



### CST9435A P-Ch 30V Fast Switching MOSFETs

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

#### CST9435A Product Summary



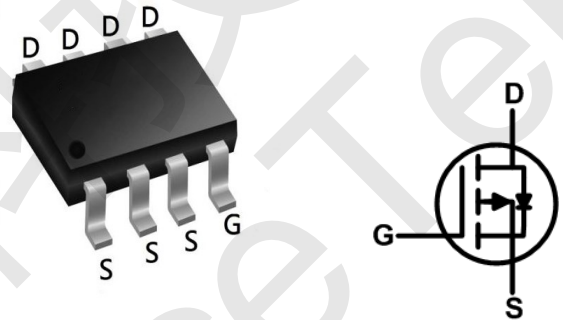
BVDSS	RDSON	ID
-30V	36mΩ	-5.3A

#### CST9435A Description

The CST9435A 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 CST9435A meet the RoHS and Green Product requirement with full function reliability approved.

#### CST9435A SOP8 Pin Configuration



#### CST9435A Absolute Maximum Ratings

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

#### CST9435A Thermal Data

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



#### CST9435A Electrical Characteristics( $T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	$\mu A$
Gate-Source Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	$\pm 100$	nA
Gate-Source Threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.5	-2.5	V
Drain-Source on-State Resistance <sup>3</sup>	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4.1A$	-	36	55	m $\Omega$
		$V_{GS}=-4.5V, I_D=-3A$	-	48	85	
<b>Dynamic Characteristics<sup>4</sup></b>						
Input Capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=-15V,$ $f=1.0\text{MHz}$	-	530	-	pF
Output Capacitance	$C_{oss}$		-	70	-	
Reverse Transfer Capacitance	$C_{rss}$		-	56	-	
<b>Switching Characteristics<sup>4</sup></b>						
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	$t_{d(on)}$	$V_{GS}=-10V, V_{DS}=-15V,$ $R_L=15\Omega, R_{GEN}=2.5\Omega$	-	14	-	ns
Rise Time	$t_r$		-	61	-	
Turn-off Delay time	$t_{d(off)}$		-	19	-	
Fall Time	$t_f$		-	10	-	
<b>Source-Drain Body Diode Characteristics</b>						
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	$I_S=-4.1A, V_{GS}=0V$	-	-	-1.2	V
Continuous Source Current	$I_S$		-	-	-5.3	A

#### Notes:

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



CST9435A Typical Characteristics

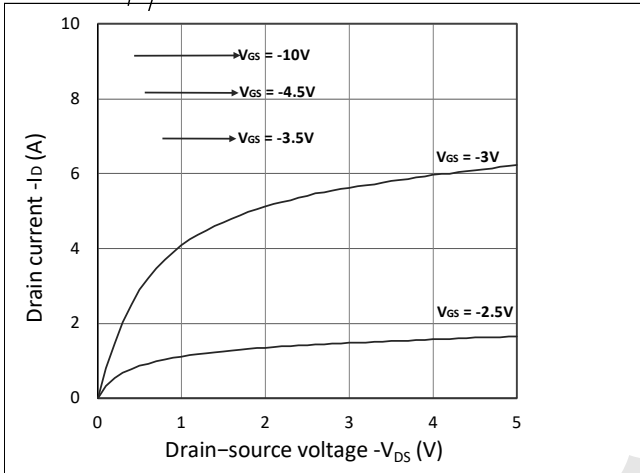


Figure 1. Output Characteristics

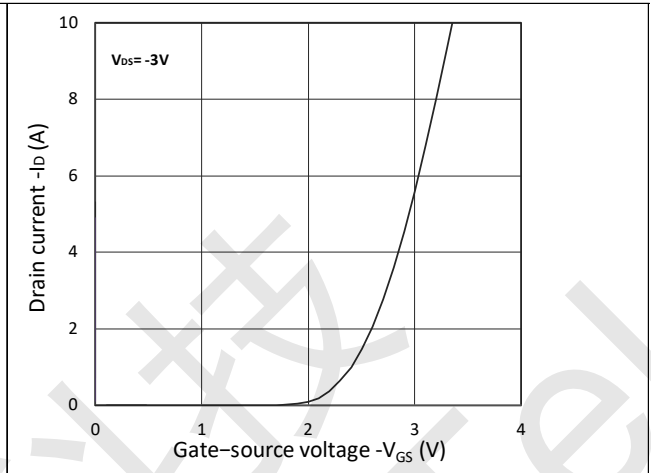


Figure 2. Transfer Characteristics

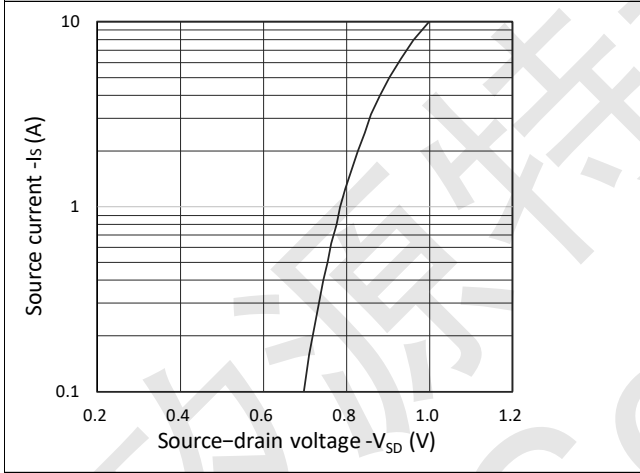


Figure 3. Forward Characteristics of Reverse

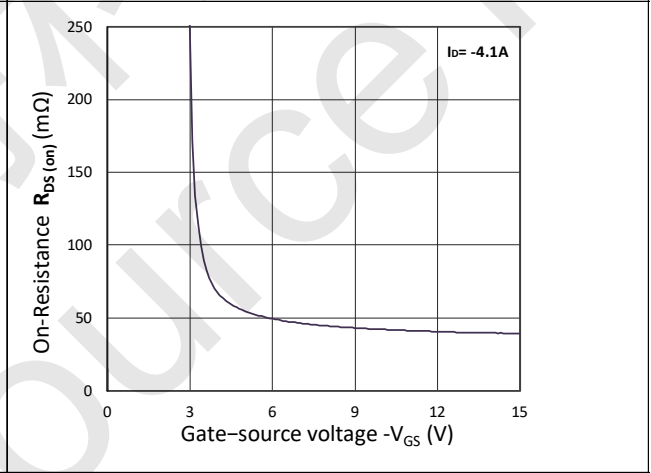


Figure 4.  $R_{DS(on)}$  vs.  $V_{GS}$

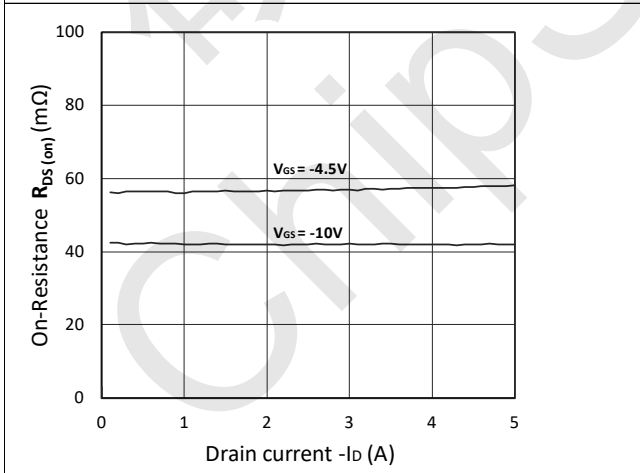


Figure 5.  $R_{DS(on)}$  vs.  $I_D$

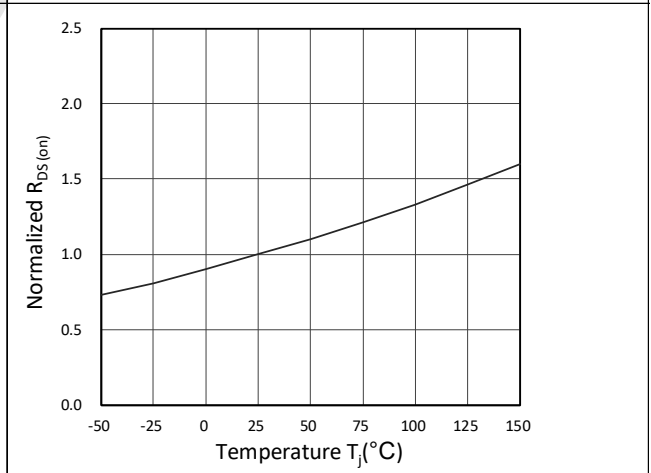
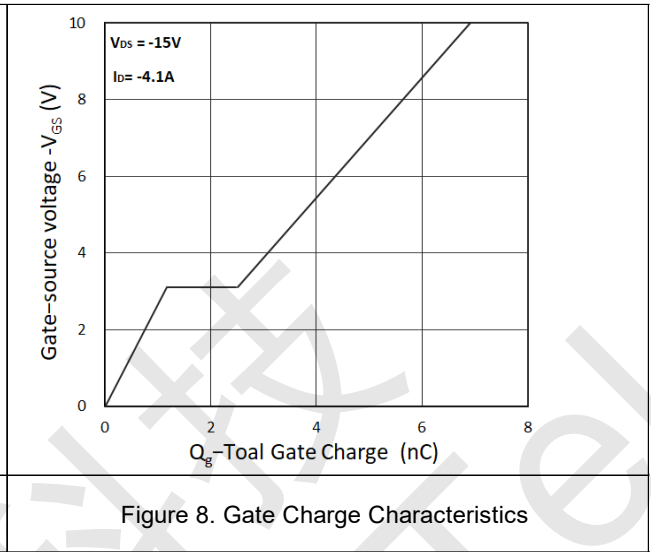
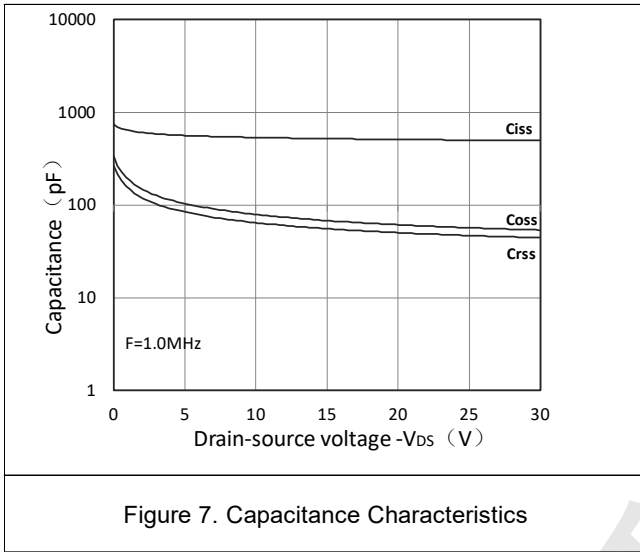
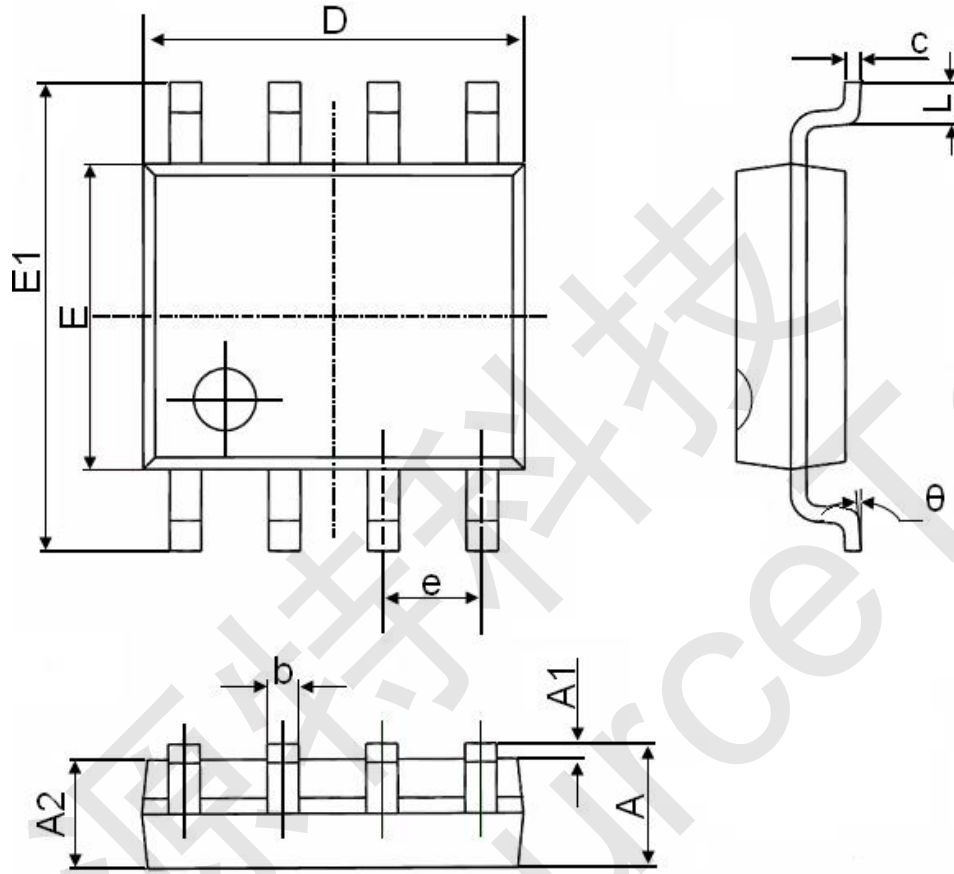


Figure 6. Normalized  $R_{DS(on)}$  vs. Temperature





CST9435A 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°