

## N-Channel MOSFET

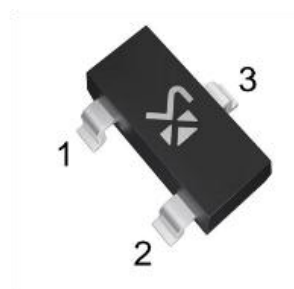
### Features

- Low gate threshold voltage low
- Input capacitance
- Fast switching speed
- Low input output leakage
- High Drain-Source voltage rating
- ESD protected ( HBM > 2KV )

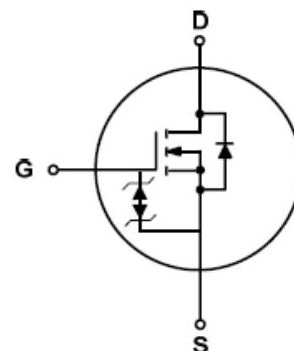
### Mechanical Data

- Case: SOT-23, Molded Plastic
- Case material - UL Flammability Rating
- Terminal Connections: See Diagram
- Marking: SA
- Page 4 Weight: 0.008 grams (approx.)

$BV_{DSS}, T_A=25^{\circ}C$	$I_D, T_A=25^{\circ}C$	$R_{DS(on), max@10V}$
100V	170mA	6Ω



**SOT-23**



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

Parameter	Symbol	Limit	Unit
Drain-source Voltage	$V_{DS}$	100	V
Drain-Gate Voltage $R_{GS} \leq 20K\Omega$	$V_{DGR}$	100	V
Gate-source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous	$I_D$	170	mA
Drain Current-Pulsed	$I_{DM}$	680	mA
Maximum Power Dissipation	$P_D$	300	mW
Operating Junction Temperature Range	$T_J$	-55~+150	$^{\circ}C$
Storage Temperature Range	$T_{STG}$	-55~+150	$^{\circ}C$

### Thermal Characteristics

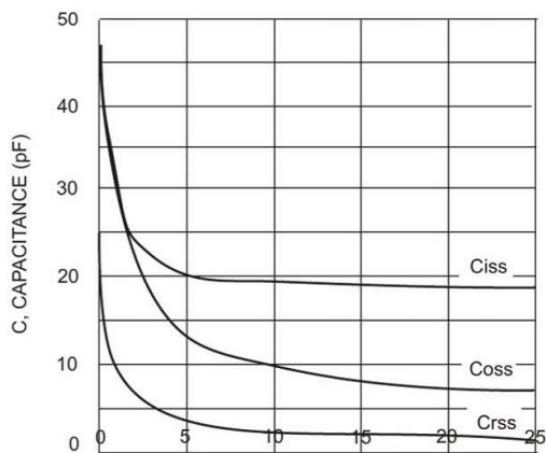
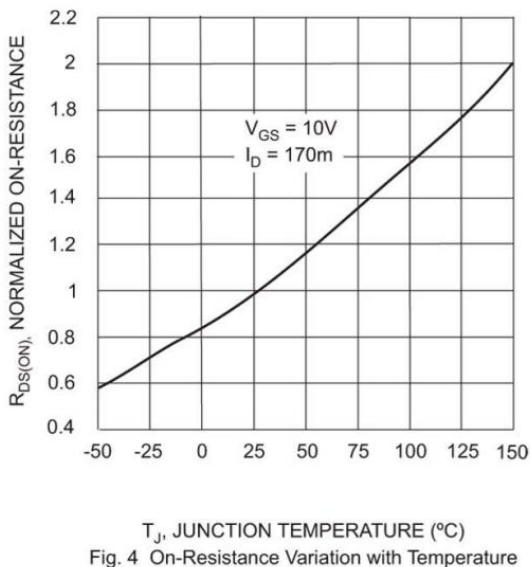
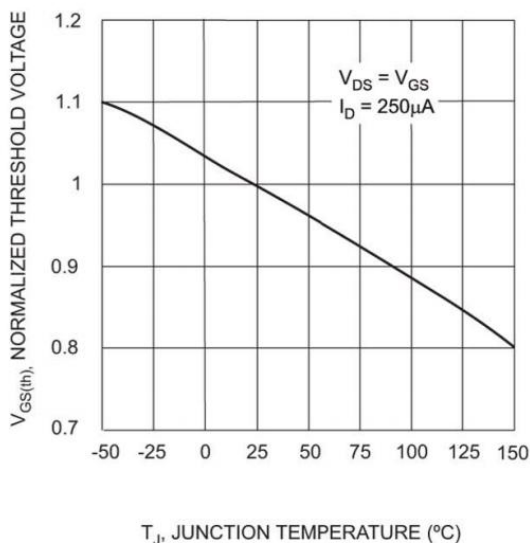
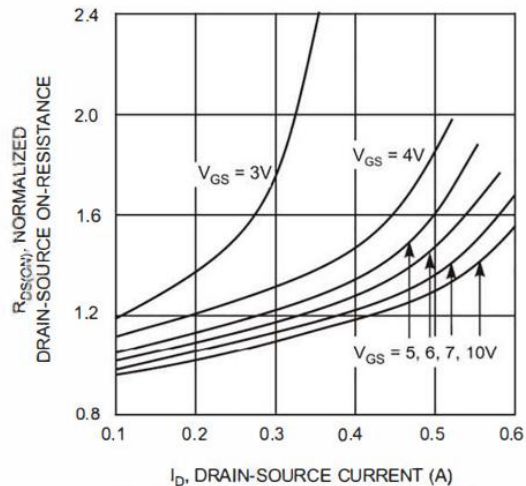
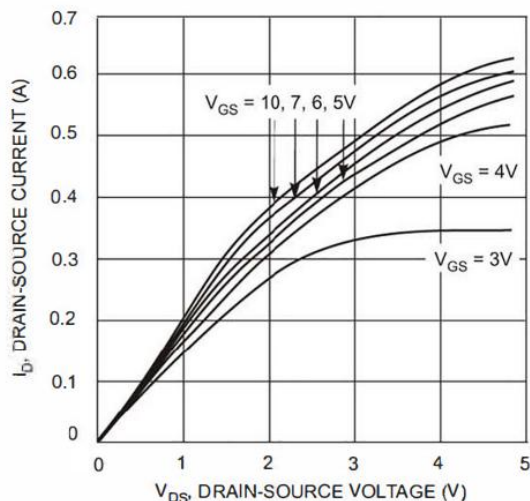
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to ambient, Max.	$R_{\theta JA}$	417	$^{\circ}C/W$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics <sup>(1)</sup>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	100			V
Drain-to-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V			100	nA
		V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			10	nA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±10	μA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =1mA	0.8	1.4	2.5	V
Drain-Source On Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =0.17A			6	Ω
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.17A			9	Ω
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =0.17A, f=1MHz	80	370		mS
Dynamic Characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz		29	60	pF
Output Capacitance	C <sub>oss</sub>			10	15	pF
Reverse Capacitance	C <sub>rss</sub>			2	6	pF
Switching Characteristics						
Turn-On Delay Time	td(on)	V <sub>DD</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =0.28A, R <sub>G</sub> =50Ω		8		nS
Turn-On Rise Time	tr			8		nS
Turn-Off Delay Time	td(off)			13		nS
Turn-Off Fall Time	tf			16		nS
Source-Drain Diode Characteristics						
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>SD</sub> =0.34A		0.84	1.3	V

Note: 1. Short duration test pulse used to minimize self-heating effect.

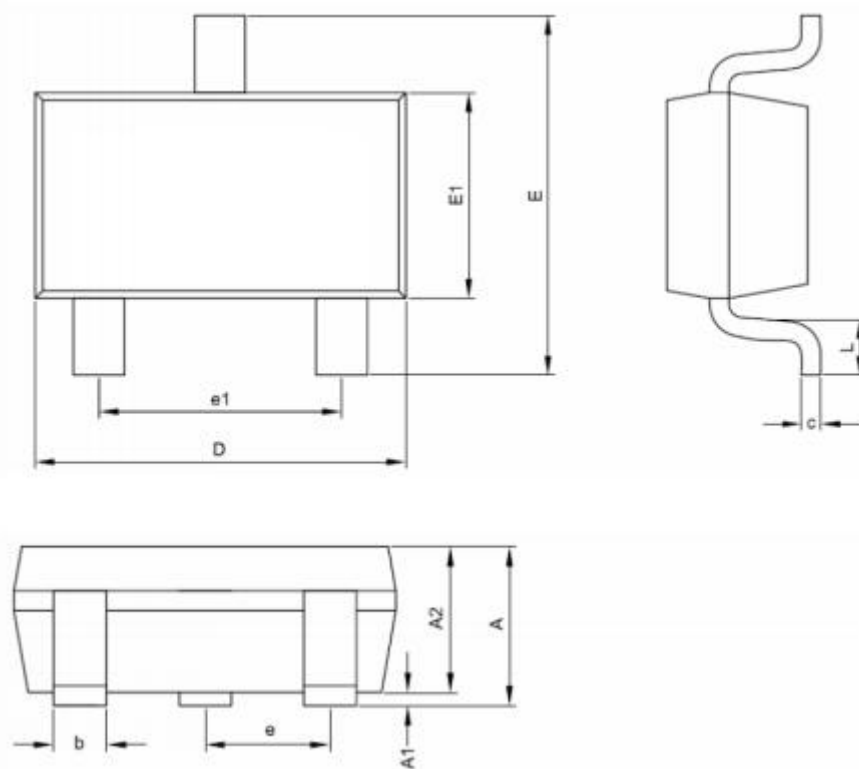
## Typical Characteristics



## Package Information

### SOT-23

#### Dimensions in mm



Symbol	Dimensions In Millimeters	
	MIN	MAX
A	-	1.12
A1	0.00	0.10
A2	0.60	1.02
D	2.90 BSC	
E	2.40 BSC	
E1	1.20	1.40
c	0.08	0.25
b	0.30	0.50
e	0.95 BSC	
e1	1.90 BSC	
L	0.20	0.60

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