



### CST4953A Dual P-Ch 30V Fast Switching MOSFETs

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

#### CST4953A Product Summary



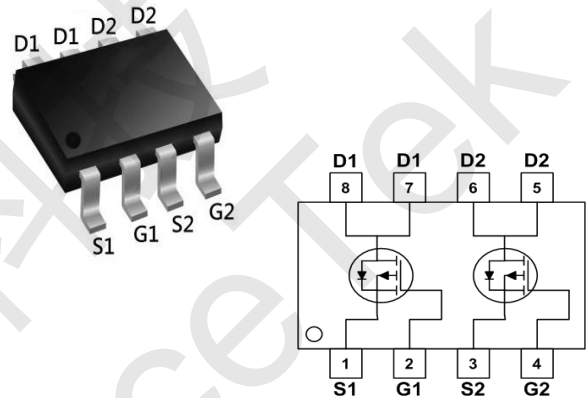
BVDSS	RDSON	ID
-30V	35mΩ	-5.3A

#### CST4953A Description

The CST4953A 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 CST4953A meet the RoHS and Green Product requirement with full function reliability approved.

#### CST4953A SOP8 Pin Configuration



#### CST4953A 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, $V_{GS} @ 10V^1$	-4.3	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>	2.0	W
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ C$
$T_J$	Operating Junction Temperature Range	-55 to 150	$^\circ C$

#### CST4953A Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient <sup>1</sup>	---	100	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case <sup>1</sup>	---	---	$^\circ C/W$



### CST4953A Dual P-Ch 30V Fast Switching MOSFETs

#### CST4953A Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	<b>BV<sub>DSS</sub></b>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-30	-	-	V
Gate-body Leakage current	<b>I<sub>GSS</sub></b>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	<b>I<sub>DSS</sub></b>	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V	-	-	-1	μA
Gate-Threshold Voltage	<b>V<sub>GS(th)</sub></b>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1.0	-1.5	-2.1	V
Drain-Source On-Resistance <sup>3</sup>	<b>R<sub>DS(on)</sub></b>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.1A	-	35	60	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3A	-	52	90	
<b>Dynamic Characteristics<sup>4</sup></b>						
Input Capacitance	<b>C<sub>iss</sub></b>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1MHz	-	530	-	pF
Output Capacitance	<b>C<sub>oss</sub></b>		-	70	-	
Reverse Transfer Capacitance	<b>C<sub>rss</sub></b>		-	56	-	
<b>Switching Characteristics<sup>4</sup></b>						
Total Gate Charge	<b>Q<sub>g</sub></b>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.1A, V <sub>DS</sub> = -15V	-	10	-	nC
Gate-Source Charge	<b>Q<sub>gs</sub></b>		-	2	-	
Gate-Drain Charge	<b>Q<sub>gd</sub></b>		-	2.8	-	
Turn-On Delay Time	<b>t<sub>d(on)</sub></b>	V <sub>GS</sub> = -10V, V <sub>DD</sub> = -15V, ,R <sub>GEN</sub> = 6Ω, I <sub>D</sub> = -4.1A,	-	6.9	-	ns
Rise Time	<b>t<sub>r</sub></b>		-	12	-	
Turn-Off Delay Time	<b>t<sub>d(off)</sub></b>		-	19	-	
Fall Time	<b>t<sub>f</sub></b>		-	7.5	-	
<b>Source-Drain Body Diode Characteristics</b>						
Diode Forward Voltage <sup>3</sup>	<b>V<sub>SD</sub></b>	I <sub>S</sub> = -1.7A, V <sub>GS</sub> = 0V	-	-	-1.2	V
Continuous Source Current	<b>I<sub>S</sub></b>		-	-	-5.3	A

#### Notes:

1. Repetitive rating, pulse width limited by junction temperature T<sub>J(MAX)</sub>=150°C.
2. The data tested by surface mounted on a 1 inch<sup>2</sup> 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.



CST4953A Typical Characteristics

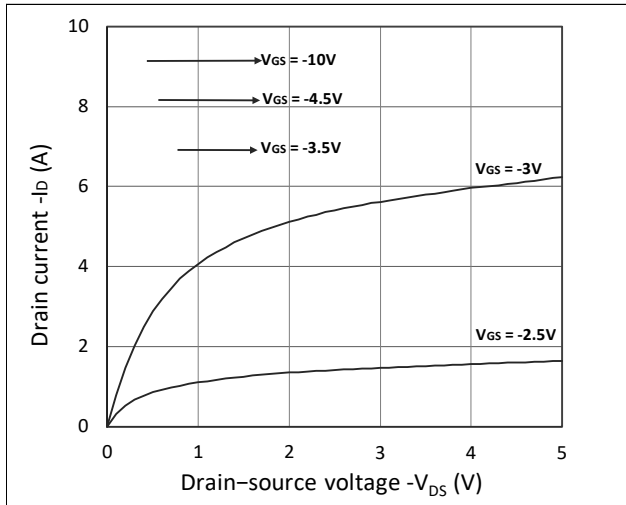


Figure 1. Output Characteristics

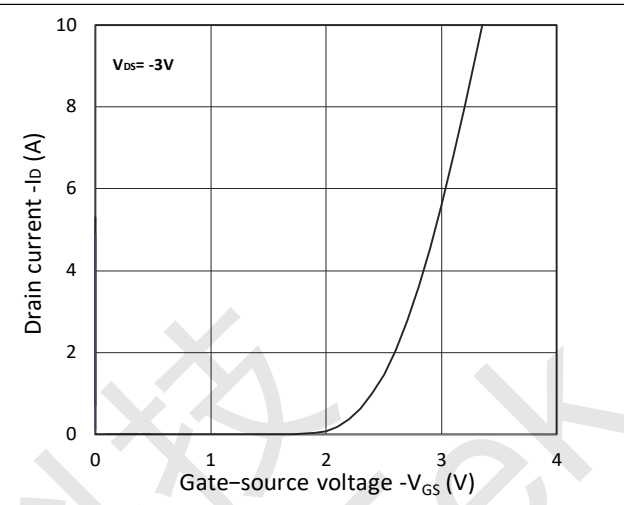


Figure 2. Transfer Characteristics

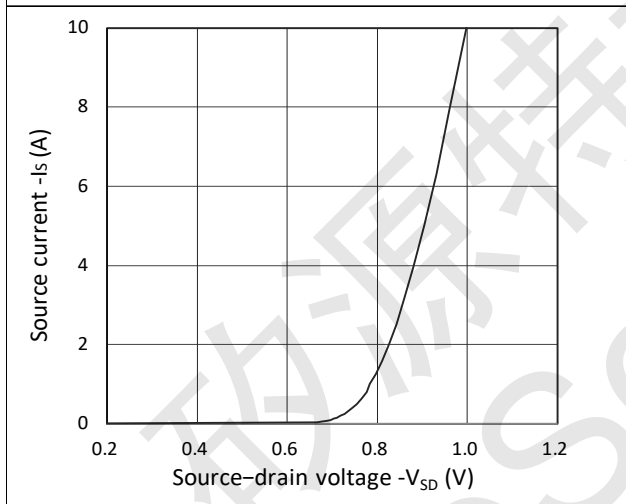


Figure 3. Forward Characteristics of Reverse

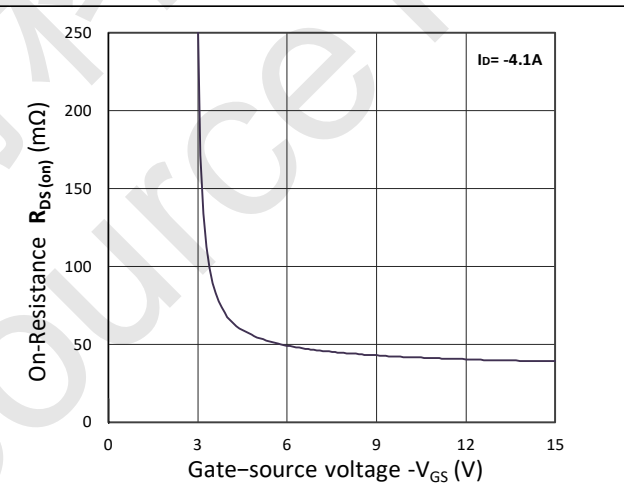


Figure 4.  $R_{DS(on)}$  vs.  $V_{GS}$

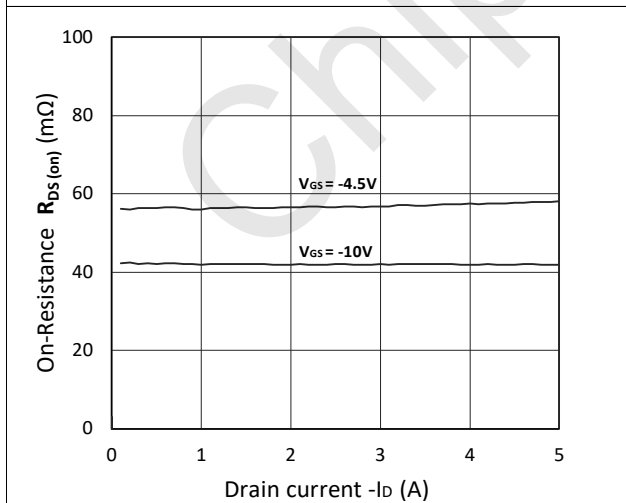


Figure 5.  $R_{DS(on)}$  vs.  $I_D$

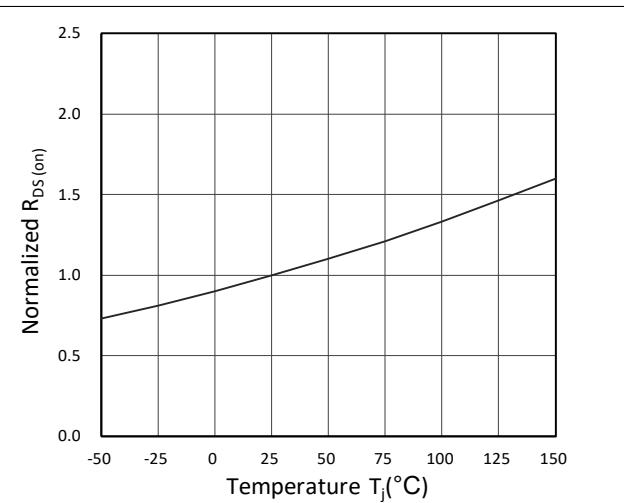


Figure 6. Normalized  $R_{DS(on)}$  vs. Temperature



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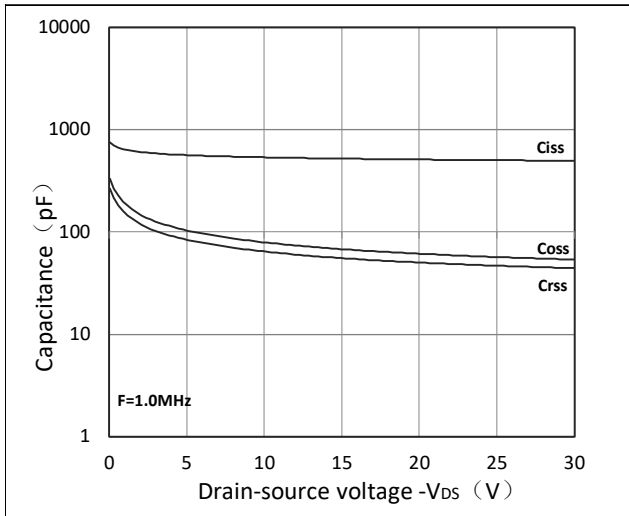


Figure 7. Capacitance Characteristics

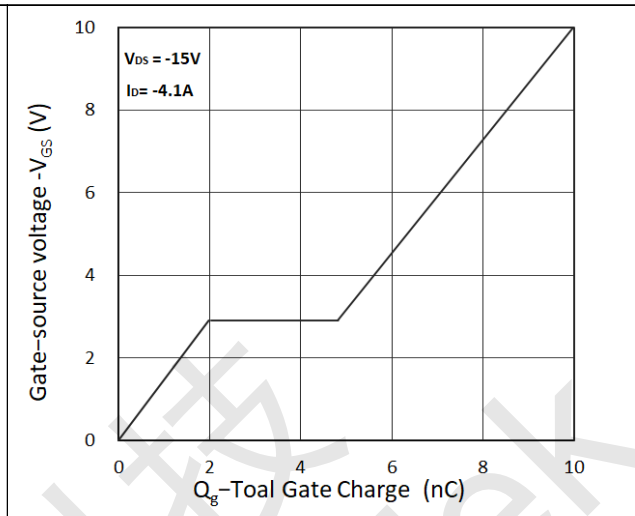
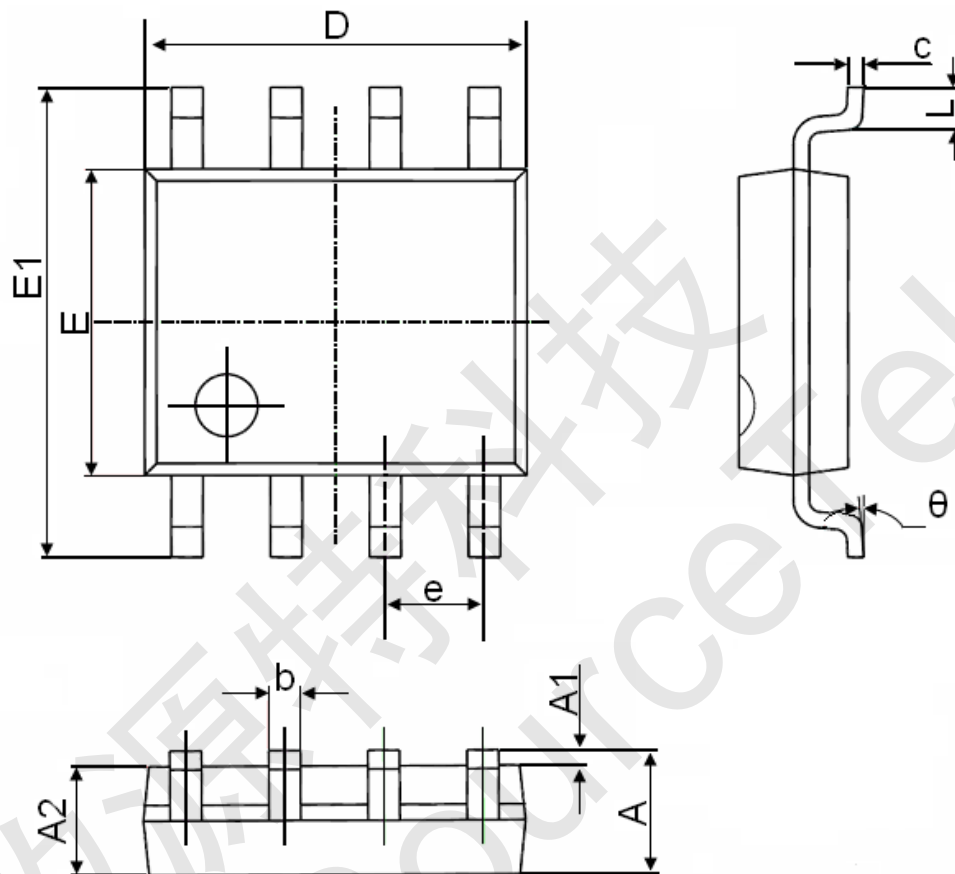


Figure 8. Gate Charge Characteristics



CST4953A Package Mechanical Data- SOP-8



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°