

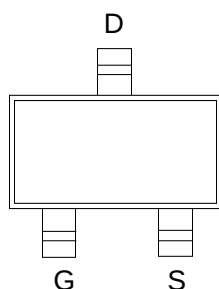
20V/3A N-Channel MOSFET

Features

- Trench Power LV MOSFET technology
- High Power and current handing capability

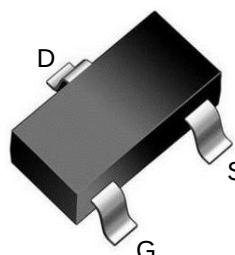
Application

- PWM application
- Load switch

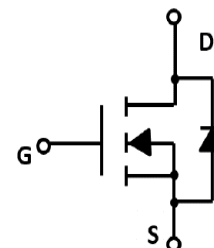


Product Summary

V_{DS}	$R_{DS(ON)} \text{ MAX}$	$I_D \text{ MAX}$
20V	35mΩ@4.5V	3A
	50mΩ@2.5V	



SOT-23 top view



Schematic diagram



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)

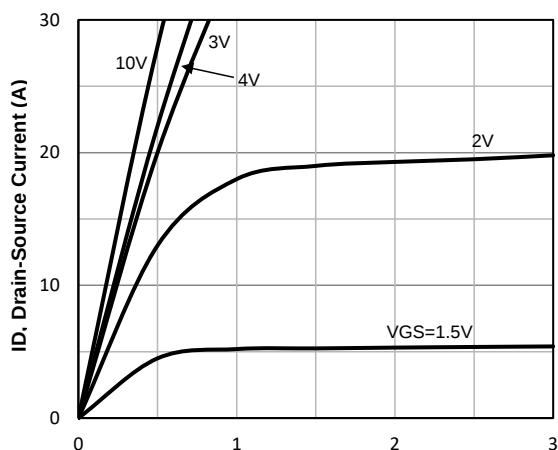
V_{DS}	Drain-Source Breakdown Voltage	20	V
V_{GS}	Gate-Source Voltage	±10	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-50 to 155	°C
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 3	A

Mounted on Large Heat Sink

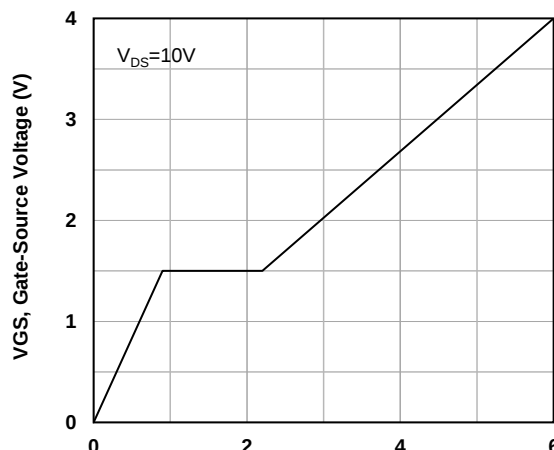
I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ 20	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$ 3	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 0.5	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	250	°C/W

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
IDSS	Zero Gate Voltage Drain Current	VDS=16V, VGS=0V	--	--	1	uA
IGSS	Gate-Body Leakage Current	VGS=±8V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	0.4	0.85	1.5	V
RDS(on)	Drain-Source On-State Resistance	VGS=4.5V, ID=3.0A	--	29	35	mΩ
		VGS=2.5V, ID=2.4A	--	39	50	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
CISS	Input Capacitance	VDS=10V, VGS=0V, f=1MHz	--	595	--	pF
COSS	Output Capacitance		--	105	--	pF
CRSS	Reverse Transfer Capacitance		--	60	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=10V, ID=2.5A, VGS=4.5V	--	6.5	--	nC
Qgs	Gate Source Charge		--	1	--	nC
Qgd	Gate Drain Charge		--	1.5	--	nC
t _{d(on)}	Turn-on Delay Time	VDD=10V, RL=1.5Ω, VGS=4.5V, RG=3Ω	--	12	--	nS
t _r	Turn-on Rise Time		--	54	--	nS
t _{d(off)}	Turn-Off Delay Time		--	18	--	nS
t _f	Turn-Off Fall Time		--	11	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	Tj=25℃, Is=3.0A,	--	--	1.2	V

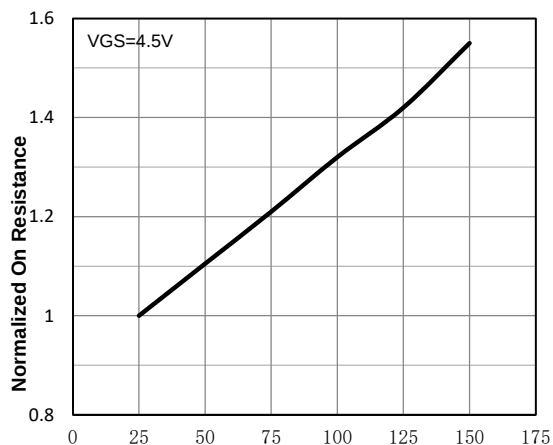
Typical Operating Characteristics



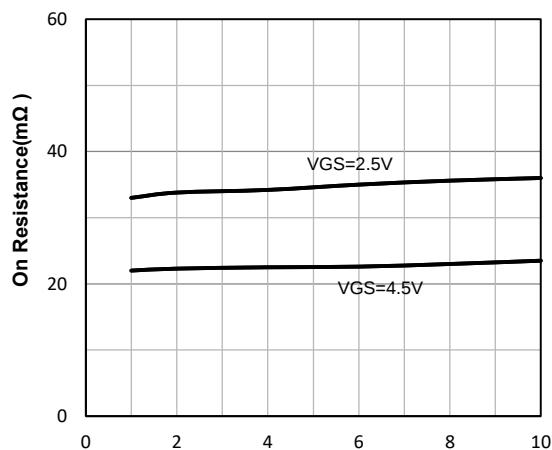
VDS, Drain-Source Voltage (V)
Fig1. Typical Output Characteristics



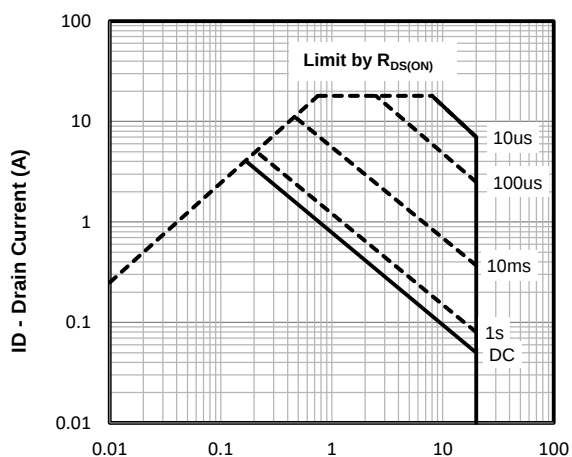
Qg -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs. Gate-Source Voltage



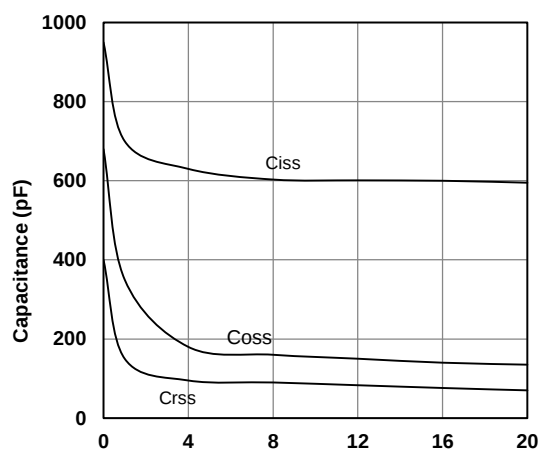
Tj - Junction Temperature (°C)
Fig3. Normalized On-Resistance Vs. Temperature



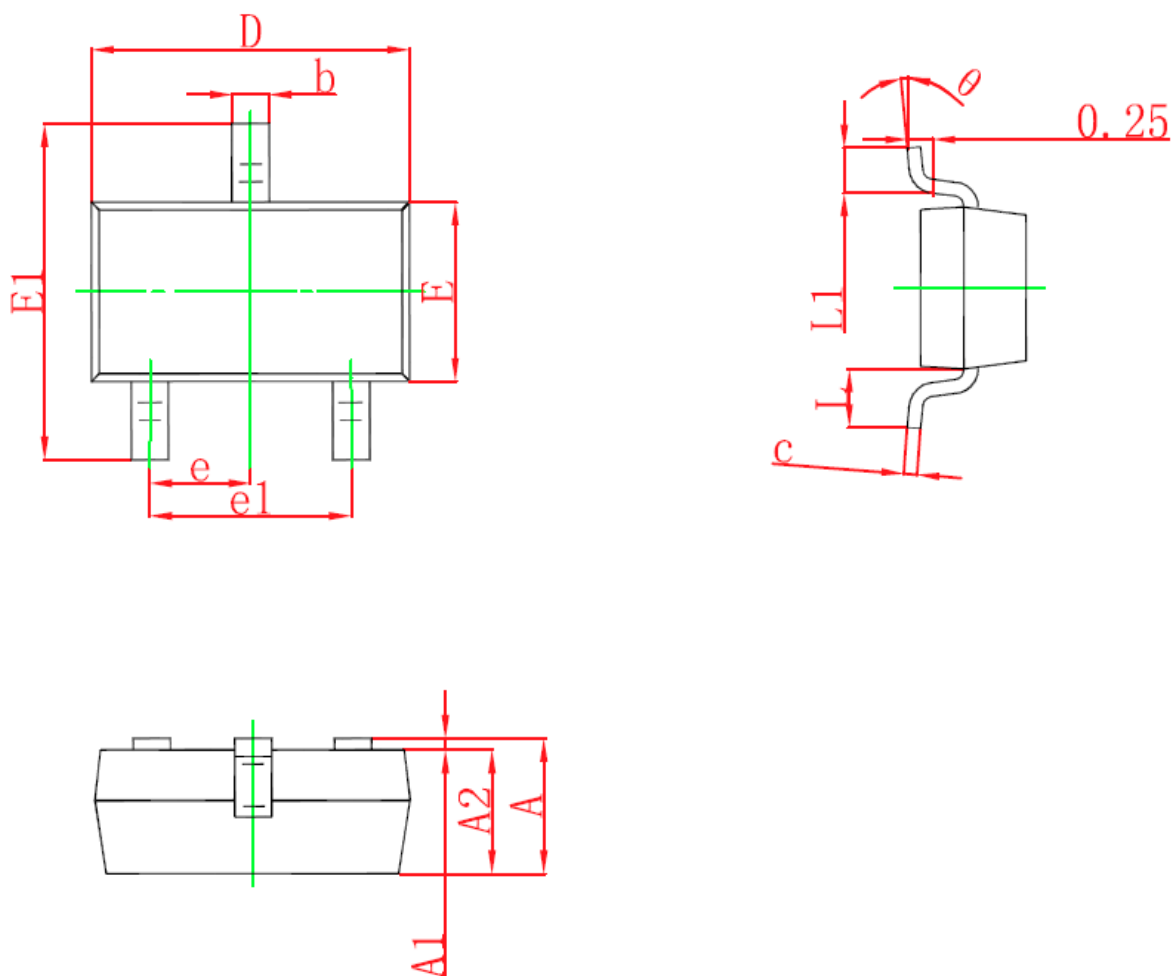
ID, Drain-Source Current (A)
Fig4. On-Resistance Vs. Drain-Source Current



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
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
θ	0°	8°	0°	8°