

Product Summary

Symbol	Value	Unit
$I_{T(RMS)}$	1.0	A
$V_{DRM} V_{RRM}$	600/800	V
V_{TM}	1.55	V

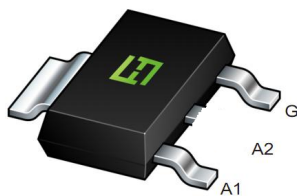
Feature

With high ability to withstand the shock loading of large current, With high commutation performances, 4 quadrants products especially recommended for use on inductive load.

Application

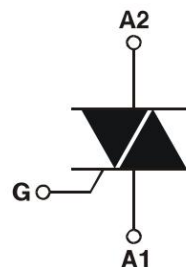
Washing machine, vacuums, massager, solid state relay, AC Motor speed regulation and so on.

Package

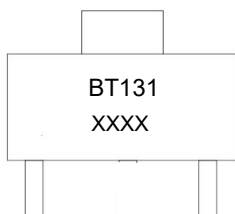


SOT-223-2L

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit	
Repetitive peak off-state voltage	V_{DRM}	600/800	V	
Repetitive peak reverse voltage	V_{RRM}	600/800	V	
RMS on-state current	$I_{T(RMS)}$	1	A	
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	16	A	
I^2t value for fusing (tp=10ms)	I^2t	1.28	A ² s	
Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$)	di/dt	I - II - III	50	A/ μ s
		IV	10	
Peak gate current	I_{GM}	2	A	
Average gate power dissipation	$P_{G(AV)}$	0.5	W	
Junction Temperature	T_J	-40 ~ +125	°C	
Storage Temperature	T_{STG}	-40 ~ +150	°C	

Electrical characteristics (TA=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Value	Unit	
Gate trigger current	I_{GT}	$V_D = 12V$ $I_T = 0.1A$ $T_J = 25^\circ C$	I - II - III	MAX. 5	mA
			IV	10	
Gate trigger voltage	V_{GT}	I - II - III - IV	MAX. 1.3	V	
Gate non-trigger voltage	V_{GD}	$V_D = V_{DRM}$ $T_J = 125^\circ C$	MIN. 0.2	V	
latching current	I_L	$V_D = 12V$ $I_{GT} = 0.1A$ $T_J = 25^\circ C$	I - III - IV	MAX. 10	mA
			II	15	
Holding current	I_H	I - II - III - IV	MAX. 5	mA	
Critical-rate of rise of commutation voltage	dV/dt	$V_D = 2/3V_{DRM}$ Gate Open $T_J = 125^\circ C$	MIN. 50	V/ μ s	
STATIC CHARACTERISTICS					
Forward "on" voltage	V_{TM}	$I_{TM} = 1.5A$ tp=380 μ s	MAX. 1.55	V	
Repetitive Peak Off-State Current	I_{DRM}	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_J = 25^\circ C$	MAX. 5	μ A
Repetitive Peak Reverse Current	I_{RRM}		$T_J = 125^\circ C$	MAX. 100	μ A
THERMAL RESISTANCES					
Thermal resistance	Rth(j-c)	Junction to case(AC)	TYP. 23	°C/W	
	Rth(j-a)	Junction to ambient	TYP. 60	°C/W	

Typical Characteristics

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

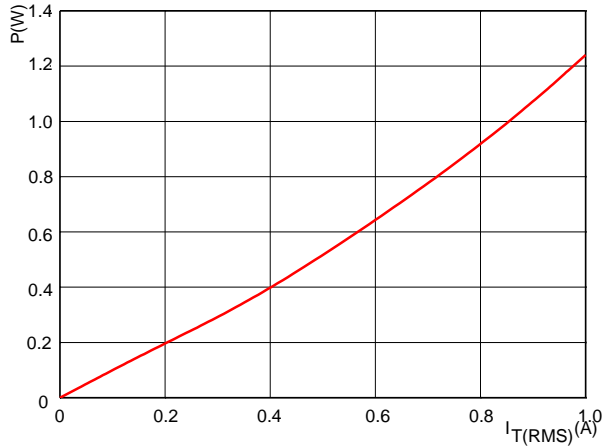


FIG.2: RMS on-state current versus case temperature (full cycle)

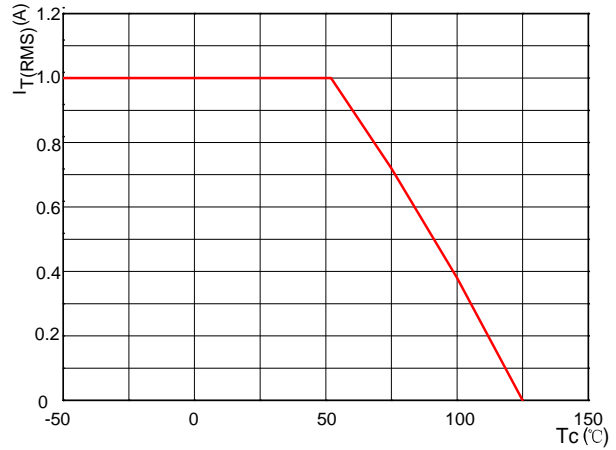


FIG.3: Surge peak on-state current versus number of cycles

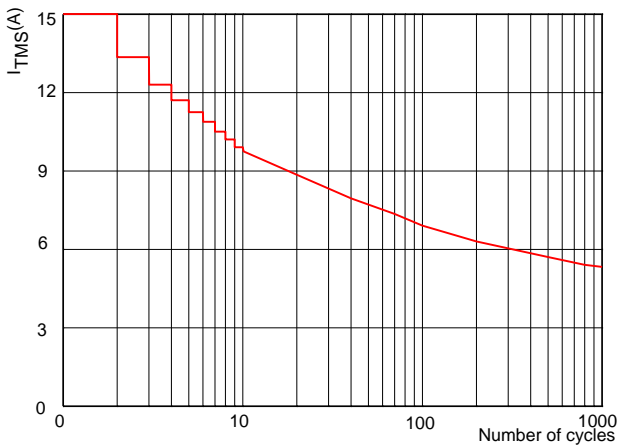


FIG.4: On-state characteristics (maximum values)

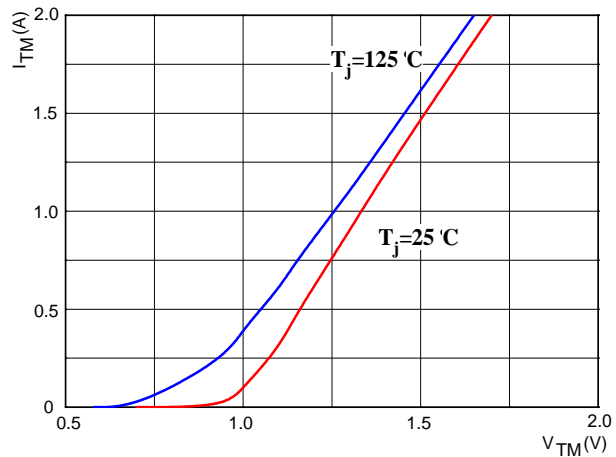


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms

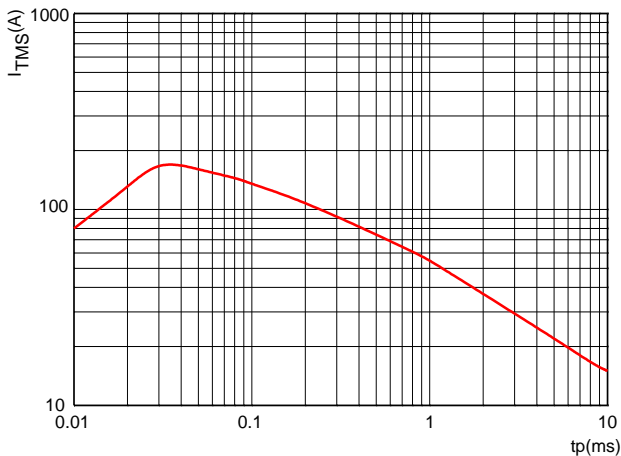
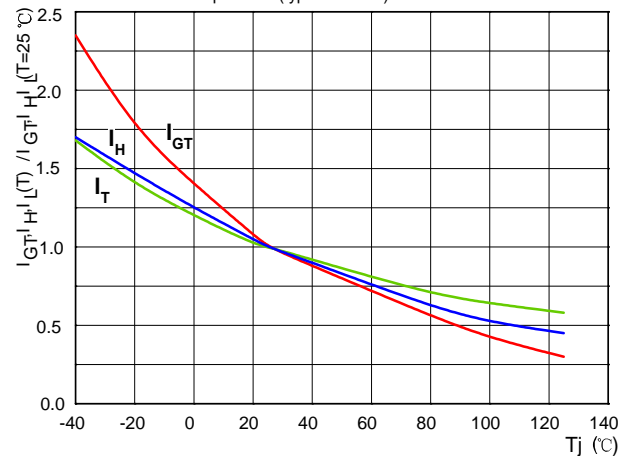
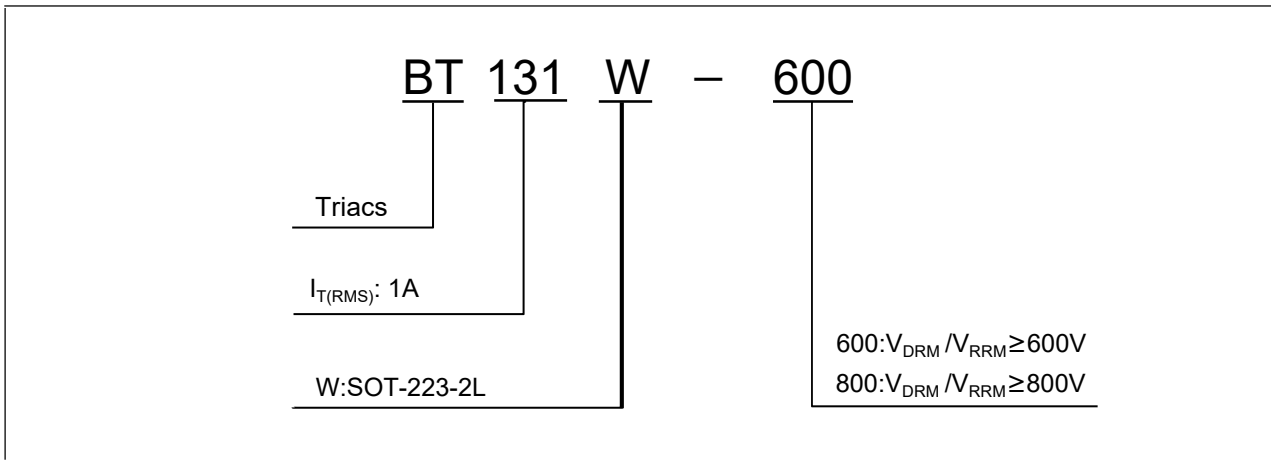


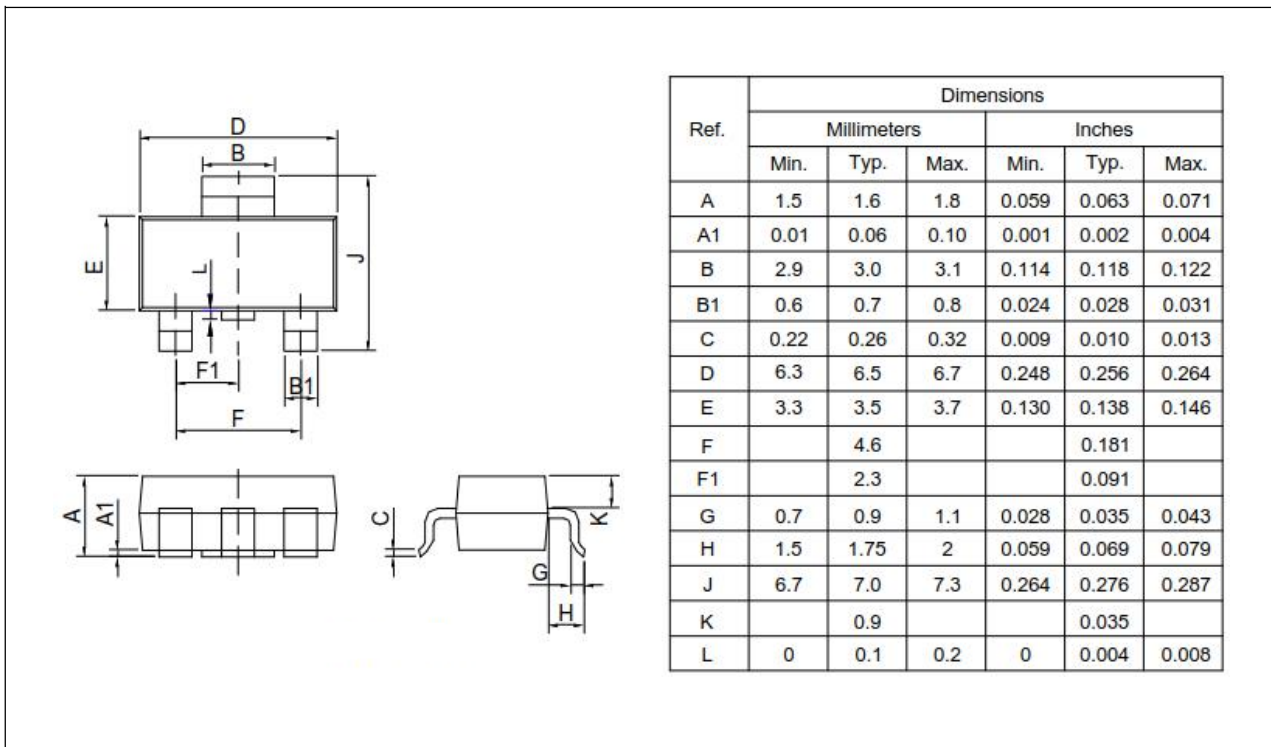
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Ordering Information

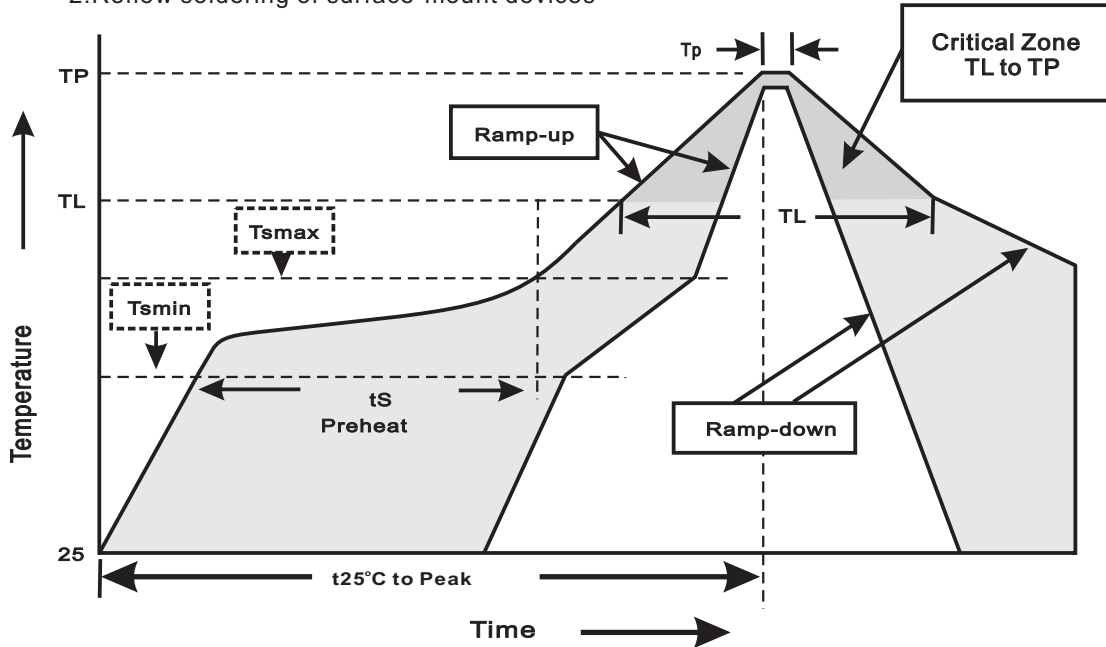


SOT-223-2L Package Information



Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(TL to TP)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(ts)	150°C 200°C 60~120sec
Tsmax to TL -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(TL) -Time(tL)	217°C 60~260sec
Peak Temperature(TP)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(tp)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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