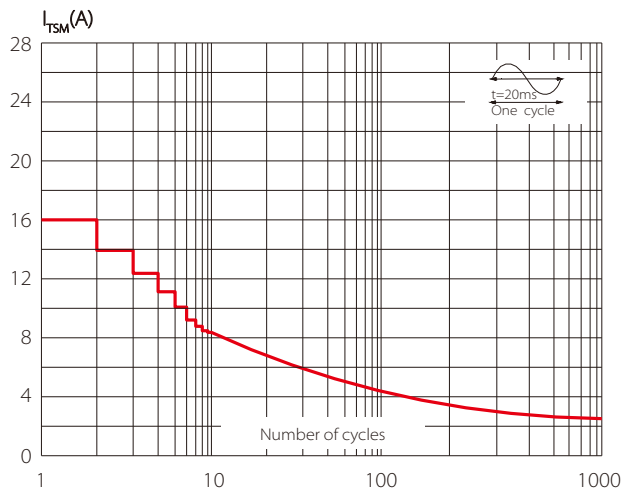


FIG.4 On-state characteristics (maximum values)

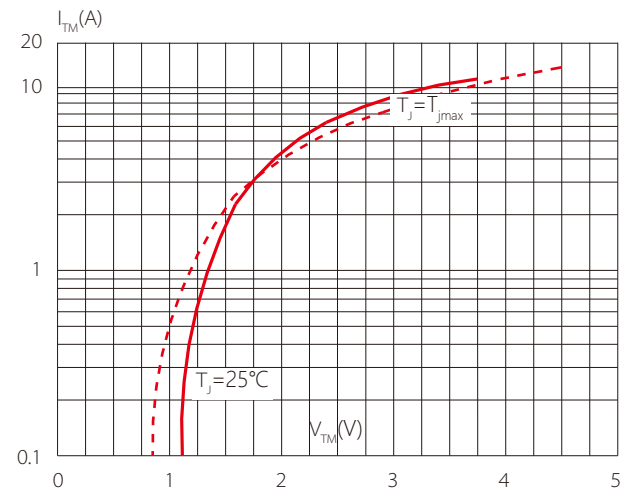


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

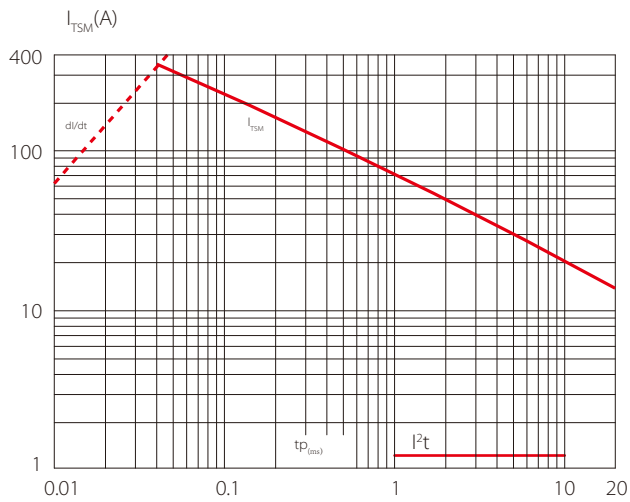


FIG.6 Relative variations of gate trigger current versus junction temperature

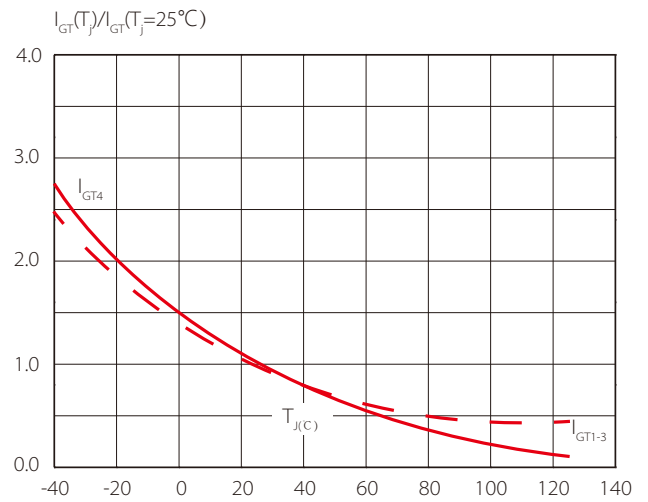


FIG.7 Relative variations of holding current versus junction temperature

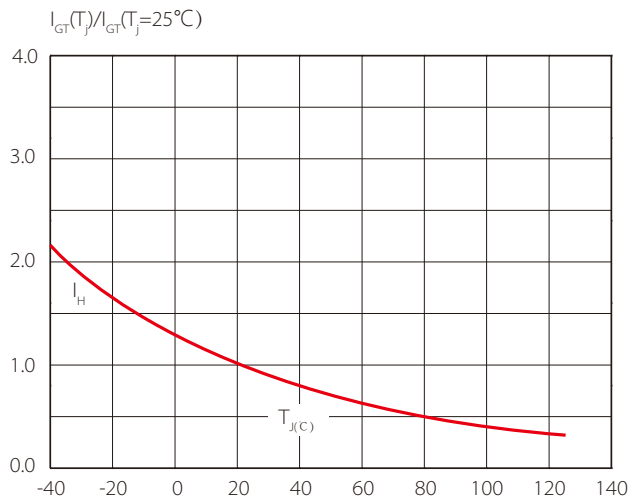
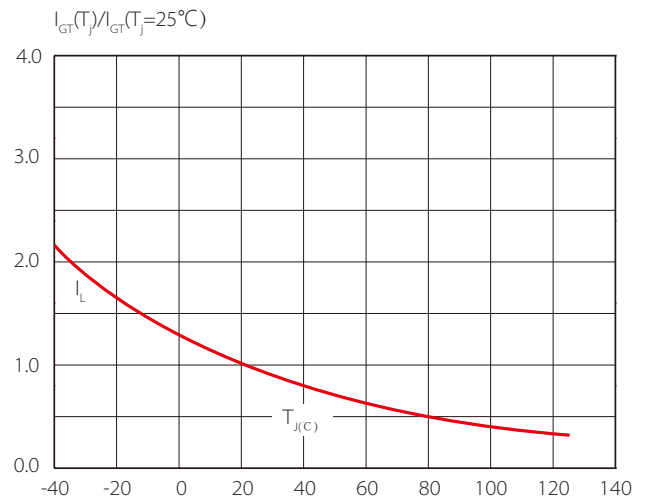
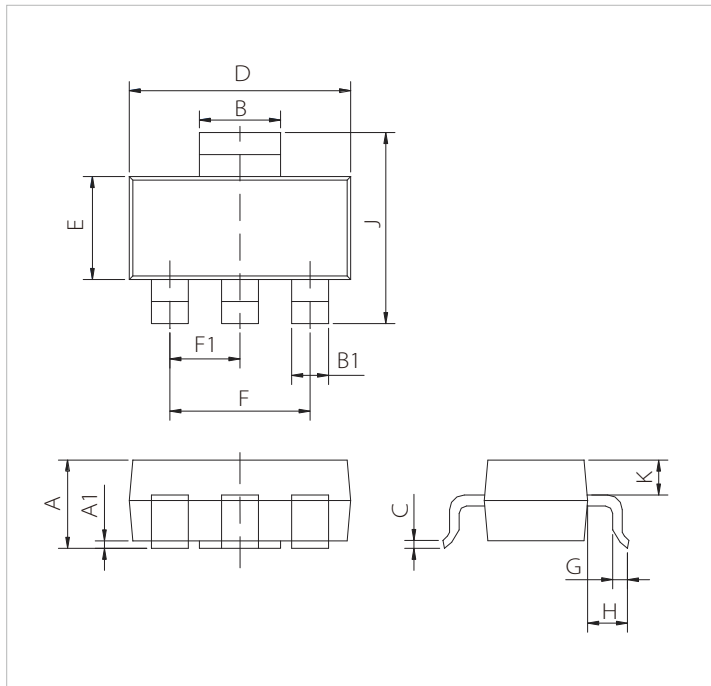


FIG.8 Relative variations of latching current versus junction temperature



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
BT131W-600/800D(T)	SOT-223	1000PCS	7"

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