

Features

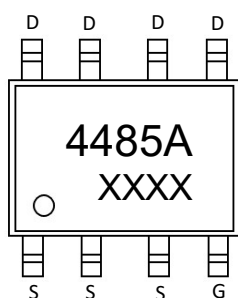
- High density cell design for ultra low $R_{DS(on)}$
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-40V	15m Ω @-10V	-10A
	20m Ω @-4.5V	

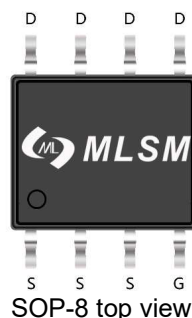
Application

- PWM applications
- Power management
- Load switch

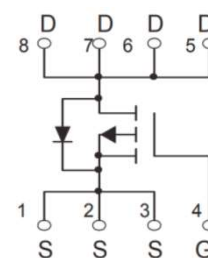


4485A: Device code
XXXX: Code

Marking and pin assignment



SOP-8 top view



Schematic diagram



Pb-Free



RoHS



HAL

Halogen-Free

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	-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	$T_c=25^\circ\text{C}$	-10
			A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	-45	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$	-10	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	3.2	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		40	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSQ4485A	SOP-8	4485A	3,000	6,000	42,000	13"reel

Electrical Characteristics (TJ=25°C 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
IDSS	Zero Gate Voltage Drain Current	VDS=-40V, VGS=0V	--	–	-1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	–	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-1.0	-1.8	-2.5	V
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-10A	--	11	15	mΩ
		VGS=-4.5V, ID=-8A	--	16	20	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=-20V, VGS=0V, f=1MHz	–	2980	–	pF
COSS	Output Capacitance		–	380	–	pF
CRSS	Reverse Transfer Capacitance		–	300	–	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=-20V, ID=-10A, VGS=-10V	–	75	–	nC
Qgs	Gate Source Charge		–	14	–	nC
Qgd	Gate Drain Charge		–	15	–	nC
td(on)	Turn-on Delay Time	VDD=-12V, ID=-10A, VGS=-10V, RG=3.3Ω	--	10	–	nS
tr	Turn-on Rise Time		–	17	–	nS
td(off)	Turn-Off Delay Time		–	38	–	nS
tf	Turn-Off Fall Time		–	25	–	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	TJ=25°C, IS=-10A	--	–	-1.2	V

Typical Operating Characteristics

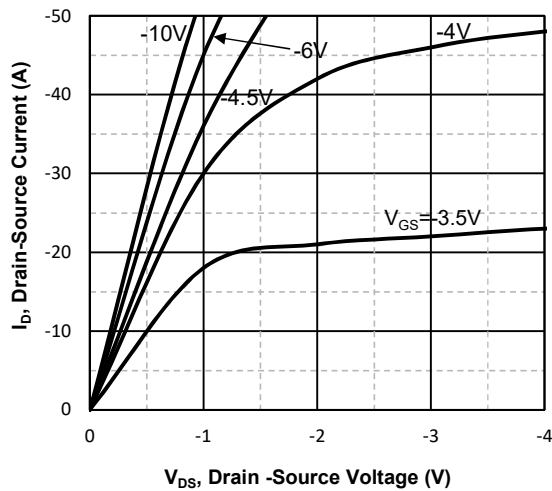


Fig1. Typical Output Characteristics

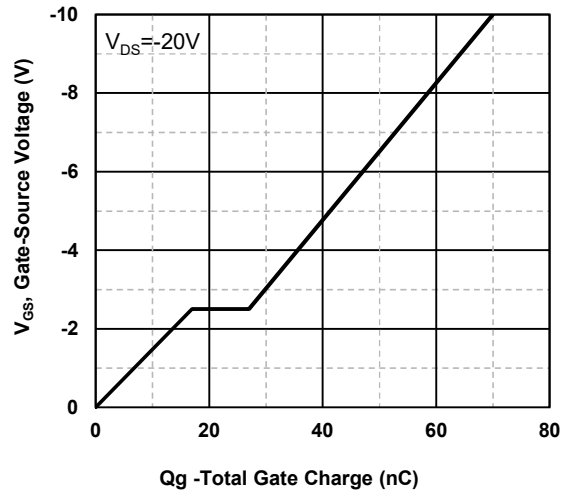


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

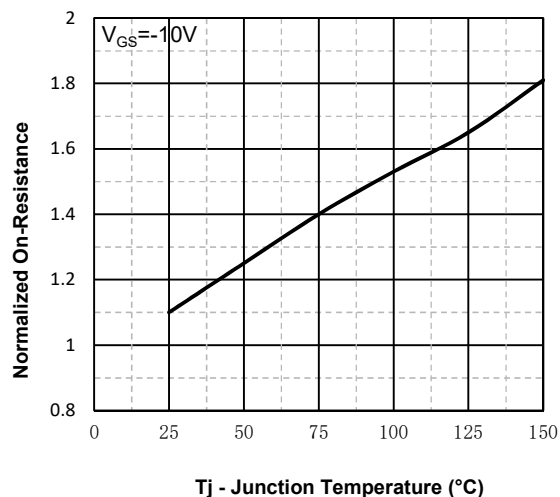


Fig3. Normalized On-Resistance Vs. Temperature

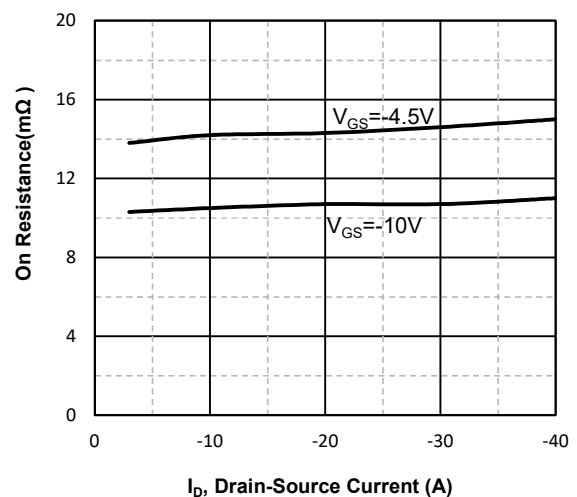


Fig4. Drain-Source on Resistance Vs. Drain-Source Current

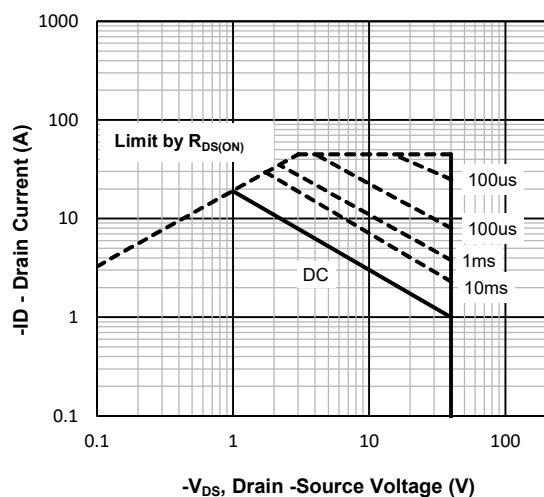


Fig5. Maximum Safe Operating Area

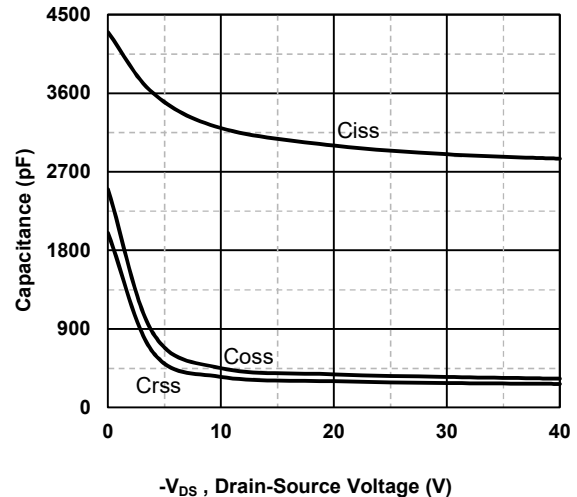
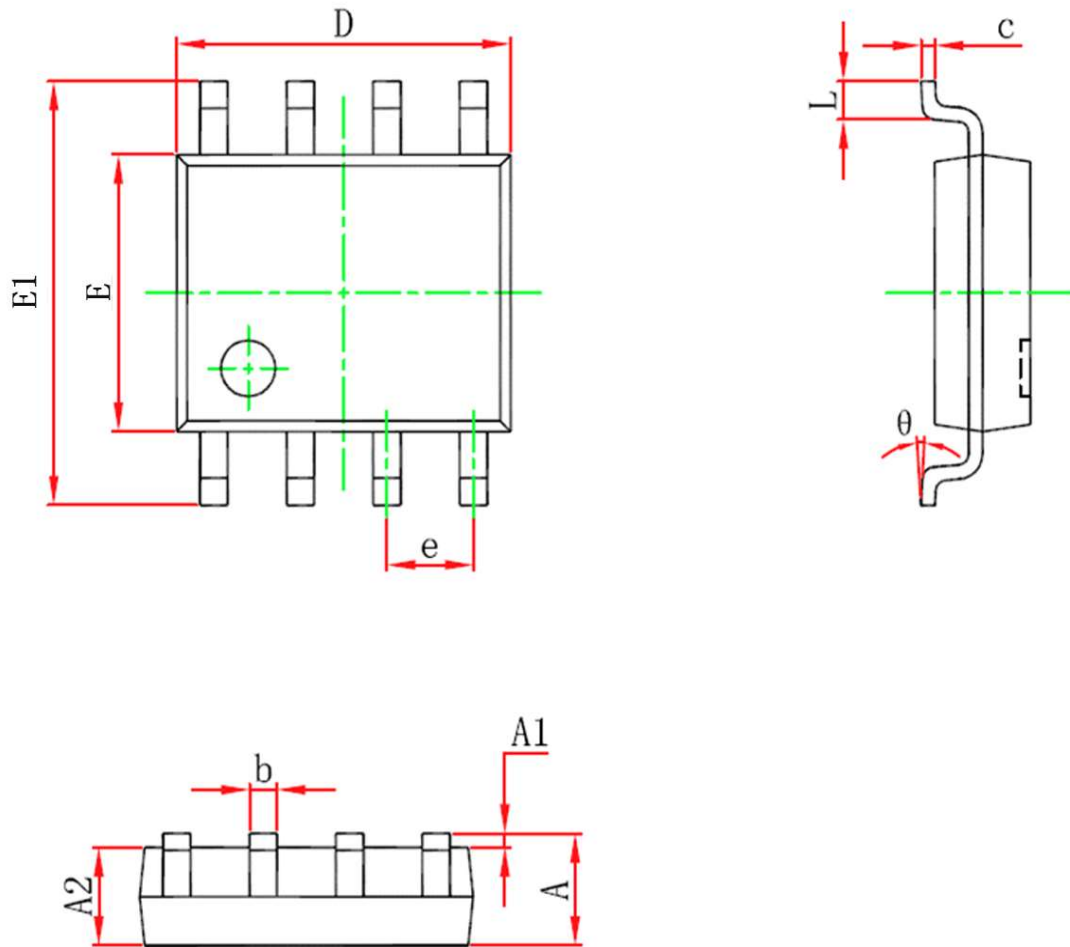


Fig6 Typical Capacitance Vs. Drain-Source Voltage

SOP-8 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	1.450	1.750	0.057	0.068
A1	0.100	0.250	0.003	0.009
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.012	0.020
c	0.170	0.250	0.006	0.009
D	4.700	5.100	0.185	0.200
e	1.270(BSC)		0.050(BSC)	
E	3.800	4.000	0.149	0.157
E1	5.800	6.200	0.228	0.244
L	0.400	1.270	0.015	0.050
θ	0°	8°	0°	8°