

Product Summary

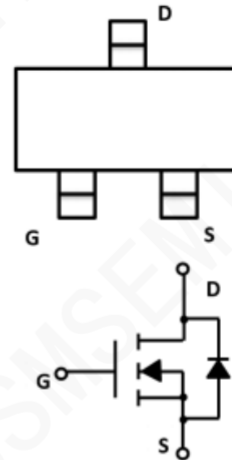
- $V_{DS} \bullet I_D$ 60V
- $R_{DS(ON)}$ (at $V_{GS}=10V$) 3.0A
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <100 mohm
<120 mohm

General Description

- Trench Power MV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- DC-DC Converters
- Power management functions



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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	60	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_A=25^\circ\text{C}$	I_D	3	A
	$T_A=70^\circ\text{C}$		2.4	
Pulsed Drain Current ^A		I_{DM}	12	A
Total Power Dissipation @ $T_C=25^\circ\text{C}$		P_D	1.2	W
Thermal Resistance Junction-to-Ambient ^B		$R_{\theta JA}$	105	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ\text{C}$

Ordering Information (Example)

PREFERRED P/N	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
JSM2310	3000	30000	120000	7" reel

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	I_{GSS1}	$V_{GS}= \pm 20V, V_{DS}=0V$			± 100	nA
	I_{GSS2}	$V_{GS}= \pm 10V, V_{DS}=0V$			± 50	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}= V_{GS}, I_D=250\mu A$	1.0	1.3	2.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}= 10V, I_D=3A$		86	100	m Ω
		$V_{GS}= 4.5V, I_D=2A$		92	120	
Diode Forward Voltage	V_{SD}	$I_S=3.0A, V_{GS}=0V$		0.8	1.2	V
Maximum Body-Diode Continuous Current	I_S				3.0	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		330		pF
Output Capacitance	C_{oss}			90		
Reverse Transfer Capacitance	C_{rss}			17		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=30V, I_D=3.0A$		5.1		nC
Gate-Source Charge	Q_{gs}			1.3		
Gate-Drain Charge	Q_{gd}			1.7		
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=30V, I_D=1.5A, R_L=1\Omega$ $R_{GEN}=3\Omega$		13		ns
Turn-on Rise Time	t_r			51		
Turn-off Delay Time	$t_{D(off)}$			19		
Turn-off fall Time	t_f			12		

 A. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Performance Characteristics

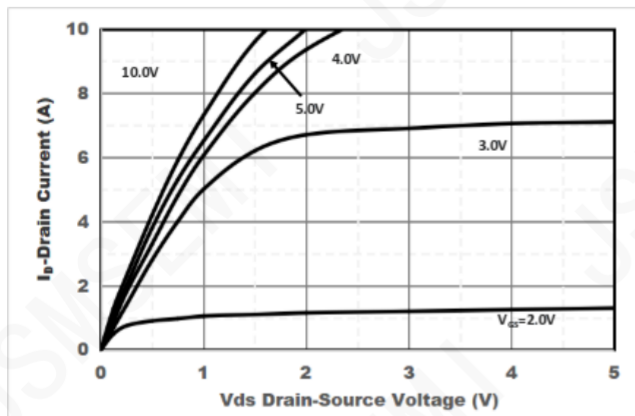


Figure1. Output Characteristics

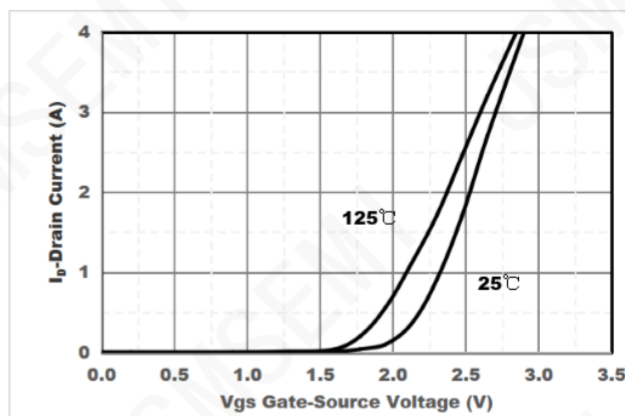


Figure2. Transfer Characteristics

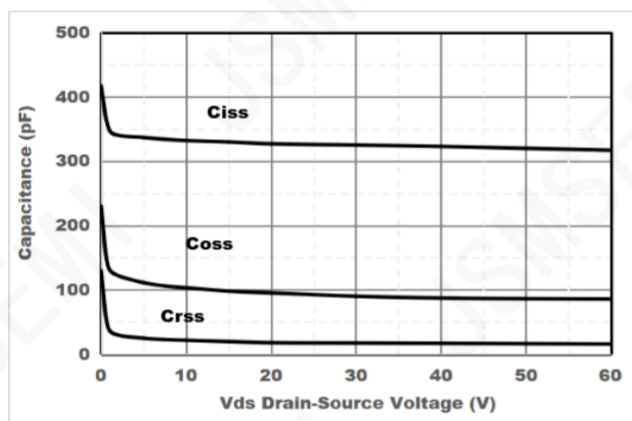


Figure3. Capacitance Characteristics

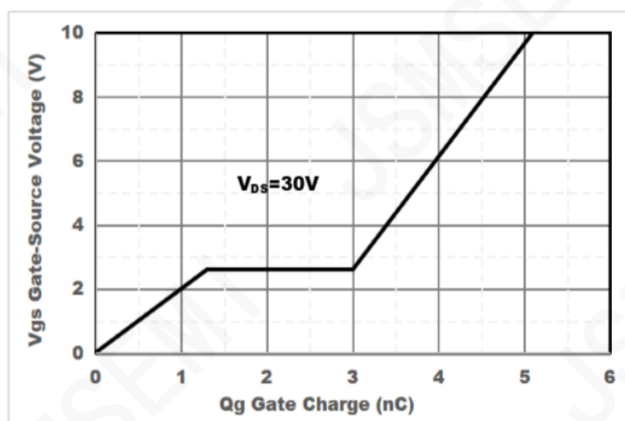


Figure4. Gate Charge

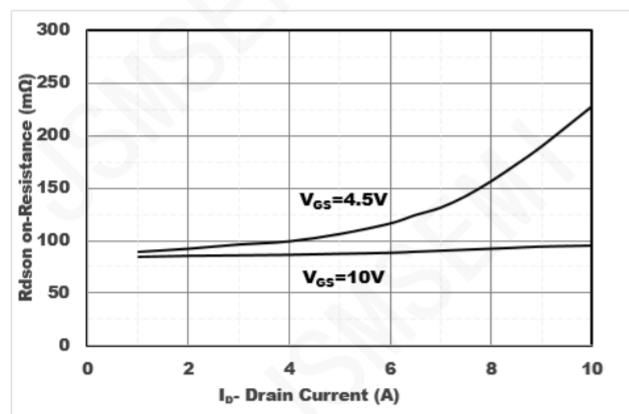


Figure5. Drain-Source on Resistance

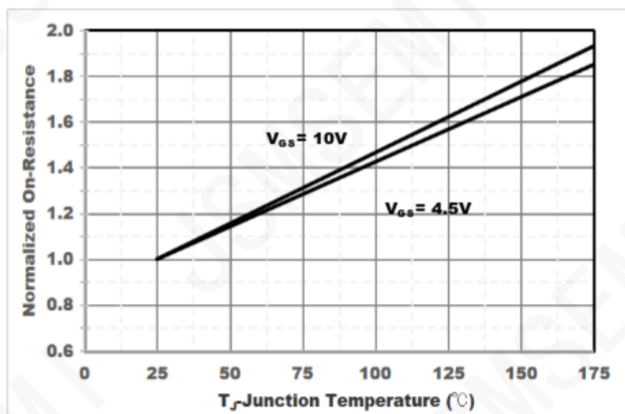


Figure6. Drain-Source on Resistance

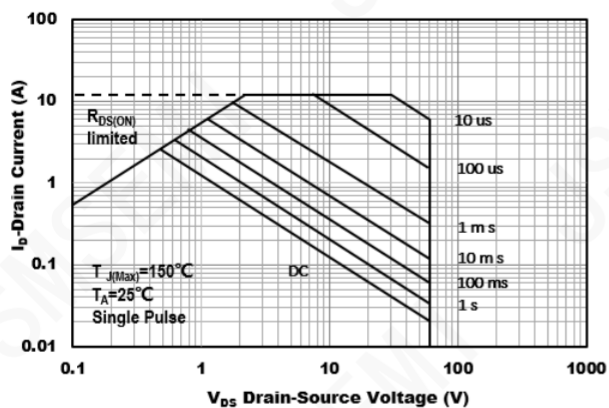


Figure7. Safe Operation Area

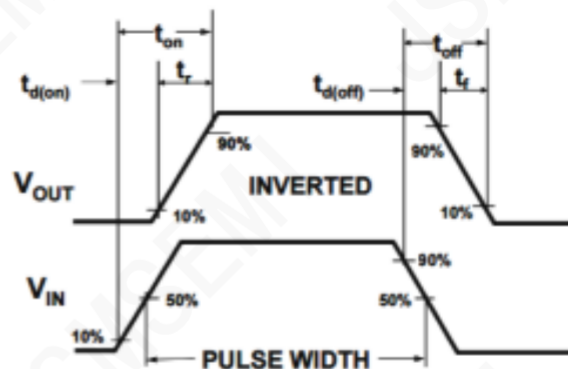
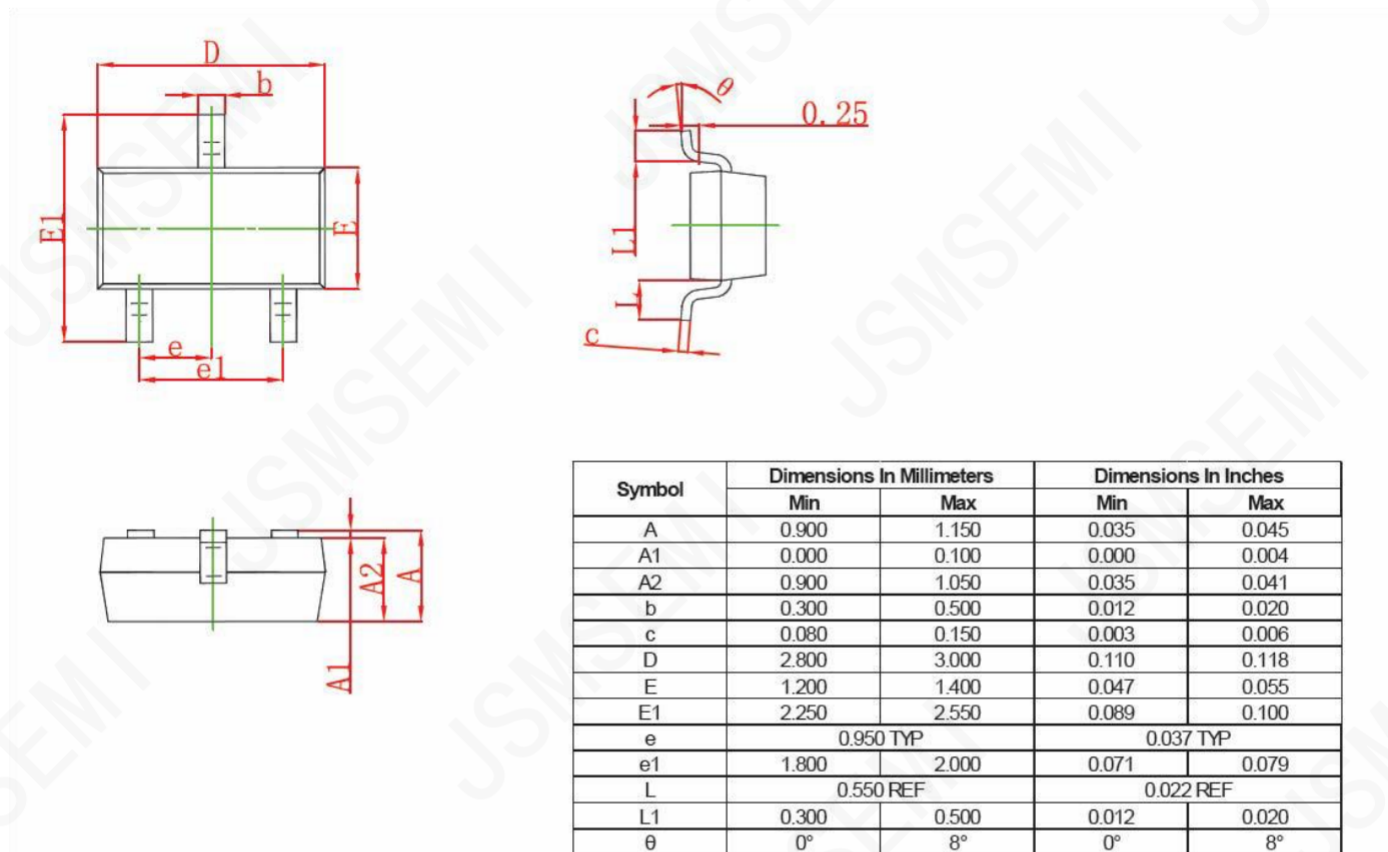


Figure8. Switching wave

SOT-23 Package information



SOT-23 Suggested Pad Layout

