

**20V,3A  
N-Channel Mosfet**

### FEATURES

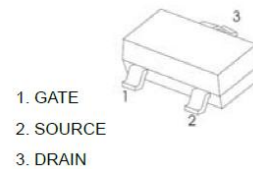
$R_{DS(ON)} \leq 46m\Omega @V_{GS}=4.5V$

$R_{DS(ON)} \leq 70m\Omega @V_{GS}=2.5V$

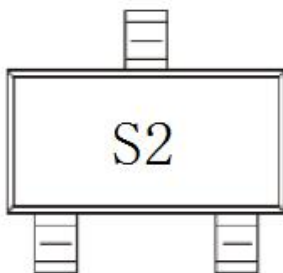
### APPLICATIONS

Load Switch for Portable Devices  
DC/DC Converter

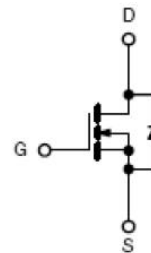
### SOT-23



### MARKING



### N-CHANNEL MOSFET



### Maximum ratings (T<sub>a</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	20	V
Gate-Source Voltage	V <sub>GS</sub>	±10	
Continuous Drain Current	I <sub>D</sub>	3	A
Pulsed Drain Current	I <sub>DM</sub>	12	
Maximum Power Dissipation	P <sub>D</sub>	0.4	W
Thermal Resistance from Junction to Ambient(t ≤5s)	R <sub>θJA</sub>	312	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 ~+150	

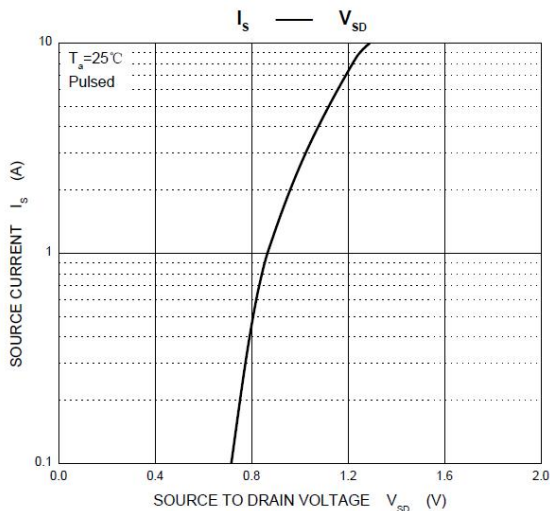
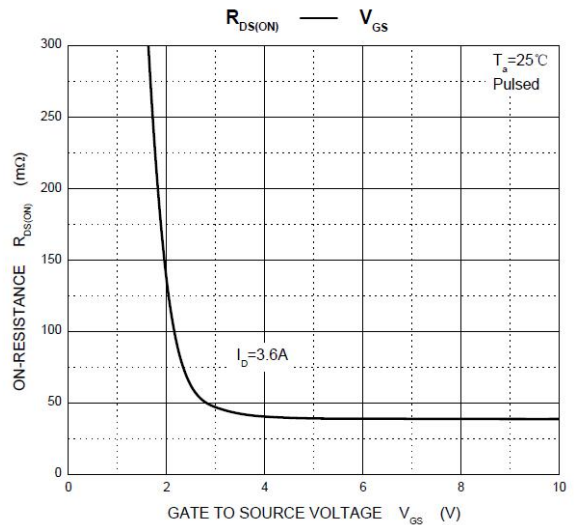
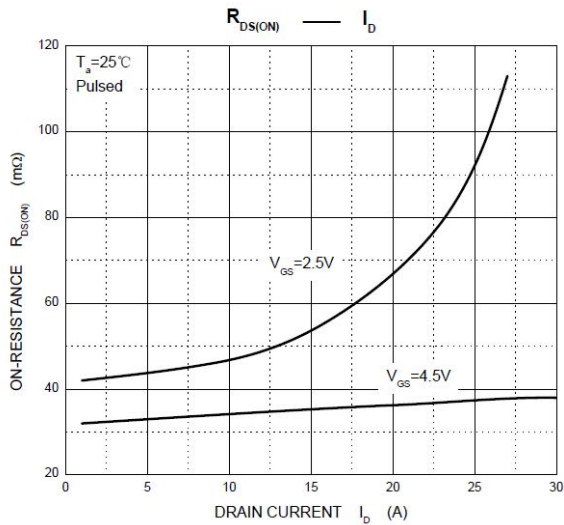
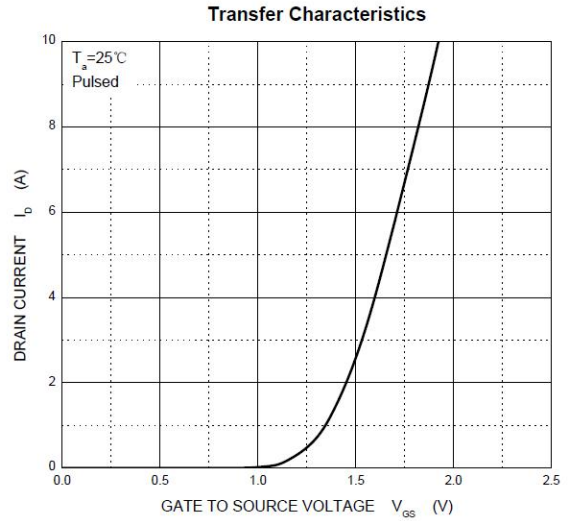
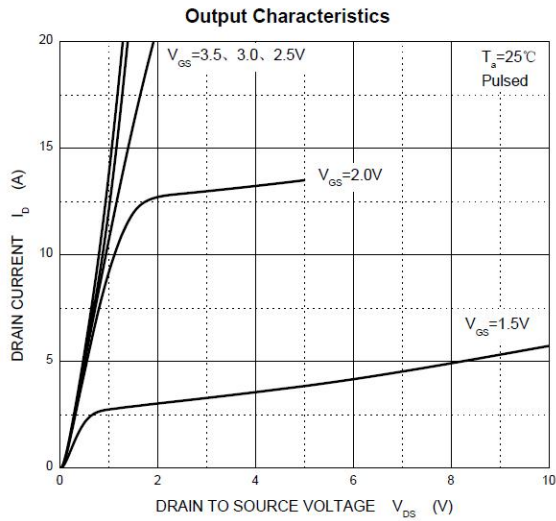
## MOSFET ELECTRICAL CHARACTERISTICS $T_a=25\text{ }^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Static</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	21		V
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.4	0.5	1.1	
Gate-source leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 8V$			$\pm 100$	nA
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			1	$\mu A$
Drain-source on-state resistance <sup>a</sup>	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 4A$		24	46	m $\Omega$
		$V_{GS} = 2.5V, I_D = 3.1A$		31	70	
Forward transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 3.6A$		9		S
Body diode voltage	$V_{SD}$	$I_S = 3A$		0.8	1.3	V
<b>Dynamic<sup>b</sup></b>						
Input capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$		310		pF
Output capacitance	$C_{oss}$			125		
Reverse transfer capacitance	$C_{rss}$			86		
Total gate charge	$Q_g$	$V_{DS} = 10V, V_{GS} = 4.5V, I_D = 3.6A$		4	10	nC
Gate-source charge	$Q_{gs}$			0.65		
Gate-drain charge	$Q_{gd}$			1.5		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V,$ $R_L = 5.5\Omega, I_D = 3.6A,$ $V_{GEN} = 4.5V, R_g = 6\Omega$		8		ns
Rise time	$t_r$			57		
Turn-off delay time	$t_{d(off)}$			17		
Fall time	$t_f$			12		

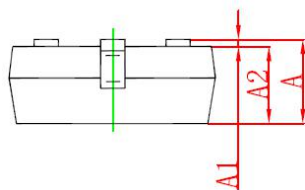
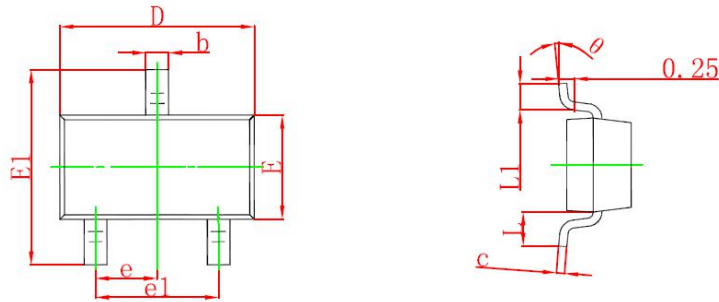
### Notes :

- Pulse Test : Pulse Width < 300 $\mu s$ , Duty Cycle  $\leq 2\%$ .
- Guaranteed by design, not subject to production testing.

## N-Channel 20V (D-S) MOSFET Typical Characteristics

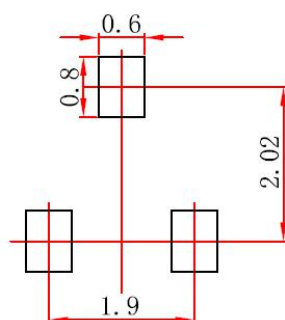


## SOT-23 package



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
$\theta$	0°	8°	0°	8°

## SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.