ZLM0201AB

P-Channel Enhancement Mode Field Effect Transistor

● Features

V_{DS} (V) = -20V,I_D = -2.5A

$R_{DS(ON)}$<160mΩ @ V_{GS}= -4.5V

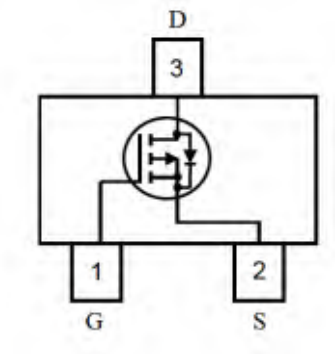
$R_{DS(ON)}$<230mΩ @ V_{GS}= -2.5V

SOT23 Package

● General Description

These P-Channel enhancement mode field effect transistors are produced using high cell density, DMOS technology.

● Pin Configurations



● Absolute Maximum Ratings @T_A=25℃ unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current (Continuous)	T_A=25°C	I_D	-2.5	A
	T_A=70°C		-1.8	
Drain Current (Pulse)		I_{DM}	-8	A
Power Dissipation	T_A=25°C	P_D	1	W
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	℃

● Electrical Characteristics @T_A=25℃ unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON/OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D= -250μA	-20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -20 V , V_{GS} = 0V	--	--	-1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} =V_{DS} , I_{DS}=-250μA	-0.5	-0.65	-1	V
Gate Leakage Current	I_{GSS}	V_{GS}=±8V , V_{DS}=0V	--	--	±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	V_{GS} = -4.5V , I_D= -1A	--	120	160	mΩ
		V_{GS} = -2.5V , I_D= -1A	--	170	230	mΩ
Forward Transconductance	g_{FS}	V_{DS}= -5V , I_D= -3A	--	8	--	S
Diode Forward Voltage	V_{SD}	I_{SD}= -1.6A , V_{GS}= 0V	--	--	-1.2	V
Switching CHARACTERISTICS						
Total Gate Charge	Q_g	V_{DS} = -6V, I_D = -2.8A V_{GS} = -4.5V	--	5.4	--	nC
Gate-Source Charge	Q_{gs}		--	0.8	--	nC
Gate-Drain Charge	Q_{gd}		--	1.2	--	nC
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -6V, RL=6Ω I_D = -1A, V_{GEN} = -4.5V R_G = 6Ω	--	11	--	ns
Turn-on Rise Time	tr		--	25	--	ns
Turn-off Delay Time	$t_{d(off)}$		--	32	--	ns
Turn-off Fall Time	tf		--	8.6	--	ns
Dynamic CHARACTERISTICS						
Input Capacitance	Ciss	V_{GS}=0V,V_{DS}= -6V,f= 1.0MHz	--	405	--	pF
Output Capacitance	Coss		--	78	--	pF
Reverse Transfer Capacitance	Crss		--	65	--	pF

Notes:

1. Pulse width limited by maximum junction temperature.
2. Pulse test: PW≤300μ s, duty cycle≤2%.
3. For design AID only, not subject to production testing.
4. Switching time is essentially independent of operating temperature.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

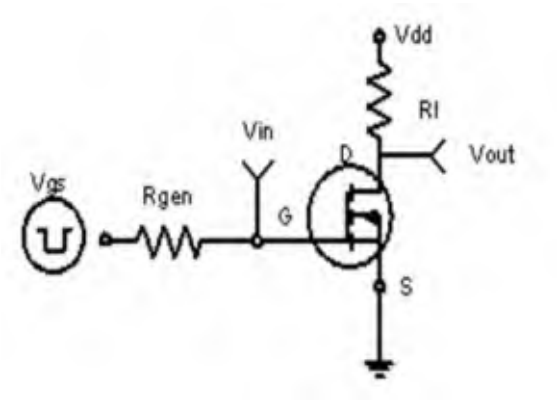


Figure 1:Switching Test Circuit

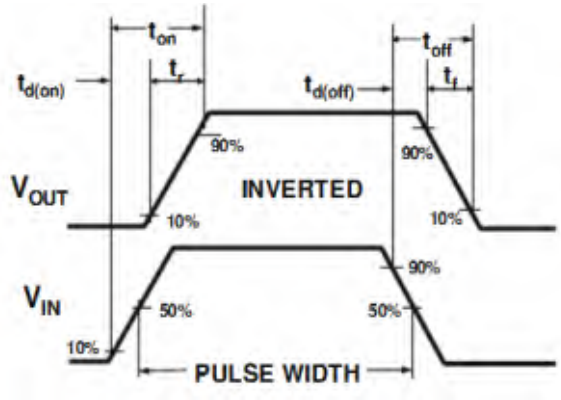


Figure 2:Switching Waveforms

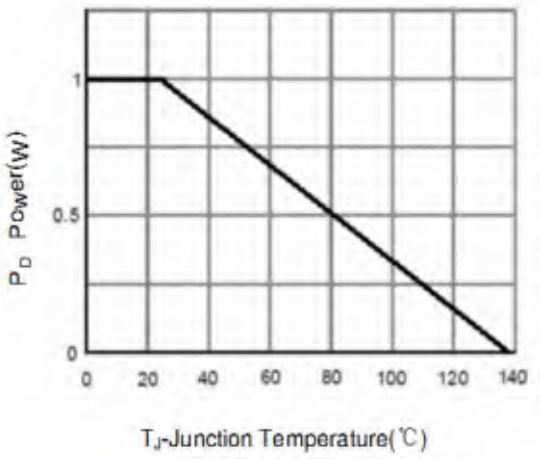


Figure 3 Power Dissipation

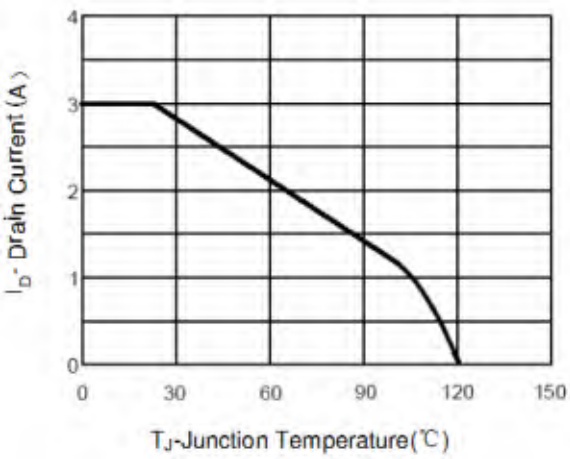


Figure 4 Drain Current

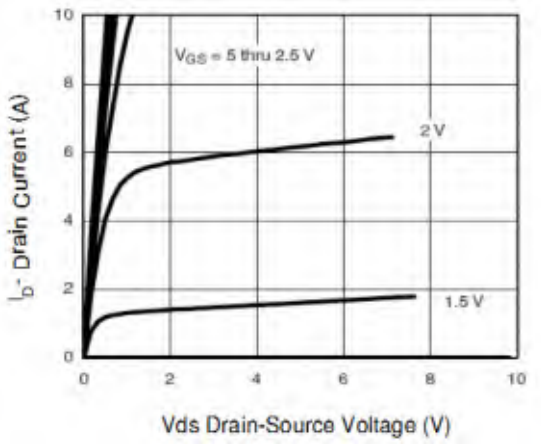


Figure 5 Output CHARACTERISTICS

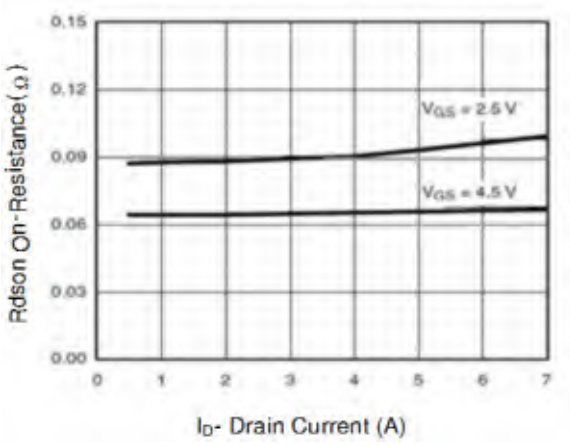


Figure 6 Drain-Source On-Resistance

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

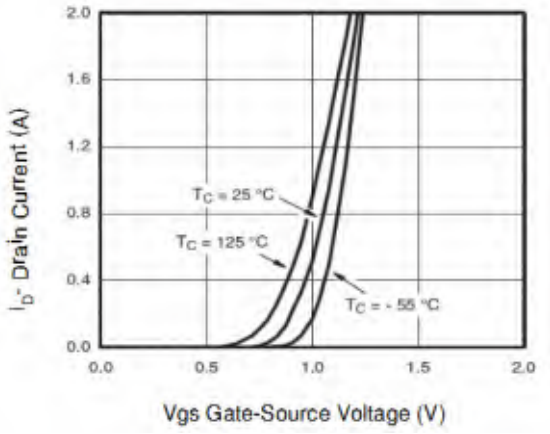


Figure 7 Transfer Characteristics

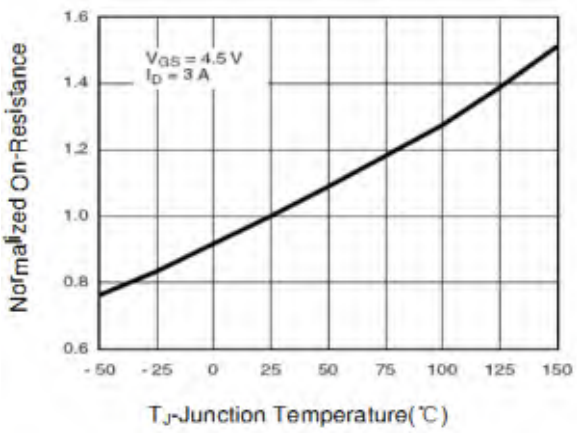
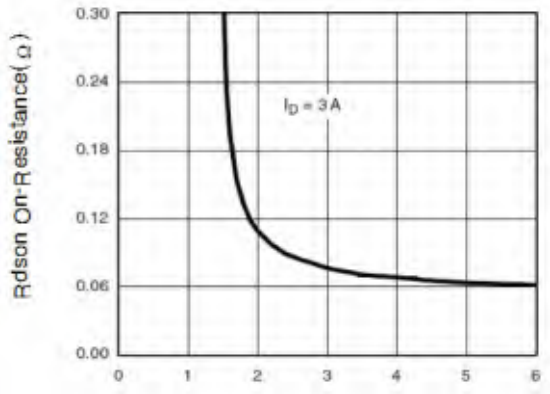
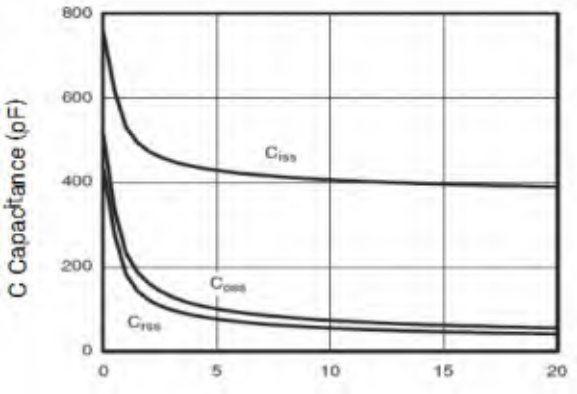


Figure 8 Drain-Source On-Resistance



Vgs Gate-Source Voltage (V)

Figure 9 Rdson vs Vgs



Vds Drain-Source Voltage (V)

Figure 10 Capacitance vs Vds

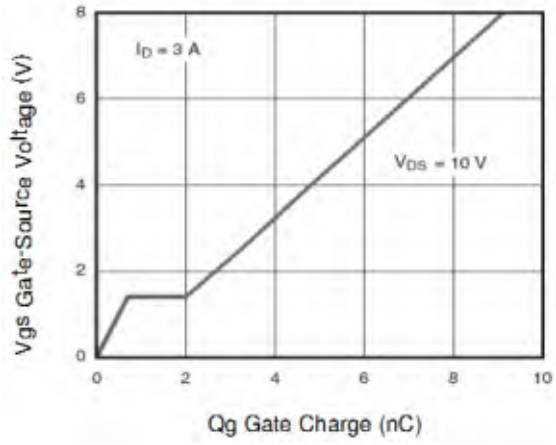


Figure 11 Gate Charge

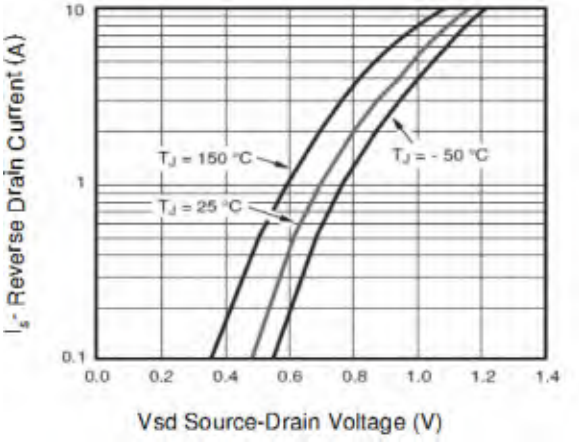
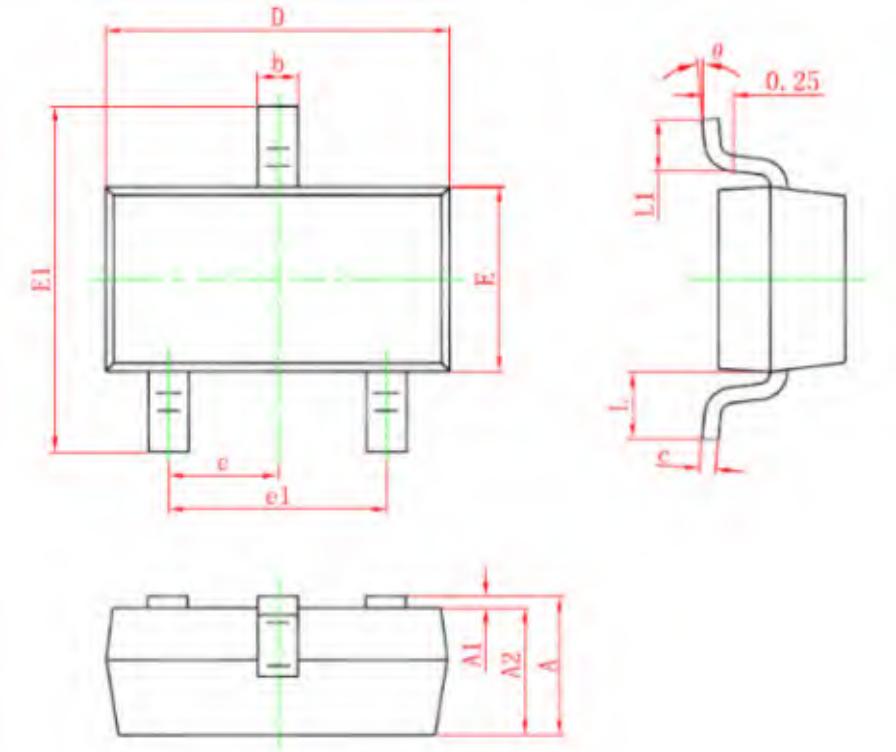


Figure 12 Source- Drain Diode Forward

- **Package Information**



Symbol	Dimensions In Millimeters		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
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
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°