2319

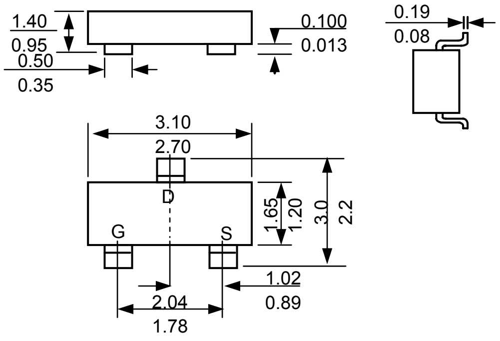
P-Ch Fast Switching MOSFETs

BVDSS: - 40V

RDSON: 63mΩ

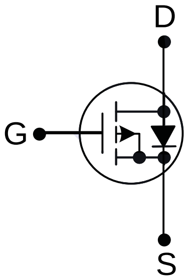
ID: -5 A

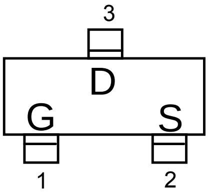
SOT-23



Dimensions in millimeters

- Green Device Available
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology





Description

The 2319 is the high cell density trenchedP-ch MOSFETs, which provides excellent RDSONand efficiency for most of the small power switching and load switch applications.The 2319 meet the RoHS and Green Productrequirement with full function reliability approved.

Absolute Maximum Rating (T_A=25°C unless otherwise noted)

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A = 25°C	I_D	-5	A
Pulsed Drain Current[1]		I_{DM}	-20	A
Power Dissipation	T_A = 25°C	P_D	1.2	W
Operating Junction and Storage Temperature Range		T_J ,T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Units
Thermal Resistance from Junction to Ambient [2]	$R_{\theta JA}$	104	°C/W

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}= 0V, I_D= -250μA	-40	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= -40V, V_{GS}= 0V	-	-	-1	μA
Gate-Body Leakage	I_{GSS}	V_{DS}= 0V, V_{GS}= ±20V	-	-	±100	nA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D= -250μA	-1.2	-1.5	-2.5	V
Drain-Source on-Resistance[3]	$R_{DS(on)}$	V_{GS}= -10V,I_D= -5A	-	63	85	mΩ
		V_{GS}= -4.5V,I_D= -4A	-	80	125	
Dynamic Characteristics[4]						
Input Capacitance	C_{iss}	V_{GS} = 0V ,V_{DS} = -20V, f=1.0MHz	-	553	-	pF
Output Capacitance	C_{oss}		-	50	-	
Reverse Transfer Capacitance	C_{rss}		-	42	-	
Switching Characteristics[4]						
Total Gate Charge	Q_g	V_{GS}= -10V ,V_{DS}= -20V, I_D= -5A	-	11.8	-	nC
Gate-Source Charge	Q_{gs}		-	2.2	-	
Gate-Drain Charge	Q_{gd}		-	3	-	
Turn-on Delay Time	$t_{d(on)}$	V_{DS}= -20V, V_{GS}= -10V R_L= 2.5Ω, R_G= 3Ω	-	7	-	ns
Rise Time	t_r		-	6.5	-	
Turn-off Delay Time	$t_{d(off)}$		-	24	-	
Fall Time	t_f		-	7.8	-	
Drain-Source Body Diode Characteristics						
Body Diode voltage[3]	V_{DS}	I_S= -5A,V_{GS}=0V	-	-	-1.2	V
Continuous Source Current	I_S		-	-	-4	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.
2. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

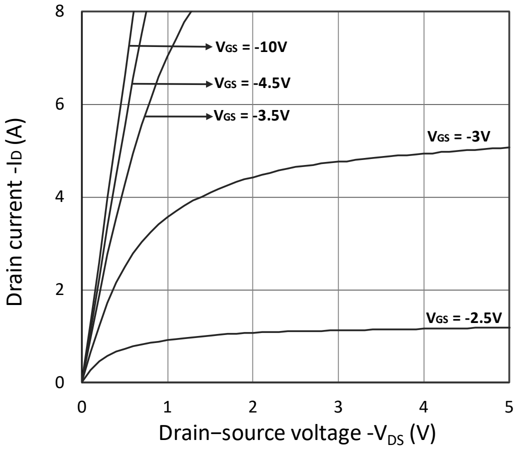


Figure 1. Output Characteristics

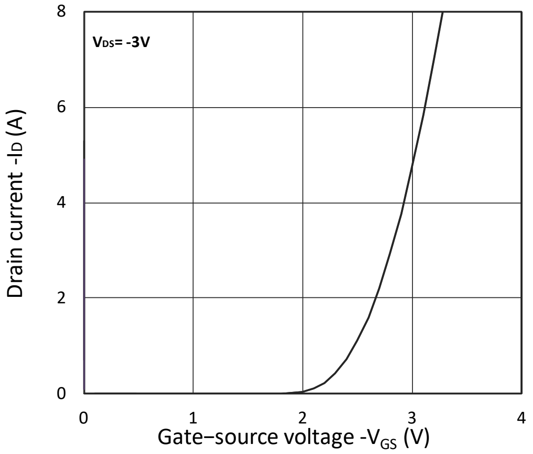
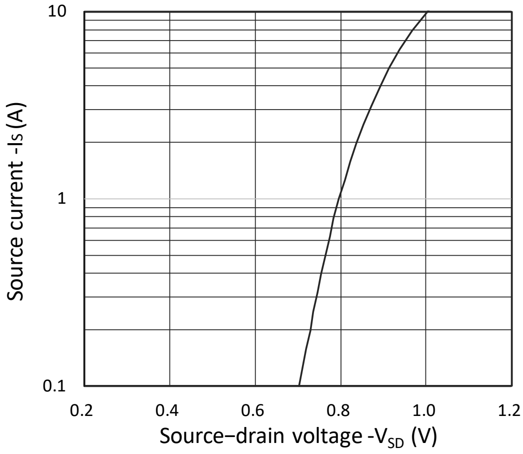


Figure 2. Transfer Characteristics



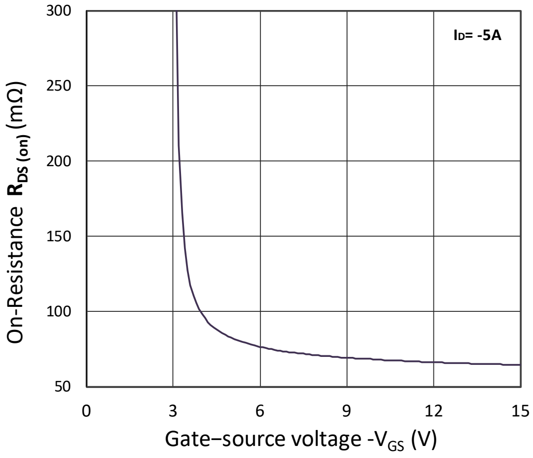
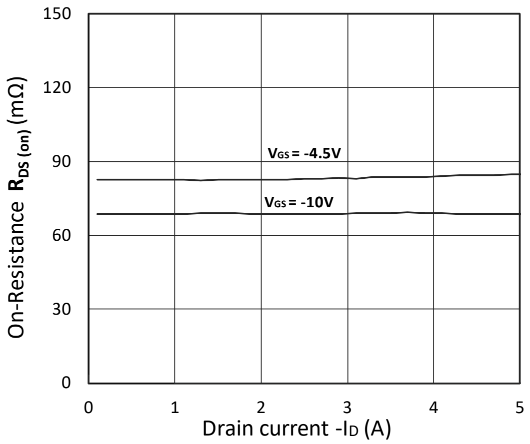


Figure 3. Forward Characteristics of Reverse

Figure 4. $R_{DS(ON)}$ vs. V_{GS}



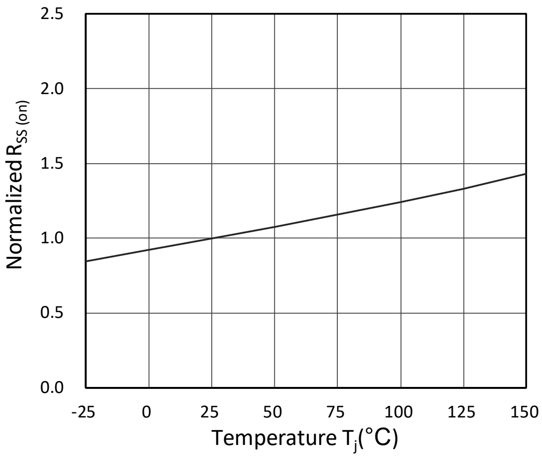
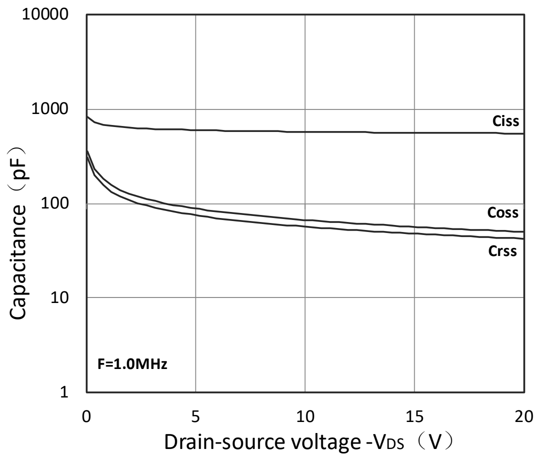


Figure 5. $R_{DS(ON)}$ vs. I_D

Figure 6. Normalized $R_{DS(on)}$ vs. Temperature



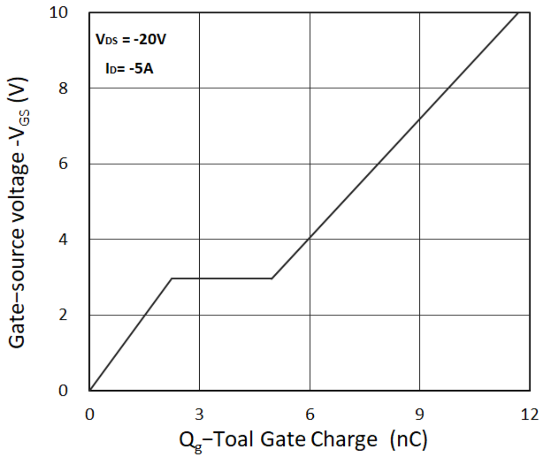


Figure 7. Capacitance Characteristics

Figure 8. Gate Charge Characteristics