



### Description

#### P-channel MOSFET

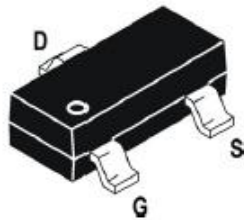
##### Features

- $V_{DS} = -20V$ ,  $I_D = -2.8A$
- $R_{DS(ON)} < 135m\Omega$  @  $V_{GS} = -4.5V$   
 $R_{DS(ON)} < 190m\Omega$  @  $V_{GS} = -2.5V$
- High Power and Current Handling Capability
- Lead Free Product is Acquired
- Surface Mount Package

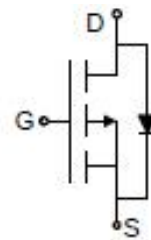
##### Application

- PWM Applications
- Load Switch
- Power Management

##### Package



SOT-23



Schematic Diagram

### Absolute Maximum Ratings ( $T_C = 25^\circ C$ unless otherwise specified)

Symbol	Parameter	Max.	Units
$V_{DSS}$	Drain-Source Voltage	-20	V
$V_{GSS}$	Gate-Source Voltage	$\pm 12$	V
$I_D$	Continuous Drain Current	$T_C = 25^\circ C$	-2.8
		$T_C = 100^\circ C$	-1.6
$P_D$	Power Dissipation	$T_A = 25^\circ C$	0.84
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	164	$^\circ C/W$
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to +150	$^\circ C$



#### Electrical Characteristics (T<sub>C</sub>=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> = -250μA	-20	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V,	-	-	-1	μA
I <sub>GSS</sub>	Gate to Body Leakage Current	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±12V	-	-	±100	nA
<b>On Characteristics</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.4	-0.65	-1.0	V
R <sub>DS(on)</sub>	Static Drain-Source on-Resistance <small>note2</small>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -1A	-	110	135	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -0.5A	-	148	190	
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> = -5V, I <sub>D</sub> = -1.5A	3.6	-	-	S
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = -10V, V <sub>GS</sub> = 0V, f = 1.0MHz	-	332	-	pF
C <sub>oss</sub>	Output Capacitance		-	68	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	42	-	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = -10V, I <sub>D</sub> = -2.5A, V <sub>GS</sub> = -4.5V	-	3.5	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	0.61	-	nC
Q <sub>gd</sub>	Gate-Drain("Miller") Charge		-	0.88	-	nC
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> = -10V, R <sub>L</sub> =5Ω, R <sub>GEN</sub> =3Ω, V <sub>GS</sub> =-4.5V,	-	18	-	ns
t <sub>r</sub>	Turn-on Rise Time		-	6.1	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time		-	24.3	-	ns
t <sub>f</sub>	Turn-off Fall Time		-	8.5	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
I <sub>S</sub>	Maximum Continuous Drain to Source Diode Forward Current		-	-	-2.8	A
V <sub>SD</sub>	Drain to Source Diode Forward Voltage	V <sub>GS</sub> = 0V, I <sub>S</sub> = -2.0A	-	-	-1.2	V

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

**Typical Performance Characteristics**

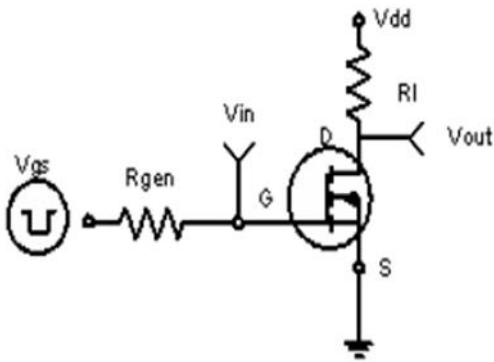


Figure1: Switching Test Circuit

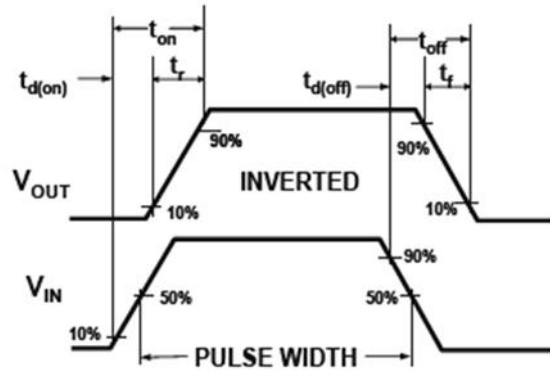


Figure2: Switching Waveforms

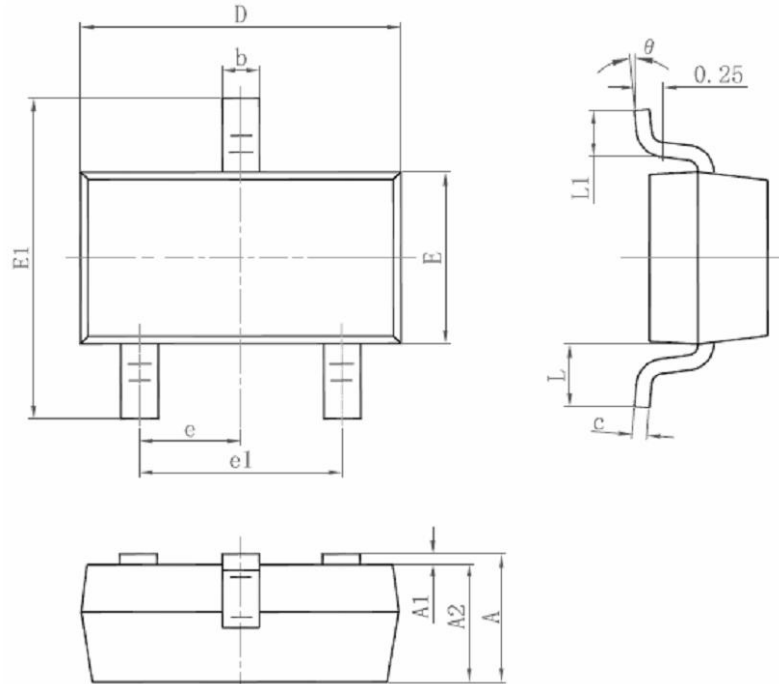


2301P (文件编号: S&CIC1974)

### P-Channel Trench Power MOSFET

#### Package Information.

➤ SOT23-3(小)



符号	毫米		英寸	
	最小	最大	最小	最大
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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