

**Product Summary**

<b>BVDSS</b>	<b>RDSON</b>	<b>ID</b>
20V	300mΩ@2.5V	0.9 A

**Application**

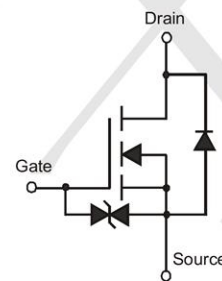
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

**Package and Pin Configuration**

SOT-23



**Circuit diagram**



**Marking:**



**Absolute 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>	±8	V
Continuous Drain Current	I <sub>D</sub>	0.9	A
Pulsed Drain Current (t=300μs) <sup>(1)</sup>	I <sub>DM</sub>	1.5	A
Power Dissipation <sup>(2)</sup>	P <sub>D</sub>	0.35	W
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	357	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55~ +150	°C

Electrical Characteristics ( $T_J=25\text{ }^\circ\text{C}$ , unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	25		V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 18V, V_{DS} = 0V$			$\pm 10$	$\mu A$
Gate threshold voltage <sup>(3)</sup>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.7	1.1	V
Drain-source on-resistance <sup>(3)</sup>	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 500mA$		250	400	m $\Omega$
		$V_{GS} = 2.5V, I_D = 500mA$		300	500	
Forward transconductance	$g_{FS}$	$V_{DS} = 10V, I_D = 500mA$			1.2	S
<b>Dynamic characteristics<sup>(4)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$		45		pF
Output Capacitance	$C_{oss}$			9		
Reverse Transfer Capacitance	$C_{rss}$			6		
<b>Switching Characteristics<sup>(4)</sup></b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V, I_D = 500mA, V_{GS} = 4.5V, R_G = 6\Omega$		20		ns
Turn-on rise time	$t_r$			90		
Turn-off delay time	$t_{d(off)}$			750		
Turn-off fall time	$t_f$			400		
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage <sup>(3)</sup>	$V_{DS}$	$I_S = 0.15A, V_{GS} = 0V$			1.3	V

Typical Electrical and Thermal Characteristics

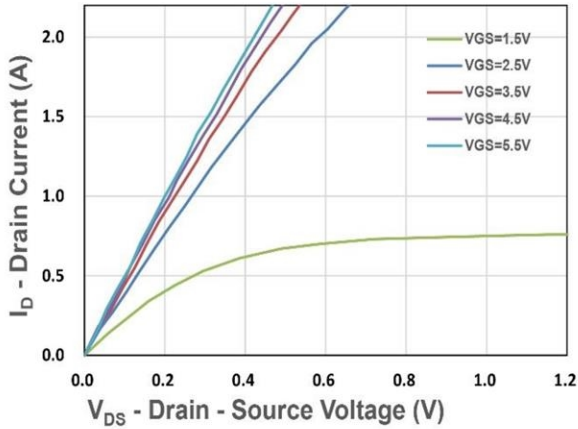


Figure 1. Output Characteristics

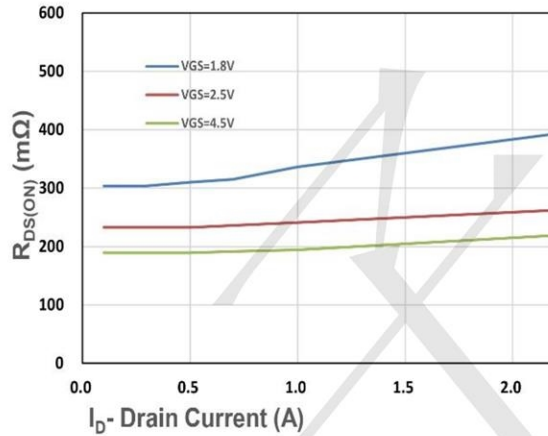


Figure 2. On-Resistance vs.  $I_D$

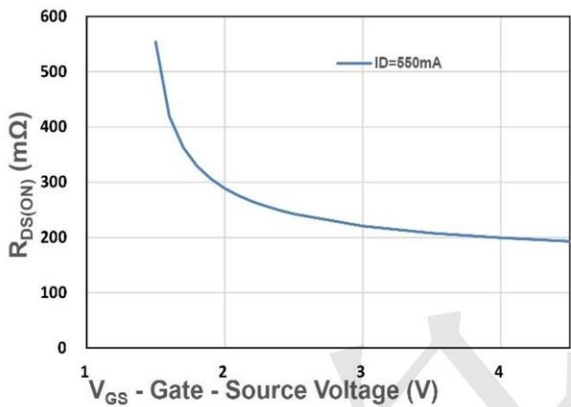


Figure 3. On-Resistance vs.  $V_{GS}$

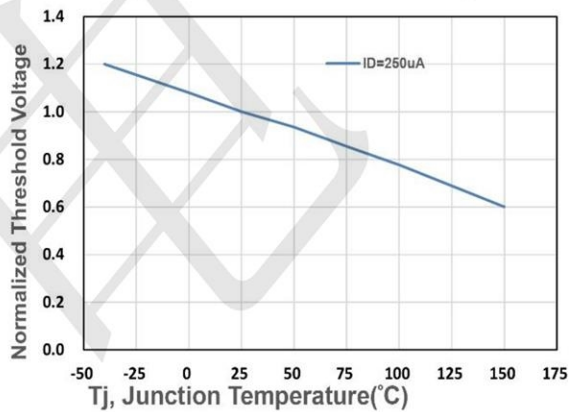


Figure 4. Gate Threshold Voltage

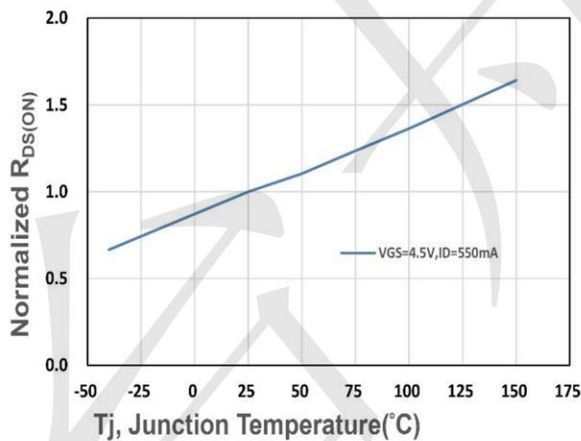


Figure 5. Drain-Source On Resistance

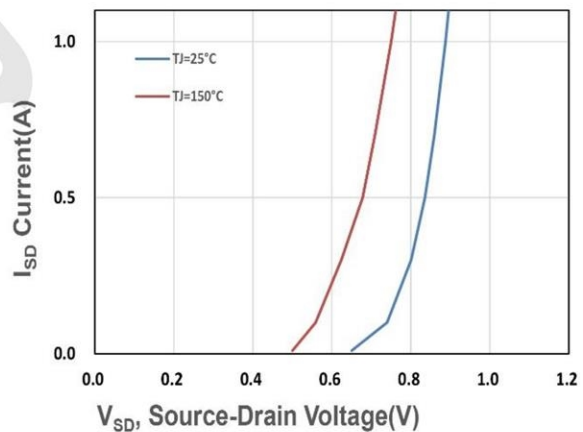
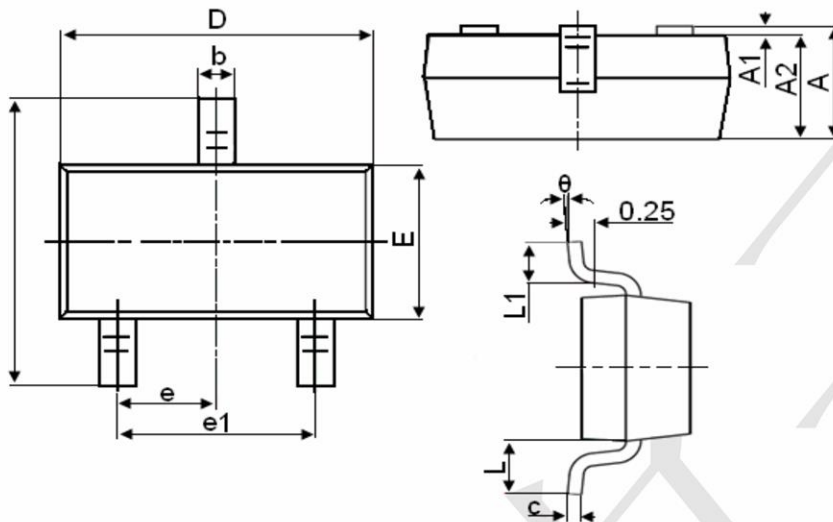


Figure 6. Source-Drain Diode Forward



SOT-23 Package Information



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
$\theta$	0°	8°

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