

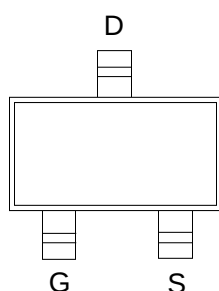
-20V/-0.66A P-Channel MOSFET

Features

- Lead Free Product is Acquired
- Surface Mount Package
- P-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive

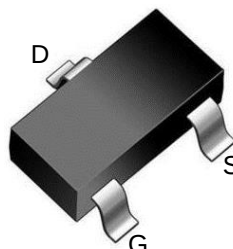
Application

- Load/Power Switching
- Interfacing, Logic Switching
- Battery Management for Ultra Small Portable Electronics

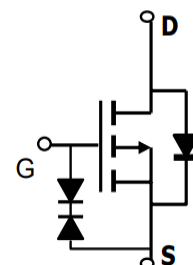


Product Summary

V_{DS}	$R_{DS(on)}$ MAX	I_D MAX
-20V	520mΩ@4.5V	-0.66A
	700mΩ@2.5V	



SOT-323 top view



Schematic diagram



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

Symbol	Parameter	Rating	Unit
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Common Ratings ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)

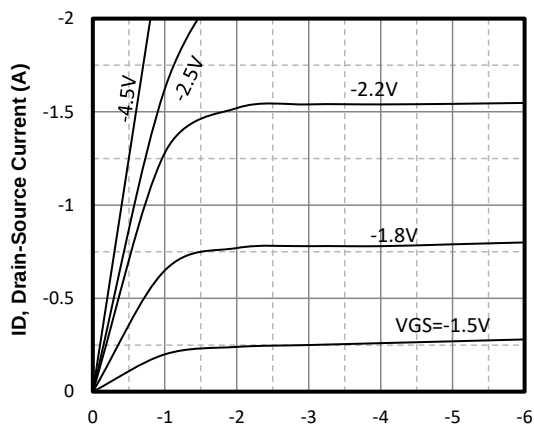
V _{DS}	Drain-Source Breakdown Voltage		-20	V
V _{GS}	Gate-Source Voltage		±10	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	Tc=25°C	-0.66	A

Mounted on Large Heat Sink

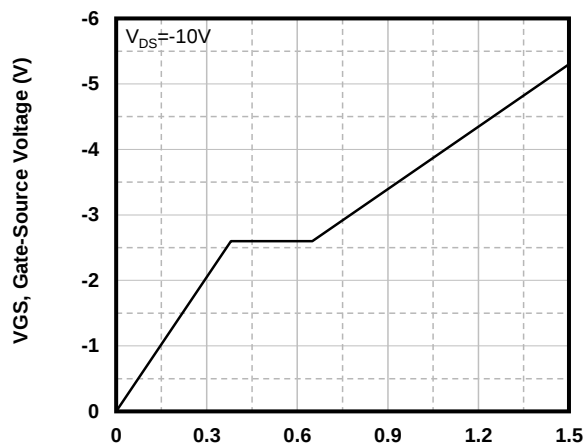
I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$	-1.2	A
I_D	Continuous Drain Current@GS=10V	$T_C=25^\circ\text{C}$	-0.66	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$	0.2	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		625	$^\circ\text{C/W}$

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	VGS=0V, ID=-250μA	-20	--	--	V
IDS	Zero Gate Voltage Drain Current	VDS=-20V, VGS=0V	--	--	-1	uA
IGSS	Gate-Body Leakage Current	VGS=±10V, VDS=0V	--	--	±10	uA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-0.35	-0.65	-1.1	V
RDS(on)	Drain-Source On-State Resistance	VGS=-4.5V, ID=-1.0A	--	380	520	mΩ
		VGS=-2.5V, ID=-0.8A	--	520	700	
		VGS=-1.8V, ID=-0.5A	--	750	--	
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
CISS	Input Capacitance	VDS=-10V, VGS=0V, f=1MHz	--	115	--	pF
COSS	Output Capacitance		--	15	--	pF
CRSS	Reverse Transfer Capacitance		--	8.8	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDD=-10V, ID=-0.5A, VGS=-4.5V	--	1.25	--	nC
Qgs	Gate Source Charge		--	0.35	--	nC
Qgd	Gate Drain Charge		--	0.29	--	nC
td(on)	Turn-on Delay Time	VDS=-10V, ID=-0.2A, VGS=-4.5V, RG=10Ω	--	9	--	nS
tr	Turn-on Rise Time		--	5.5	--	nS
td(off)	Turn-Off Delay Time		--	30.8	--	nS
tf	Turn-Off Fall Time		--	20	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	TJ=25℃, IS=-0.66A,	--	--	-1.2	V

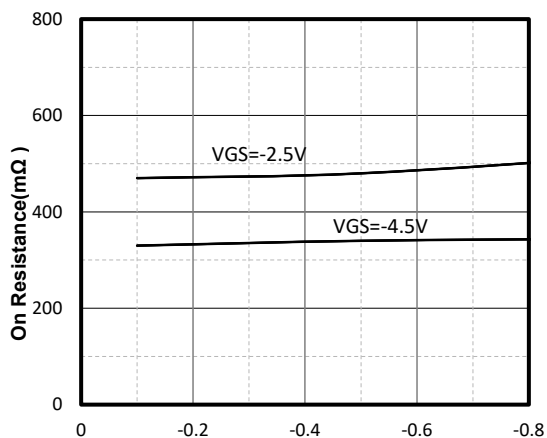
Typical Operating Characteristics



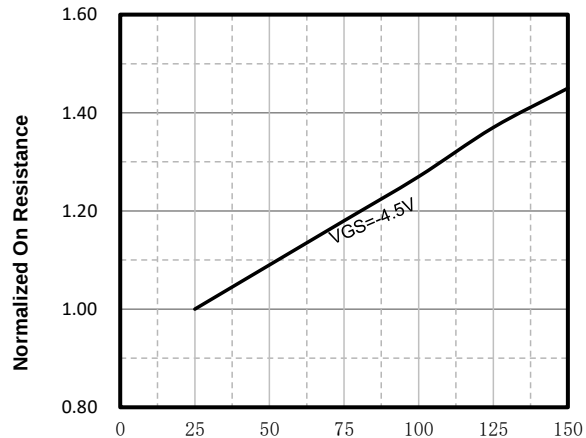
VDS, Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



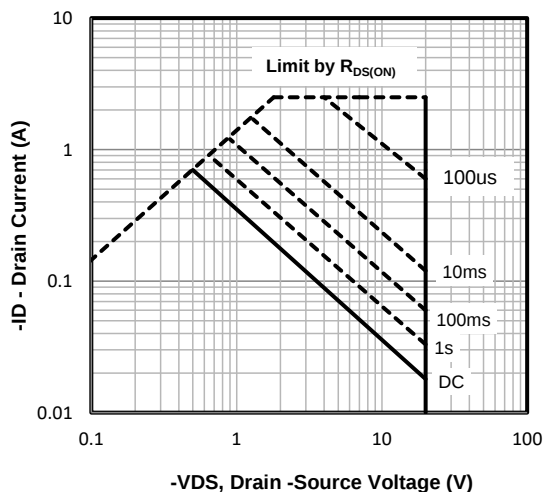
Qg -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs. Gate-Source Voltage



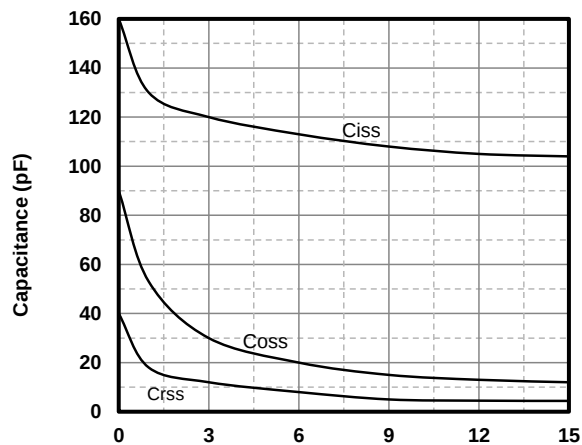
ID, Drain-Source Current (mA)
Fig3. Drain-Source on Resistance



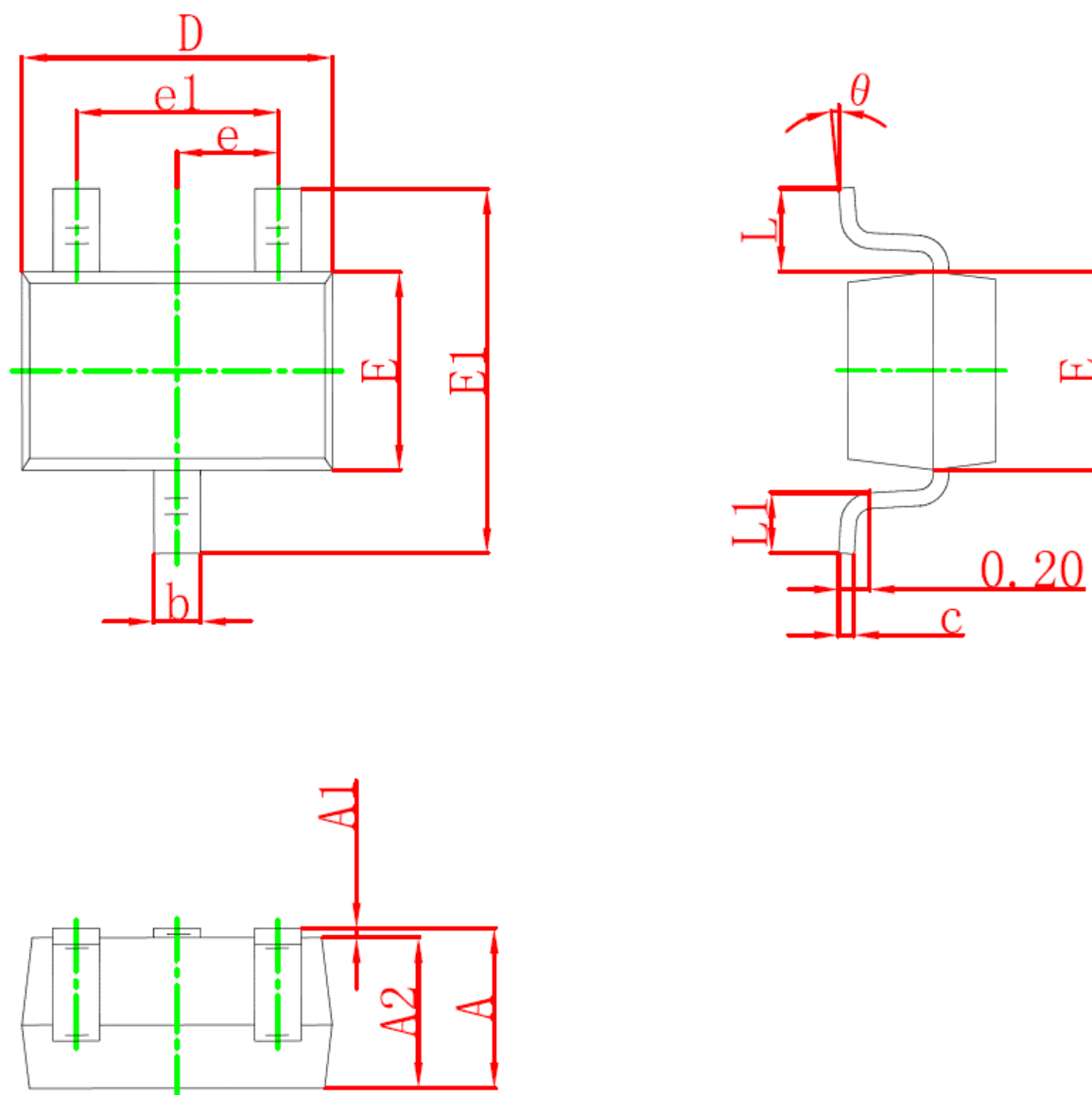
Tj - Junction Temperature (°C)
Fig4. Normalized On-Resistance Vs. Temperature



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



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

SOT-323 Package information


Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L	0.525REF		0.021REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°