



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

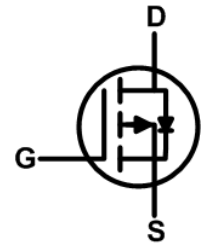
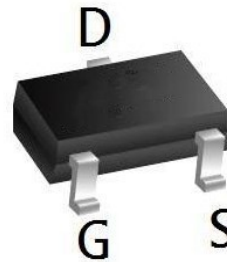
Product Summary

BVDSS	RDSON	ID
-40V	63mΩ	-4 A

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.

SOT 23 Pin Configurations

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	I _D	-4	A
T _A = 25°C			
Pulsed Drain Current ¹	I _{DM}	-20	A
Power Dissipation	P _D	1.2	W
T _A = 25°C			
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

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 Characteristics⁴						
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 Characteristics⁴						
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.

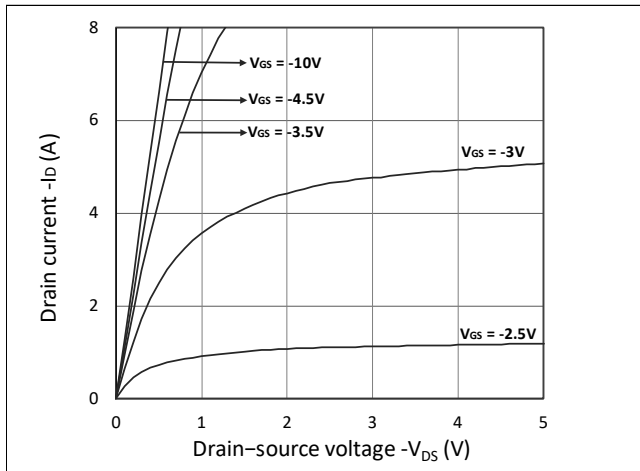
Typical Characteristics


Figure 1. Output Characteristics

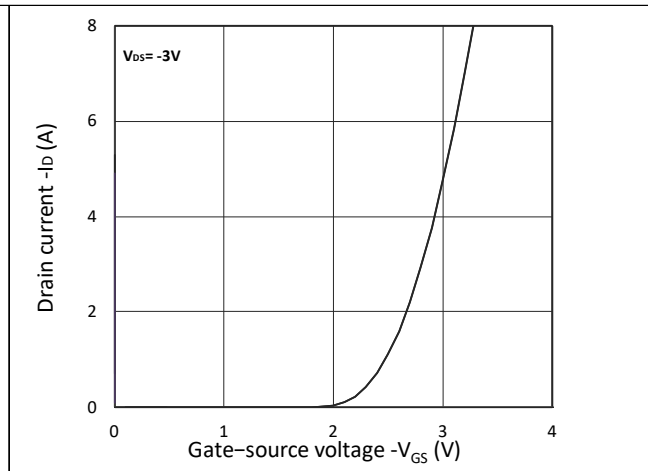


Figure 2. Transfer Characteristics

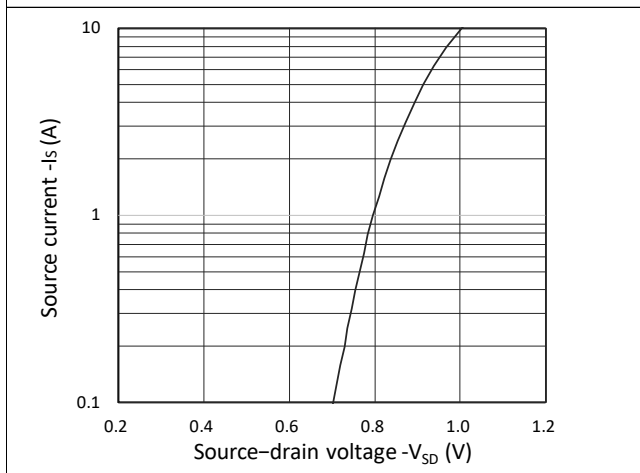
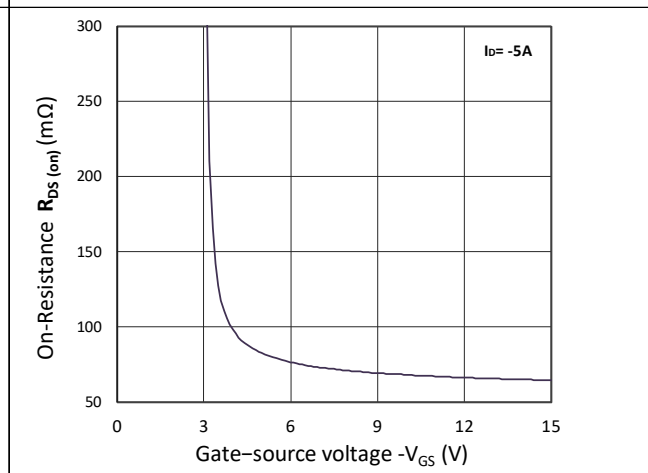
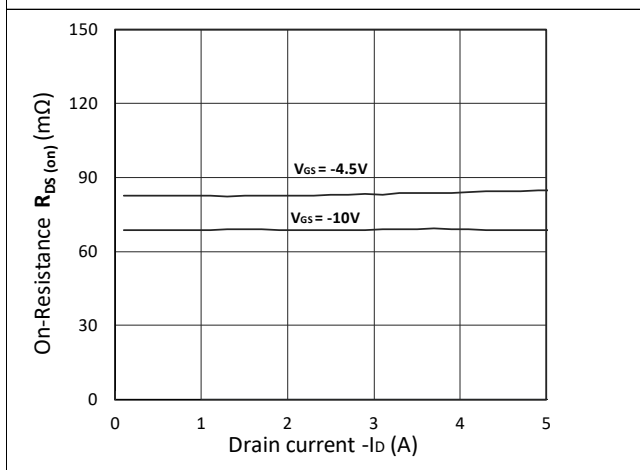
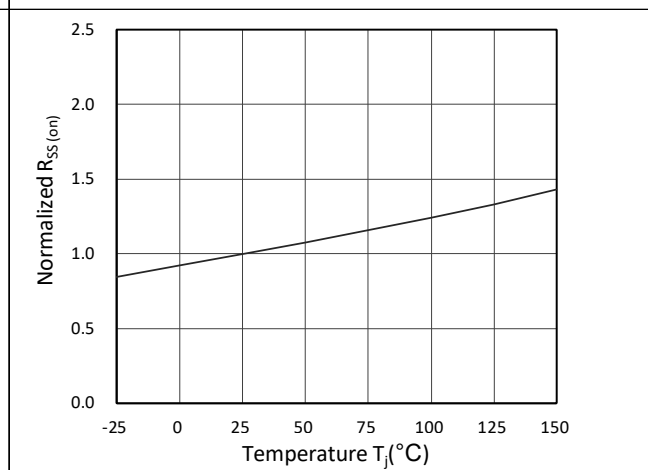
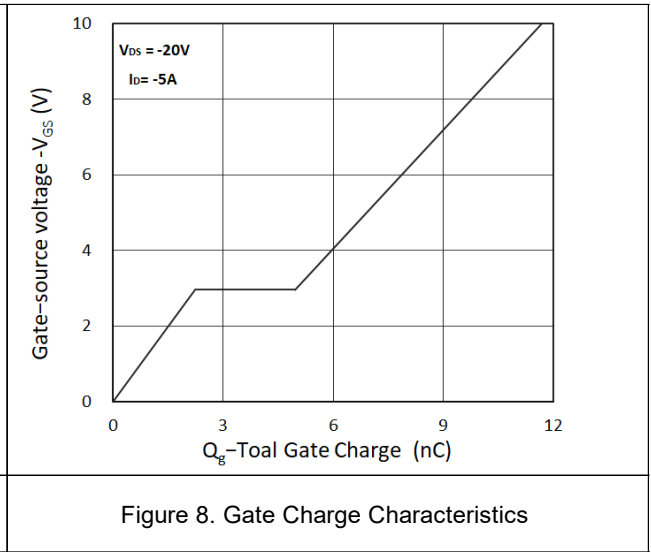
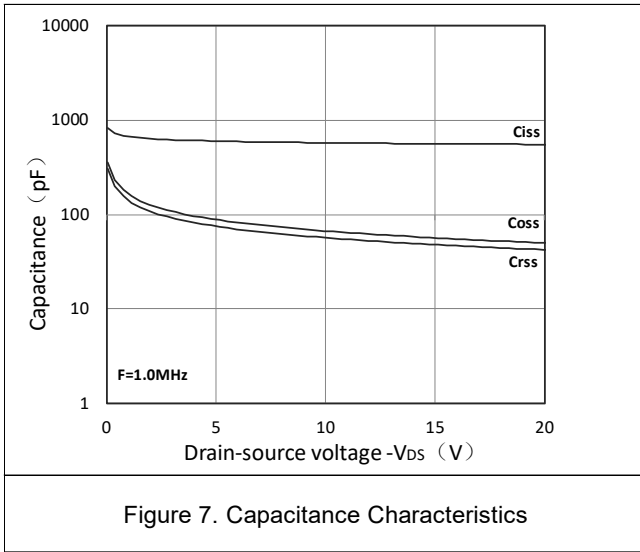
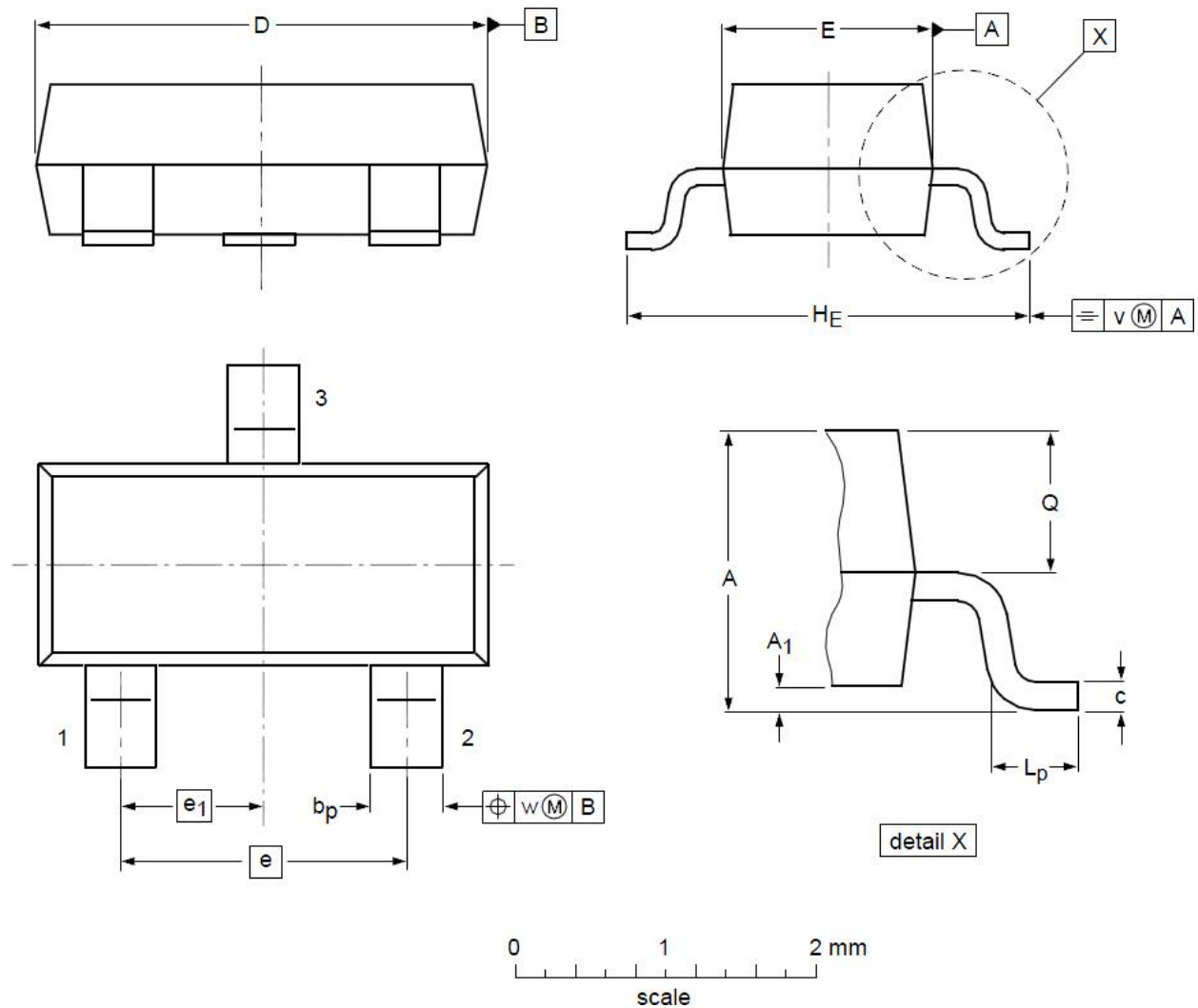


Figure 3. Forward Characteristics of Reverse


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

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

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



SOT23 Mechanical Data

DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.01	1.15	A ₁	0.01	0.05	0.10
b _p	0.30	0.42	0.50	c	0.08	0.13	0.15
D	2.80	2.92	3.00	E	1.20	1.33	1.40
e	--	1.90	--	e ₁	--	0.95	--
H _E	2.25	2.40	2.55	L _p	0.30	0.42	0.50
Q	0.45	0.49	0.55	v	--	0.20	--
w	--	0.10	--				