SL4430A

30V/18A N-Channel MOSFET

Features

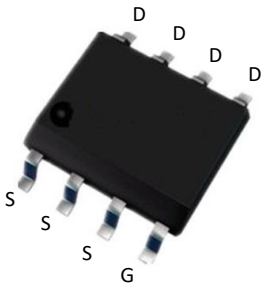
- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

Application

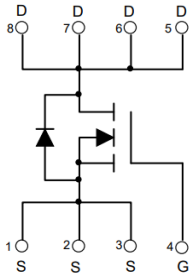
- High Frequency Point-of-Load Synchronous Buck Converter for MB/NB/UMPC/VGA
- Networking DC-DC Power System
- Load Switch

Product Summary

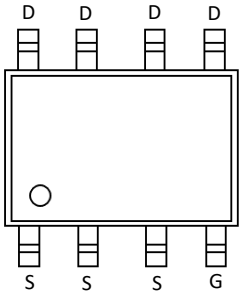
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
30V	5.5mΩ@10V	18A
	7.5mΩ@4.5V	



SOP-8 top view



Schematic diagram



Marking and pin assignment

Pb-Free

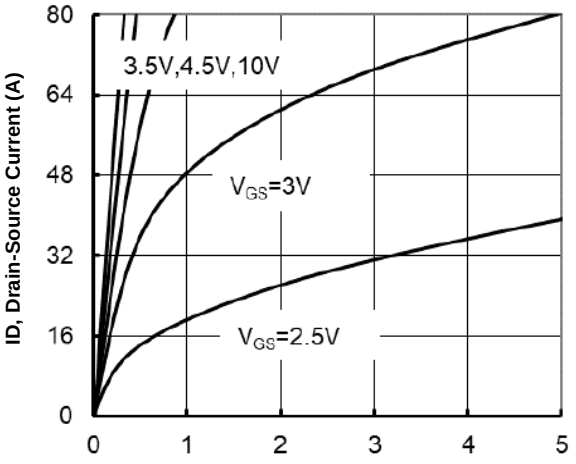
RoHS

Halogen-Free

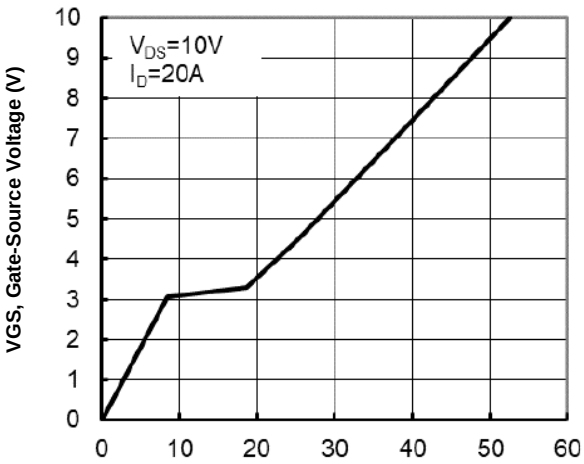
Absolute Maximum Ratings (TA=25℃unless otherwise noted)				
Symbol	**Parameter**		**Rating**	**Unit**
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		30	V
V_{GS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current	Tc=25°C	18	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	80	A
I_D	Continuous Drain Current@GS=10V	Tc=25°C	18	A
P_D	Maximum Power Dissipation	Tc=25°C	3	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient((*1 in2 Pad of 2-oz Copper), Max.)		40	°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	30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	VDS=30V，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=18A	--	4.7	5.5	mΩ
		VGS=4.5V，ID=15A	--	6.5	7.5	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	VDS=15V，VGS=0V，f=1MHz	--	2504	--	pF
C_{OSS}	Output Capacitance		--	323	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	283	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	VDS=15V，ID=18A，VGS=10V	--	54	--	nC
Q_{gs}	Gate Source Charge		--	26	--	nC
Q_{gd}	Gate Drain Charge		--	8.5	--	nC
$t_{d(on)}$	Turn-on Delay Time	VDD=20V，ID=2A，VGS=10V，RG=3Ω	--	11	--	nS
t_r	Turn-on Rise Time		--	20	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	41	--	nS
t_f	Turn-Off Fall Time		--	25	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25℃，Is=1A，	--	--	1.2	V

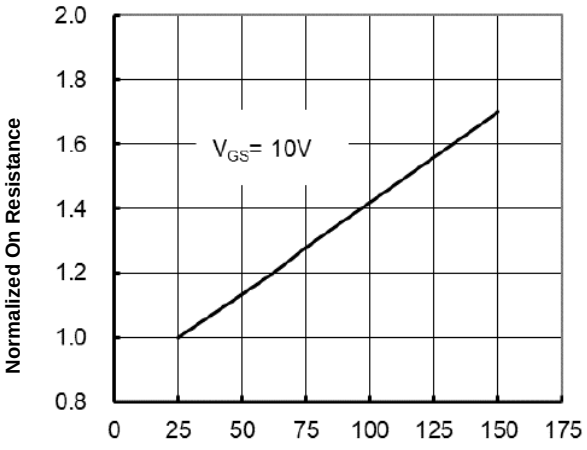
Typical Operating Characteristics



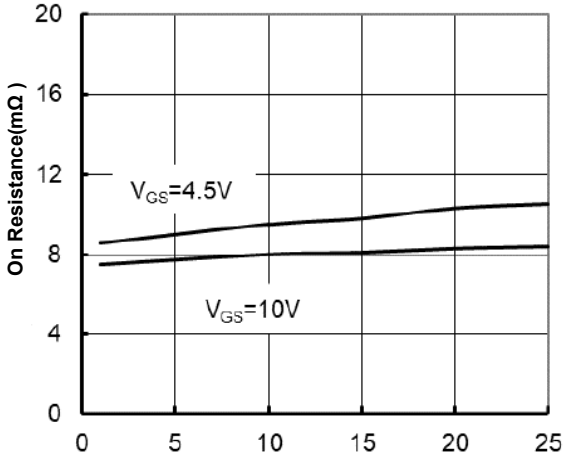
VDS, Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



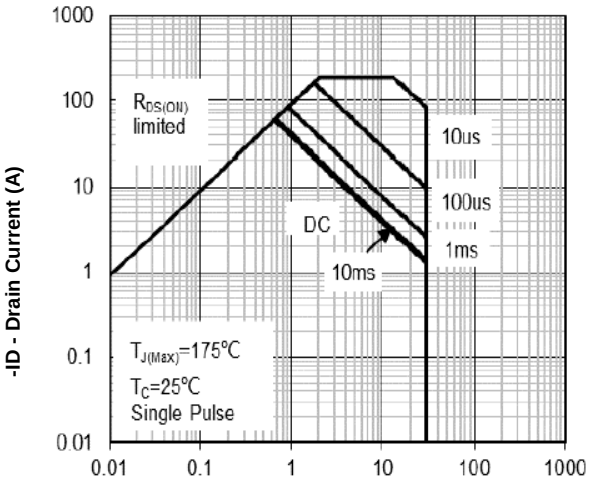
Qg -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs.Gate-Source Voltage



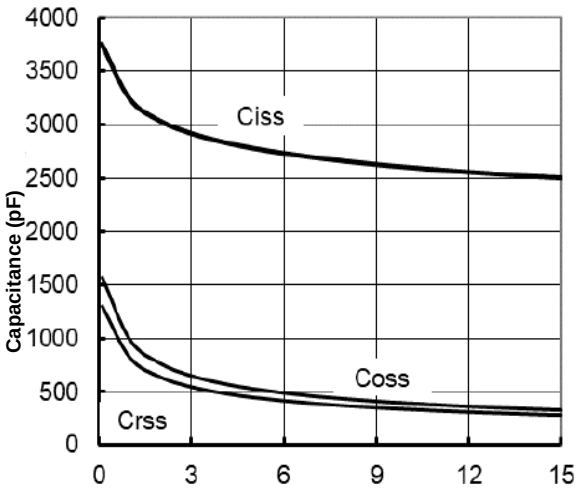
Tj - Junction Temperature (°C)
Fig3. Normalized On-Resistance Vs. Temperature



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

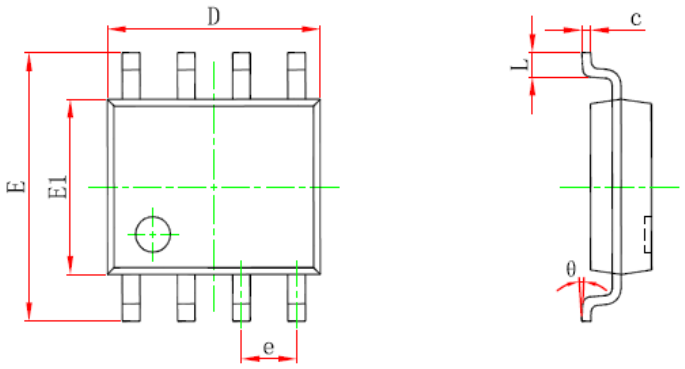


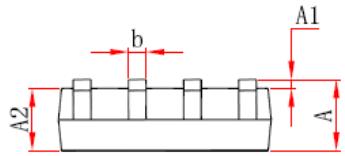
VDS, Drain -Source Voltage (V)
Fig5. Maximum Safe Operating Area



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°

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