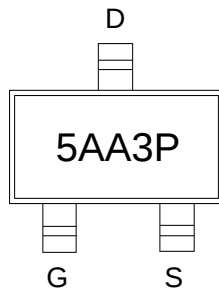


Features

- P-Channel
- High density cell design for ultra low Rdson
- Enhancement mode
- Logic Level
- dv/dt rated

Application

- PWM applications
- Power management
- Load switch

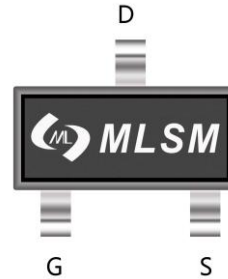


5AA3P: Device code

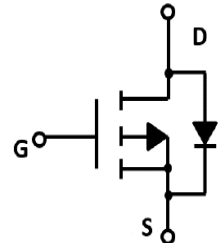
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
-500V	90Ω@-10V	-0.3A



SOT-23 top view



Schematic diagram



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	-500	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	$T_c=25^{\circ}C$ -0.3	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^{\circ}C$ -1	A
I_D	Continuous Drain Current	$T_c=25^{\circ}C$ -0.3	A
P_D	Maximum Power Dissipation	$T_c=25^{\circ}C$ 1	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	125	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLS5AA3P	SOT-23	5AA3P	3,000	45,000	180,000	7"reel

Electrical Characteristics (TJ=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
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Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)

$BV_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-500	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-500V, V_{GS}=0V$	--	--	-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.8	--	-2.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-0.2A$	--	90	150	Ω

Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)

C_{ISS}	Input Capacitance	$V_{DS}=-25V, V_{GS}=0V, f=1MHz$	--	36.5	--	pF
C_{OSS}	Output Capacitance		--	7	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	1.55	--	pF

Switching Characteristics

Q_g	Total Gate Charge	$V_{DS}=-25V, I_D=-0.2A, V_{GS}=-10V$	--	2.1	--	nC
Q_{gs}	Gate Source Charge		--	0.65	--	nC
Q_{gd}	Gate Drain Charge		--	0.25	--	nC
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=-25V, I_D=-0.2A, V_{GS}=-10V, R_G=3.3\Omega$	--	5.2	--	nS
t_r	Turn-on Rise Time		--	7.5	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	8.4	--	nS
t_f	Turn-Off Fall Time		--	2.8	--	nS

Source- Drain Diode Characteristics

V_{SD}	Forward on voltage	$T_J=25^\circ C, I_S=-0.3A$	--	--	-1.2	V
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Typical Operating Characteristics

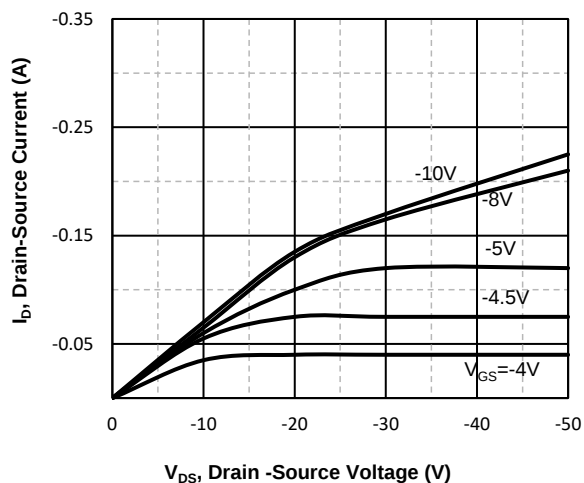


Fig1. Typical Output Characteristics

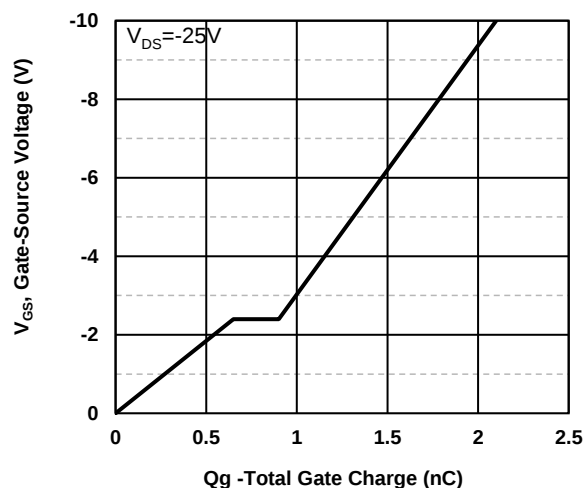


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

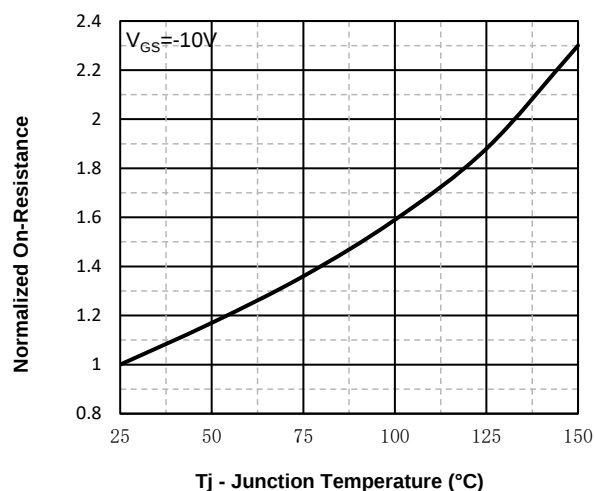


Fig3. Normalized On-Resistance Vs. Temperature

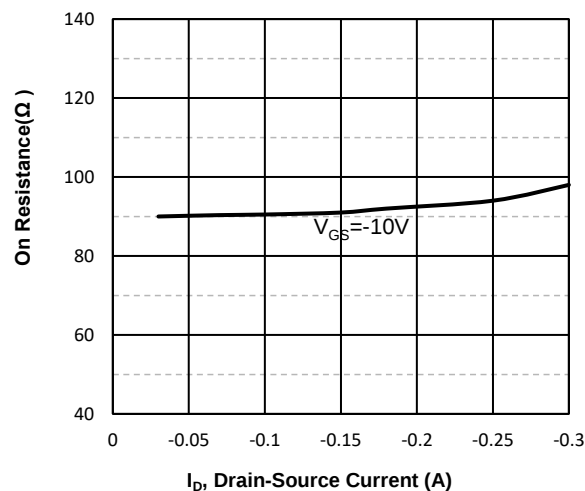


Fig4. On Resistance Vs. Drain-Source Current

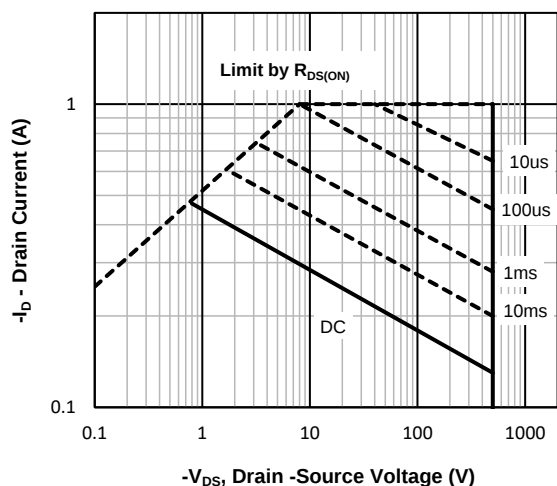


Fig5. Maximum Safe Operating Area

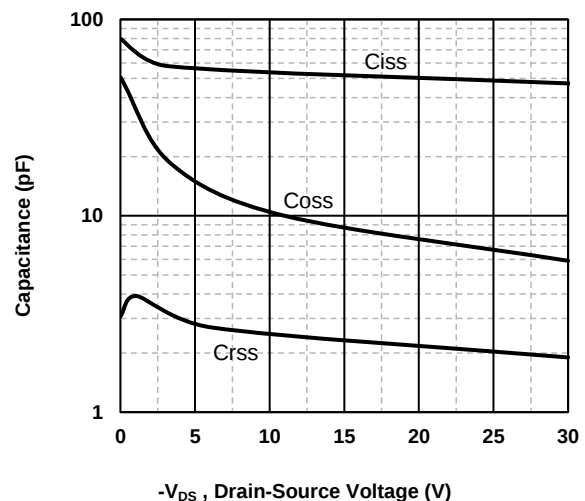
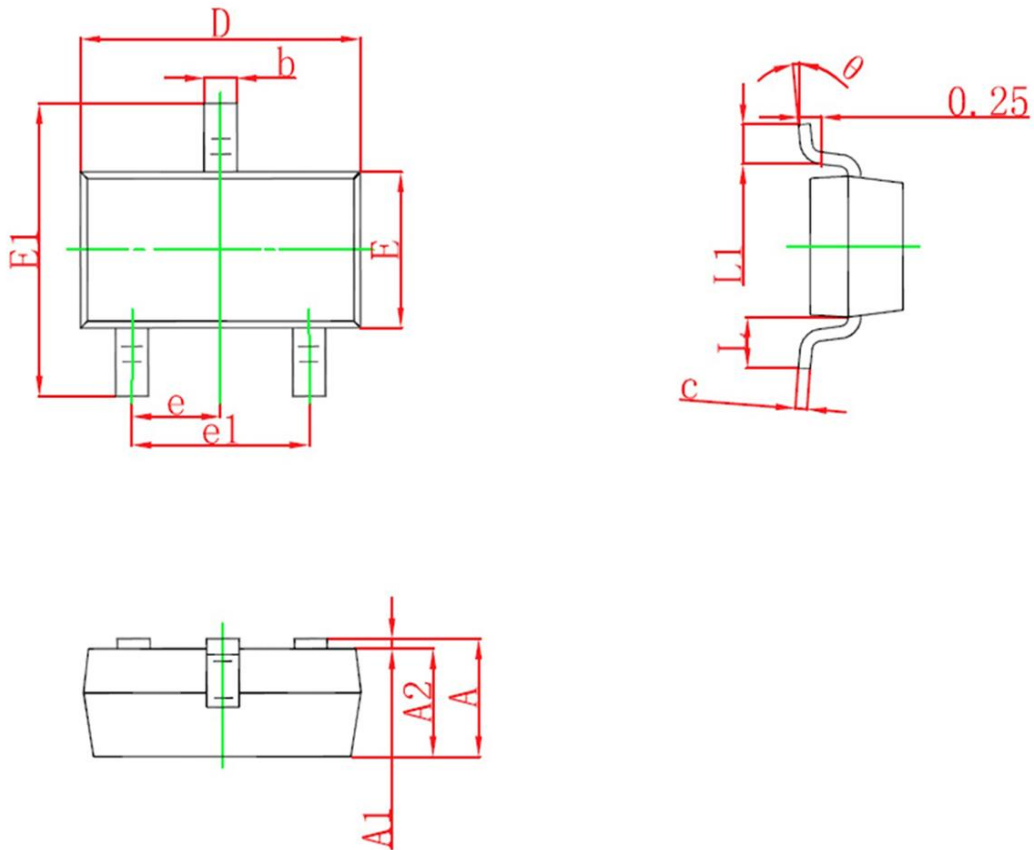


Fig6. Typical Capacitance Vs. Drain-Source Voltage

SOT-23 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E1	2.250	2.550	0.088	0.100
E	1.200	1.400	0.047	0.055
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°