40V/10A Dual N-Channel MOSFET

Features

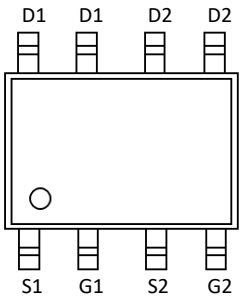
- Trench Power LV MOSFET technology
- High Density Cell Design for Low $R_{DS(ON)}$
- High Speed switching

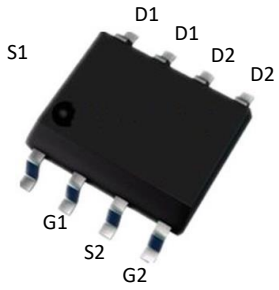
Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
40V	17mΩ@10V	10A
	25mΩ@4.5V	

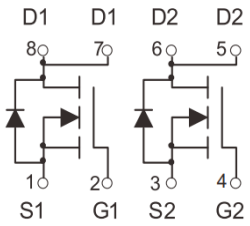
Application

- Battery protection
- Load switch
- Power management





SOP-8 top view



Schematic diagram

Absolute Maximum Ratings (TA=25℃unless otherwise noted)				
Symbol	**Parameter**		**Rating**	**Unit**
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		40	V
V_{GS}	Gate-Source Voltage		±20	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	10	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	50	A
I_D	Continuous Drain Current@GS=10V	Tc=25°C	10	A
P_D	Maximum Power Dissipation	Tc=25°C	2	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient((*1 in2 Pad of 2-oz Copper), Max.)		60	°C/W

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	**Parameter**	**Condition**	**Min**	**Typ**	**Max**	**Unit**
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
$BV_{(BR)DSS}$	Drain-Source Breakdown Voltage	VGS=0V，ID=250μA	40	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	VDS=40V，VGS=0V	--	--	1	uA
I_{GSS}	Gate-Body Leakage Current	VGS=±20V，VDS=0V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	VDS=VGS，ID=250μA	1	1.5	2.5	V
$R_{DS(on)}$	Drain-Source On-State Resistance	VGS=10V， ID=10A	--	13	17	mΩ
		VGS=4.5V，ID=10A	--	19	25	
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	VDS=20V，VGS=0V， f=1MHz	--	965	--	pF
C_{OSS}	Output Capacitance		--	110	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	95	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	VDS=20V，ID=8A，VGS=10V	--	23	--	nC
Q_{gs}	Gate Source Charge		--	3.5	--	nC
Q_{gd}	Gate Drain Charge		--	5.5	--	nC
$t_{d(on)}$	Turn-on Delay Time	VDS=20V，RL=2.5Ω，VGS=10V，RG=3Ω	--	5.5	--	nS
t_r	Turn-on Rise Time		--	15	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	25	--	nS
t_f	Turn-Off Fall Time		--	12	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25℃，Is=10A，	--	--	1.2	V

Typical Operating Characteristics

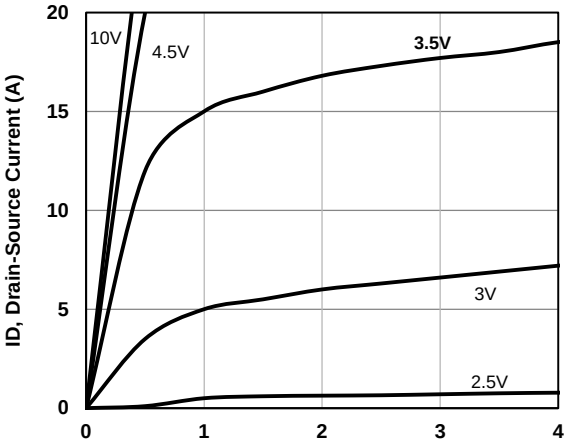


Fig1. Typical Output Characteristics

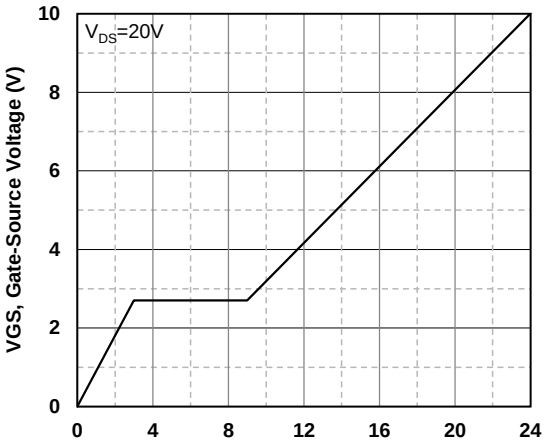


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

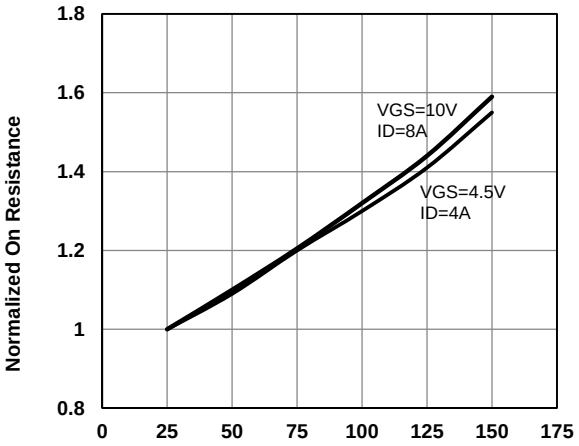


Fig3. Normalized On-Resistance Vs. Temperature

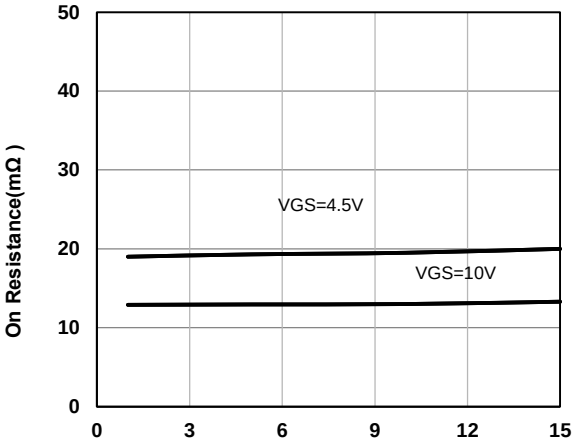


Fig4. On-Resistance Vs. Drain-Source Current

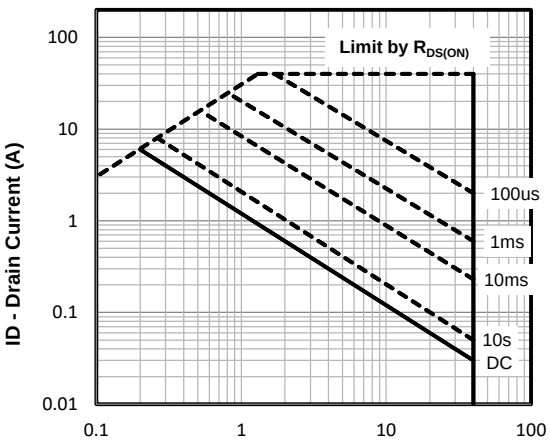


Fig5. Maximum Safe Operating Area

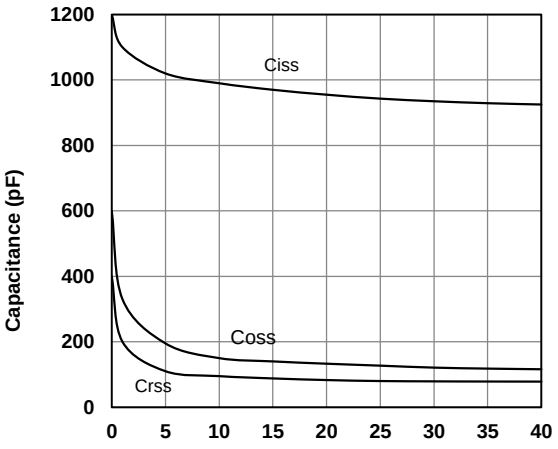
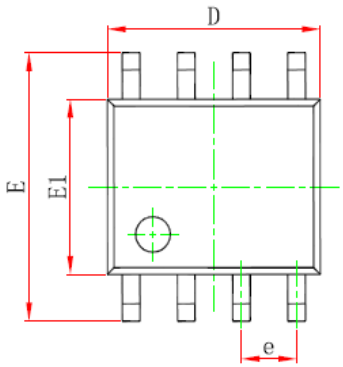
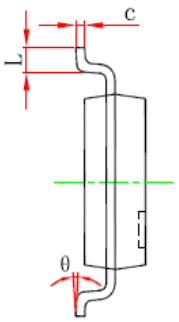
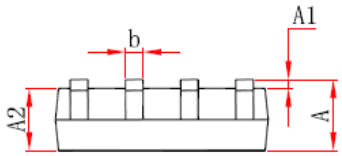


Fig6 Typical Capacitance Vs.Drain-Source Voltage

SOP-8 Package information







Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	**Max**	**Min**	**Max**
A	1.450	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
e	1.270（BSC）		0.050（BSC）	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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