

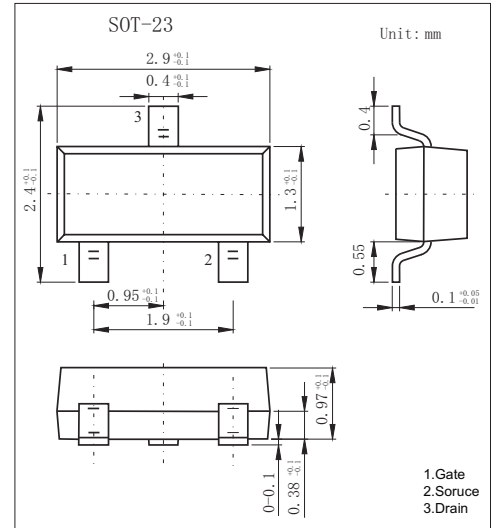
## SOT-23 Plastic-Encapsulate MOSFETS

### FEATURE

- TrenchFET Power MOSFET
- N-Channel 30-V (D-S) MOSFET

### MECHANICAL DATA

- Case style:SOT-23molded plastic
- Mounting position:any



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	±20	
Continuous Drain Current (T <sub>J</sub> = 150°C) *2 Ta = 25°C	I <sub>D</sub>	2.5	A
Ta=70°C		2.0	
Pulsed Drain Current *1	I <sub>DM</sub>	10	
Continuous Source Current (Diode Conduction)*2	I <sub>S</sub>	1.25	W
Power Dissipation *2 Ta = 25°C	P <sub>D</sub>	1.25	
Ta=70°C		0.80	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150	°C
Maximum Junction-to-Ambientb	R <sub>thJA</sub>	100	°C/W
Maximum Junction-to-Ambientc		166	

\*1 Pulse width limited by maximum junction temperature.

\*2 Surface Mounted on FR4 Board, t ≤ 5 sec.

\*3 Surface Mounted on FR4 Board.

**RATINGS AND CHARACTERISTIC CURVES**
**MOSFET ELECTRICAL CHARACTERISTICS**  $T_a=25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{ A}$	30			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{ A}$	1.5			
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}$			0.5	$\mu\text{ A}$
		$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}, T_J = 55\text{ }^\circ\text{C}$			10	
		$V_{DS} = 30\text{ V}, V_{GS} = 1.0\text{ V}, T_J = 25\text{ }^\circ\text{C}$			1	
On-State Drain Current *	$I_{D(on)}$	$V_{DS} \geq 4.5\text{ V}, V_{GS} = 10\text{ V}$	6			A
		$V_{DS} \geq 4.5\text{ V}, V_{GS} = 4.5\text{ V}$	4			
Drain-Source On-Resistance *	$r_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 2.5\text{ A}$		0.092	0.117	$\Omega$
		$V_{GS} = 4.5\text{ V}, I_D = 2.0\text{ A}$		0.142	0.190	
Forward Transconductance *	$g_{fs}$	$V_{DS} = 4.5\text{ V}, I_D = 2.5\text{ A}$		4.6		S
Diode Forward Voltage	$V_{SD}$	$I_S = 1.25\text{ A}, V_{GS} = 0\text{ V}$		0.77	1.2	V
Gate Charge	$Q_g$	$V_{DS} = 15\text{ V}, V_{GS} = 5\text{ V}, I_D = 2.5\text{ A}$		2.4	4	nC
Total Gate Charge	$Q_{gt}$	$V_{DS}=15V, V_{GS}=10V, I_D=2.5A$		4.5	10	nC
Gate-Source Charge	$Q_{gs}$			0.8		
Gate-Drain Charge	$Q_{gd}$			1.0		
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		240		pF
Output Capacitance	$C_{oss}$			110		
Reverse Transfer Capacitance	$C_{rss}$			17		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=15V, R_L=15\Omega$ $I_D=1A, V_{GEN}=10V, R_G=6\Omega$		8	20	ns
Rise Time	$t_r$			12	30	
Turn-Off Delay Time	$t_{d(off)}$			17	35	
Fall-Time	$t_f$			8	20	

\*Pulse test:  $PW \leq 300\text{ }\mu\text{s}$  duty cycle  $\leq 2\%$ ..