

40V/4.1A N Channel Advanced Power MOSFET

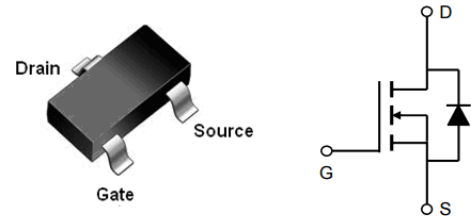
Features

- Low $R_{DS(on)}$ @ $V_{GS}=10V$
- 4.5V Logic Level Control
- N Channel SOT23 Package
- Pb-Free, RoHS Compliant

$V_{(BR)DSS}$	$R_{DS(ON)}$ Typ	I_D Max
40V	29m Ω @ 10V	4.1A
	36m Ω @ 4.5V	

Applications

- Load Switch
- DC/DC Converter
- Switching Circuits
- Power Management



Order Information

SOT23

Product	Package	Marking	Packing	Min Unit Quantity
SL2318	SOT23	*	3000PCS/Reel	3000PCS

Absolute Maximum Ratings

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Symbol	Parameter	Rating	Unit
Common Ratings ($T_A=25^\circ\text{C}$ Unless Otherwise Noted)			
V_{GS}	Gate-Source Voltage	± 20	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	40	V
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-50 to 150	$^\circ\text{C}$
Mounted on Large Heat Sink			
I_{DM}	Pulse Drain Current Tested①	$T_A=25^\circ\text{C}$	22.6 A
I_D	Continuous Drain Current	$T_A=25^\circ\text{C}$	4.1 A
		$T_A=70^\circ\text{C}$	3.2 A
P_D	Maximum Power Dissipation	$T_A=25^\circ\text{C}$	1.56 W
		$T_A=70^\circ\text{C}$	0.9 W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	80	$^\circ\text{C/W}$

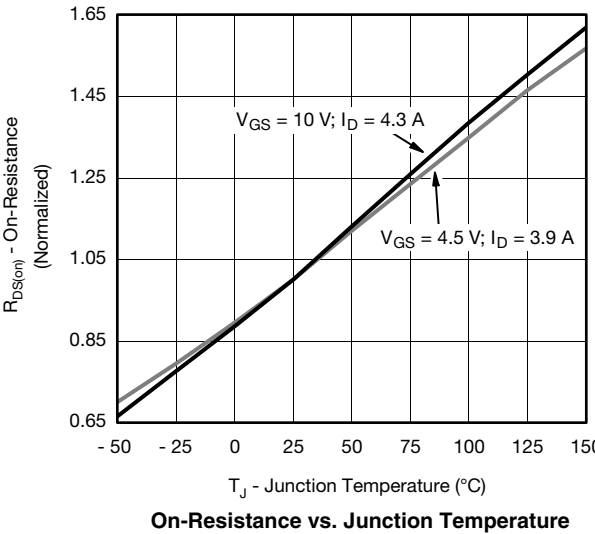
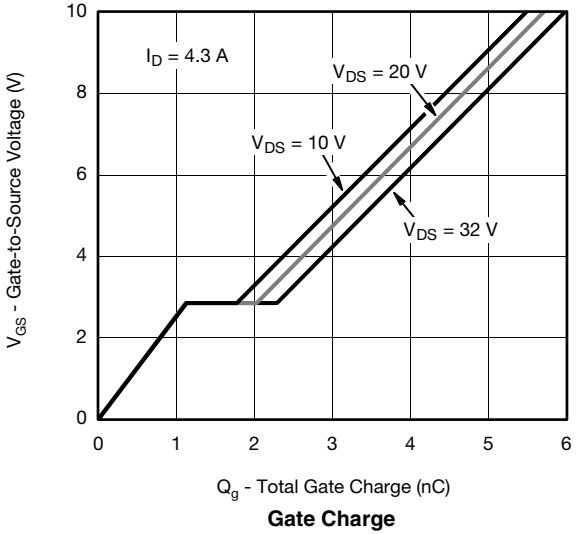
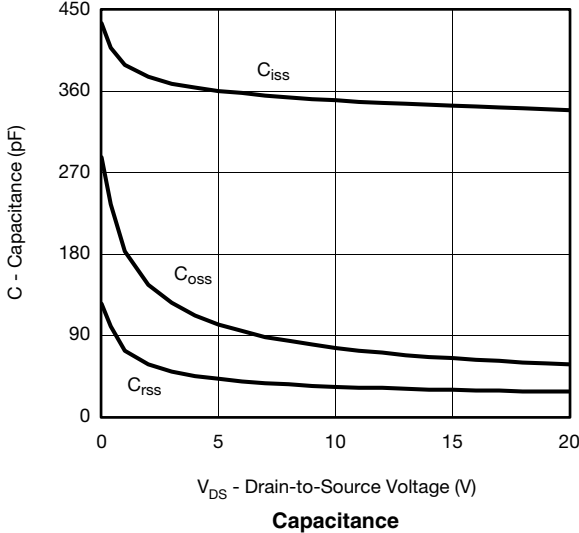
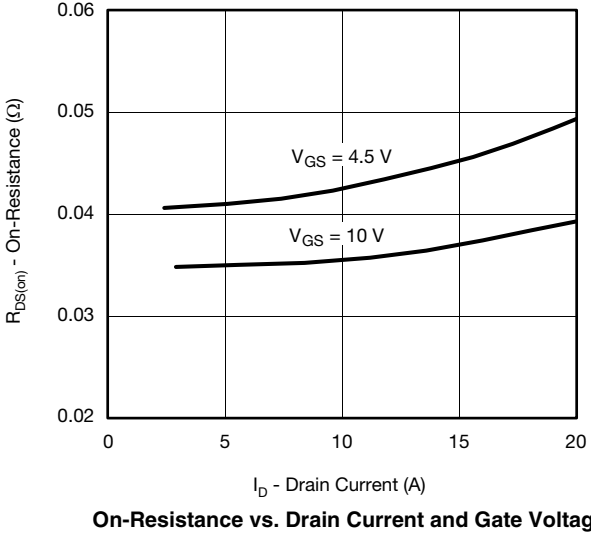
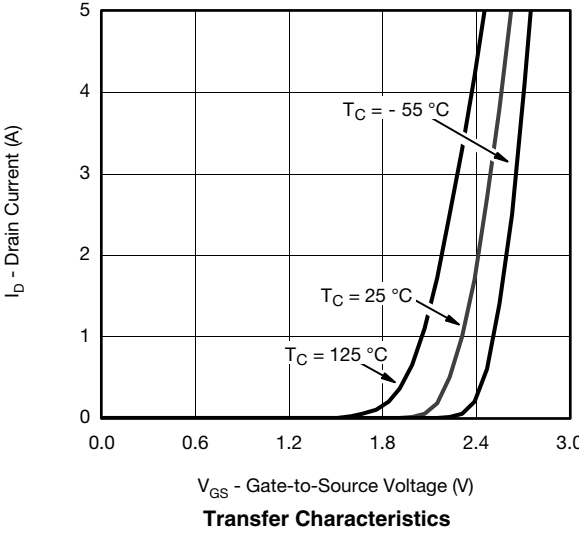
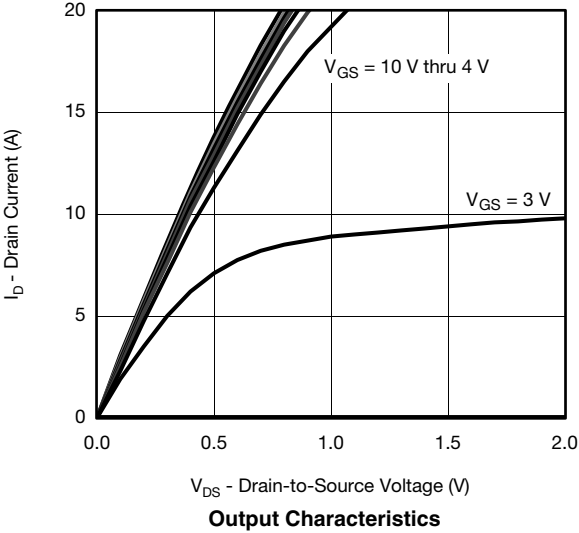
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	40	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current(T _A =25°C)	V _{DS} =40V, V _{GS} =0V	--	--	1	μA
	Zero Gate Voltage Drain Current(T _A =125°C)	V _{DS} =40V, V _{GS} =0V	--	--	100	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.7	1.2	2.0	V
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =10V, I _D =5A	--	29	38	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =4.5V, I _D =4A	--	36	52	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, f=1MHz	--	340	--	pF
C _{oss}	Output Capacitance		--	60	--	pF
C _{rss}	Reverse Transfer Capacitance		--	30	--	pF
R _g	Gate Resistance	f=1MHz		7.8		Ω
Q _g	Total Gate Charge	V _{DS} =20V I _D =5A, V _{GS} =10V	--	5.8	--	nC
Q _{gs}	Gate Source Charge		--	0.4	--	nC
Q _{gd}	Gate Drain Charge		--	2	--	nC
Switching Characteristics @ T_J = 25°C (unless otherwise stated)						
t _{d(on)}	Turn on Delay Time	V _{DD} =20V, I _D =3.5A, R _G =1Ω, V _{GS} =4.5V	--	4.1	--	ns
t _r	Turn on Rise Time		--	11.6	--	ns
t _{d(off)}	Turn Off Delay Time		-	24	--	ns
t _f	Turn Off Fall Time		--	7.6	--	ns
Source Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _{SD}	Source drain current(Body Diode)	T _A =25°C	--	--	1.75	A
V _{SD}	Forward on voltage②	T _J =25°C, I _{SD} =3.5A, V _{GS} =0V	--	0.79	1.2	V

Notes:

① Pulse width limited by maximum allowable junction temperature

② Pulse test ; Pulse width≤300μs, duty cycle≤2%.

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



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