

Description

P-channel MOSFET

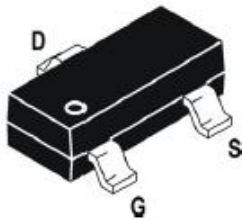
Features

- $V_{DS} = -20V, I_D = -2.5A$
- $R_{DS(ON)} < 120m\Omega @ V_{GS} = -4.5V$
 $R_{DS(ON)} < 160m\Omega @ V_{GS} = -2.5V$
- High Power and Current Handling Capability
- Lead Free Product is Acquired
- Surface Mount Package

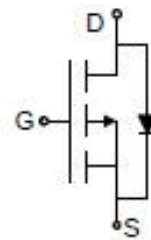
Application

- 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	± 12	V
I_D	Continuous Drain Current	$T_C = 25^\circ C$	-2.5
		$T_C = 100^\circ C$	-1.6
P_D	Power Dissipation	$T_A = 25^\circ C$	0.7
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	178	$^\circ C/W$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ C$



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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D = -250\mu A$	-20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -20V, V_{GS} = 0V,$	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 12V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.7	-1.0	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note2</small>	$V_{GS} = -4.5V, I_D = -2.5A$	-	100	120	m Ω
		$V_{GS} = -2.5V, I_D = -1.5A$	-	128	160	
g_{FS}	Forward Transconductance	$V_{DS} = -5V, I_D = -2A$	4	-	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS} = -10V, V_{GS} = 0V, f = 1.0MHz$	-	288	-	pF
C_{oss}	Output Capacitance		-	60	-	pF
C_{rss}	Reverse Transfer Capacitance		-	34	-	pF
Q_g	Total Gate Charge	$V_{DS} = -10V, I_D = -2.5A, V_{GS} = -4.5V$	-	2.8	-	nC
Q_{gs}	Gate-Source Charge		-	0.48	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	0.76	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = -10V, R_L = 5\Omega, R_{GEN} = 3\Omega, V_{GS} = -4.5V,$	-	10	-	ns
t_r	Turn-on Rise Time		-	5.1	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	20.8	-	ns
t_f	Turn-off Fall Time		-	7.6	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-2.5	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_S = -2.5A$	-	-	-1.2	V

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

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

Typical Performance Characteristics

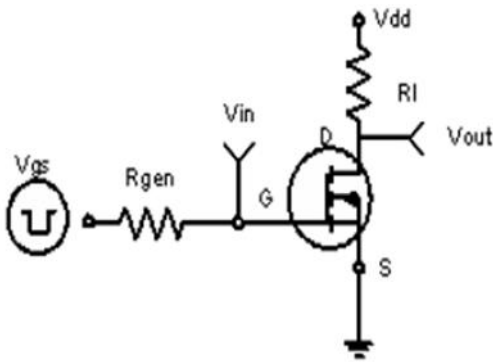


Figure1:Switching Test Circuit

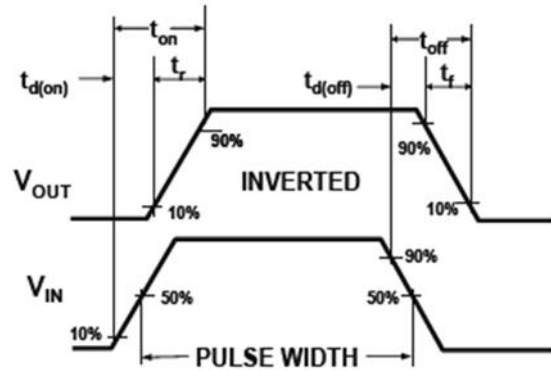


Figure2:Switching Waveforms

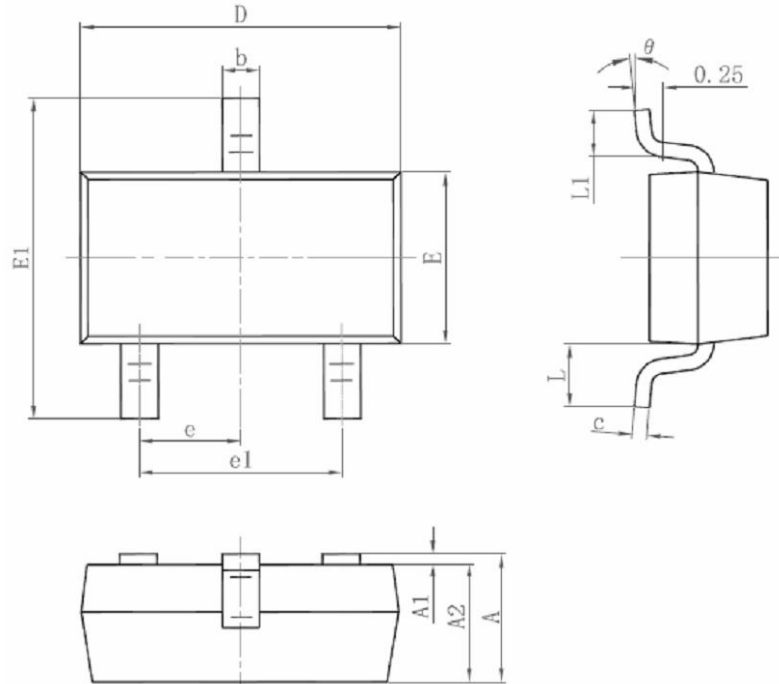


2301(文件编号: S&CIC1721)

P-Channel Trench Power MOSFET

Package Information.

➤ SOT-23(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°