MLSM
MICROELECTRONICS

MZ0D08AP

-30V/-8A P-Channel MOSFET

Features

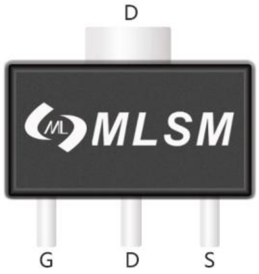
- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

Product Summary

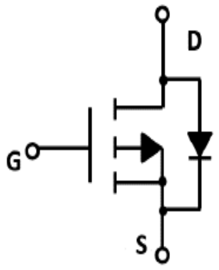
V_{DS}	$R_{DS(ON)}$ TYP	I_D
-30V	38mΩ@-10V	-8A
	46mΩ@-4.5V	

Application

- Battery protection
- Load switch
- Power management



SOT-89-3L top view



Schematic diagram

0D08AP: Device code
XXXX: Code

Marking and pin assignment

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		±12	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-50 to 155	°C
I_S	Diode Continuous Forward Current	Tc=25°C	-8	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	-32	A
I_D	Continuous Drain Current	Tc=25°C	-8	A
P_D	Maximum Power Dissipation	Tc=25°C	1.5	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		82	°C/W

Ordering Information (Example)						
Type	**Package**	**Marking**	**Minimum Package(pcs)**	**Inner Box Quantity(pcs)**	**Outer Carton Quantity(pcs)**	**Delivery Mode**
MZ0D08AP	SOT-89-3L	0D08AP	1,000	10,000	40,000	7"reel

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	V_{GS}=0V，I_D=-250μA	-30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-30V，V_{GS}=0V	--	--	-1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±12V，V_{DS}=0V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}，I_D=-250μA	-0.6	-0.9	-1.4	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=-10V， I_D=-5A	--	38	55	mΩ
		V_{GS}=-4.5V，I_D=-4A	--	46	68	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	V_{DS}=-15V，V_{GS}=0V， f=1MHz	--	780	--	pF
C_{OSS}	Output Capacitance		--	75	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	40	--	pF
Q_g	Total Gate Charge	V_{DS}=-15V，I_D=-4.2A， V_{GS}=-10V	--	16	--	nC
Q_{gs}	Gate Source Charge		--	2	--	nC
Q_{gd}	Gate Drain Charge		--	1.9	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=-15V，I_D=-1A， V_{GS}=-10V，R_G=3Ω	--	7	--	nS
t_r	Turn-on Rise Time		--	3	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	27	--	nS
t_f	Turn-Off Fall Time		--	12	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25℃，Is=-8A	--	--	-1.2	V

Typical Operating Characteristics

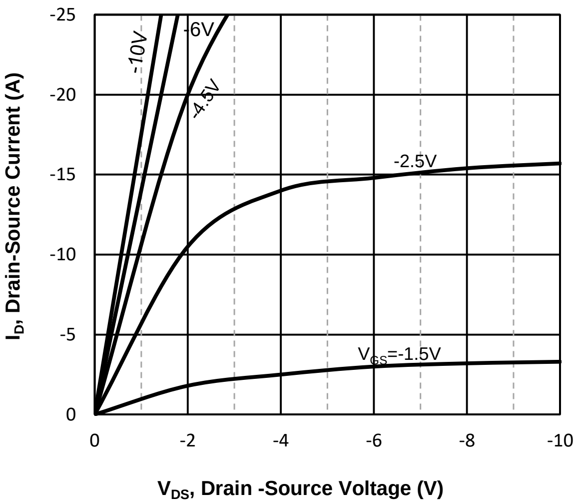


Fig1. Typical Output Characteristics

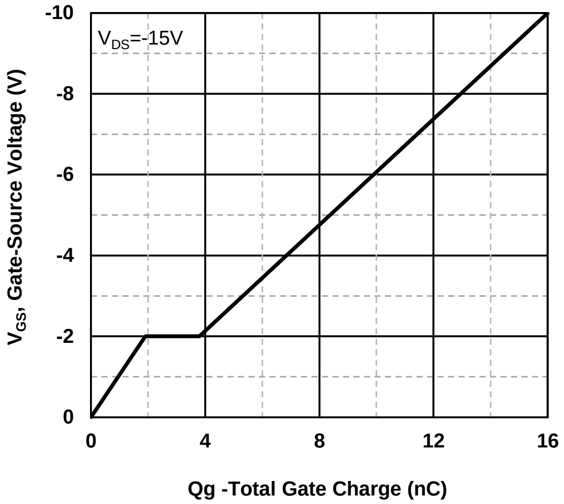


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

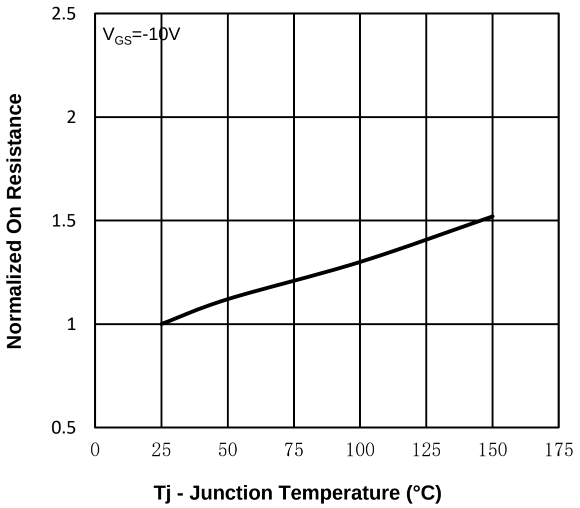


Fig3. Normalized On-Resistance Vs. Temperature

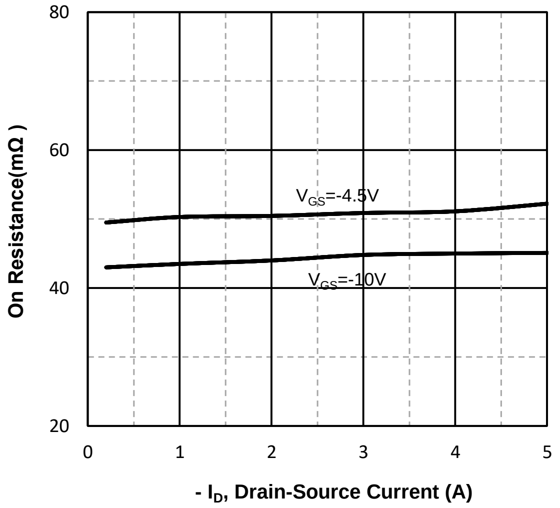


Fig4. On-Resistance Vs. Drain-Source Current

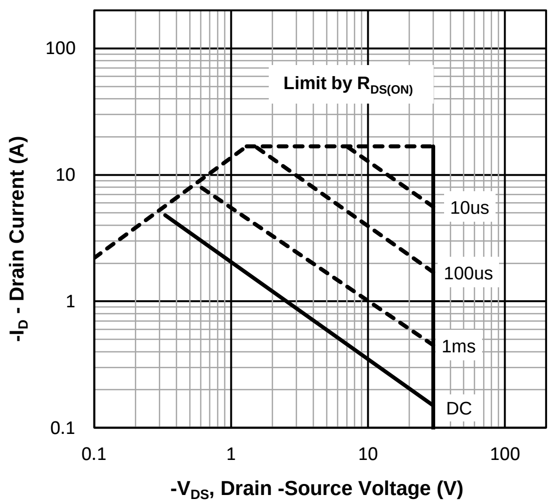


Fig5. Maximum Safe Operating Area

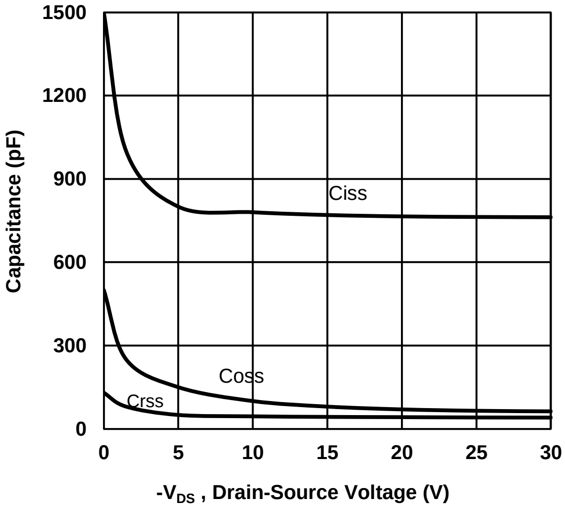
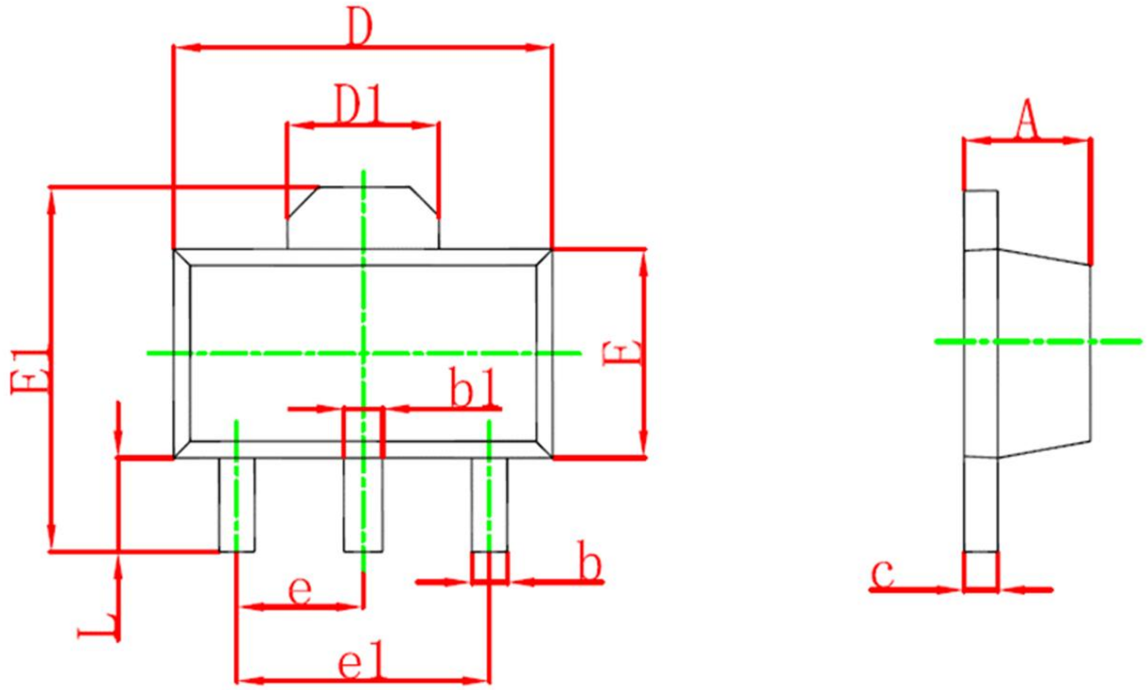


Fig6. Typical Capacitance Vs.Drain-Source Voltage

SOT-89-3L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions in Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060 TYP	
e1	3.000 TYP		0.118 TYP	
L	0.900	1.200	0.035	0.047