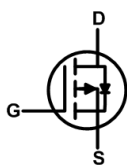
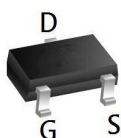


Description

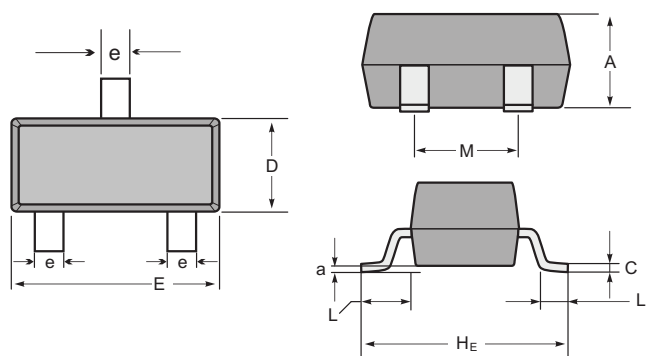
The SI2319 is the high cell density trenched P-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications. The SI2319 meet the RoHS and Green Product requirement with full function reliability approved.

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



Product Summary

BVDSS	RDSON	ID
-40V	63mΩ	-4A



SOT-23 mechanical data

UNIT		A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

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	-4	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 _{θJA}	104	°C/W

SI2319

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 20Z 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.

RATING AND CHARACTERISTIC CURVES (SI2319)

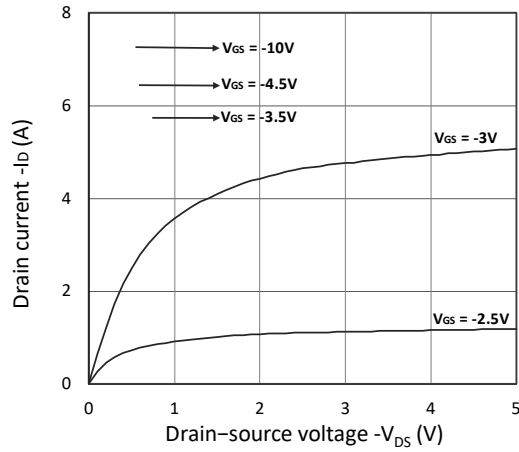


Figure 1. Output Characteristics

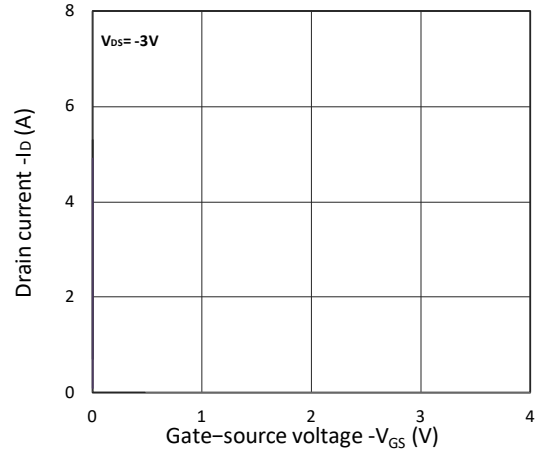


Figure 2. Transfer Characteristics

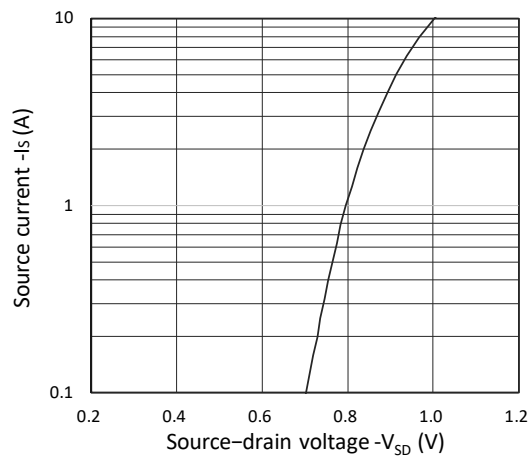


Figure 3. Forward Characteristics of Reverse

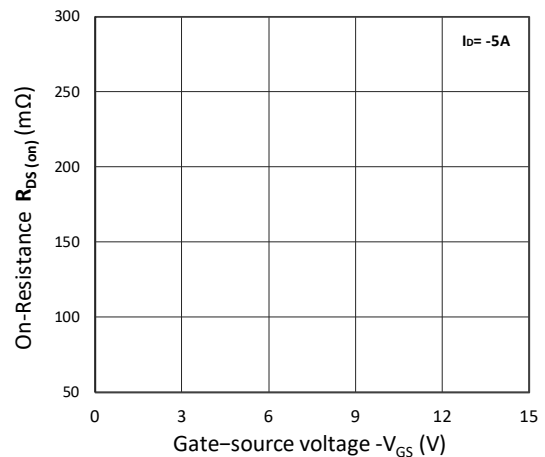


Figure 4. $R_{DS(on)}$ vs. V_{GS}

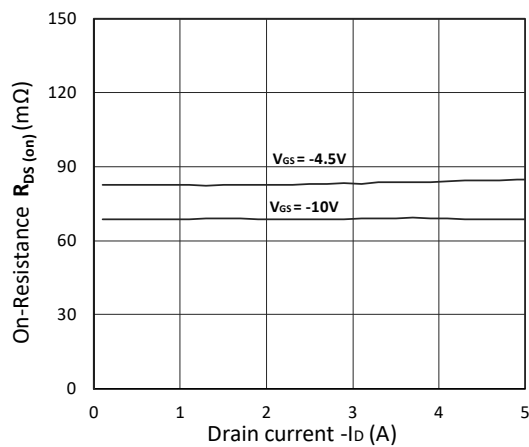


Figure 5. $R_{DS(on)}$ vs. I_D

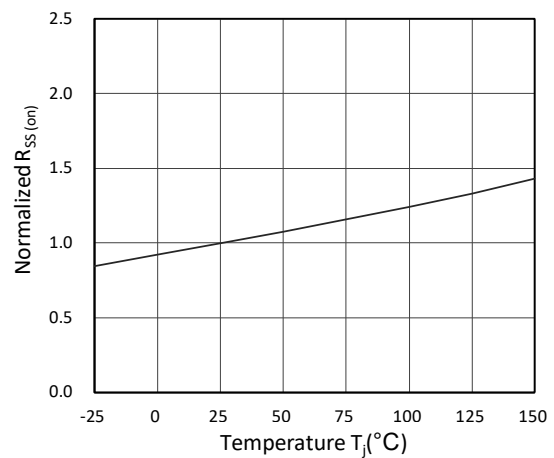


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

RATING AND CHARACTERISTIC CURVES (SI2319)

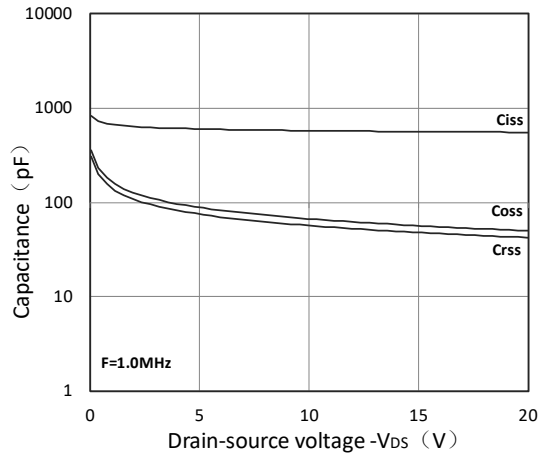


Figure 7. Capacitance Characteristics

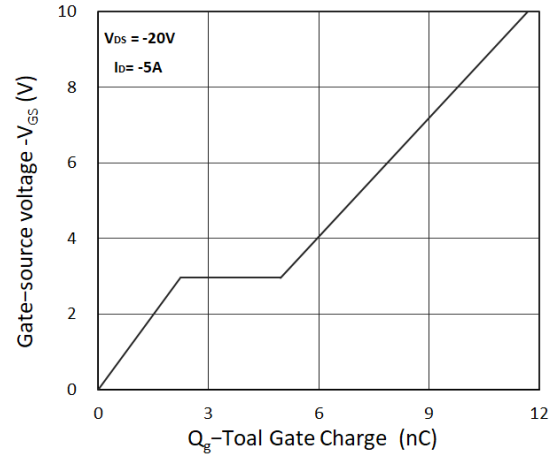


Figure 8. Gate Charge Characteristics