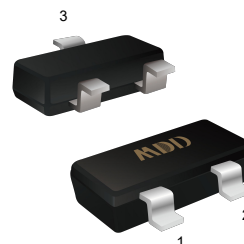


### SOT-23



1. Gate
2. Source
3. Drain

$V_{(BR)DSS}$	$R_{DS(on)Typ}$	$I_D Max$
30V	23mΩ@10V	5.8A
	31mΩ@4.5V	

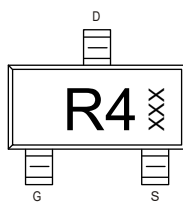
### Features

Advanced trench process technology  
High Density Cell Design For Ultra Low On-Resistance

### Application

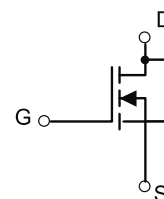
- Load Switch for Portable Devices
- DC/DC Converter

### Marking



XXX:Date Code

### Equivalent Circuit



### Absolute Maximum Ratings ( $T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	5.8	A
Pulsed Drain Current (Note 1)	$I_{DM}$	30	A
Power Dissipation(Note 2)	$P_D$	1.4	W
Thermal Resistance from Junction to Ambient(Note 2)	$R_{\theta JA}$	150	$^{\circ}C/W$
Junction Temperature and Storage Temperature	$T_J, T_{stg}$	-50 ~150	$^{\circ}C$

Notes: Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

**Ta = 25°C unless otherwise specified**

Symbol	Parameter	Condition	Min	Typ	Max	Unit
<b>V<sub>(BR)DSS</sub></b>	Drain-Source Breakdown Voltage	<b>V<sub>GS</sub>=0V, I<sub>D</sub>=250μA</b>	30	--	--	V
<b>I<sub>DSS</sub></b>	Drain-Source Leakage Current	<b>V<sub>DS</sub>=30V, V<sub>GS</sub>=0V</b>	--	--	1	uA
<b>I<sub>GSS</sub></b>	Gate-Source Leakage Current	<b>V<sub>GS</sub>=±20V, V<sub>DS</sub>=0V</b>	--	--	±100	nA
<b>V<sub>GS(TH)</sub></b>	Gate Threshold Voltage	<b>V<sub>DS</sub>=V<sub>GS</sub>, I<sub>D</sub>=250μA</b>	1.1	--	3.0	V
<b>R<sub>DS(ON)</sub></b>	Drain-Source On-State Resistance(Note 3)	<b>V<sub>GS</sub>=10V, I<sub>D</sub>=5.8A</b>	--	23	30	mΩ
		<b>V<sub>GS</sub>=4.5V, I<sub>D</sub>=3A</b>	--	31	42	mΩ

### Dynamic Electrical Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
<b>C<sub>iss</sub></b>	Input Capacitance	<b>V<sub>DS</sub>=15V V<sub>GS</sub>=0V f=1MHz</b>	--	--	820	pF
<b>C<sub>oss</sub></b>	Output Capacitance		--	118	--	pF
<b>C<sub>riss</sub></b>	Reverse Transfer Capacitance		--	85	--	pF
<b>Q<sub>g</sub></b>	Total Gate Charge	<b>V<sub>DS</sub>=15V</b>	--	9.7	12	nC
<b>Q<sub>gs</sub></b>	Gate Source Charge	<b>V<sub>GS</sub>=4.5V</b>	--	1.6	--	nC
<b>Q<sub>gd</sub></b>	Gate Drain Charge	<b>I<sub>D</sub>=5.8A</b>	--	3.1	--	nC

### Switching Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
<b>t<sub>d(on)</sub></b>	Turn on Delay Time	<b>V<sub>DS</sub>=15V V<sub>GS</sub>=4.5V</b>	--	3.3	5	ns
<b>t<sub>r</sub></b>	Turn on Rise Time		--	4.8	7	ns
<b>t<sub>d(off)</sub></b>	Turn Off Delay Time	<b>I<sub>D</sub>=5A R<sub>G</sub>=2.7Ω</b>	--	26.3	40	ns
<b>t<sub>f</sub></b>	Turn Off Fall Time		--	4.1	6	ns

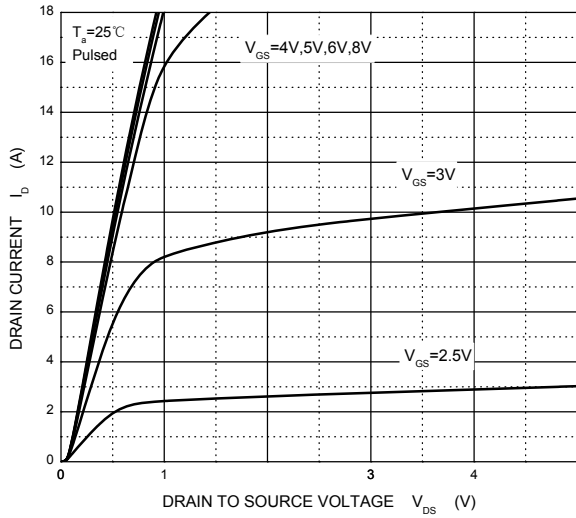
### Source Drain Diode Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
<b>I<sub>SD</sub></b>	Source drain current(Body Diode)	<b>T<sub>A</sub>=25°C</b>	--	--	2.5	A
<b>V<sub>SD</sub></b>	Drain-Source Diode Forward Voltage	<b>I<sub>S</sub>=1A, V<sub>GS</sub>=0V</b>	--	0.7	1.1	V

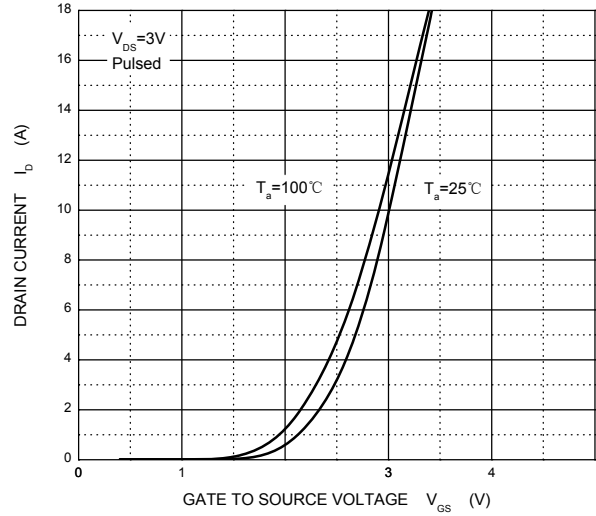
- Notes:**
- 1.Pulse width limited by maximum allowable junction temperature
  - 2.The value of P<sub>D</sub>&R<sub>θJA</sub> is measured with the device mounted on 1 in<sup>2</sup> FR-4 board with 2oz.Copper, double sided, in a still air environment with Ta=25°C.
  - 3.Pulse test ; Pulse width≤300us, duty cycles≤2%

### Typical Characteristics

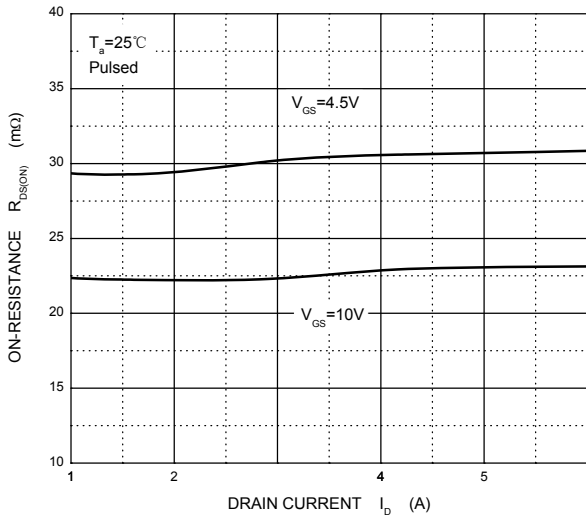
**Output Characteristics**



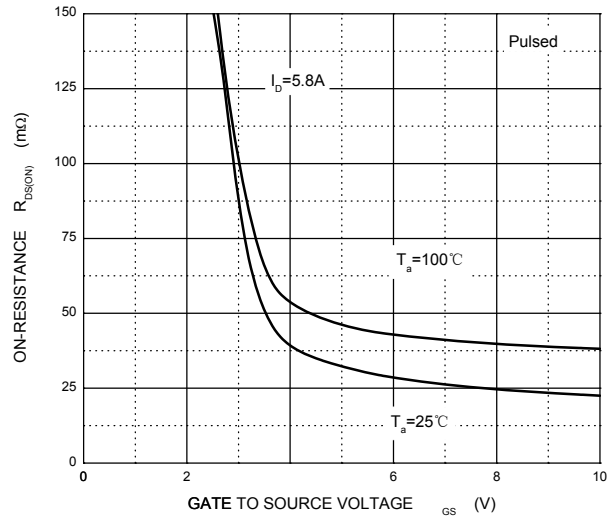
**Transfer Characteristics**



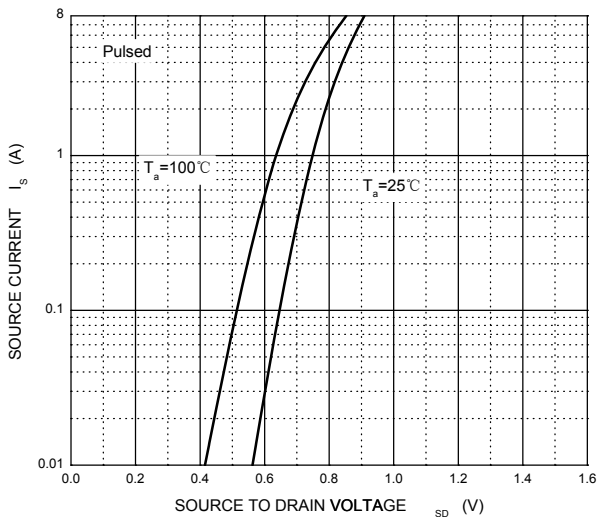
**$R_{DS(ON)}$  —  $I_D$**



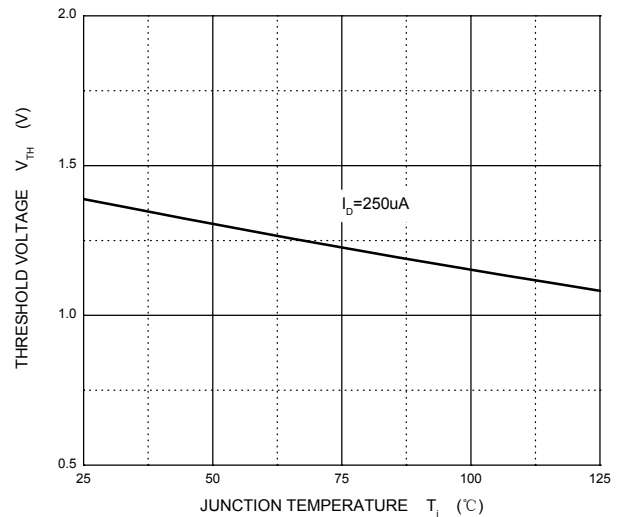
**$R_{DS(ON)}$  —  $V_{GS}$**



**$I_S$  —  $V_{SD}$**



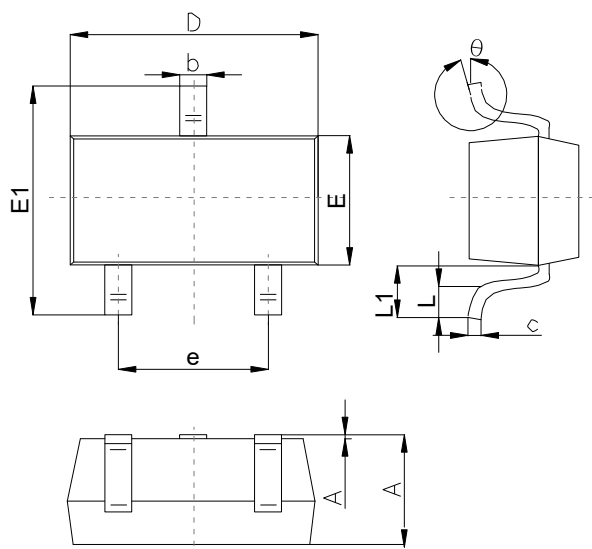
**Threshold Voltage**



The curve above is for reference only.

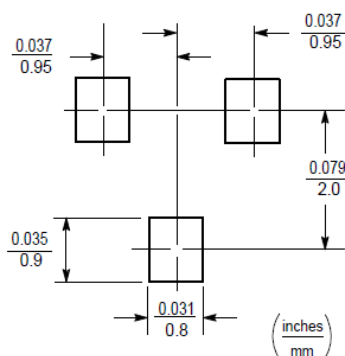
### Outline Drawing

#### SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	0.90		1.40
A1	0.00		0.10
b	0.30		0.50
c	0.08		0.20
D	2.80	2.90	3.10
E	1.20		1.60
E1	2.25		2.80
e	1.80	1.90	2.00
L	0.10		0.50
L1	0.4		0.55
θ	0°		10°

### 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.