

60V N-Channel Mosfet

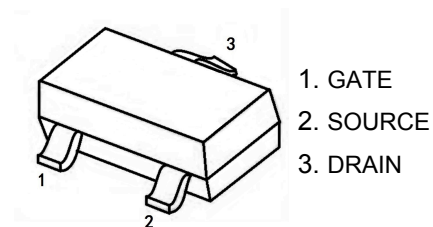
FEATURES

- $R_{DS(ON)} \leq 100m\Omega$ (83m Ω Typ.)
@ $V_{GS}=10V$
- $R_{DS(ON)} \leq 120m\Omega$ (91m Ω Typ.)
@ $V_{GS}=4.5V$

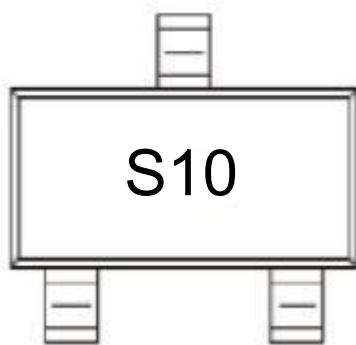
APPLICATIONS

- Battery Switch
- DC/DC Converter

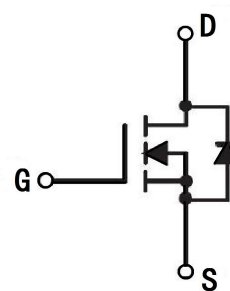
SOT-23



MARKING



N-CHANNEL MOSFET



MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	60	V
V_{GSS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	3	A
I_{DM}	Pulsed Drain Current	10	A
P_D	Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^{\circ}C/W$
T_J	Junction Temperature	150	$^{\circ}C$
T_{STG}	Storage Temperature Range	-55 ~ +150	$^{\circ}C$

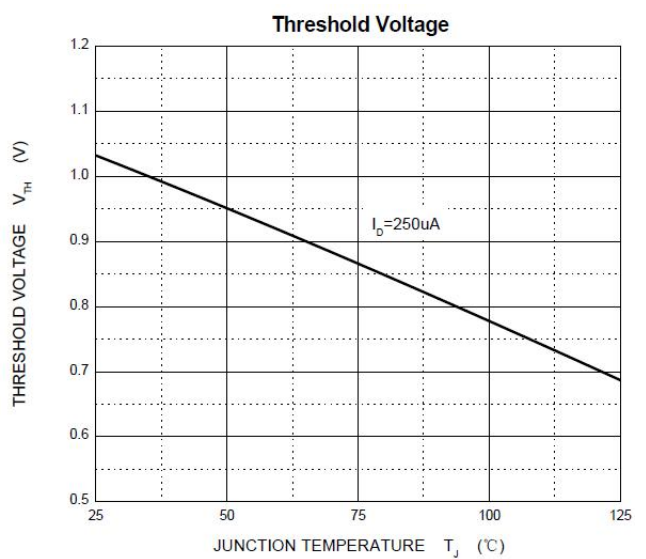
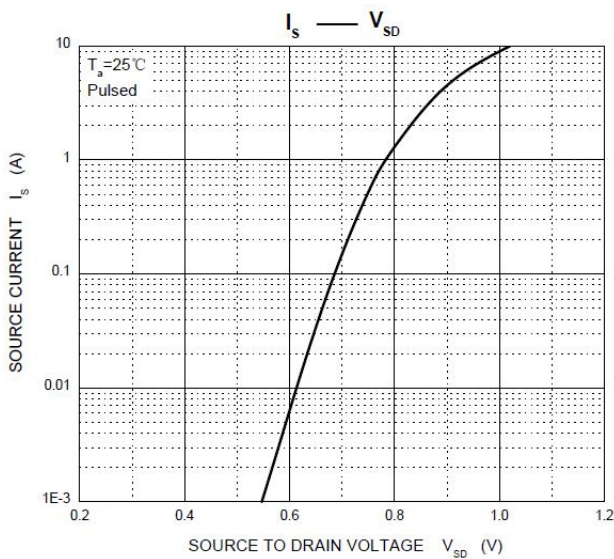
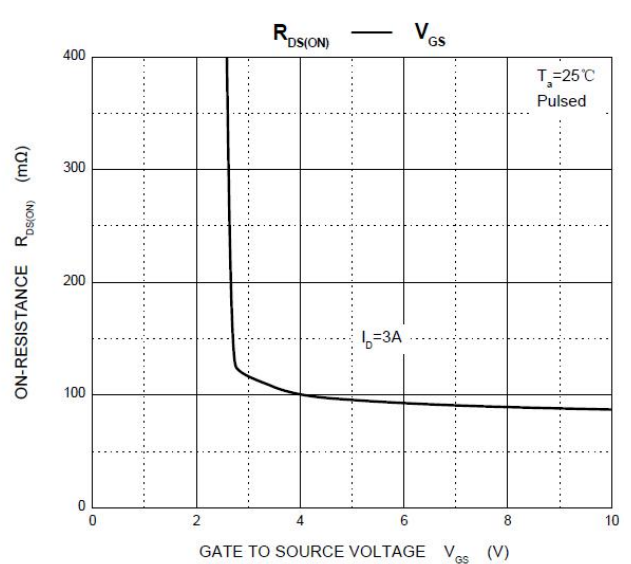
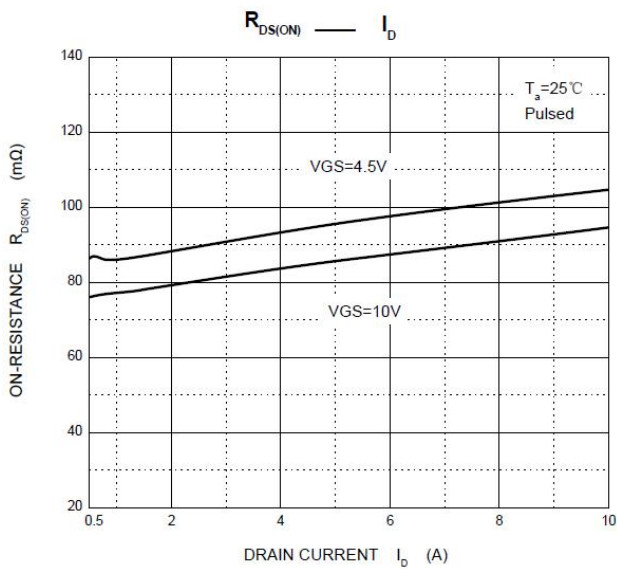
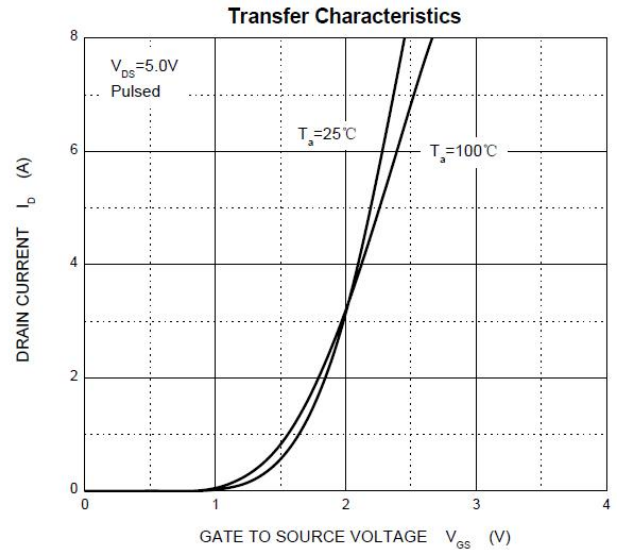
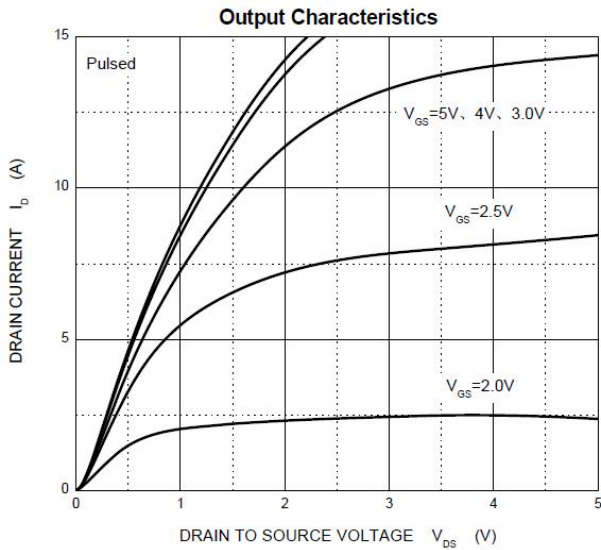
MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	60	64	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 60V,$ $V_{GS} = 0V, T_J = 25^\circ C$	-	-	1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.3	2	V
$R_{DS(on)}$	Static Drain-Source On-Resistance ^{note1}	$V_{GS} = 10V, I_D = 3A$	-	83	100	m Ω
		$V_{GS} = 4.5V, I_D = 3A$	-	91	120	
Dynamic Characteristics ^{note2}						
C_{iss}	Input Capacitance	$V_{DS} = 30V, V_{GS} = 0V,$ $f = 1.0MHz$	-	247	-	pF
C_{oss}	Output Capacitance		-	34	-	pF
C_{rss}	Reverse Transfer Capacitance		-	19.5	-	pF
Q_g	Total Gate Charge	$V_{DS} = 30V, I_D = 3A,$ $V_{GS} = 4.5V,$	-	6	-	nC
Q_{gs}	Gate-Source Charge		-	1	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	1.3	-	nC
Switching Characteristics ^{note2}						
$t_{d(on)}$	Turn-On Delay Time	$V_{GS} = 10V,$ $V_{DS} = 30V, I_D = 1.5A,$ $R_{GEN} = 1\Omega$	-	-	6	ns
t_r	Turn-On Rise Time		-	-	15	ns
$t_{d(off)}$	Turn-Off Delay Time		-	-	15	ns
t_f	Turn-Off Fall Time		-	-	10	ns
Drain-Source Diode Characteristics and Maximum Ratings						
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_{SD} = 3A$ $T_J = 25^\circ C$	-	0.8	1.1	V

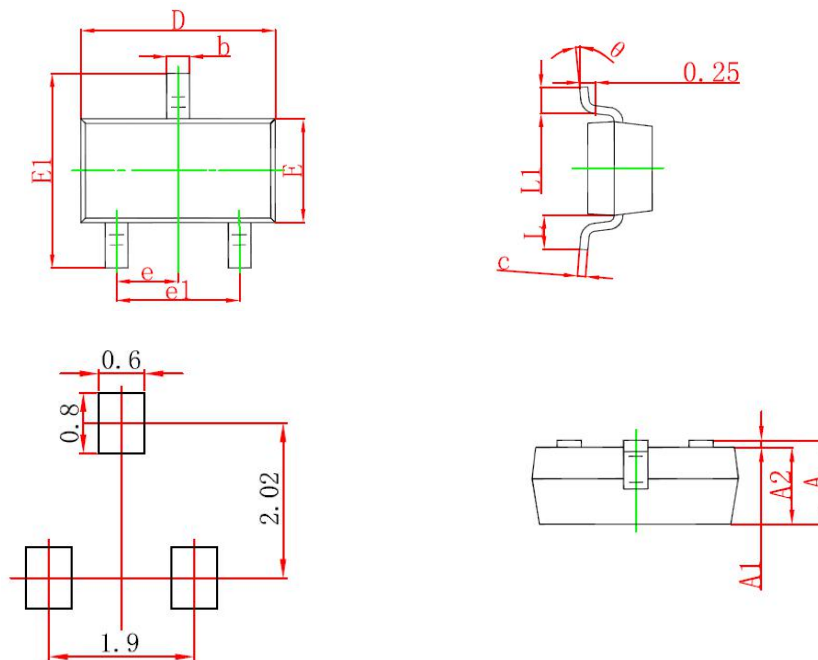
Notes: 1. Pulse Test : Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.

2. Guaranteed by design, not subject to production testing.

TYPICAL PERFORMANCE CHARACTERISTICS



SOT-23 PACKAGE OUTLINE DRAWING



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
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°