

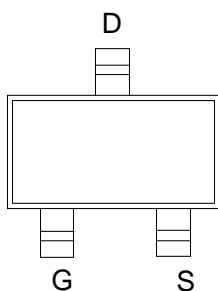
## 100V/2.3A N-Channel MOSFET

### Features

- Trench Power MV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low  $R_{DS(ON)}$

### Application

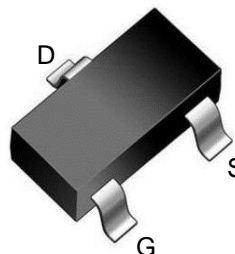
- DC-DC Converters
- Power management functions



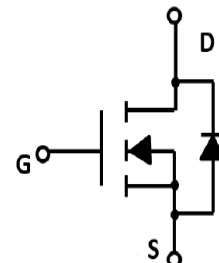
Marking and pin assignment

### Product Summary

$V_{DS}$	$R_{DS(ON)}$ MAX	$I_D$ MAX
100V	234m $\Omega$ @10V	2.3A
	278m $\Omega$ @4.5V	



SOT-23 top view



Schematic diagram



Pb-Free



RoHS



Halogen-Free

### Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
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### Common Ratings (TC=25°C Unless Otherwise Noted)

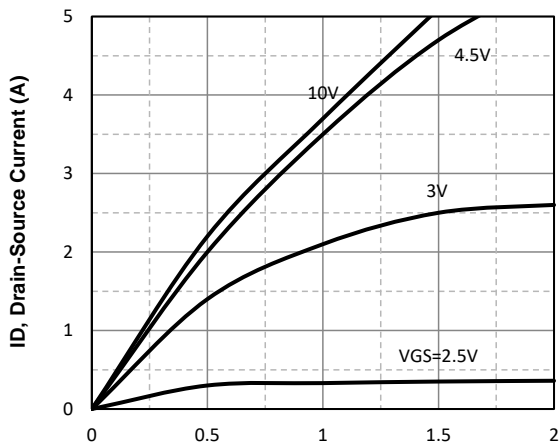
$V_{DS}$	Drain-Source Breakdown Voltage	100	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$T_J$	Maximum Junction Temperature	150	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature Range	-50 to 155	$^{\circ}\text{C}$
$I_S$	Diode Continuous Forward Current	$T_C=25^{\circ}\text{C}$ 2.3	A

### Mounted on Large Heat Sink

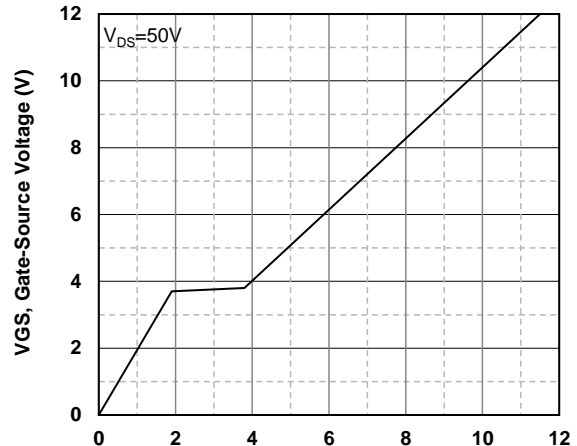
$I_{DM}$	Pulse Drain Current Tested	$T_C=25^{\circ}\text{C}$ 9	A
$I_D$	Continuous Drain Current@GS=10V	$T_C=25^{\circ}\text{C}$ 2.3	A
$P_D$	Maximum Power Dissipation	$T_C=25^{\circ}\text{C}$ 1.3	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient>(*1 in2 Pad of 2-oz Copper), Max.)	96	$^{\circ}\text{C}/\text{W}$

<b>Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)</b>						
<b>Symbol</b>	<b>Parameter</b>	<b>Condition</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Unit</b>
<b>Static Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
BV <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	100	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	VDS=100V, VGS=0V	--	--	1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	VDS=VGS, ID=250μA	1.0	1.8	2.5	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	VGS=10V, ID=2A	--	195	234	mΩ
		VGS=4.5V, ID=1A	--	230	278	mΩ
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
C <sub>ISS</sub>	Input Capacitance	VDS=10V, VGS=0V, f=1MHz	--	387	--	pF
C <sub>OSS</sub>	Output Capacitance		--	30	--	pF
C <sub>RSS</sub>	Reverse Transfer Capacitance		--	28	--	pF
<b>Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	VDS=50V, ID=2A, VGS=10V	--	9.5	--	nC
Q <sub>gs</sub>	Gate Source Charge		--	1.8	--	nC
Q <sub>gd</sub>	Gate Drain Charge		--	2	--	nC
t <sub>d(on)</sub>	Turn-on Delay Time	VDS=50V, ID=1.3A, VGS=10V, RG=1Ω	--	4	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	17.5	--	nS
t <sub>d(off)</sub>	Turn-Off Delay Time		--	13	--	nS
t <sub>f</sub>	Turn-Off Fall Time		--	28	--	nS
<b>Source- Drain Diode Characteristics</b>						
V <sub>SD</sub>	Forward on voltage	T <sub>J</sub> =25°C, I <sub>S</sub> =2A,	--	--	1.2	V

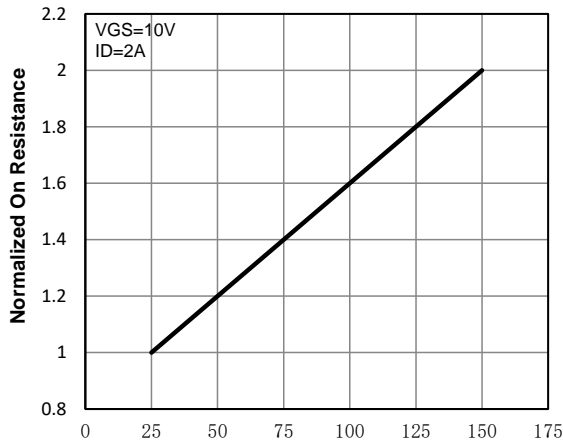
## Typical Operating Characteristics



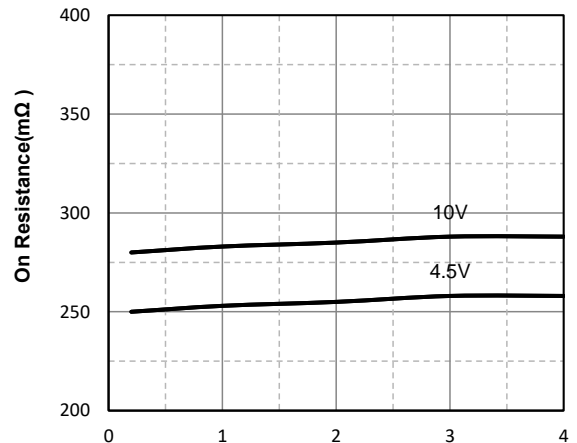
VDS, Drain -Source Voltage (V)  
Fig1. Typical Output Characteristics



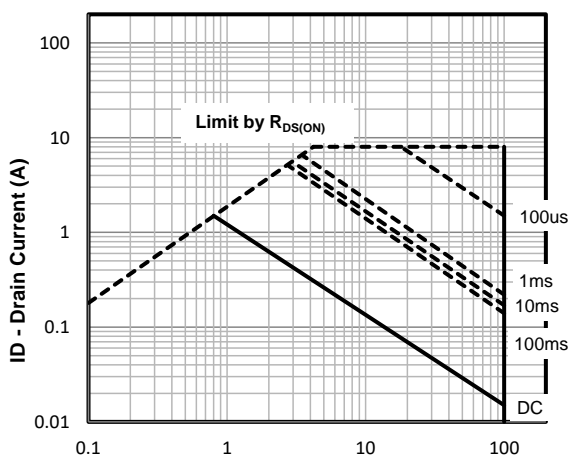
Qg -Total Gate Charge (nC)  
Fig2. Typical Gate Charge Vs. Gate-Source Voltage



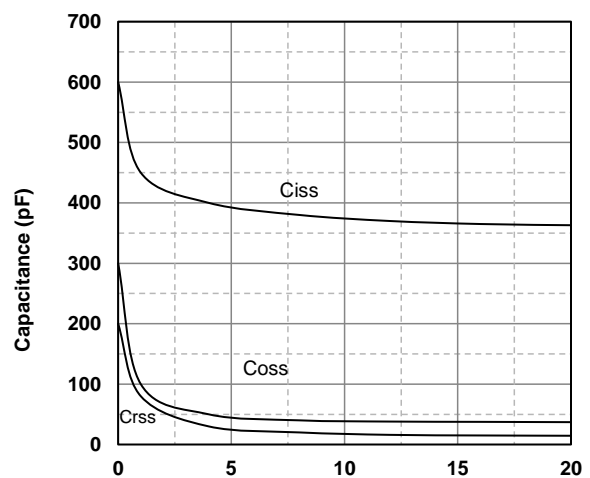
Tj - Junction Temperature (°C)  
Fig3. Normalized On-Resistance Vs. Temperature



ID, Drain-Source Current (A)  
Fig4. On-Resistance Vs. Drain-Source Current

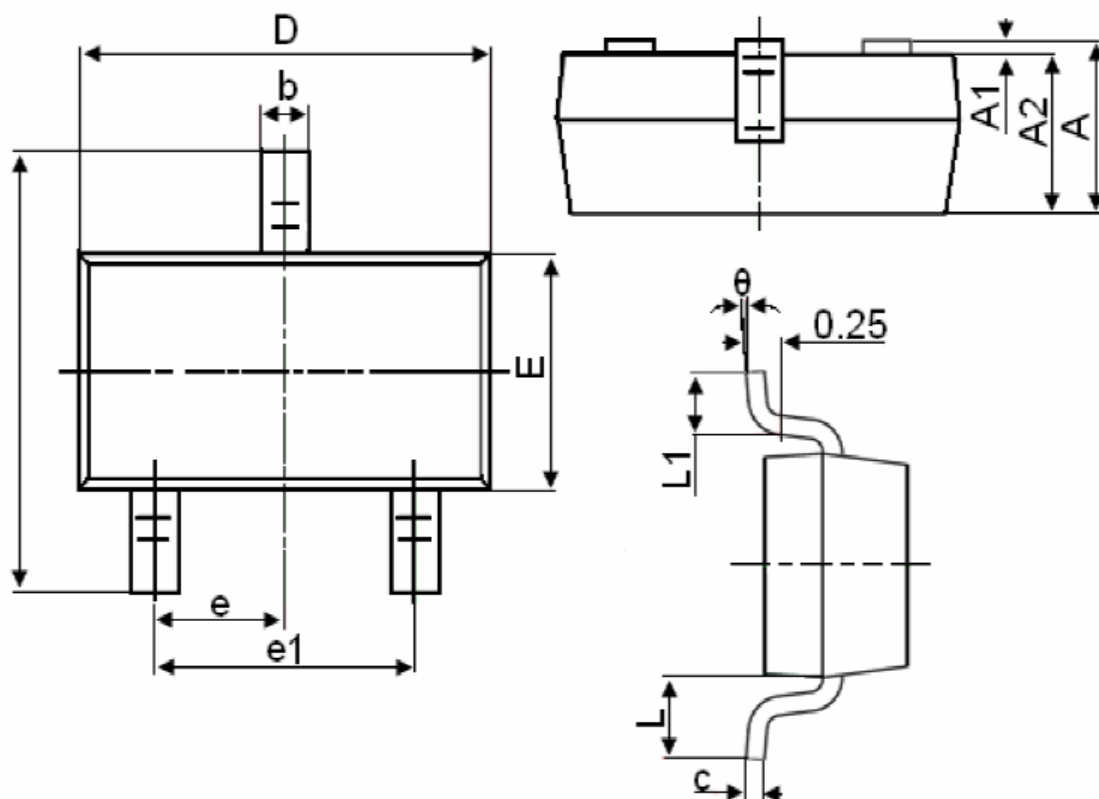


VDS, Drain -Source Voltage (V)  
Fig5. Maximum Safe Operating Area



VDS, Drain-Source Voltage (V)  
Fig6. Typical Capacitance Vs. Drain-Source Voltage

## SOT-23 Package information



Symbol	Dimensions in Millimeters(mm)		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	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
$\theta$	0°	8°	0°	8°

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