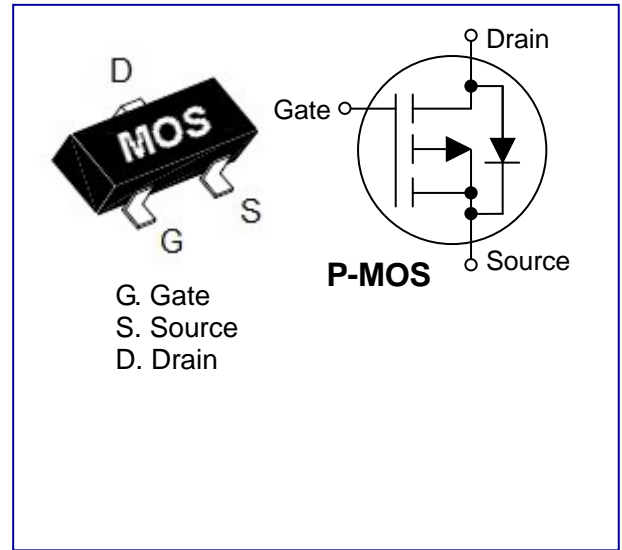


General Description

- $I_D = -2.8A @ V_{GS} = -4.5V$
- $R_{DS(on)} = 69m\Omega (Typ.) @ V_{GS} = -4.5V$
- $R_{DS(on)} = 94m\Omega (Typ.) @ V_{GS} = -2.5V$
- $R_{DS(on)} = 130m\Omega (Typ.) @ V_{GS} = -1.8V$
- Low Gate charge
- Fast switching speed
- Improved dv/dt capability
- Suit for -1.8V gate drive applications
- Application:
 - Note Book
 - Load Switch
 - Hand Held Instruments
 - Switching Appliance
 - Power Management
- Lead free and green devices are available
- Package: SOT23-3L


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

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 10	V
Drain Current ^a	$T_C = 25^\circ C$	I_D	-2.6	A
	$T_C = 25^\circ C, t \leq 5s$		-3.3	
	$T_C = 70^\circ C$		-1.56	
Drain Current – Pulsed ^a		I_{DM}	-10.4	A
Power Dissipation ($T_C = 25^\circ C$)		P_D	1.56	W
Power Dissipation – Derate Above $25^\circ C$			0.012	
Storage Temperature Range		T_{STG}	-55 ~ +150	$^\circ C$
Operating Junction Temperature Range		T_J	-55 ~ +150	$^\circ C$
Thermal Resistance, Junction-to-Ambient1		$R_{\theta JA}$	100	$^\circ C/W$

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-20	---	---	V
Zero Gate Voltage Drain Current	I_{DSS}	$T_J = 25^\circ C, V_{DS} = -16V, V_{GS} = 0V$	---	---	-1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$	---	---	± 100	nA
On Characteristics ^a						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.3	-0.6	-1.0	V

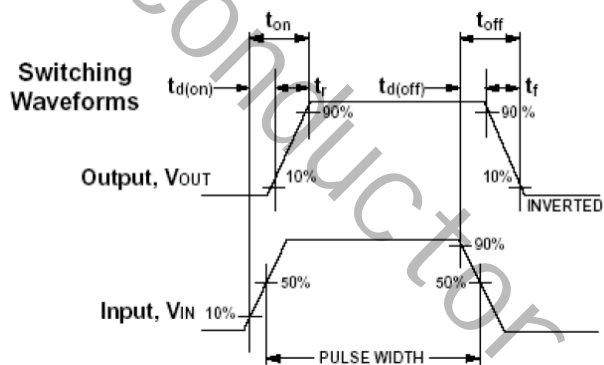
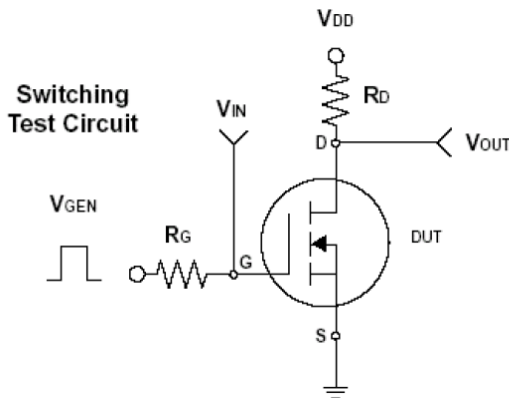
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-3.0A$	---	69	85	mΩ
		$V_{GS}=-2.5V, I_D=-2.0A$	---	94	120	
		$V_{GS}=-1.8V, I_D=-1.0A$	---	130	170	
Forward Transconductance	g_{fs}	$V_{DS}=-10V, I_D=-1A$	---	2.2	---	S
Drain-Source Diode Characteristics ^a						
Continuous Source Current	I_S	$V_G=V_D=0V$, Force Current	---	---	-2.6	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-1A$	---	---	-1.3	V
Dynamic Characteristics ^b						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V, F=1MHz$	---	350	510	pF
Output Capacitance	C_{oss}		---	65	95	
Reverse Transfer Capacitance	C_{rss}		---	50	75	
Switching Characteristics ^b						
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-2.6A$	---	4.8	8	nC
Gate-Source Charge	Q_{gs}		---	0.5	1	
Gate-Drain Charge	Q_{gd}		---	1.9	4	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=-10V, V_{GS}=-4.5V, R_G=25\Omega, I_D=-1A$	---	3.5	7	ns
Rise Time	T_r		---	12.6	24	
Turn-Off Delay Time	$T_{d(off)}$		---	32.5	62	
Fall Time	T_f		---	8.4	16	

Notes: a. Repetitive Rating: Pulsed width limited by maximum junction temperature.

b. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

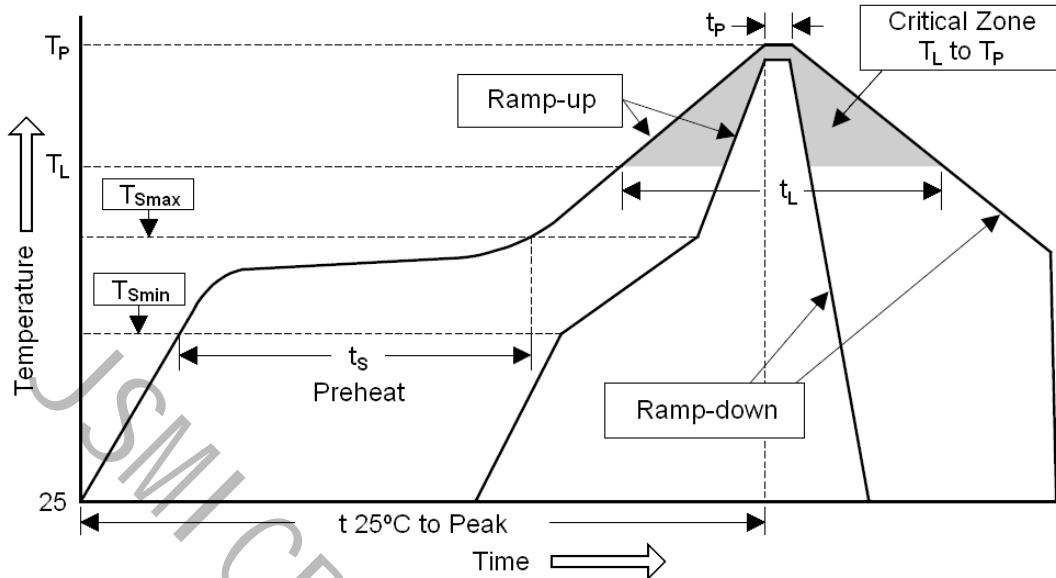
c. Guaranteed by design, not subject to production testing.

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

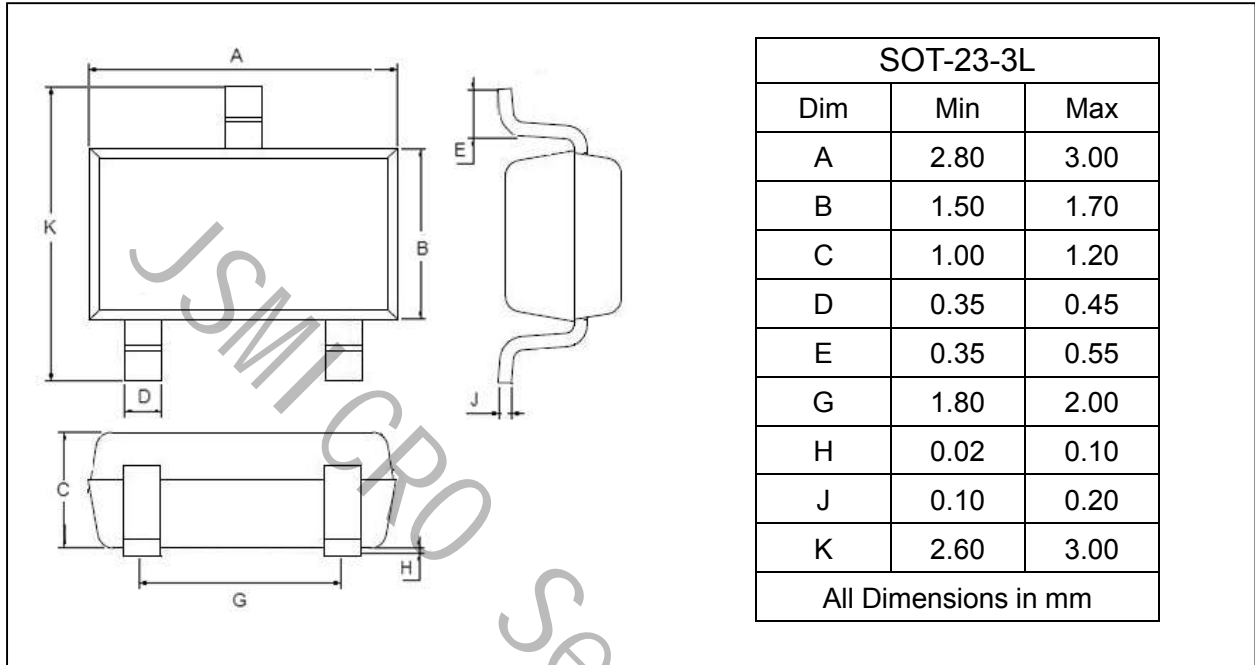
Notices:

- All companies, brands, logos, pictures, product names and trademarks are the property of owner respective companies.
- 规格书内容、版本或参数规格如有更改恕不另行通知，如有特定规格的需求请事先告知，如因此而造成任何的问题，供应商不承担任何赔偿和法律责任。
- MOS 管电路是静电敏感元器件，且对生产环境要求较严，建议在存放、运输及生产操作时一定要避免静电干扰。
- 经锡炉或回焊炉的温度切勿超过 260 °C。

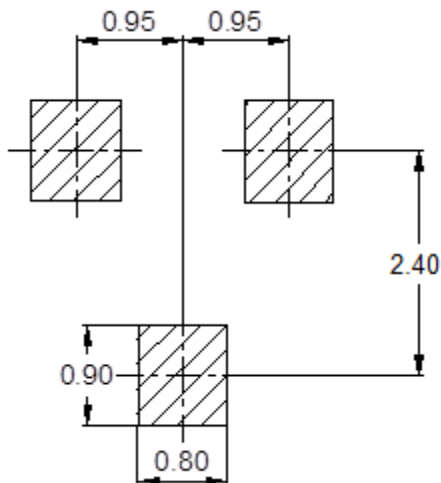
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23-3L



SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
JSM2301SL	SOT-23-3L	3000/Tape&Reel