

## -20V/-1.3A P-Channel MOSFET

### Features

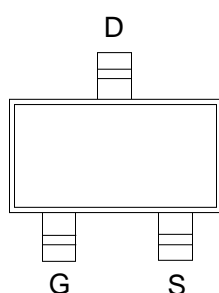
- Leading trench technology for low  $R_{DS(on)}$
- Low Gate Charge

### Product Summary

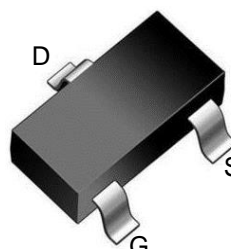
$V_{DS}$	$R_{DS(on)}$ MAX	$I_D$ MAX
-20V	200mΩ@4.5V	-1.3A
	270mΩ@2.5V	

### Application

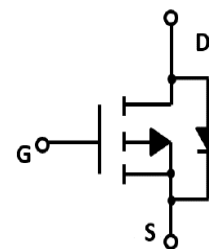
- Video monitor
- Power management



Marking and pin assignment



SOT-23 top view



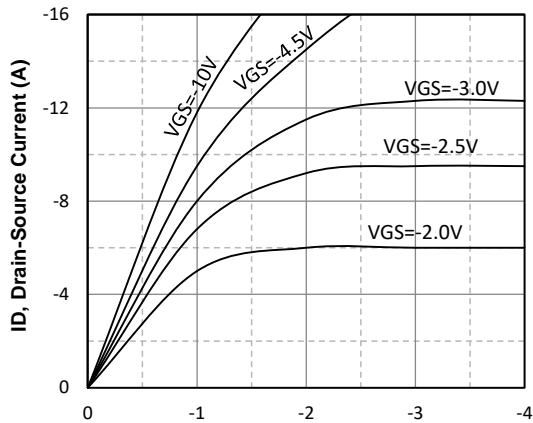
Schematic diagram

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

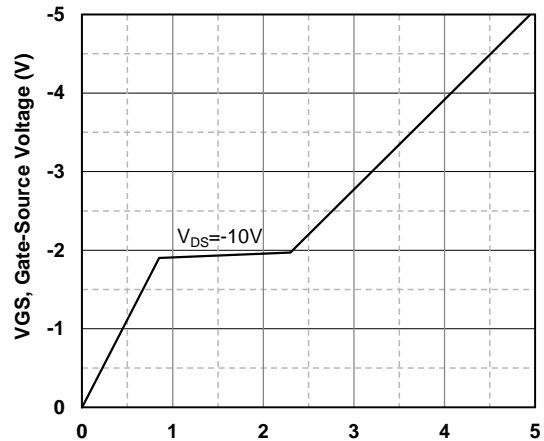
Symbol	Parameter	Rating	Unit
<b>Common Ratings (TC=25°C Unless Otherwise Noted)</b>			
$V_{DS}$	Drain-Source Breakdown Voltage	-20	V
$V_{GS}$	Gate-Source Voltage	±8	V
$T_J$	Maximum Junction Temperature	150	°C
$T_{STG}$	Storage Temperature Range	-55 to 150	°C
$I_S$	Diode Continuous Forward Current	$T_c=25^\circ\text{C}$ -1.3	A
<b>Mounted on Large Heat Sink</b>			
$I_{DM}$	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$ -10.0	A
$I_D$	Continuous Drain Current	$T_c=25^\circ\text{C}$ -1.3	A
$P_D$	Maximum Power Dissipation	$T_c=25^\circ\text{C}$ 0.5	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	250	°C/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>						
B <sub>V(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-20	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V	--	--	-1.0	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V	--	--	±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-0.4	-0.7	-1.5	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1.3A	--	105	200	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-1.1A	--	150	270	mΩ
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V, f=1MHz	--	327	--	pF
C <sub>OSS</sub>	Output Capacitance		--	60	--	pF
C <sub>RSS</sub>	Reverse Transfer Capacitance		--	55	--	pF
<b>Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-10V, I <sub>D</sub> =-2A, V <sub>GS</sub> =-4.5V	--	4.4	--	nC
Q <sub>gs</sub>	Gate Source Charge		--	0.8	--	nC
Q <sub>gd</sub>	Gate Drain Charge		--	1.3	--	nC
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> =-10V, I <sub>D</sub> =-1A, V <sub>GS</sub> =-4.5V, R <sub>G</sub> =2.8Ω	--	6	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	31	--	nS
t <sub>d(off)</sub>	Turn-Off Delay Time		--	45	--	nS
t <sub>f</sub>	Turn-Off Fall Time		--	40	--	nS
<b>Source- Drain Diode Characteristics</b>						
V <sub>SD</sub>	Forward on voltage	T <sub>J</sub> =25°C, I <sub>S</sub> =-1.3A,	--	--	-1.2	V

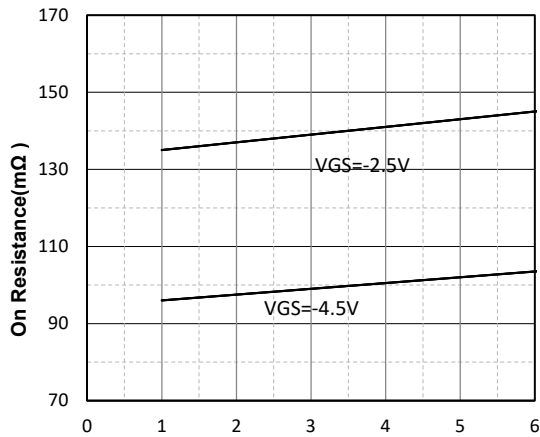
## Typical Operating Characteristics



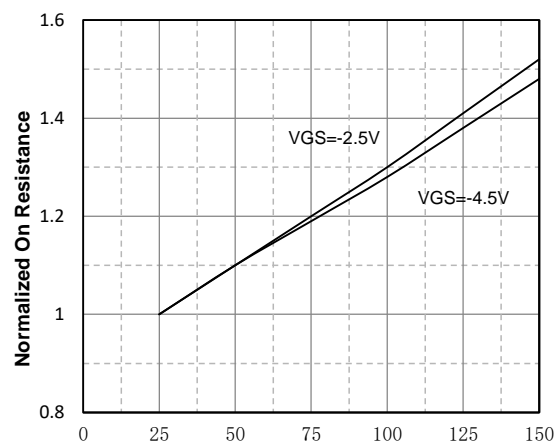
**VDS, Drain -Source Voltage (V)**  
**Fig1. Typical Output Characteristics**



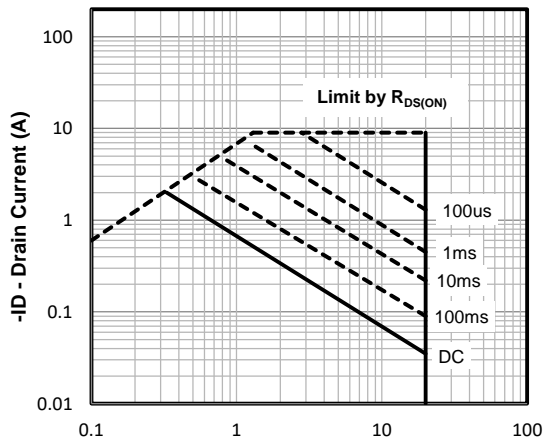
**Qg -Total Gate Charge (nC)**  
**Fig2. Typical Gate Charge Vs. Gate-Source Voltage**



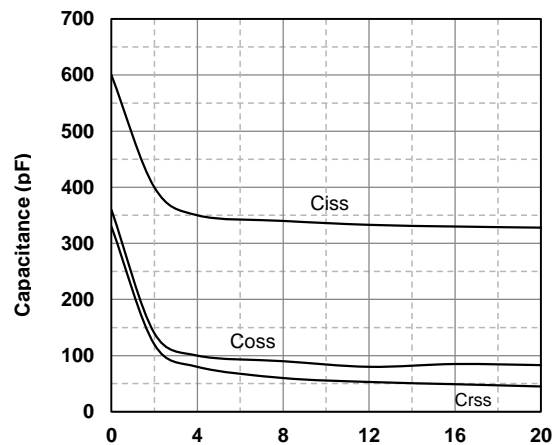
**-ID, Drain-Source Current (A)**  
**Fig3. Drain-Source on Resistance**



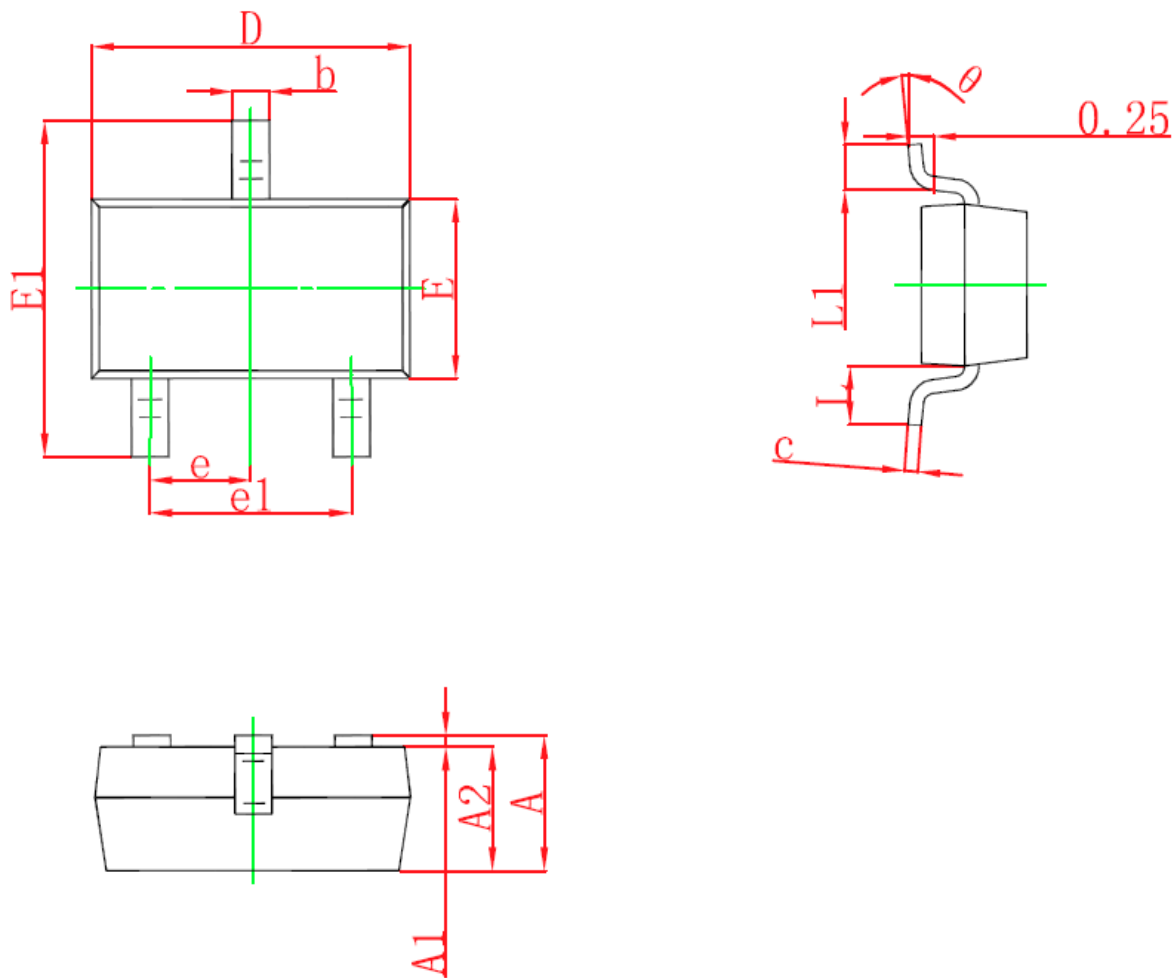
**Tj - Junction Temperature (°C)**  
**Fig4. Normalized On-Resistance Vs. Temperature**



**-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
E1	2.250	2.550	0.088	0.100
E	1.200	1.400	0.047	0.055
e	0.950TYP		0.037TYP	
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°

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [MOSFET](#) category:*

*Click to view products by [SLKORMICRO](#) manufacturer:*

Other Similar products are found below :

[IRFD120](#) [JANTX2N5237](#) [2SK2267\(Q\)](#) [BUK455-60A/B](#) [TK100A10N1,S4X\(S](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#)  
[IRS2092STRPBF-EL](#) [IPS70R2K0CEAKMA1](#) [TK31J60W5,S1VQ\(O](#) [TK31J60W,S1VQ\(O](#) [TK16J60W,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#)  
[DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [P85W28HP2F-7071](#) [DMN1053UCP4-7](#) [NTE2384](#) [DMC2700UDMQ-7](#) [DMN2080UCB4-7](#)  
[DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [IPS60R3K4CEAKMA1](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#)  
[STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [IPS60R360PFD7SAKMA1](#)  
[DMN2990UFB-7B](#) [SSM3K35CT,L3F](#) [IPLK60R1K0PFD7ATMA1](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [IPWS65R035CFD7AXKSA1](#)  
[MCQ7328-TP](#) [SSM3J143TU,LXHF](#) [DMN12M3UCA6-7](#) [PJMF280N65E1\\_T0\\_00201](#) [PJMF380N65E1\\_T0\\_00201](#)  
[PJMF280N60E1\\_T0\\_00201](#) [PJMF600N65E1\\_T0\\_00201](#) [PJMF900N65E1\\_T0\\_00201](#)