

»Features

$V_{DS} = -60V$
 $I_D = -1.9A$
 $R_{DS(ON)} @V_{GS} = -10V, TYP = 170m\Omega$
 $R_{DS(ON)} @V_{GS} = -4.5V, TYP = 200m\Omega$

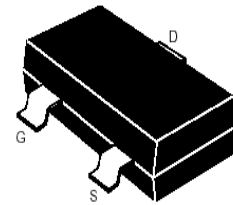
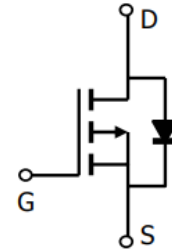
»General Description

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- SOT-23-3L for Surface Mount Package.

»Applications

- Load Switch
- Switching Circuits
- High Speed line Driver

»Pin Configurations



»Absolute Maximum Ratings @ $T_A=25^\circ C$ unless otherwise noted

Symbol	Parameter	Rating	Unit
Common Ratings ($T_A=25^\circ C$ Unless Otherwise Noted)			
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	-60	V
V_{GS}	Gate-Source Voltage	± 20	V
T_J	Maximum Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature Range	-50 to 150	$^\circ C$
Mounted on Large Heat Sink			
I_{DM}	Pulse Drain Current Tested①	$T_A = 25^\circ C$	-7.6 A
I_D	Continuous Drain Current	$T_A = 25^\circ C$	-1.9 A
		$T_A = 70^\circ C$	-1.5 A
P_D	Maximum Power Dissipation	$T_A = 25^\circ C$	1.4 W
		$T_A = 70^\circ C$	0.9 W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	90	$^\circ C/W$

»Electrical Characteristics @ $T_A=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ $T_J = 25^{\circ}\text{C}$ (unless otherwise stated)						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-60	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current($T_A=25^{\circ}\text{C}$)	$V_{DS}=-60V, V_{GS}=0V$	--	--	-10	μA
	Zero Gate Voltage Drain Current($T_A=125^{\circ}\text{C}$)	$V_{DS}=-60V, V_{GS}=0V$	--	--	-100	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	± 100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0		-3	V
$R_{DS(ON)}$	Drain-Source On-State Resistance②	$V_{GS}=-10V, I_D=-1.8A$	--	170	215	m Ω
$R_{DS(ON)}$	Drain-Source On-State Resistance②	$V_{GS}=-4.5V, I_D=-1.4A$	--	200	260	m Ω
Dynamic Electrical Characteristics @ $T_J = 25^{\circ}\text{C}$ (unless otherwise stated)						
C_{iss}	Input Capacitance	$V_{DS}=-25V, V_{GS}=0V,$ $f=1\text{MHz}$	--	364	--	pF
C_{oss}	Output Capacitance		--	41	--	pF
C_{rss}	Reverse Transfer Capacitance		--	12	--	pF
Q_g	Total Gate Charge	$V_{DS}=-48V$ $I_D=-1A,$ $V_{GS}=-4.5V$	--	6.3	--	nC
Q_{gs}	Gate Source Charge		--	2.3	--	nC
Q_{gd}	Gate Drain Charge		--	1.8	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn on Delay Time	$V_{DD}=-30V,$ $I_D=-1A,$ $R_G=3.3\Omega,$ $V_{GS}=-10V$ $R_L=30\Omega$	--	20	--	ns
t_r	Turn on Rise Time		--	33.1	--	ns
$t_{d(off)}$	Turn Off Delay Time		-	5.2	--	ns
t_f	Turn Off Fall Time		--	3.8	--	ns

Source Drain Diode Characteristics

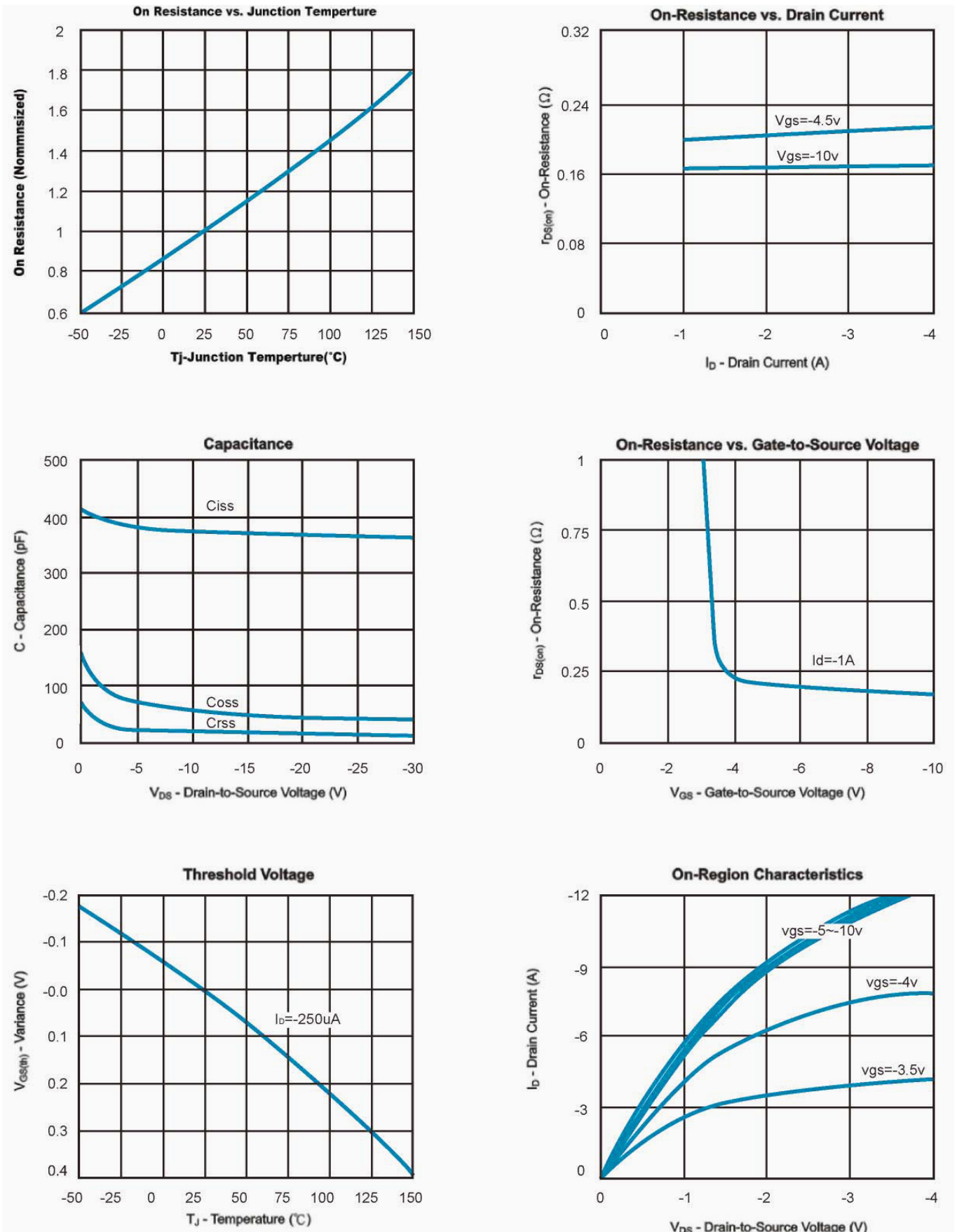
V_{SD}	Forward on voltage②	$T_J=25^{\circ}\text{C}, I_{SD}=-1.2A,$ $V_{GS}=0V$	--		-1.2	V
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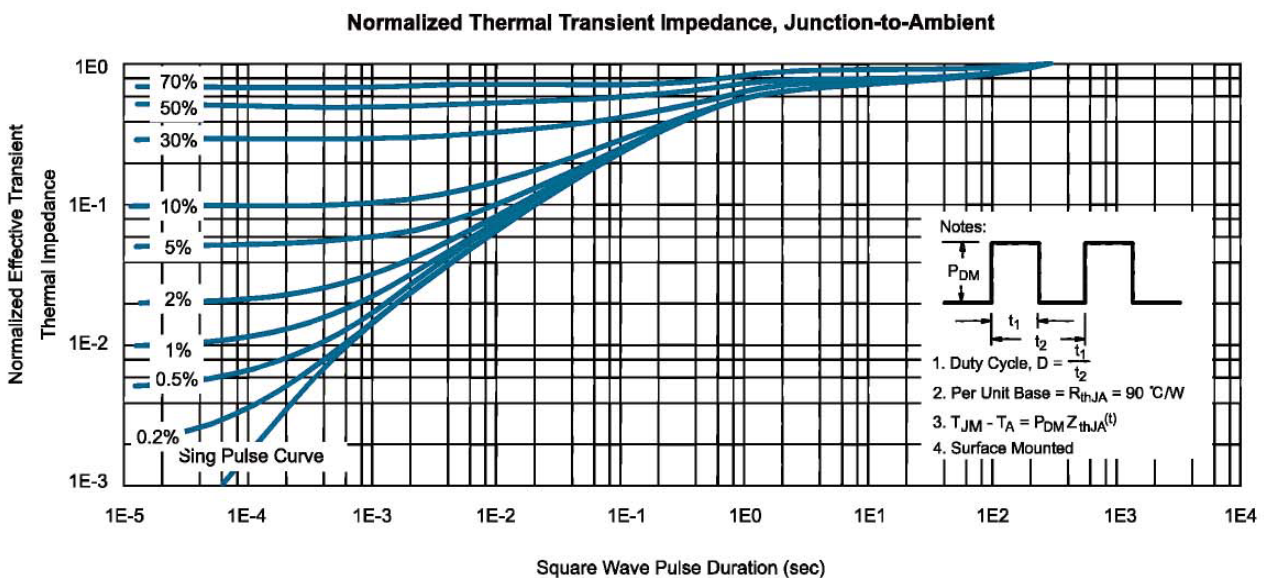
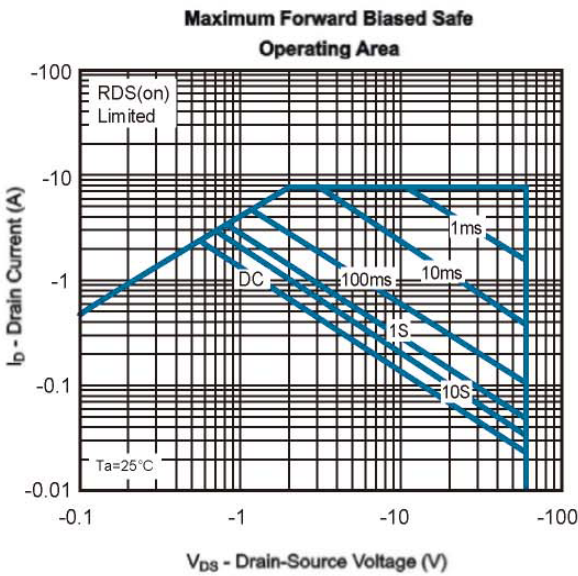
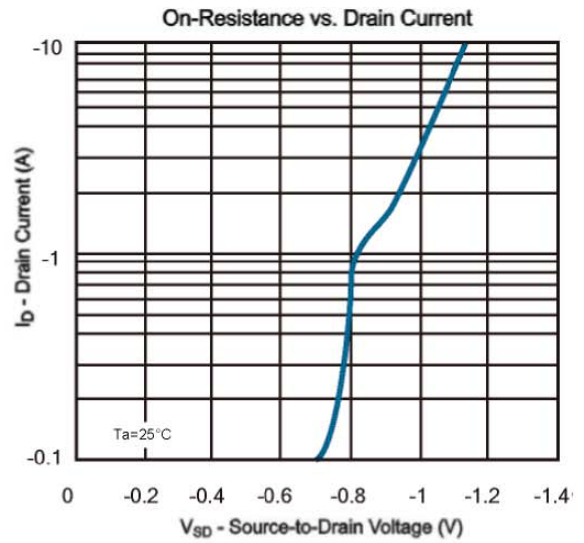
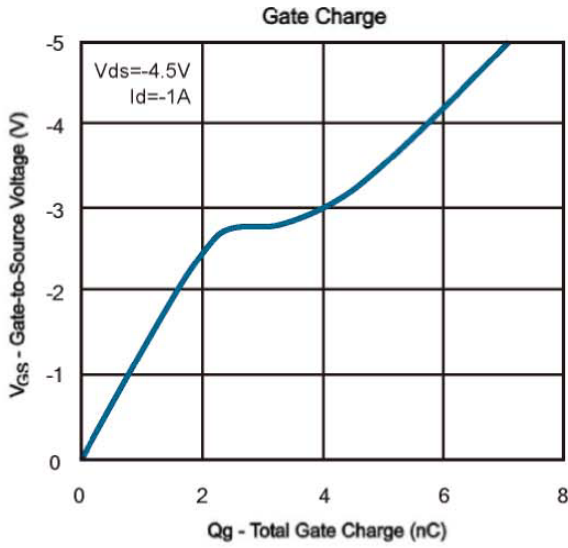
Notes:

① Pulse width limited by maximum allowable junction temperature

 ② Pulse test ; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

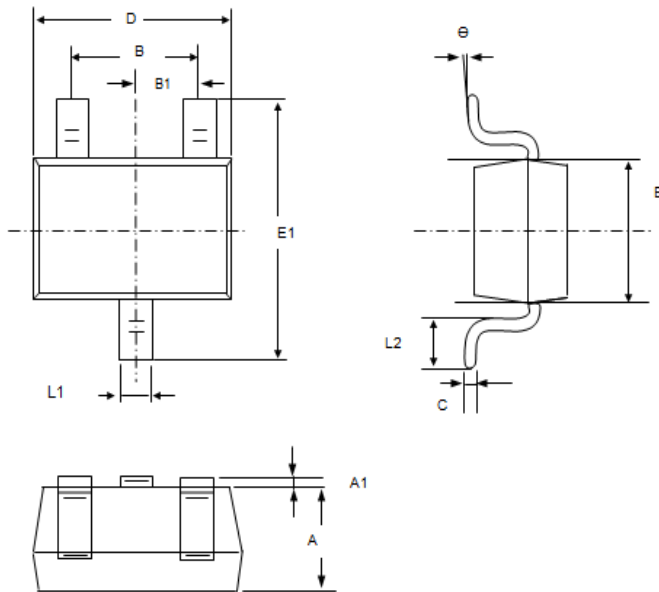
»Typical Performance Characteristics ((T_J = 25 °C, unless otherwise noted))





»Package Information

SOT-23-3L



Symbol	Dim in mm		
	Min	Nor	Max
A	1.050	1.100	1.150
A1	0.00	0.050	0.100
L1	0.300	0.400	0.500
C	0.100	0.150	0.200
D	2.820	2.920	3.020
E	1.500	1.600	1.700
E1	2.650	2.800	2.950
B	1.800	1.900	2.000
B1	0.950 TPY.		
L2	0.300	0.450	0.600
θ	0°	4°	8°

»Ordering information

Order code	Package	Marking	Base qty	Delivery mode
SI2309S	SOT-23-3L	WMGxx	3K	Tape and reel