Features

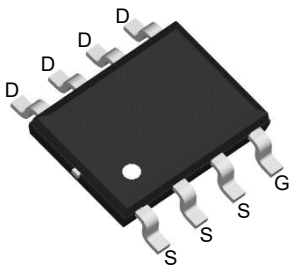
The TW9435A is the high cell density trenched P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

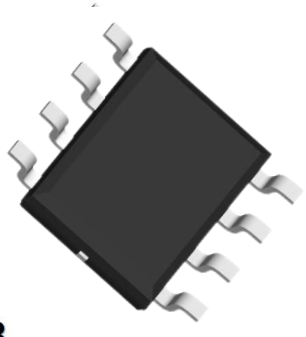
The TW9435A meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

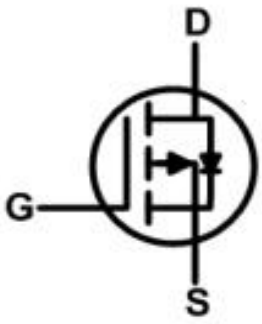
Product Summary

V_{DS}	-30V
I_D	-5.3A
$R_{DS(ON)}$ (at V_{GS}=10V)	<51mΩ
$R_{DS(ON)}$ (at V_{GS} =4.5V)	< 79mΩ

Top View **Bottom View**







SOP-8

Maximum Ratings(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current, VGS@ -10V[1]	ID@TA=25℃	-5.3	A
Continuous Drain Current, VGS @ -10V	ID@TA =70℃	-4.7	
Pulsed Drain Current [2]	I_{DM}	-20	
Single Pulse Avalanche Energy3	EAS	--	mJ
Avalanche Current	IAS	--	A
Total Power Dissipation4	PD@TA=25℃	1.5	W
Storage Temperature Range	TSTG	-55 to 150	℃
Operating Junction Temperature Range	TJ	-55 to 150	
Thermal Data			
Parameter	**Symbol**	**Max.**	**Unit**
Thermal Resistance Junction-ambient	RθJA	55	℃/W

Electrical Characteristics(TJ=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS = 0V, ID = -250μA	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	VDS =VGS, ID = -250μA	-1	-1.5	-2.5	V
Gate-Body leakage Current	I_{GSS}	VDS =0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	VDS= -30V, VGS= 0V			-1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	VGS = -10V, ID = -4.1A		36	51	mΩ
		VGS = -4.5V, ID = -3A		48	79	mΩ
Dynamic Parameters						
Input Capacitance	C_{iss}	VDS=-15V , VGS=0V , f=1MHz		530		pF
Output Capacitance	C_{oss}			70		pF
Reverse Transfer Capacitance	C_{rss}			56		pF
Total Gate Charge	Q_g	VGS = -10V, VDS = -15V, ID = -4.1A		6.8		nC
Gate Source Charge	Q_{gs}			1.0		nC
Gate Drain Charge	Q_{gd}			1.4		nC
Switching Parameters						
Turn-On DelayTime	$t_{d(on)}$	VGS= -10V, VDS= -15V , RL= 15Ω,RGEN= 2.5Ω		14		ns
Turn-On Rise Time	tr			61		ns
Turn-Off DelayTime	td(off)			19		ns
Turn-Off Fall Time	tf			10		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current[1,4]	IS				-5.3	A
Diode Forward Voltage[2]	VSD	IS = -4.1A, VGS = 0V			-1.2	V

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

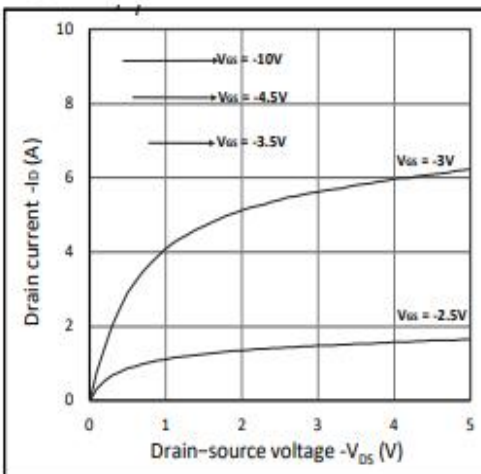


Figure 1. Output Characteristics

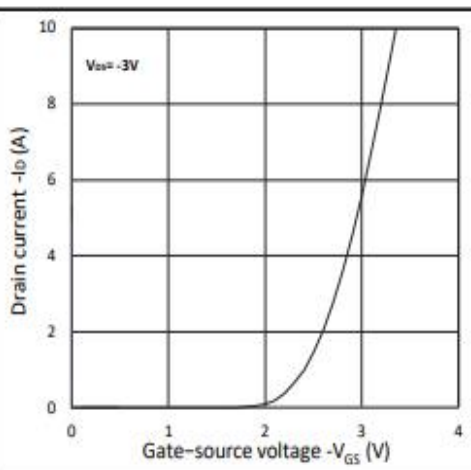


Figure 2. Transfer Characteristics

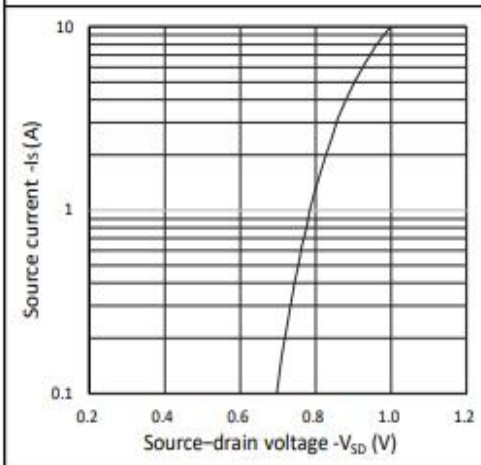


Figure 3. Forward Characteristics of Reverse

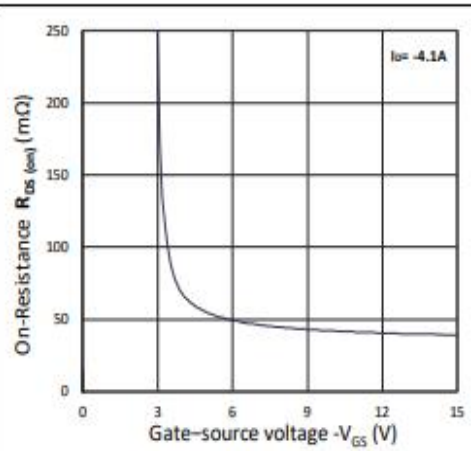


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

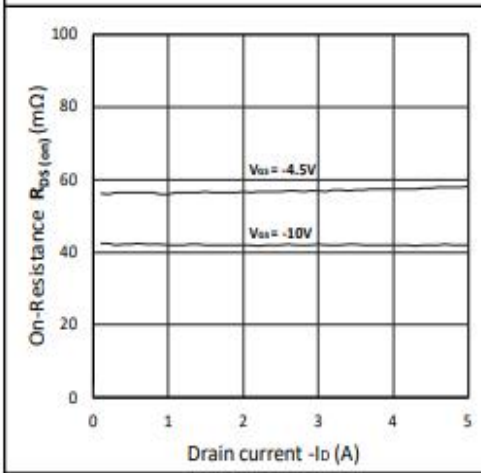


Figure 5. $R_{DS(ON)}$ vs. I_D

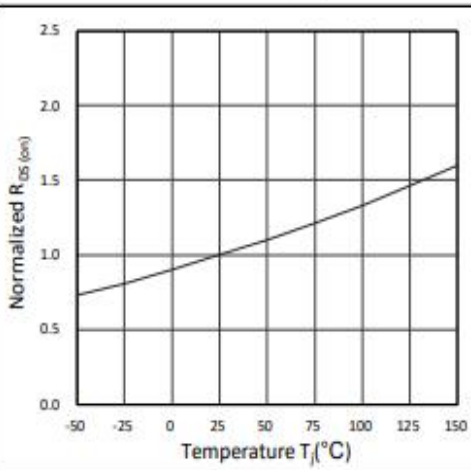


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

Typical Electrical and Thermal Characteristics

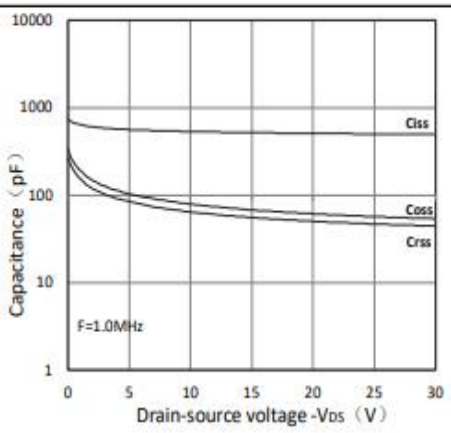


Figure 7. Capacitance Characteristics

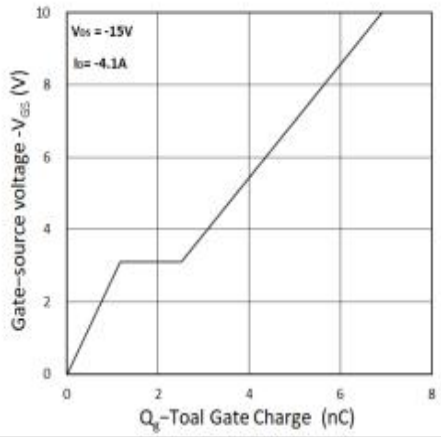
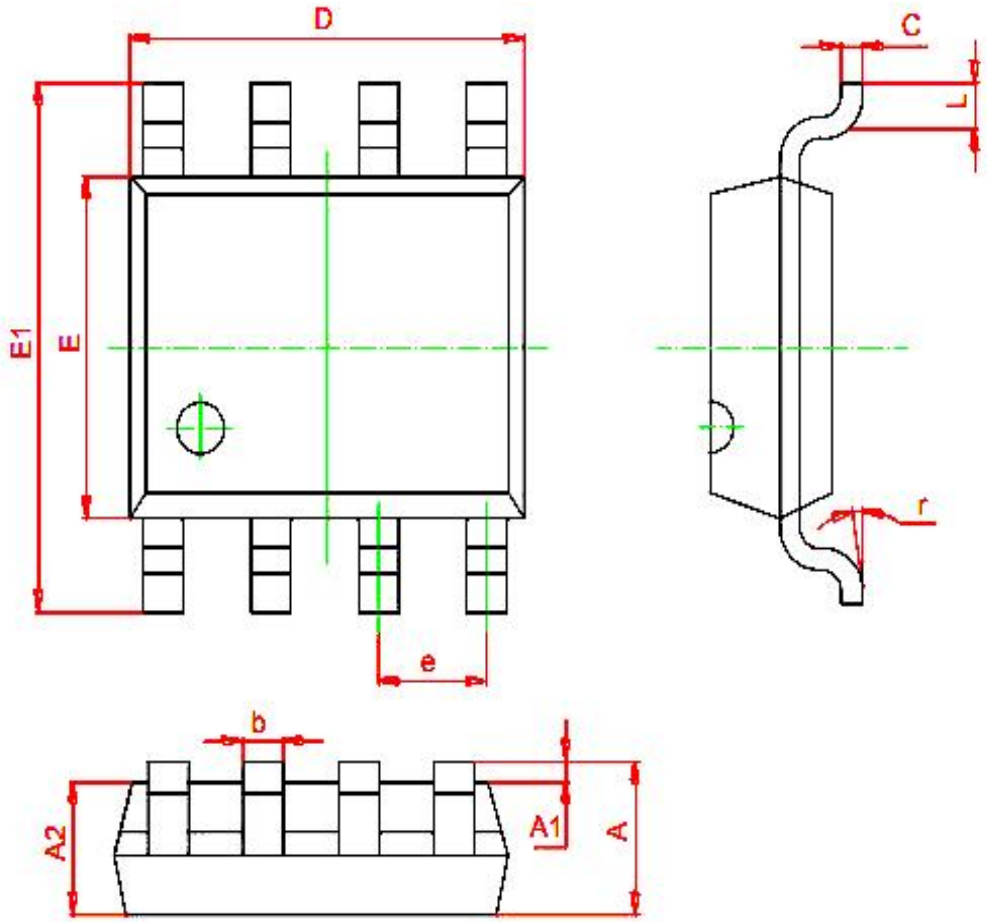


Figure 8. Gate Charge Characteristics

SOP-8 Package Outline Dimesions



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°