

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

Product Summary

RoHS

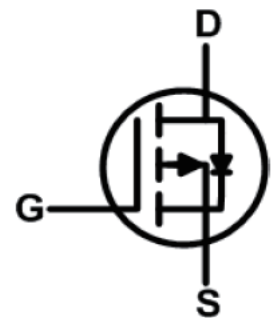
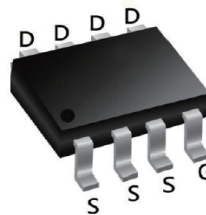
BVDSS	RDSON	ID
-30V	36mΩ	-5.3A

Description

The 9435A 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 9435A meet the RoHS and Green Product requirement with full function reliability approved.

SOP8 Pin Configuration



Absolute Maximum Ratings (TA=25°C unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
$I_{D@T_C=25^\circ C}$	Continuous Drain Current, $V_{GS} @ -10V^1$	-5.3	A
$I_{D@T_C=100^\circ C}$	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
$P_{D@T_C=25^\circ C}$	Total Power Dissipation ⁴	1.5	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

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

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = -250\mu A$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -30V, V_{GS} = 0V$	-	-	-1	μA
I_{GSS}	Gate-Source Leakage	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	± 100	nA
$V_{GS(th)}$	Gate-Source Threshold voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.5	-2.5	V
$R_{DS(on)}$	Drain-Source on-State Resistances ³	$V_{GS} = -10V, I_D = -4.1A$	-	36	51	m Ω
		$V_{GS} = -4.5V, I_D = -3A$	-	48	79	
Dynamic Characteristics⁴						
C_{iss}	Input Capacitance	$V_{GS} = 0V, V_{DS} = -15V,$ $f = 1.0MHz$	-	530	-	pF
C_{oss}	Output Capacitance		-	70	-	
C_{rss}	Reverse Transfer Capacitance		-	56	-	
Switching Characteristics⁴						
Q_g	Total Gate Charge	$V_{GS} = -10V, V_{DS} = -15V,$ $I_D = -4.1A$	-	6.8	-	nC
Q_{gs}	Gate-Source Charge		-	1	-	
Q_{gd}	Gate-Drain Charge		-	1.4	-	
$t_{d(on)}$	Turn-on Delay Time	$V_{GS} = -10V, V_{DS} = -15V,$ $R_L = 15\Omega, R_{GEN} = 2.5\Omega$	-	14	-	ns
t_r	Rise Time		-	61	-	
$t_{d(off)}$	Turn-off Delay time		-	19	-	
t_f	Fall Time		-	10	-	
Source-Drain Body Diode Characteristics						
V_{SD}	Diode Forward Voltage ³	$I_S = -4.1A, V_{GS} = 0V$	-	-	-1.2	V
I_S	Continuous Source Current		-	-	-5.3	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)} = 150^\circ\text{C}$.
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 $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. This value is guaranteed by design hence it is not included in the production test.

Typical Performance Characteristics

Figure 1: Output Characteristics

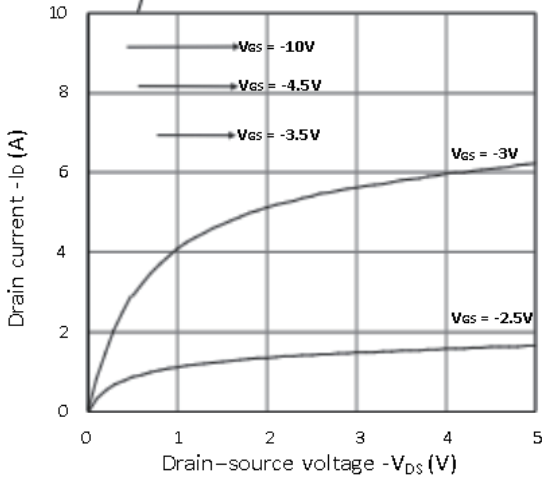


Figure 2: Transfer Characteristics

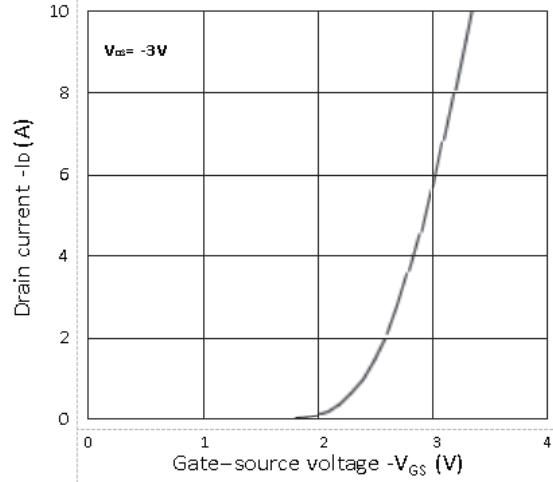


Figure 3: Forward Characteristics of Reverse

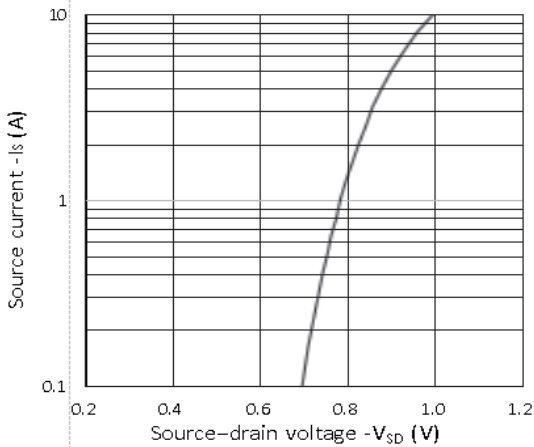


Figure 4: R_DS(ON) vs. V_GS

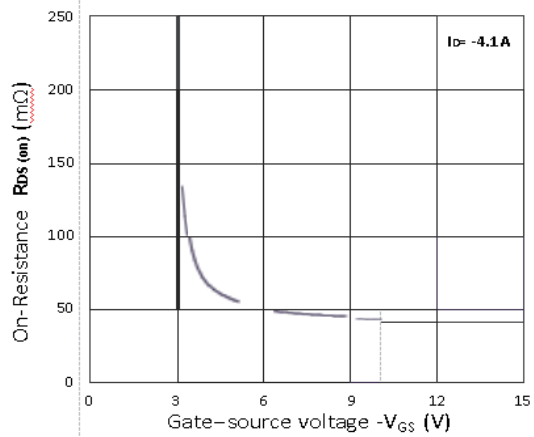


Figure 5: R_DS(ON) vs. I_D

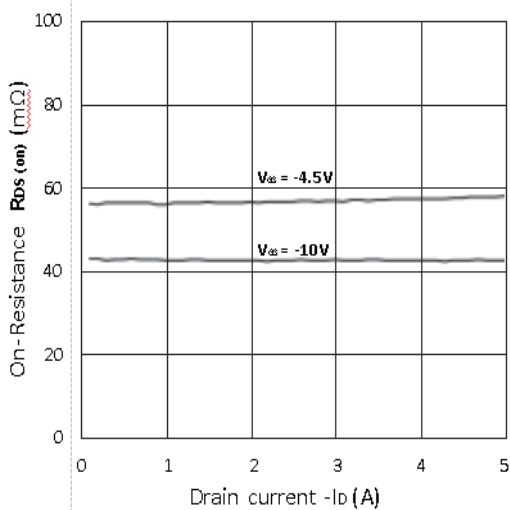
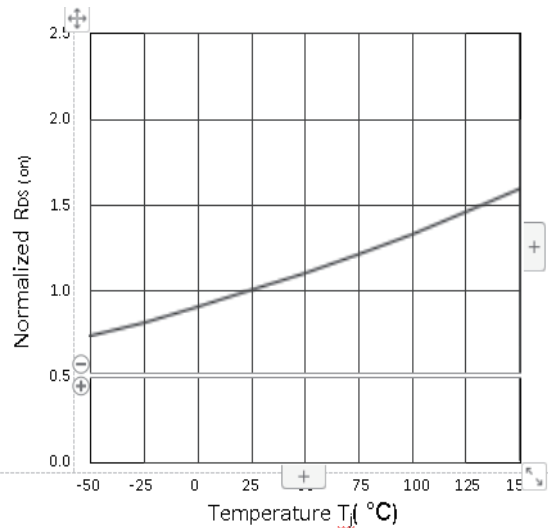


Figure 6: Normalized R_DS(on) vs. Temperature



Typical Performance Characteristics

Figure 7: Capacitance Characteristics

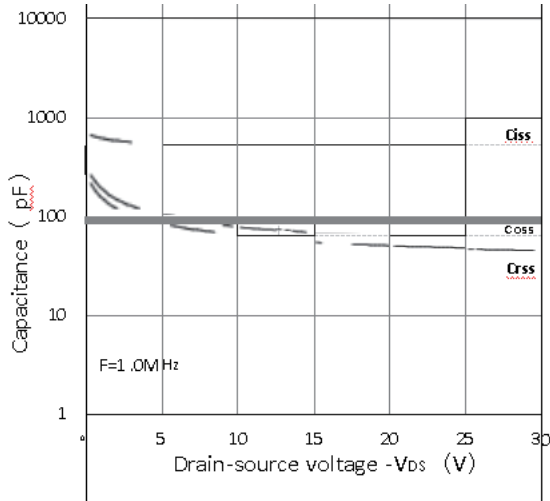
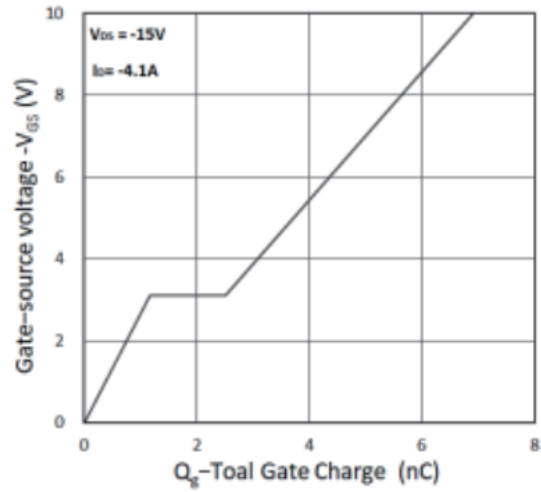
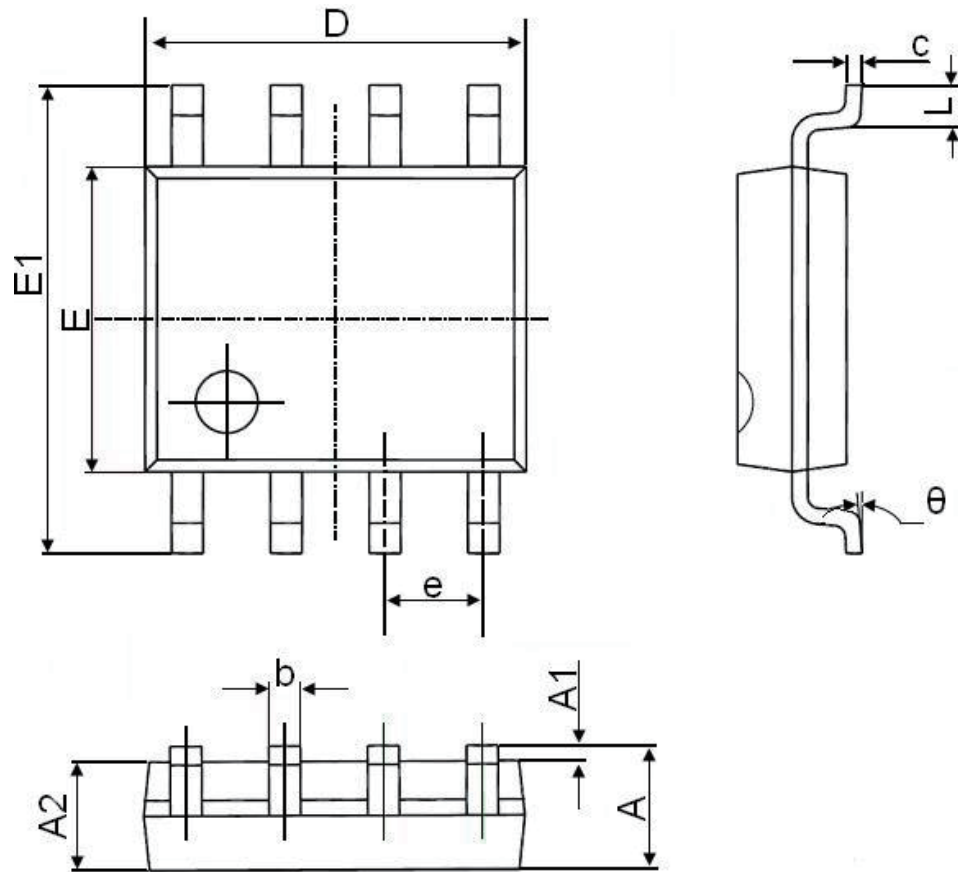


Figure 8: Gate Charge Characteristics



Package Mechanical Data-SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.1	0.25	0.004	0.01
A2	1.35	1.55	0.053	0.061
b	0.33	0.51	0.013	0.02
c	0.17	0.25	0.006	0.01
D	4.7	5.1	0.185	0.2
E	3.8	4	0.15	0.157
E1	5.8	6.2	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.4	1.27	0.016	0.05
θ	0°	8°	0°	8°

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