★ 100% EAS Guaranteed
★ Green Device Available
★ Super Low Gate Charge
★ Excellent CdV/dt effect decline
★ Advanced high cell density Trench technology

Product Summary

RoHS

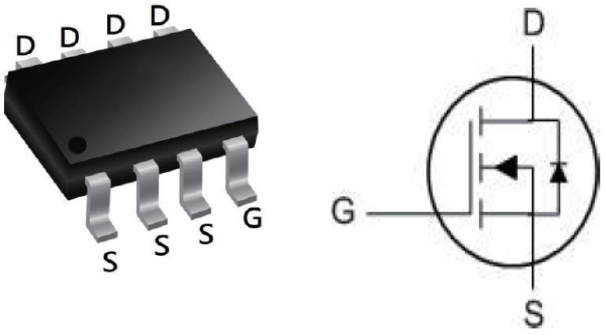
BVDSS	RDSON	ID
20V	13mΩ	8A

Description

The 2010S is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The 2010S meet the RoHS and Green Product, requirement 100% EAS guaranteed with full function reliability approved.

SOP8 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	T_C = 25℃	8	A
I_{DM}	Pulsed Drain Current note1		28	A
P_D	Power Dissipation	T_C = 25℃	2.25	W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 To 150	℃

Thermal Data

Symbol	Parameter	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient 2	80	℃/W

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	20	-	-	V
I_{GSS}	Gate Leakage Current	V_{GS} = ±12V, V_{DS} = 0V	-	-	±100	nA
I_{DSS}	Drain Cut-off Current	V_{DS} = 20V, V_{GS} = 0V	-	-	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS} = V_{DS}, I_D = 250μA	0.45	0.7	1	V
$R_{DS(on)}$	Drain-Source On-State Resistance[3]	V_{GS} = 4.5V, I_D =5A	-	13	20	mΩ
		V_{GS} = 2.5V, I_D = 4.7A	-	18	30	
		V_{GS} = 1.8V, I_D = 4.3A	-	28	57	
Dynamic Characteristics[4]						
C_{iss}	Input Capacitance	V_{GS} = 0V, V_{DS} = 10V, f = 1MHz	-	700	-	pF
C_{oss}	Output Capacitance		-	120	-	
C_{rss}	Reverse Transfer Capacitance		-	105	-	
Switching Characteristics[4]						
Q_g	Total Gate Charge	V_{GS}= 4.5V, V_{DS}= 10V, I_D= 5A	-	10.5	-	nC
Q_{gs}	Gate-Source Charge		-	2	-	
Q_{gd}	Gate-Drain Charge		-	2.5	-	
$t_{d(on)}$	Turn-On Time	V_{GS}= 5V, V_{DD} = 10V, I_D = 5A,R_G= 3Ω,	-	10	-	ns
t_r	Rise Time		-	20	-	
$t_{d(off)}$	Turn-Off Time		-	32	-	
t_f	Fall Time		-	12	-	
Source-Drain Diode Characteristics						
V_{SD}	Body Diode Voltage[3]	I_S=4A, V_{GS} = 0V	-	-	1.2	V
I_S	Continuous Source Current		-	-	8	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 Performance Characteristics

Figure1: Output Characteristics

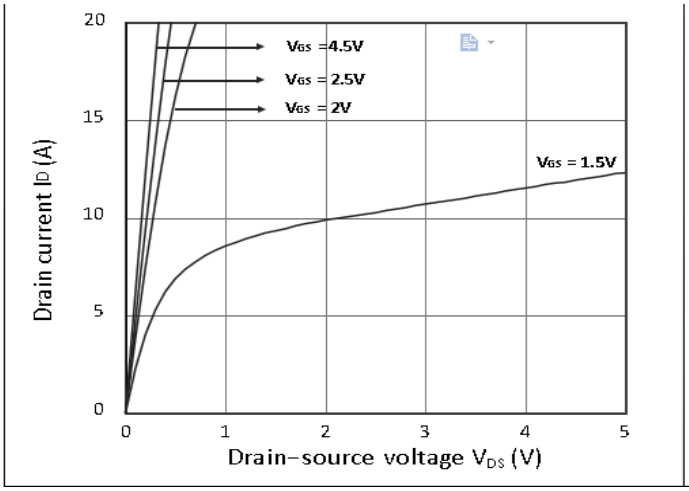


Figure 2: Typical Transfer Characteristics

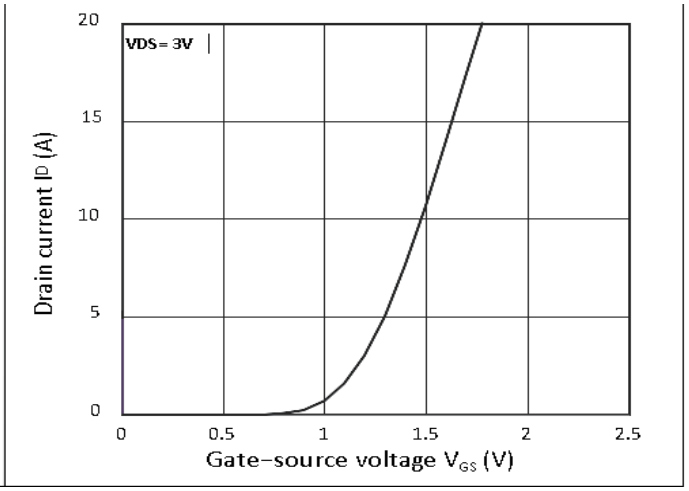


Figure 3:Forward Characteristics of Rever

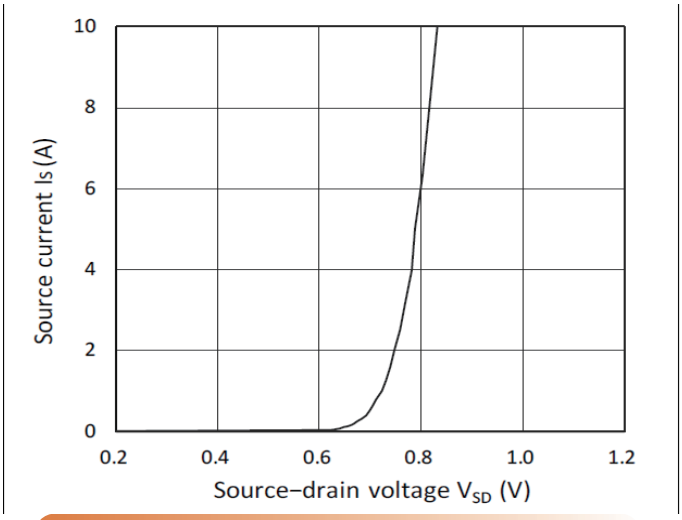


Figure 4:RDS(ON) vs. VGS

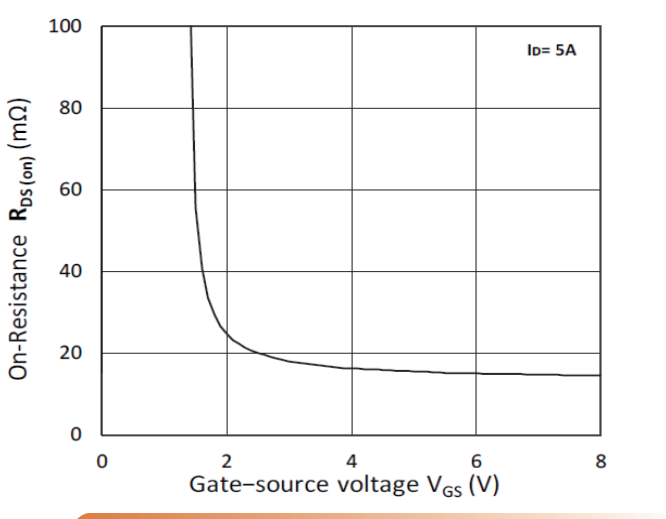


Figure 5:RDS(ON) vs. ID

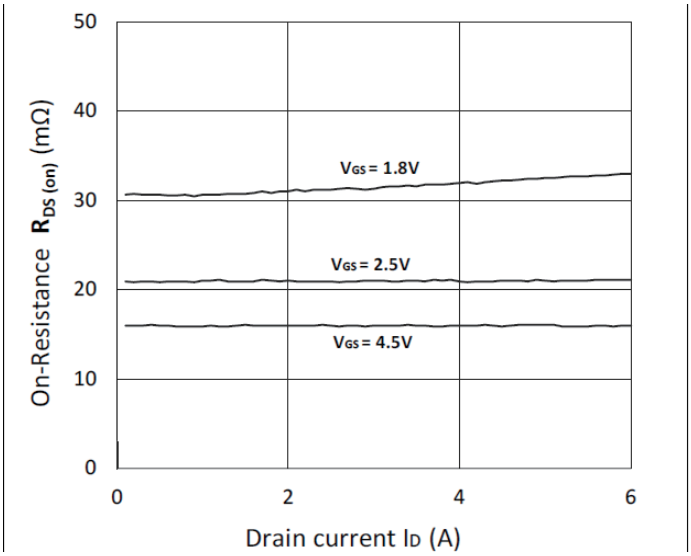
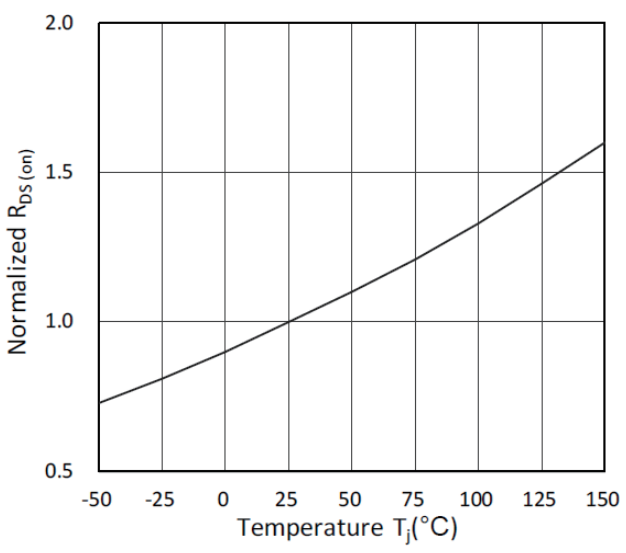


Figure 6: Normalized RDS(on) vs. Temper



Typical Performance Characteristics

Figure 7: Capacitance Characteristics

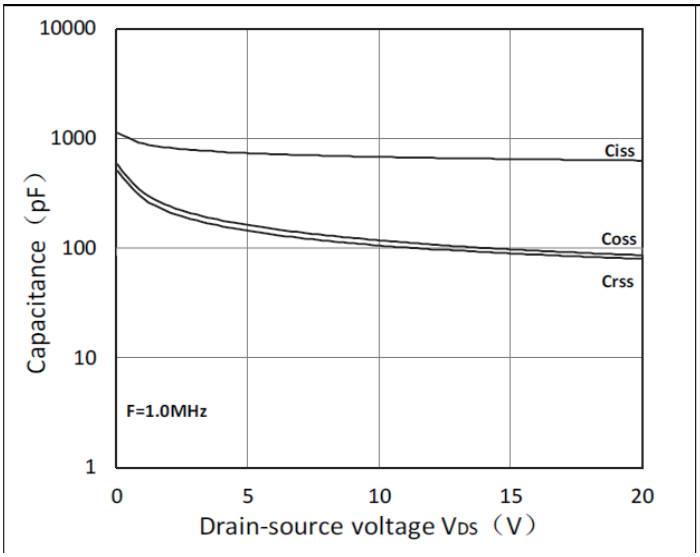
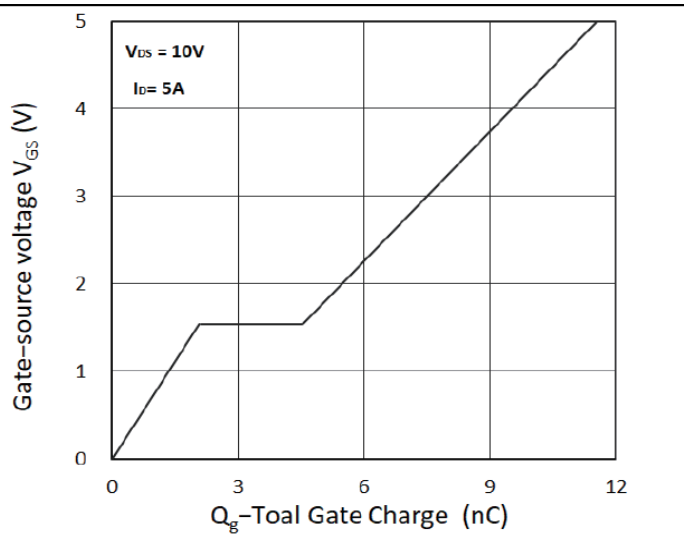
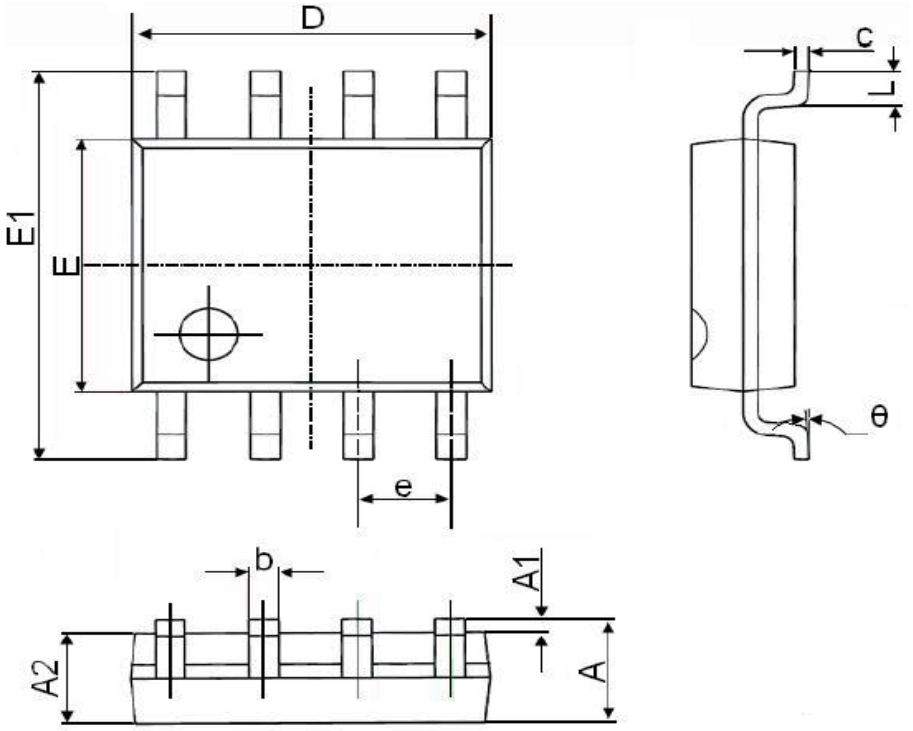


Figure 8: Gate Charge Characteristics



SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°