

## 20V/6.5A N-Channel MOSFET

### Features

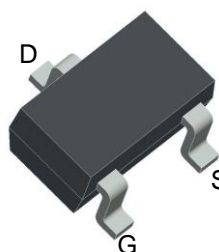
- High Power and current handing capability
- Lead free product is acquired
- Surface mount package

### Product Summary

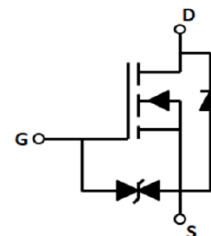
$V_{DS}$	$R_{DS(ON)}$ MAX	$I_D$ MAX
20V	22m $\Omega$ @4.5V	6.5A
	26m $\Omega$ @2.5V	

### Application

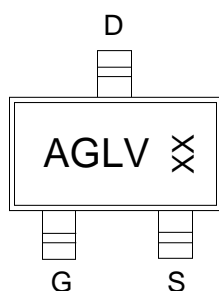
- Load Switch
- PWM Application
- Power



SOT-23-3L top view



Schematic diagram



AGLV : Device code  
XX : Code

Marking and pin assignment



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	20	V
$V_{GS}$	Gate-Source Voltage	$\pm 12$	V
$T_J$	Maximum Junction Temperature	150	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature Range	-50 to 155	$^{\circ}\text{C}$
$I_S$	Diode Continuous Forward Current	$T_C=25^{\circ}\text{C}$ 6.5	A

### Mounted on Large Heat Sink

$I_{DM}$	Pulse Drain Current Tested	$T_C=25^{\circ}\text{C}$ 30	A
$I_D$	Continuous Drain Current @GS=10V	$T_C=25^{\circ}\text{C}$ 6.5	A
$P_D$	Maximum Power Dissipation	$T_C=25^{\circ}\text{C}$ 1.4	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient @ Steady State	125	$^{\circ}\text{C}/\text{W}$

<b>Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)</b>						
<b>Symbol</b>	<b>Parameter</b>	<b>Condition</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Unit</b>
<b>Static Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
BV <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	20	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	VDS=20V, VGS=0V	--	--	1	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	VGS=±10V, VDS=0V	--	--	±10	uA
V <sub>GS(th)</sub>	Gate Threshold Voltage	VDS=VGS, ID=250μA	0.4	0.7	1.1	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	VGS=4.5V, ID=6.5A	--	17	22	mΩ
		VGS=2.5V, ID=5.5A	--	20	26	mΩ
		VGS=1.8V, ID=5.0A	--	35	50	mΩ
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
C <sub>ISS</sub>	Input Capacitance	VDS=10V, VGS=0V, f=1MHz	--	660	--	pF
C <sub>OSS</sub>	Output Capacitance		--	160	--	pF
C <sub>RSS</sub>	Reverse Transfer Capacitance		--	90	--	pF
<b>Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	VDS=10V, ID=6.5A, VGS=4.5V	--	8	--	nC
Q <sub>gs</sub>	Gate Source Charge		--	2.5	--	nC
Q <sub>gd</sub>	Gate Drain Charge		--	3	--	nC
t <sub>d(on)</sub>	Turn-on Delay Time	VDD=10V, ID=0.5A, VGS=4.5V, RG=10Ω	--	0.5	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	1	--	nS
t <sub>d(off)</sub>	Turn-Off Delay Time		--	12	--	nS
t <sub>f</sub>	Turn-Off Fall Time		--	4	--	nS
<b>Source- Drain Diode Characteristics</b>						
V <sub>SD</sub>	Forward on voltage	T <sub>J</sub> =25°C, I <sub>s</sub> =6.5A,	--	--	1.2	V

Typical Operating Characteristics

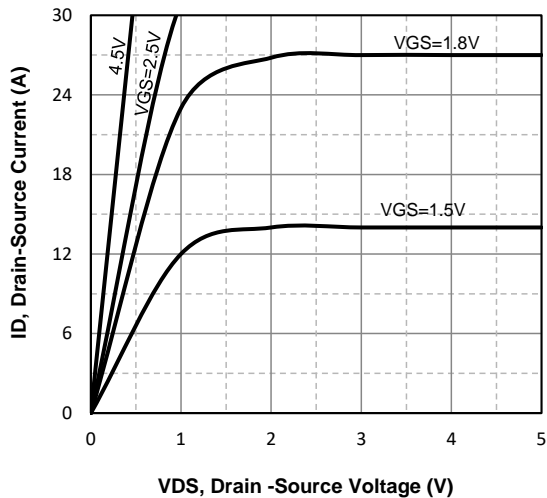


Fig1. Typical Output Characteristics

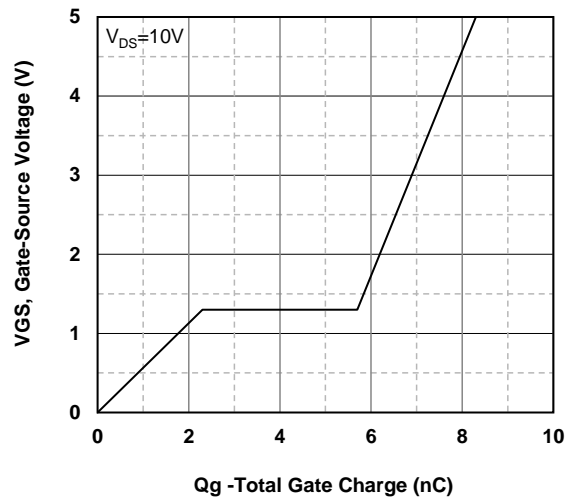


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

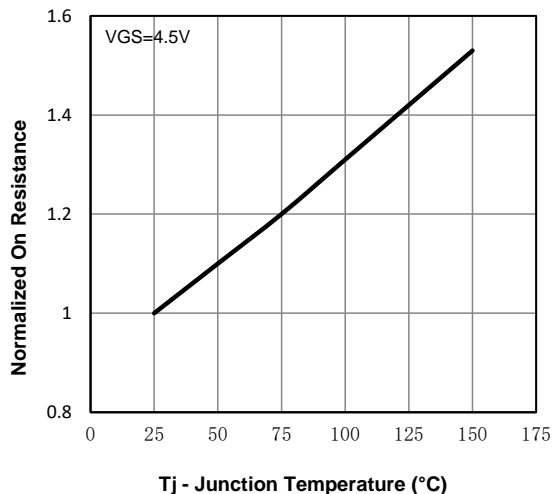


Fig3. Normalized On-Resistance Vs. Temperature

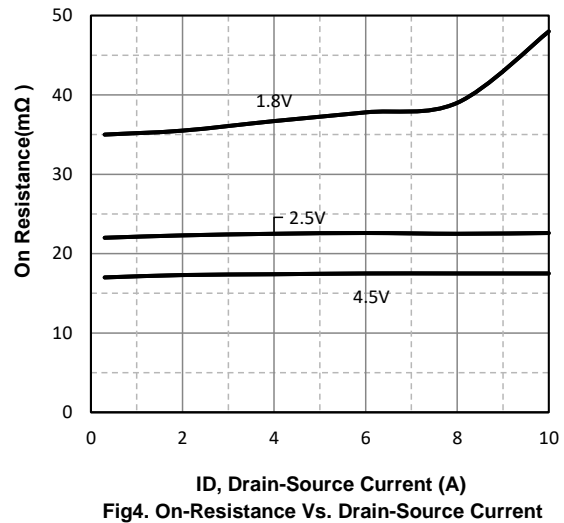


Fig4. On-Resistance Vs. Drain-Source Current

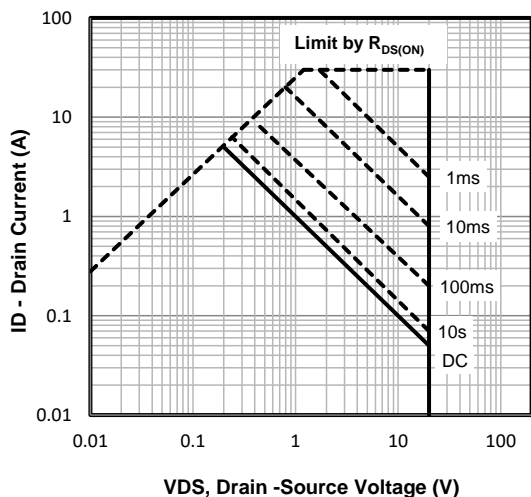


Fig5. Maximum Safe Operating Area

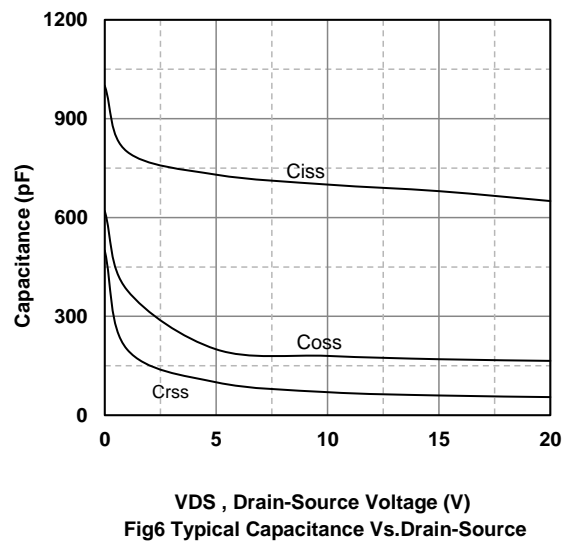
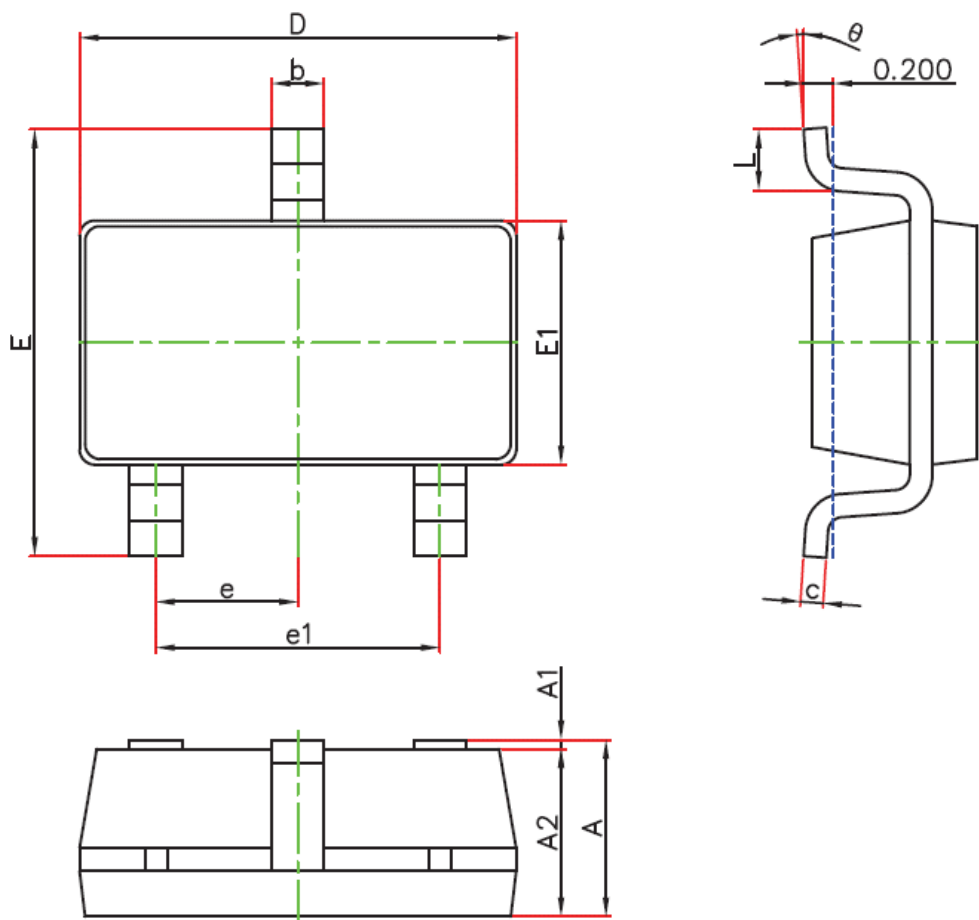


Fig6. Typical Capacitance Vs. Drain-Source

**SOT-23-3L Package information**


Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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