



Description

P-channel MOSFET

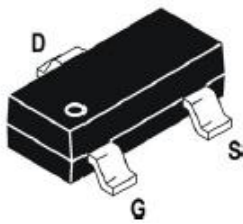
Features

- $V_{DS} = -30V$, $I_D = -4.2A$
- $R_{DS(ON)} < 90\ m\Omega$ @ $V_{GS} = -2.5V$
 $R_{DS(ON)} < 75m\Omega$ @ $V_{GS} = -4.5V$
 $R_{DS(ON)} < 55m\Omega$ @ $V_{GS} = -10V$
- High Power and Current Handling Capability
- Lead Free Product is Acquired
- Surface Mount Package

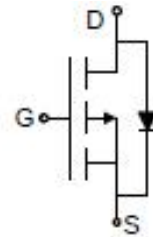
Application

- PWM Applications
- Load Switch
- Power Management

Package



SOT-23



Schematic Diagram

Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Symbol	Parameter	Max.	Units
V _{DSS}	Drain-Source Voltage	-30	V
V _{GSS}	Gate-Source Voltage	±12	V
I _D	Continuous Drain Current	T _C = 25°C	-4.2
		T _C = 100°C	-2.7
P _D	Power Dissipation	T _C = 25°C	1.2
R _{θJA}	Thermal Resistance, Junction to Ambient	104	°C/W
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +150	°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	$V_{GS}=0V, I_D = -250\mu A$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -24V, V_{GS} = 0V,$	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS} = \pm 10V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}= V_{GS}, I_D = -250\mu A$	-0.7	-0.9	-1.3	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note2</small>	$V_{GS} = -10V, I_D = -4.2A$	-	48	55	m Ω
		$V_{GS} = -4.5V, I_D = -4A$	-	55	75	
		$V_{GS} = -2.5V, I_D = -1A$	-	72	90	
g_{FS}	Forward Transconductance	$V_{DS} = -5V, I_D = -4.2A$	-	10	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS} = -15V, V_{GS} = 0V, f = 1.0MHz$	-	882	-	pF
C_{oss}	Output Capacitance		-	106	-	pF
C_{rss}	Reverse Transfer Capacitance		-	68	-	pF
Q_g	Total Gate Charge	$V_{DS} = -15V, I_D = -4.2A,$ $V_{GS} = -4.5V$	-	8.6	-	nC
Q_{gs}	Gate-Source Charge		-	1.9	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	2.9	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = -15V, I_D = -4.2A,$ $V_{GS} = -10V, R_{GEN}=6\Omega$	-	8	-	ns
t_r	Turn-on Rise Time		-	4	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	32	-	ns
t_f	Turn-off Fall Time		-	14	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-4.2	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_S = -4.2A$	-	-	-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

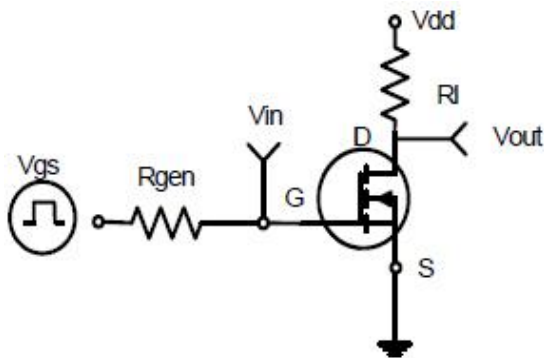


Figure1: Switching Test Circuit

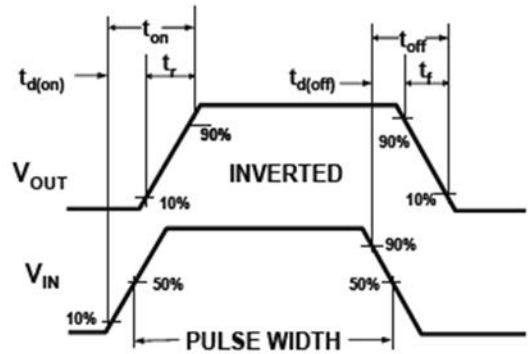
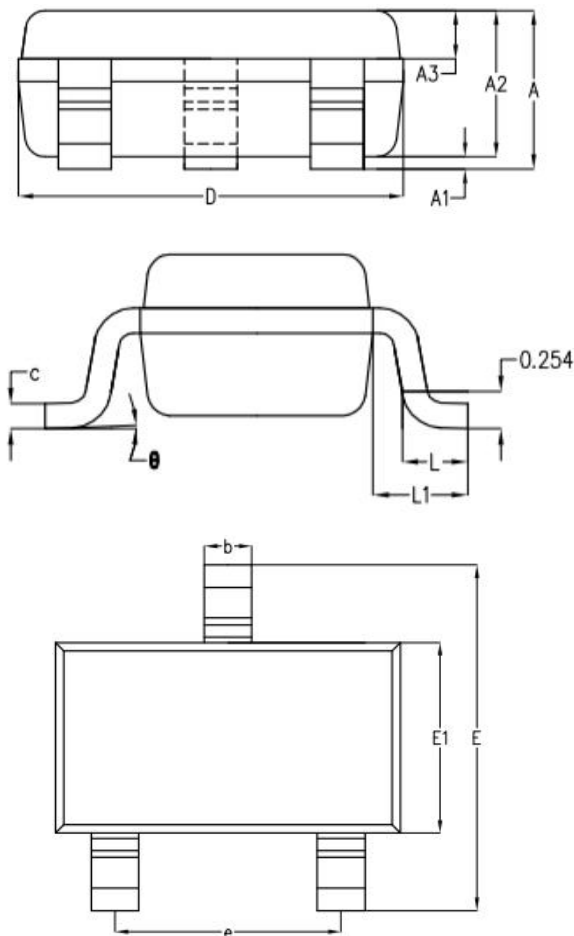


Figure2: Switching Waveforms

Package Information.

➤ SOT23-3(大)



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	-	1.19	1.24
A1	-	0.05	0.09
A2	1.05	1.10	1.15
A3	0.31	0.36	0.41
b	0.35	0.40	0.45
c	0.12	0.17	0.22
D	2.85	2.90	2.95
E	2.80	2.90	3.00
E1	1.55	1.60	1.65
e	1.90BSC		
L	0.37	0.45	0.53
L1	0.65BSC		
θ	0°	2°	8°