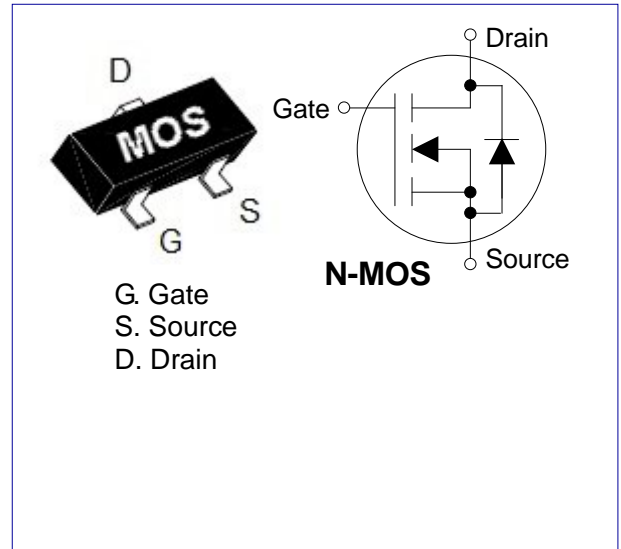


Features

- $I_D=6A$ @ $V_{GS}=10V$
- $I_D=5A$ @ $V_{GS}=4.5V$
- $R_{DS(on)}=19m\Omega$ (Typ.) @ $V_{GS}=10V$
- $R_{DS(on)}=23m\Omega$ (Typ.) @ $V_{GS}=4.5V$
- $R_{DS(on)}=31m\Omega$ (Typ.) @ $V_{GS}=2.5V$
- $R_{DS(on)}=42m\Omega$ (Typ.) @ $V_{GS}=1.8V$
- Low On-Resistance
- Low input capacitance
- Fast switching speed
- Low input/output leakage
- Application:
 - Power Management
 - Battery Power System
 - Automobile Electronics
 - Portable Appliances
 - Load Switch
 - DSC
- Package: SOT23, SOT23-3L
- Lead free and green device


Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 10	V
Drain Current ^a	$T_C=25^\circ\text{C}$	I_D	6.0	A
	$T_C=70^\circ\text{C}$		3.6	
Drain Current – Pulsed ^a		I_{DM}	24	A
Power Dissipation ($T_C=25^\circ\text{C}$)		P_D	1.56	W
Power Dissipation – Derate Above 25°C			0.012	
Storage Temperature Range		T_{STG}	$-55 \sim +150$	$^\circ\text{C}$
Operating Junction Temperature Range		T_J	$-55 \sim +150$	$^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient ¹		$R_{\theta JA}$	90	$^\circ\text{C}/\text{W}$

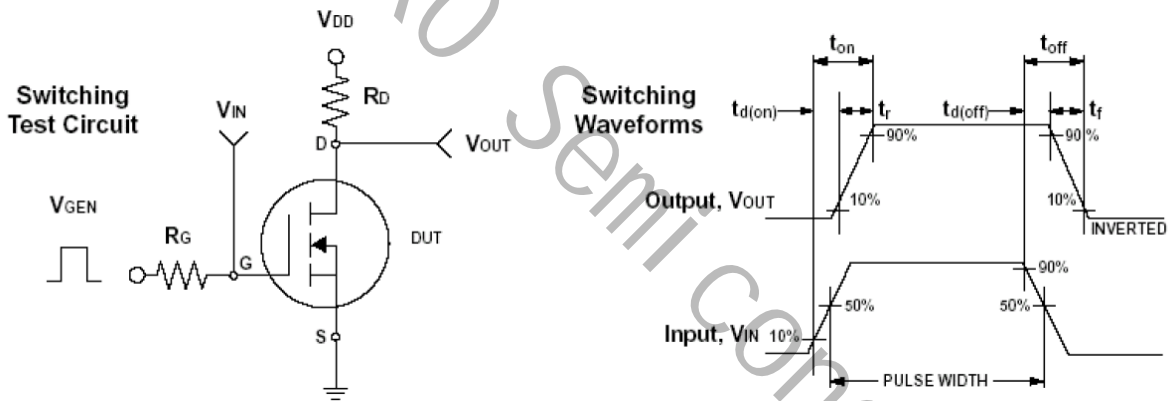
Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu\text{A}$	20	---	---	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	1	nA
Gate-Body Leakage	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	---	---	± 100	μA
On Characteristics ^a						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.4	0.75	1.1	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=6.0A$	---	19	24	m Ω
		$V_{GS}=4.5V, I_D=5.0A$	---	22	28	
		$V_{GS}=2.5V, I_D=4.0A$	---	31	42	
		$V_{GS}=1.8V, I_D=2.0A$	---	42	63	
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=6A$	---	9.5	---	S
Drain-Source Diode Characteristics ^a						
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Force Current}$	---	---	6.0	A

Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A$	---	---	1.2	V
Dynamic Characteristics ^b						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, F=1.0MHz$	---	600	---	pF
Output Capacitance	C_{oss}		---	113	---	
Reverse Transfer Capacitance	C_{rss}		---	60	---	
Switching Characteristics ^b						
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=6.0A$	---	7.2	---	nC
Gate-Source Charge	Q_{gs}		---	1.5	---	
Gate-Drain Charge	Q_{gd}		---	1.9	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=10V, V_{GS}=4.5V$ $R_G=3\Omega, R_L=1.5\Omega$	---	13	---	ns
Rise Time	T_r		---	53	---	
Turn-Off Delay Time	$T_{d(off)}$		---	18.2	---	
Fall Time	T_f		---	10.8	---	

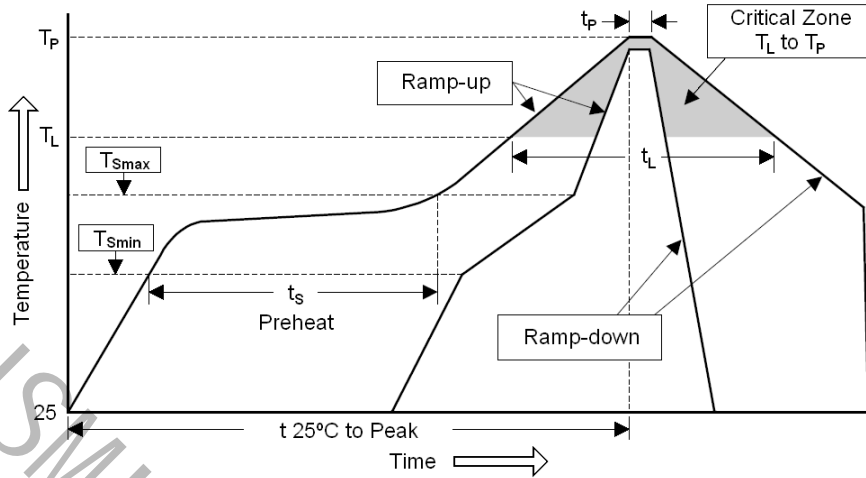
Notes: a. Repetitive Rating: Pulsed width limited by maximum junction temperature.
 b. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 c. Guaranteed by design, not subject to production testing.

Switching Time Test Circuit and Waveforms



Soldering Methods For Products

1. Storage environment : Temperature=10°C~35°C, Humidity=65%±15%
2. Reflow soldering of surface mount devices


Figure : Temperature Profile

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	< 3°C/sec	< 3°C/sec
Preheat		
- Temperature Min (T_{Smin})	100°C	100°C
- Temperature Max (T_{Smax})	150°C	200°C
- Time (Min to Max) (t_s)	60 ~ 120 sec	60 ~ 180 sec
T_{Smax} to T_L		
- Ramp-up rate	< 3°C/sec	< 3°C/sec
Time maintained above:		
- Temperature (T_L)	183°C	217°C
- Time (t_L)	60 ~ 150 sec	60 ~ 150 sec
Peak Temperature (T_P)	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t_p)	10 ~ 30 sec	20 ~ 40 sec
Ramp-down rate	< 6°C/sec	< 6°C/sec
Time 25°C to Peak Temperature	< 6 minutes	< 8 minutes

3. Flow (wave) soldering (solder dipping)

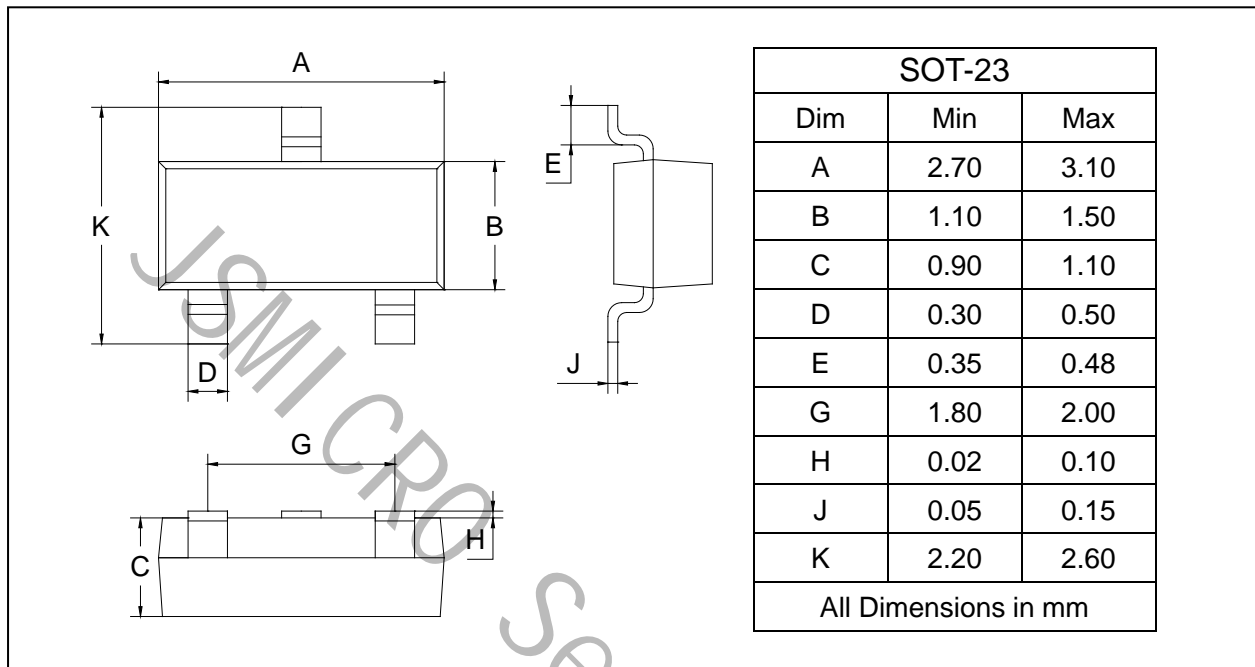
Product	Peak Temperature	Dipping Time
Pb devices	245°C ±5°C	5sec ±1sec
Pb-Free devices	260°C +0/-5°C	5sec ±1sec

- 经锡炉或回焊炉的温度切勿超过 260 °C (Max safe temperature: 260°C)。

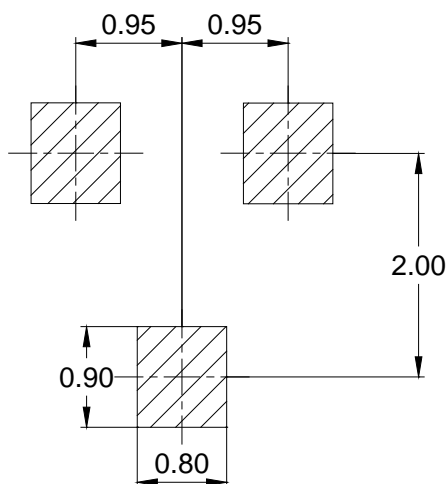
尺寸图/PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



包装信息/PACKAGE INFORMATION

Part No.	Package	Shipping
JSM3420S	SOT-23	3000pcs / Tape & Reel