

P-Ch 30V Fast Switching MOSFETs

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

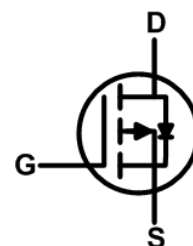
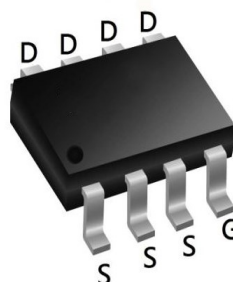
Product Summary


BVDSS	RDSON	ID
-30V	36mΩ	-5.3A

Description

The UD9435A is the high cell density trenched P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The UD9435A meet the RoHS and Green Product requirement with full function reliability approved.

SOP8 Pin Configuration

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ -10V^1$	-5.3	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ -10V^1$	-4.7	A
I_{DM}	Pulsed Drain Current ²	-20	A
EAS	Single Pulse Avalanche Energy ³	---	mJ
I_{AS}	Avalanche Current	---	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation ⁴	1.5	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	---	55	$^\circ\text{C/W}$

P-Ch 30V Fast Switching MOSFETs
Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V	-	-	-1	μA
Gate-Source Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
Gate-Source Threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.5	-2.5	V
Drain-Source on-State Resistance ³	R _{DS(on)}	V _{GS} = -10V, I _D = -4.1A	-	36	55	mΩ
		V _{GS} = -4.5V, I _D = -3A	-	48	85	
Dynamic Characteristics ⁴						
Input Capacitance	C _{iss}	V _{GS} = 0V , V _{DS} = -15V, f = 1.0MHz	-	530	-	pF
Output Capacitance	C _{oss}		-	70	-	
Reverse Transfer Capacitance	C _{rss}		-	56	-	
Switching Characteristics ⁴						
Total Gate Charge	Q _g	V _{GS} = -10V, V _{DS} = -15V, I _D = -4.1A	-	6.8	-	nC
Gate-Source Charge	Q _{gs}		-	1.0	-	
Gate-Drain Charge	Q _{gd}		-	1.4	-	
Turn-on Delay Time	t _{d(on)}	V _{GS} = -10V, V _{DS} = -15V , R _L = 15Ω,R _{GEN} = 2.5Ω	-	14	-	ns
Rise Time	t _r		-	61	-	
Turn-off Delay time	t _{d(off)}		-	19	-	
Fall Time	t _f		-	10	-	
Source-Drain Body Diode Characteristics						
Diode Forward Voltage ³	V _{SD}	I _S = -4.1A, V _{GS} = 0V	-	-	-1.2	V
Continuous Source Current	I _S		-	-	-5.3	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

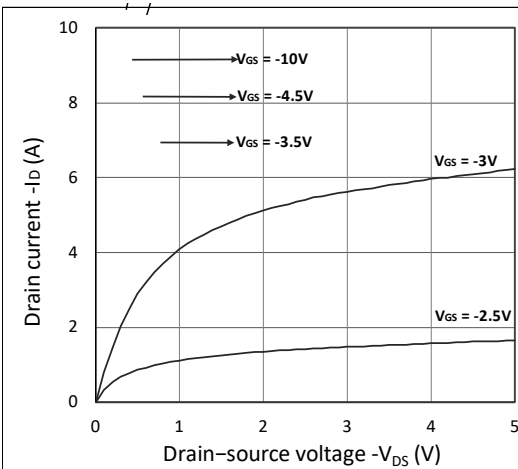


Figure 1. Output Characteristics

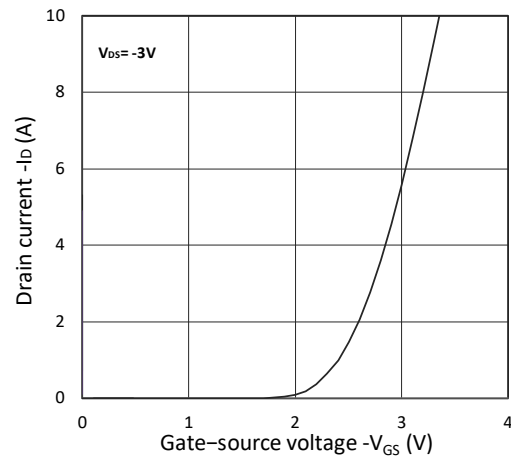


Figure 2. Transfer Characteristics

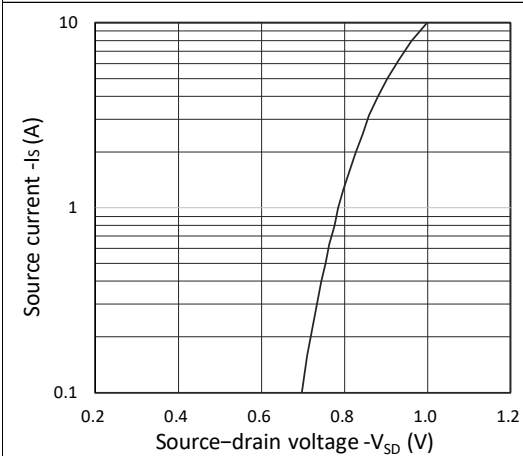


Figure 3. Forward Characteristics of Reverse

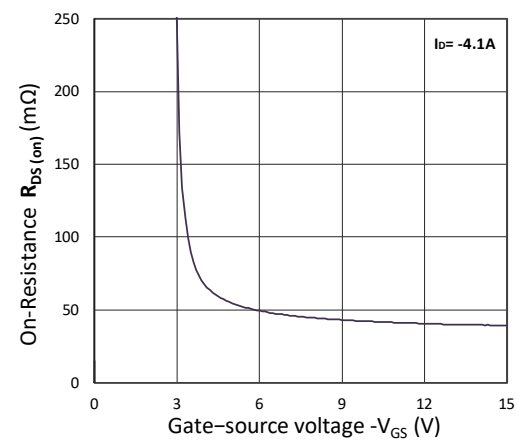


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

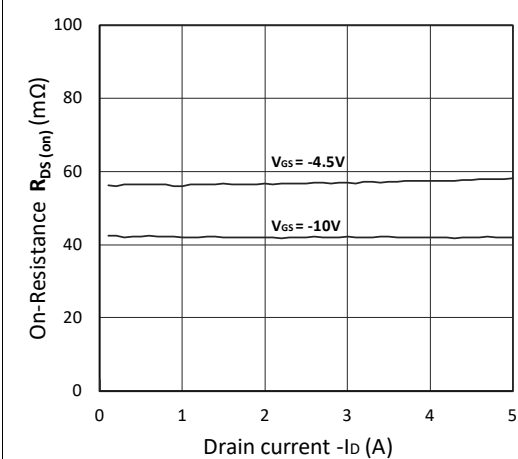


Figure 5. $R_{DS(ON)}$ vs. I_D

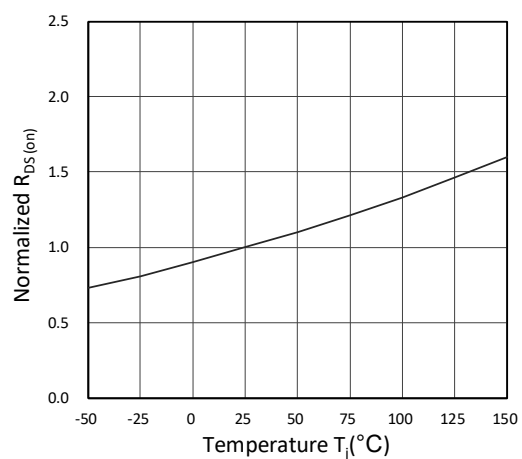


Figure 6. Normalized $R_{DS(ON)}$ vs. Temperature

P-Ch 30V Fast Switching MOSFETs

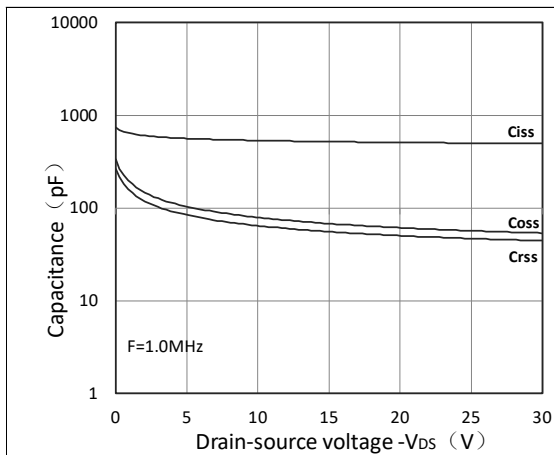


Figure 7. Capacitance Characteristics

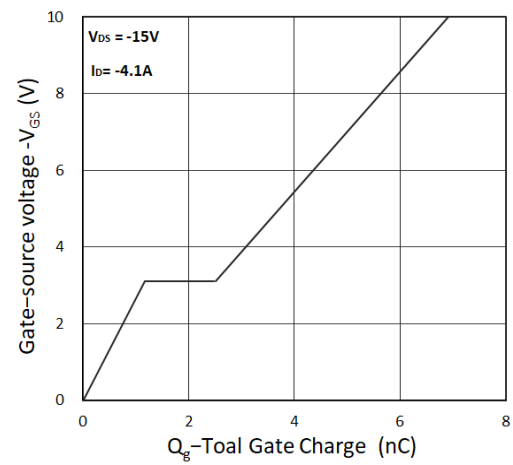
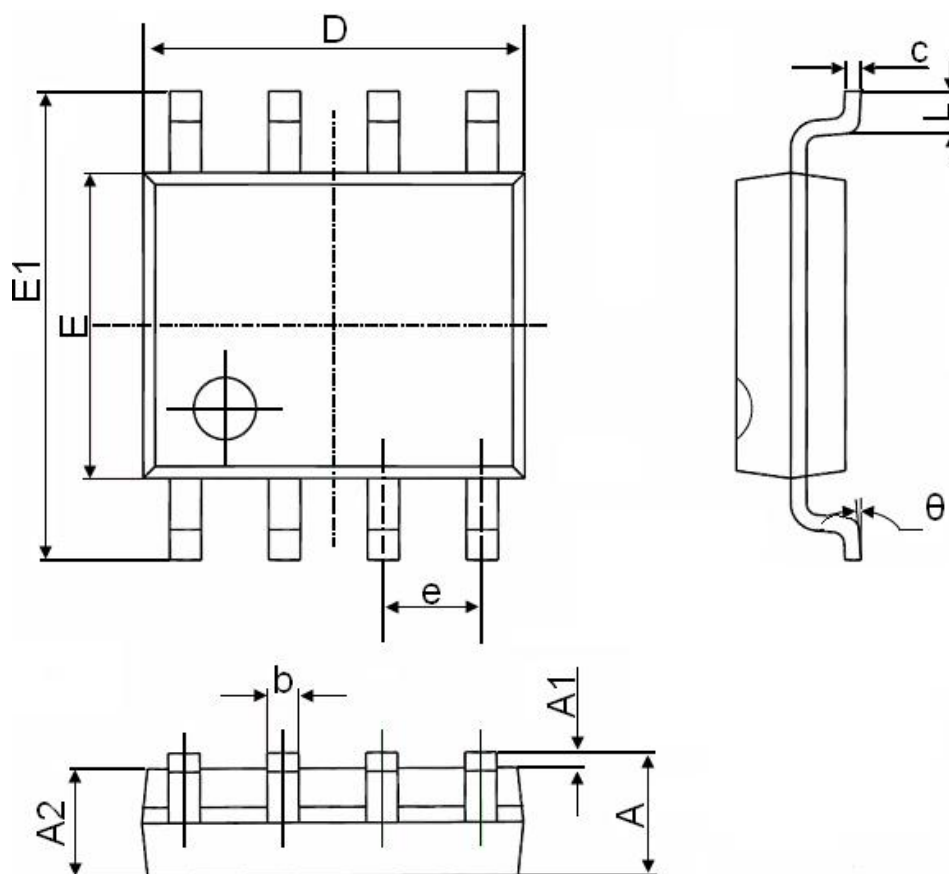


Figure 8. Gate Charge Characteristics

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°