

## 40V/8A Dual N-Channel MOSFET

### Features

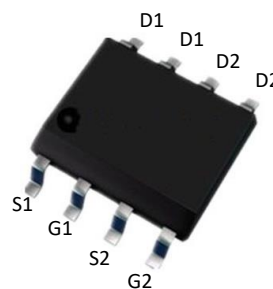
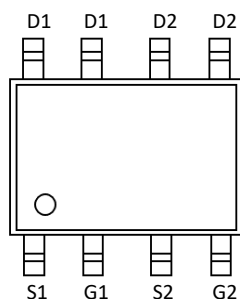
- Trench Power LV MOSFET technology
- High Density Cell Design for Low  $R_{DS(ON)}$
- High Speed switching

### Application

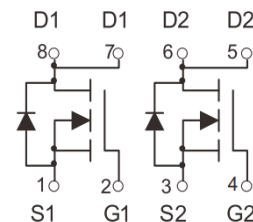
- Battery protection
- Load switch
- Power management

### Product Summary

$V_{DS}$	$R_{DS(ON)}$ MAX	$I_D$ MAX
40V	20m $\Omega$ @10V	8A
	35m $\Omega$ @4.5V	



SOP-8 top view

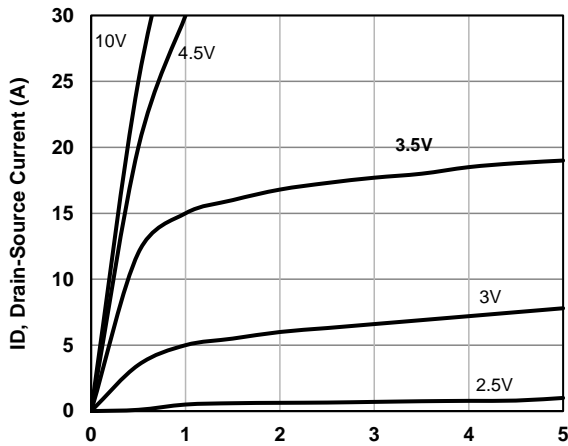


Schematic diagram

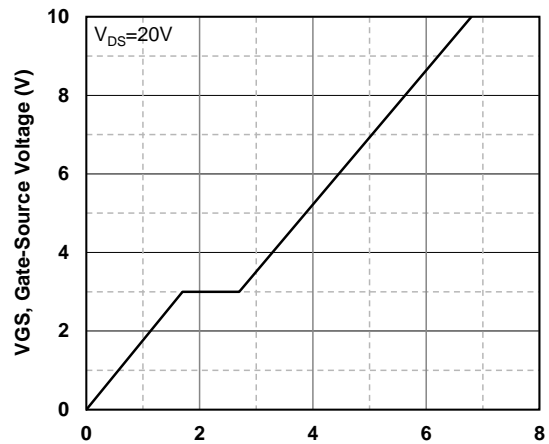
Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter	Rating	Unit	
<b>Common Ratings (TC=25°C Unless Otherwise Noted)</b>				
$V_{DS}$	Drain-Source Breakdown Voltage	40	V	
$V_{GS}$	Gate-Source Voltage	±20	V	
$T_J$	Maximum Junction Temperature	150	°C	
$T_{STG}$	Storage Temperature Range	-55 to 150	°C	
$I_S$	Diode Continuous Forward Current	Tc=25°C	8	A
<b>Mounted on Large Heat Sink</b>				
$I_{DM}$	Pulse Drain Current Tested	Tc=25°C	38	A
$I_D$	Continuous Drain Current@GS=10V	Tc=25°C	8	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

<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	40	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	VDS=40V, 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	1.5	2.5	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	VGS=10V, ID=8A	--	15	20	mΩ
		VGS=4.5V, ID=4A	--	24	35	mΩ
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
C <sub>ISS</sub>	Input Capacitance	VDS=20V, VGS=0V, f=1MHz	--	421	--	pF
C <sub>OSS</sub>	Output Capacitance		--	115	--	pF
C <sub>RSS</sub>	Reverse Transfer Capacitance		--	13	--	pF
<b>Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	VDS=20V, ID=8A, VGS=10V	--	6.8	--	nC
Q <sub>gs</sub>	Gate Source Charge		--	1.1	--	nC
Q <sub>gd</sub>	Gate Drain Charge		--	1.3	--	nC
t <sub>d(on)</sub>	Turn-on Delay Time	VDS=20V, RL=2.5Ω, VGS=10V, RG=3Ω	--	3.8	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	2.5	--	nS
t <sub>d(off)</sub>	Turn-Off Delay Time		--	14.4	--	nS
t <sub>f</sub>	Turn-Off Fall Time		--	2	--	nS
<b>Source- Drain Diode Characteristics</b>						
V <sub>SD</sub>	Forward on voltage	T <sub>J</sub> =25°C, I <sub>s</sub> =3A,	--	--	1.2	V

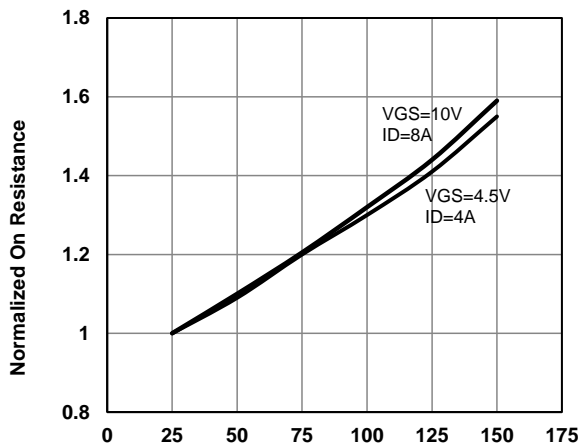
**Typical Operating Characteristics**



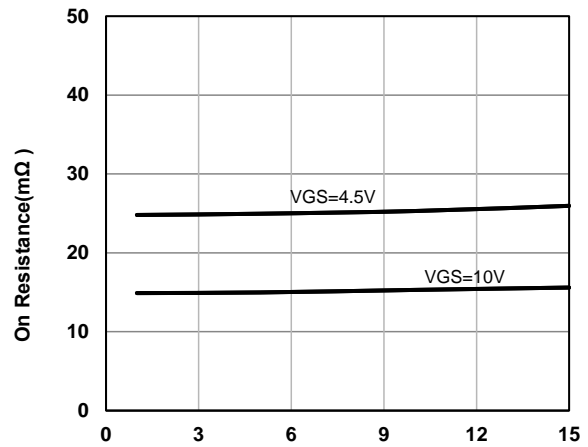
**VDS, Drain-Source Voltage (V)**  
**Fig1. Typical Output Characteristics**



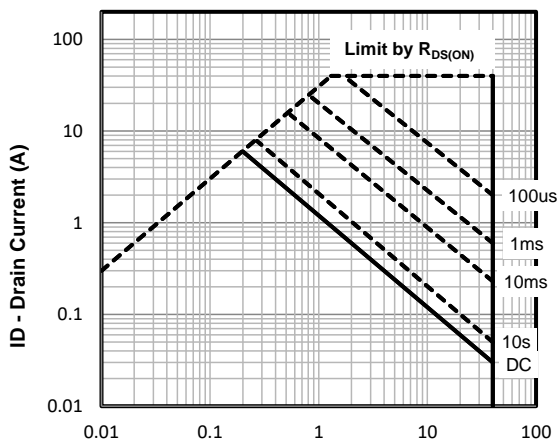
**Qg -Total Gate Charge (nC)**  
**Fig2. Typical Gate Charge Vs. Gate-Source Voltage**



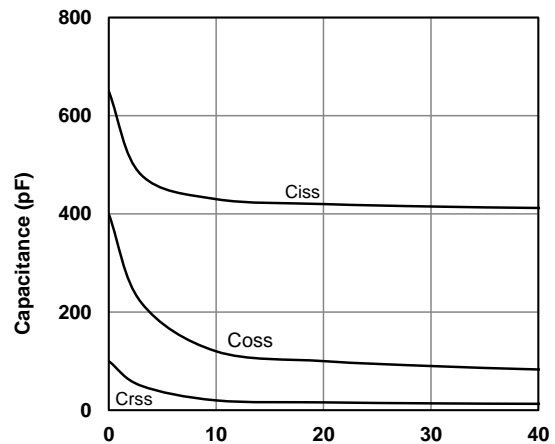
**Tj - Junction Temperature (°C)**  
**Fig3. Normalized On-Resistance Vs. Temperature**



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

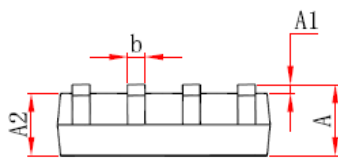
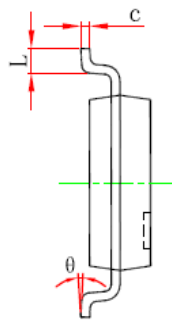
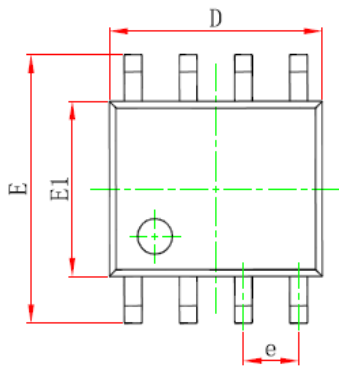


**VDS, Drain-Source Voltage (V)**  
**Fig5. Maximum Safe Operating Area**



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

## 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°