

**SOT-23 Plastic-Encapsulate MOSFETS**

**SI2307** P-Channel 30-V(D-S) MOSFET

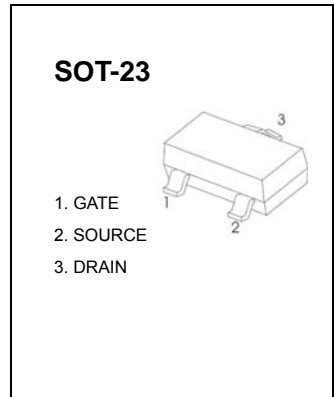
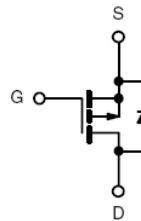
**FEATURE**

TrenchFET Power MOSFET

**APPLICATIONS**

Load Switch for Portable Devices

**MARKING:**



**Maximum ratings (  $T_a=25^{\circ}\text{C}$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current <sup>a,b</sup>	$I_D$	-2.7	A
Continuous Source-Drain Current <sup>a,b</sup>	$I_S$	-0.91	
Power Dissipation <sup>a,b</sup>	$P_D$	1.1	W
Thermal Resistance from Junction to Ambient (t $\leq$ 5s)	$R_{\theta JA}$	114	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-55 ~+150	

**Electrical characteristics ( T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-30			V
Gate-Source Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1		-3	
Gate-Source Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V			-1	μA
		V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55°C			-10	
Drain-Source On-State Resistance <sup>c</sup>	R <sub>DSON</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -2.5A		0.110	0.138	Ω
		V <sub>GS</sub> = -10V, I <sub>D</sub> = -3.5A		0.073	0.088	
Forward Transconductance <sup>c</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -3.5A		7		S
<b>Dynamic<sup>d</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1MHz		340		pF
Output Capacitance	C <sub>oss</sub>			67		
Reverse Transfer Capacitance	C <sub>rss</sub>			51		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -2.5A		4.1	6.2	nC
Gate-Source Charge	Q <sub>gs</sub>			1.3		
Gate-Drain Charge	Q <sub>gd</sub>			1.8		
Gate Resistance	R <sub>g</sub>	f = 1MHz		10		Ω
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -15V, R <sub>L</sub> = 15Ω, I <sub>D</sub> = -1A, V <sub>GEN</sub> = -4.5V, R <sub>g</sub> = 1Ω		40	60	ns
Rise Time	t <sub>r</sub>			40	60	
Turn-Off Delay Time	t <sub>d(off)</sub>			20	40	
Fall Time	t <sub>f</sub>			17	30	
<b>Drain-source Body diode characteristics</b>						
Body Diode Voltage	V <sub>SD</sub>	I <sub>S</sub> = -0.75A, V <sub>GS</sub> = 0		-0.8	-1.2	V

**Notes:**

- t = 5s.
- Surface mounted on 1" × 1" FR4 board.
- Pulse Test : Pulse Width < 300μs, Duty Cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.