



### CST3407A P-Ch 30V Fast Switching MOSFETs

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



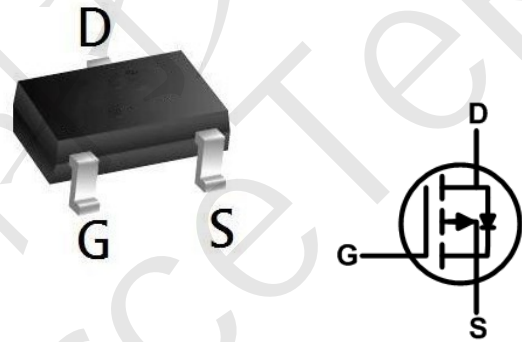
#### CST3407A Product Summary

BVDSS	RDS(on)	ID
-30V	42mΩ	-4.5A

#### CST3407A Description

The CST3407A is the high cell density trenched P-ch MOSFETs, which provides excellent RDS(on) and efficiency for most of the small power switching and load switch applications. The CST3407A meet the RoHS and Green Product requirement with full function reliability approved.

#### CST3407A SOT 23 Pin Configurations



#### CST3407A Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	-30	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub> @T <sub>A</sub> =25°C	Continuous Drain Current	-4.5	A
I <sub>D</sub> @T <sub>A</sub> =70°C	Continuous Drain Current	-3.6	A
I <sub>DM</sub>	Pulsed Drain Current <sup>2</sup>	-16	A
P <sub>D</sub> @T <sub>A</sub> =25°C	Total Power Dissipation <sup>3</sup>	1.4	W
P <sub>D</sub> @T <sub>A</sub> =70°C	Total Power Dissipation <sup>3</sup>	0.9	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C

#### CST3407A Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R <sub>θJA</sub>	Thermal Resistance Junction-Ambient <sup>1</sup>	---	105	°C/W
R <sub>θJA</sub>	Thermal Resistance Junction-Ambient <sup>1</sup> (t ≤ 10s)	---	---	°C/W



### CST3407A P-Ch 30V Fast Switching MOSFETs

#### CST3407A Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V	-	-	-1	μA
Gate-Source Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V	-	-	±100	nA
Gate-Source Threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1	-1.5	-2.5	V
Drain-Source on-State Resistance <sup>3</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.1A	-	42	60	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3A	-	54	85	
<b>Dynamic Characteristics<sup>4</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -15V, f = 1.0MHz	-	530	-	pF
Output Capacitance	C <sub>oss</sub>		-	70	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	56	-	
<b>Switching Characteristics<sup>4</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> = -10V, V <sub>DS</sub> = -15V, I <sub>D</sub> = -4.1A	-	6.8	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	1.0	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	1.4	-	
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>GS</sub> = -10V, V <sub>DS</sub> = -15V , R <sub>L</sub> = 15Ω,R <sub>GEN</sub> = 2.5Ω	-	14	-	ns
Rise Time	t <sub>r</sub>		-	61	-	
Turn-off Delay time	t <sub>d(off)</sub>		-	19	-	
Fall Time	t <sub>f</sub>		-	10	-	
<b>Source-Drain Body Diode Characteristics</b>						
Diode Forward Voltage <sup>3</sup>	V <sub>SD</sub>	I <sub>S</sub> = -4.1A, V <sub>GS</sub> = 0V	-	-	-1.2	V
Continuous Source Current	I <sub>S</sub>		-	-	-4.1	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 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.



#### CST3407A Typical Characteristics

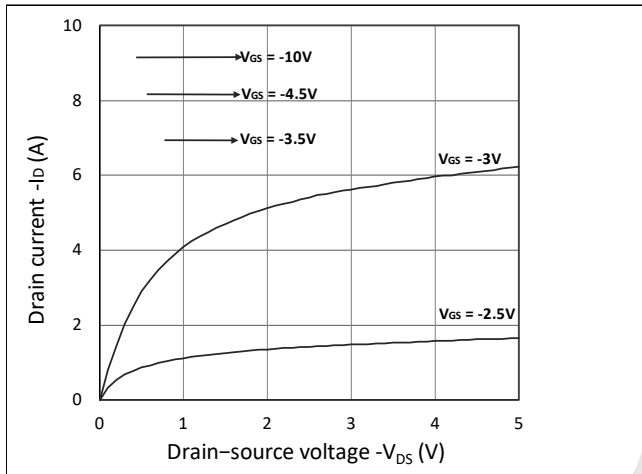


Figure 1. Output Characteristics

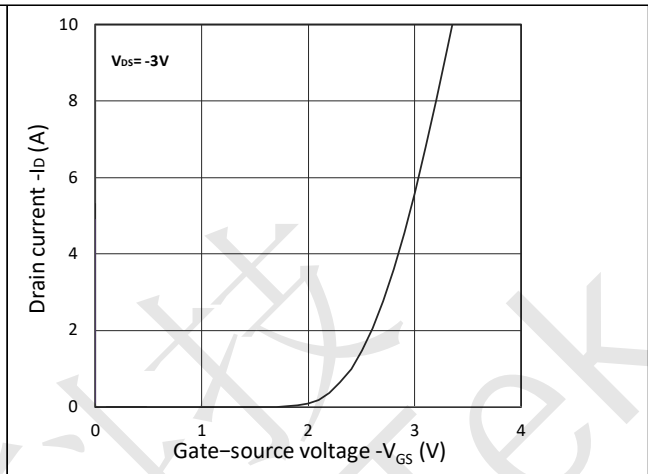


Figure 2. Transfer Characteristics

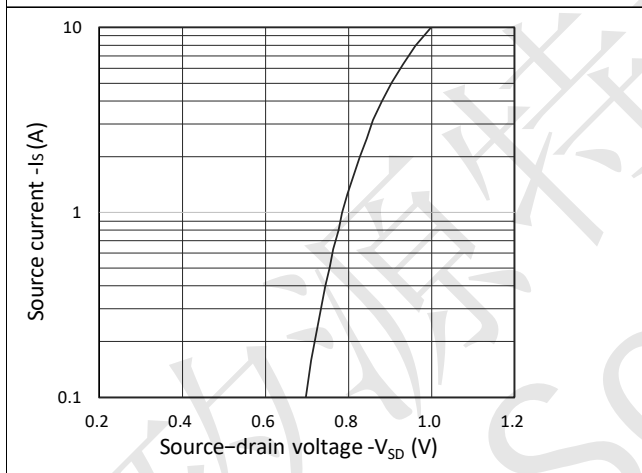


Figure 3. Forward Characteristics of Reverse

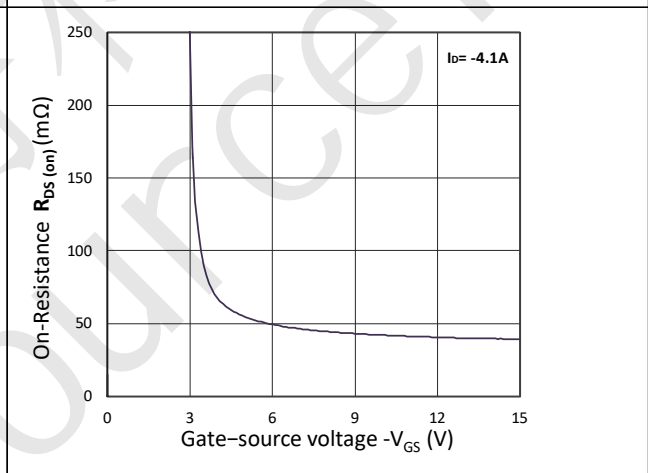


Figure 4.  $R_{DS(on)}$  vs.  $V_{GS}$

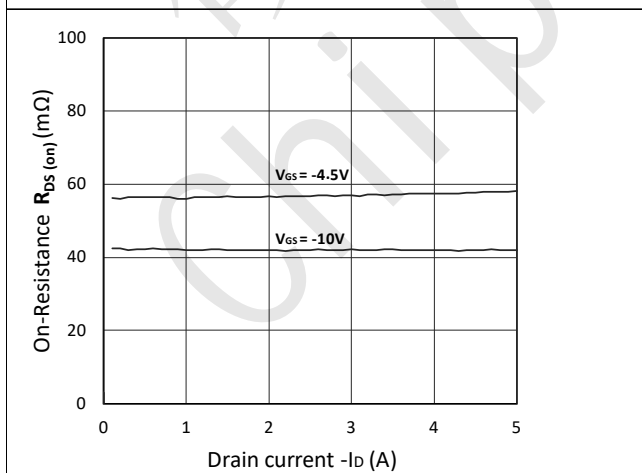


Figure 5.  $R_{DS(on)}$  vs.  $I_D$

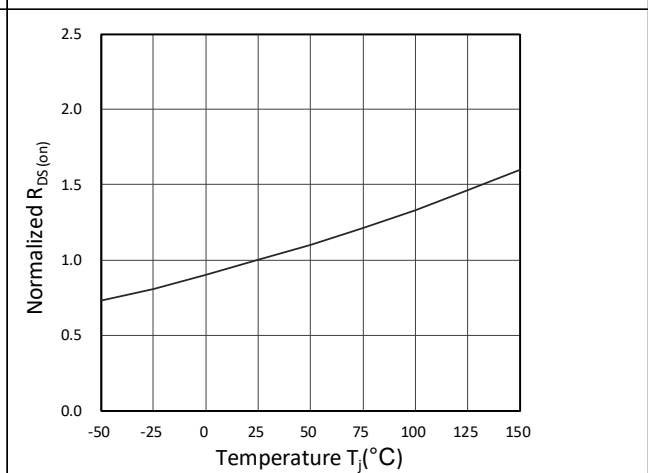


Figure 6. Normalized  $R_{DS(on)}$  vs. Temperature

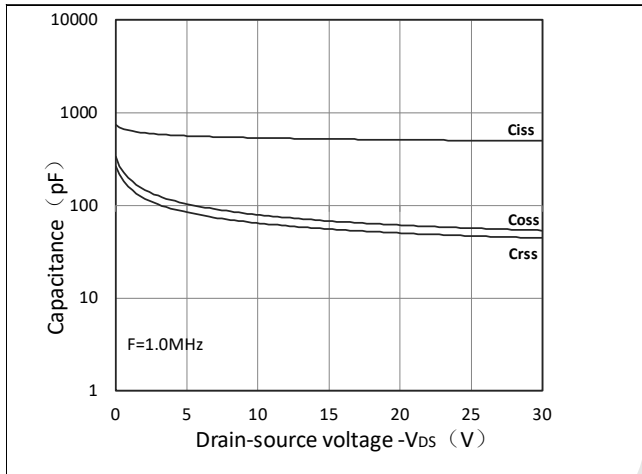


Figure 7. Capacitance Characteristics

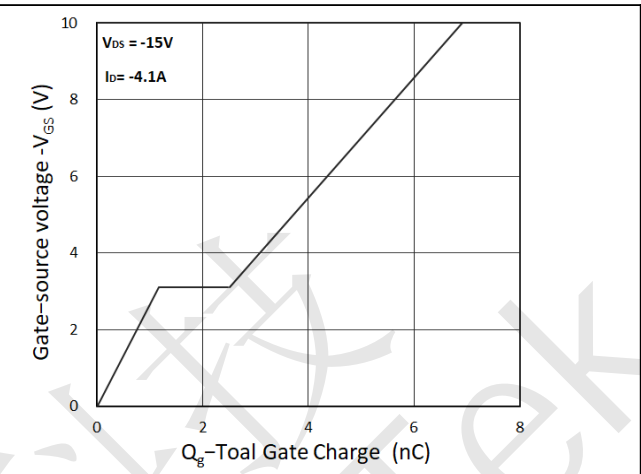
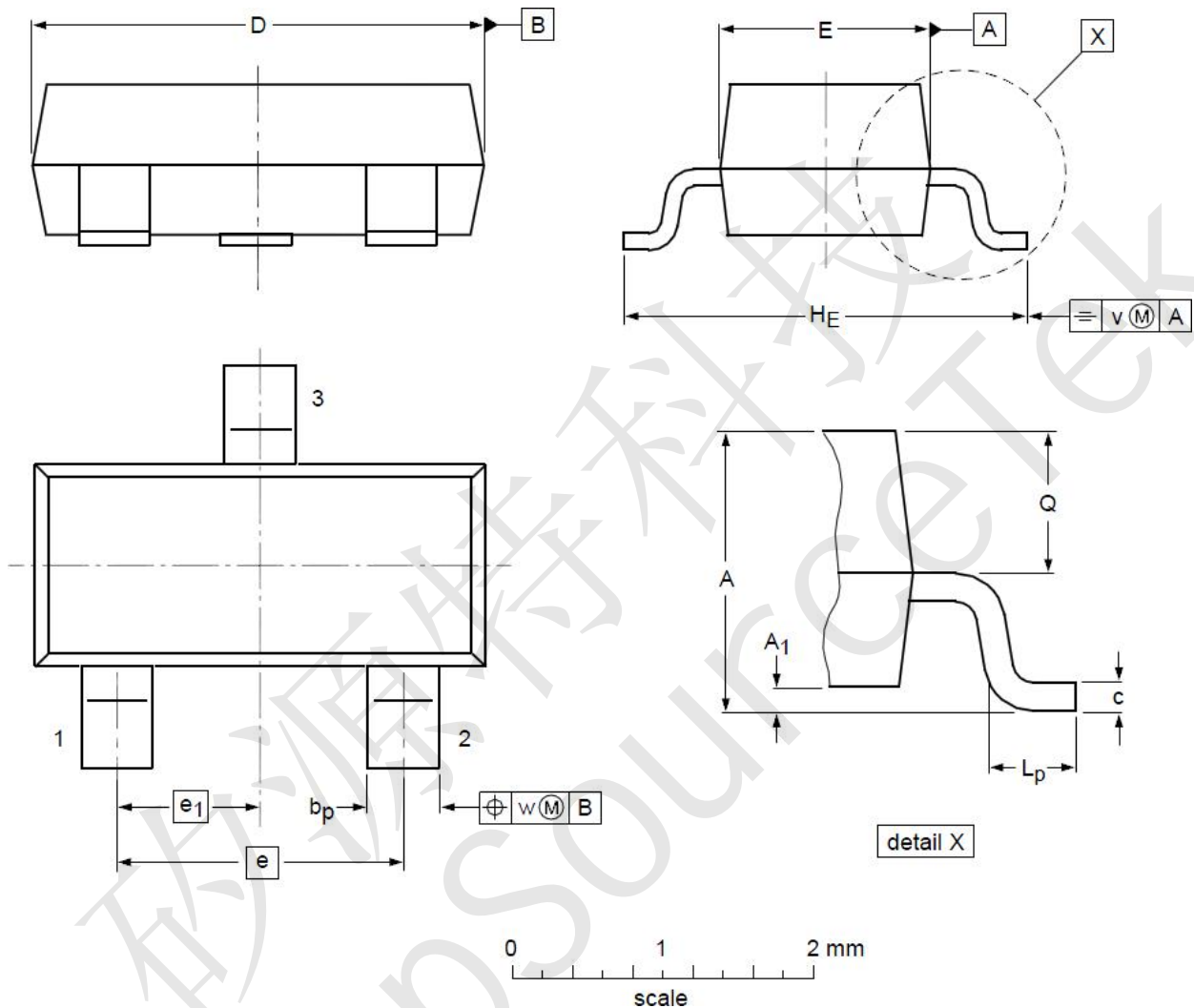


Figure 8. Gate Charge Characteristics



#### CST3407A Package Mechanical Data-SOT-23



#### DIMENSIONS ( unit : mm )

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.01	1.15	A <sub>1</sub>	0.01	0.05	0.10
b <sub>p</sub>	0.30	0.42	0.50	c	0.08	0.13	0.15
D	2.80	2.92	3.00	E	1.20	1.33	1.40
e	--	1.90	--	e <sub>1</sub>	--	0.95	--
H <sub>E</sub>	2.25	2.40	2.55	L <sub>p</sub>	0.30	0.42	0.50
Q	0.45	0.49	0.55	v	--	0.20	--
w	--	0.10	--				