



### CST3419A P-Ch 30V Fast Switching MOSFETs

- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

#### CST3419A Product Summary

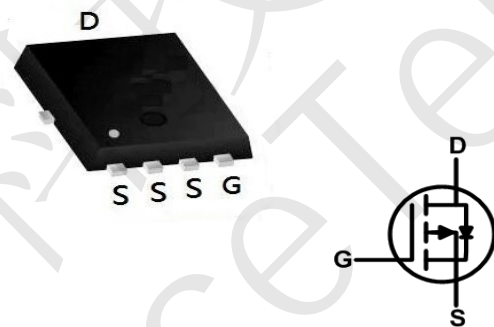


BVDSS	RDS(on)	ID
-30V	8.5 mΩ	-55A

#### CST3419A Description

The CST3419A is the highest performance trench P-ch MOSFETs with extreme high cell density, which provide excellent RDS(on) and gate charge for most of the synchronous buck converter applications . The CST3419A meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

#### CST3419A PDFN3333-8L Pin Configuration



#### CST3419A Absolute Maximum Ratings (T<sub>C</sub>=25°C unless otherwise specified)

Symbol	Parameter	Max.	Units
V <sub>DSS</sub>	Drain-Source Voltage	-30	V
V <sub>GSS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub>	Continuous Drain Current	T <sub>C</sub> = 25°C	-55
		T <sub>C</sub> = 100°C	-23
I <sub>DM</sub>	Pulsed Drain Current <sup>note1</sup>	-140	A
E <sub>AS</sub>	Single Pulsed Avalanche Energy <sup>note2</sup>	78.8	mJ
P <sub>D</sub>	Power Dissipation	T <sub>C</sub> = 25°C	21.5
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	5.8	°C/W
T <sub>J</sub> , T <sub>STG</sub>	Operating and Storage Temperature Range	-55 to +150	°C



### CST3419A P-Ch 30V Fast Switching MOSFETs

#### CST3419A Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> = -250μA	-30	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V,	-	-	-1	μA
I <sub>GSS</sub>	Gate to Body Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> = ±20V	-	-	±100	nA
<b>On Characteristics</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1.0	-1.5	-2.5	V
R <sub>DS(on)</sub>	Static Drain-Source on-Resistance note3	V <sub>GS</sub> = -10V, I <sub>D</sub> = -12A	-	8.5	11	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -8A	-	13	18	
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1.0MHz	-	2800	-	pF
C <sub>oss</sub>	Output Capacitance		-	346	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	319	-	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = -15V, I <sub>D</sub> = -20A, V <sub>GS</sub> = -10V	-	30	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	5.3	-	nC
Q <sub>gd</sub>	Gate-Drain("Miller") Charge		-	7.6	-	nC
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> = -15V, I <sub>D</sub> = -20A, V <sub>GS</sub> =-10V, R <sub>GEN</sub> =2.5Ω	-	14	-	ns
t <sub>r</sub>	Turn-on Rise Time		-	20	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time		-	95	-	ns
t <sub>f</sub>	Turn-off Fall Time		-	65	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
I <sub>S</sub>	Maximum Continuous Drain to Source Diode Forward Current		-	-	-55	A
I <sub>SM</sub>	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-140	A
V <sub>SD</sub>	Drain to Source Diode Forward Voltage	V <sub>GS</sub> = 0V, I <sub>S</sub> = -35A	-	-0.8	-1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

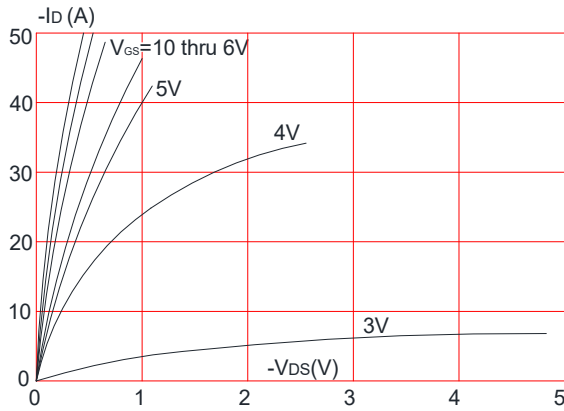
2. EAS condition: T<sub>J</sub>= 25°C, V<sub>DD</sub>= -20V, V<sub>G</sub>= -10V, L= 0.5mH, R<sub>G</sub>= 25 Ω, I<sub>AS</sub>= -17A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

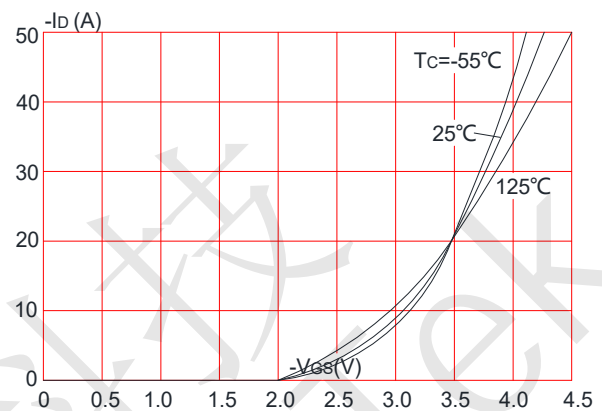


## CST3419A Typical Performance Characteristics

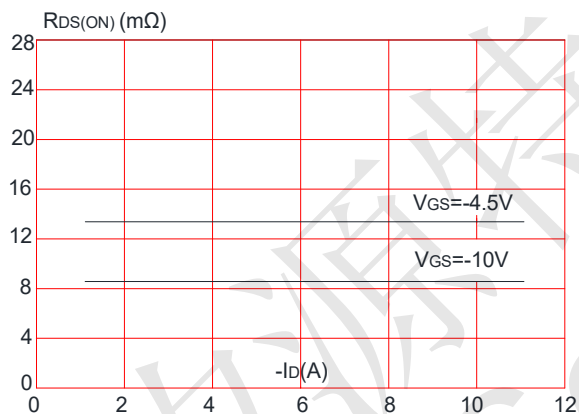
**Figure 1:** Output Characteristics



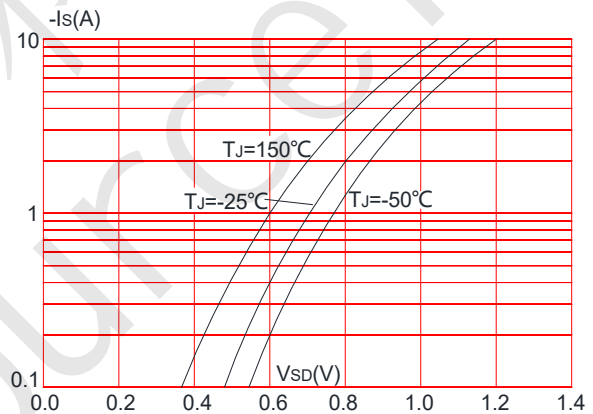
**Figure 2:** Typical Transfer Characteristics



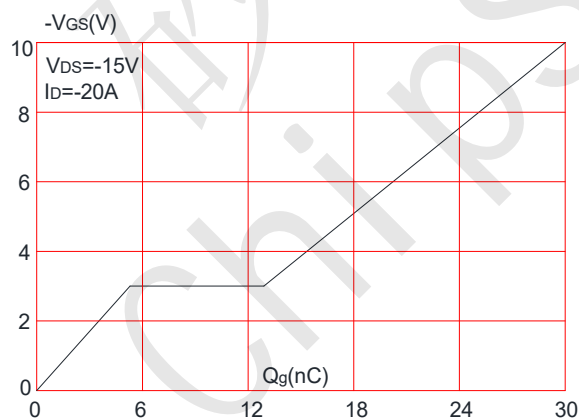
**Figure 3:** On-resistance vs. Drain Current



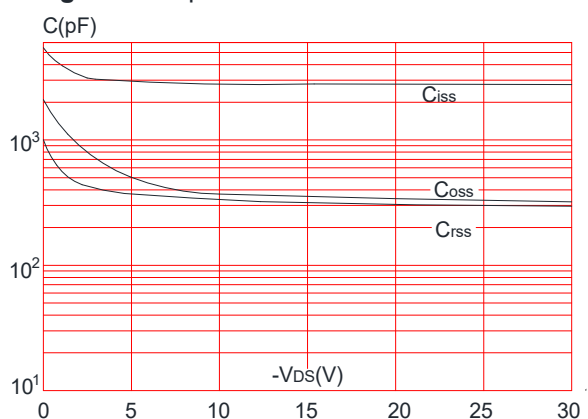
**Figure 4:** Body Diode Characteristics



**Figure 5:** Gate Charge Characteristics



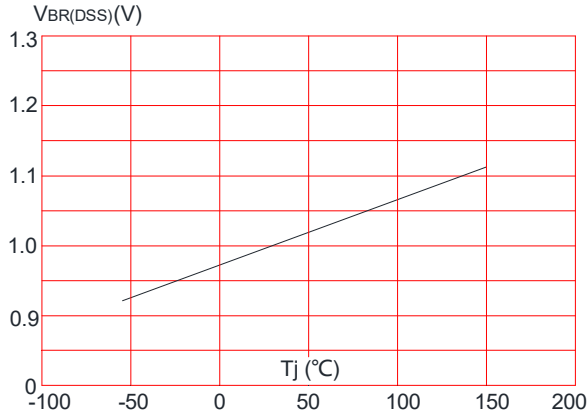
**Figure 6:** Capacitance Characteristics



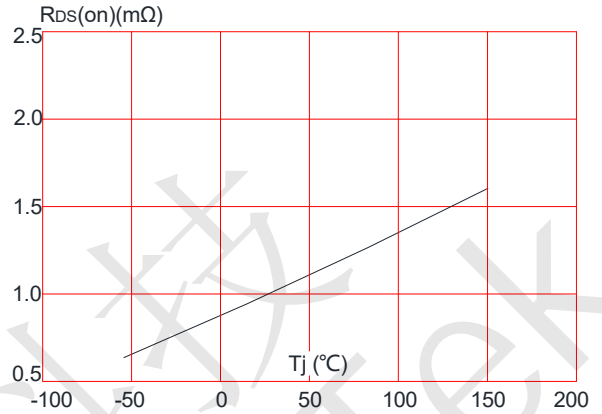


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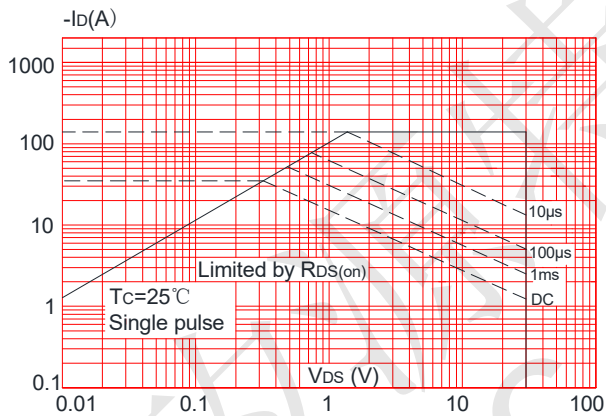
**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature



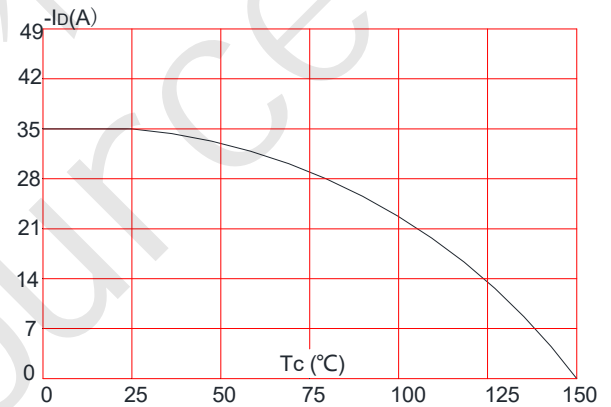
**Figure 8:** Normalized on Resistance vs. Junction Temperature



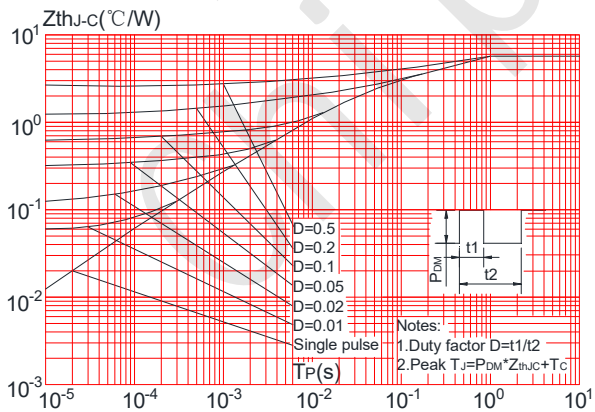
**Figure 9:** Maximum Safe Operating Area



**Figure 10:** Maximum Continuous Drain Current vs. Case Temperature

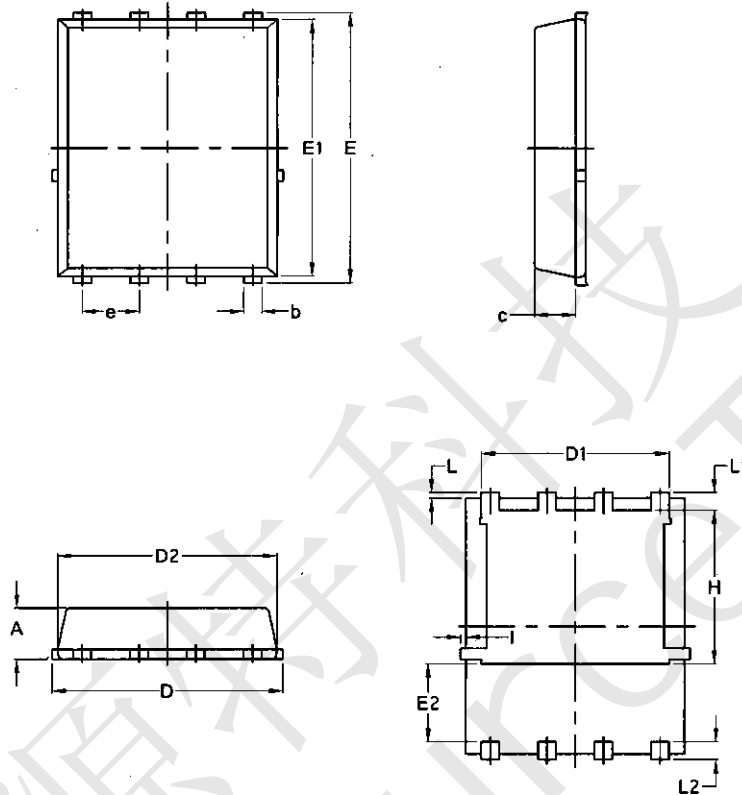


**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Case





CST3419A Package Mechanical Data-PDFN3333-8L-Single



COMMON DIMENSIONS

(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.70	0.80	0.90
A1	0.00	0.03	0.05
b	0.24	0.30	0.35
c	0.10	0.15	0.20
D	3.25	3.32	3.40
D1	3.05	3.15	3.25
D2	2.40	2.50	2.60
E	3.00	3.10	3.20
E1	1.35	1.45	1.55
e	0.65 BSC.		
H	3.20	3.30	3.40
L	0.30	0.40	0.50
L1	0.10	0.15	0.20
L2	1.13 REF.		