



### CST4882 Dual N-Ch 40V Fast Switching MOSFETs

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

#### CST4882 Product Summary



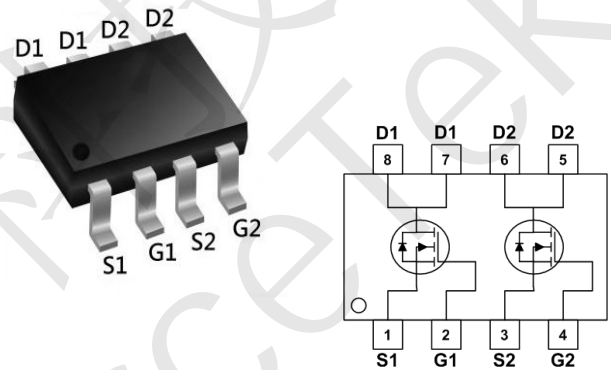
BVDSS	RDSON	ID
40V	17mΩ	8A

#### CST4882 Description

The CST4882 is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The CST4882 meet the RoHS and Green Product requirement with full function reliability approved.

#### CST4882 SOP8 Pin Configuration



#### CST4882 Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Max.	Units	
$V_{DSS}$	Drain-Source Voltage	40	V	
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	V	
$I_D$	Continuous Drain Current	$T_A = 25^\circ\text{C}$	8.0	A
		$T_A = 100^\circ\text{C}$	6	A
$I_{DM}$	Pulsed Drain Current <sup>note1</sup>	32.8	A	
EAS	Single Pulsed Avalanche Energy <sup>note2</sup>	13	mJ	
$P_D$	Power Dissipation	$T_A = 25^\circ\text{C}$	2.9	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	63	$^\circ\text{C}/\text{W}$	
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$	



### CST4882 Dual N-Ch 40V Fast Switching MOSFETs

#### CST4882 N-Channel Electrical Characteristics ( $T_J=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	40	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=40V, V_{GS}=0V$	-	-	1.0	$\mu A$
$I_{GSS}$	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note3</small>	$V_{GS}=10V, I_D=8A$	-	17	22	m $\Omega$
		$V_{GS}=4.5V, I_D=5A$	-	25	35	m $\Omega$
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=20V, V_{GS}=0V,$ $f=1.0MHz$	-	633	-	pF
$C_{oss}$	Output Capacitance		-	67	-	pF
$C_{rss}$	Reverse Transfer Capacitance		-	58	-	pF
$Q_g$	Total Gate Charge	$V_{DS}=20V, I_D=8A,$ $V_{GS}=10V$	-	12	-	nC
$Q_{gs}$	Gate-Source Charge		-	3.2	-	nC
$Q_{gd}$	Gate-Drain("Miller") Charge		-	3.1	-	nC
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=20V, R_L=2.5\Omega$ $V_{GS}=10V, R_{REN}=3\Omega$	-	4	-	ns
$t_r$	Turn-on Rise Time		-	3	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	15	-	ns
$t_f$	Turn-off Fall Time		-	2	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
$I_S$	Maximum Continuous Drain to Source Diode Forward Current		-	-	8	A
$I_{SM}$	Maximum Pulsed Drain to Source Diode Forward Current		-	-	32	A
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=8A$	-	-	1.2	V

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

2. EAS condition :  $T_J=25^\circ\text{C}, V_{DD}=20V, V_G=10V, L=0.5mH, R_g=25\Omega, I_{AS}=7.2A$

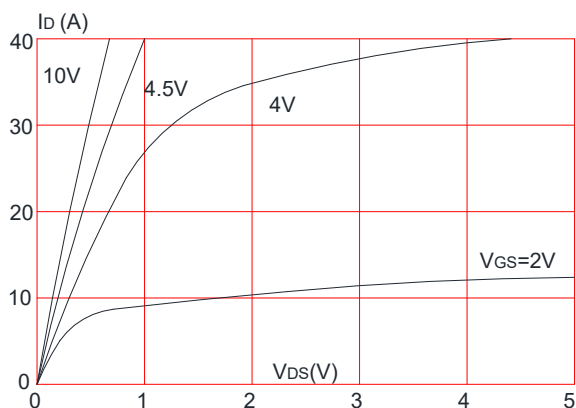
$T_J=25^\circ\text{C}, V_{DD}=-20V, V_G=-10V, L=0.5mH, R_g=25\Omega, I_{AS}=-8.4A$

3. Pulse Test: Pulse Width $\leq 300\mu s$ , Duty Cycle $\leq 2\%$

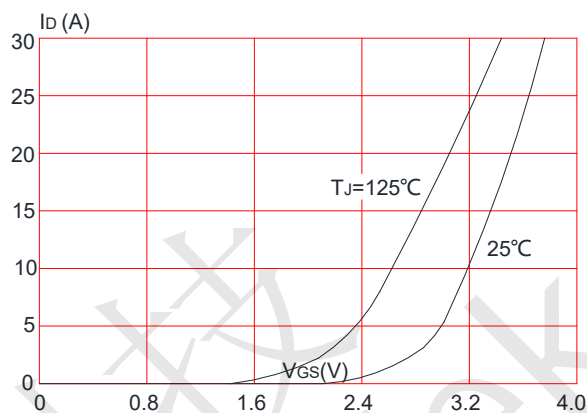


#### CST4882 Typical Performance Characteristics-N

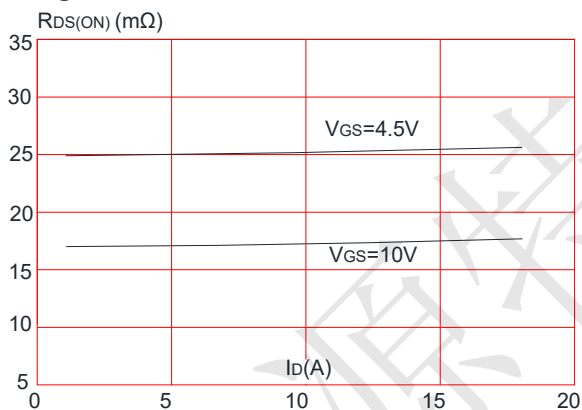
**Figure 1: Output Characteristics**



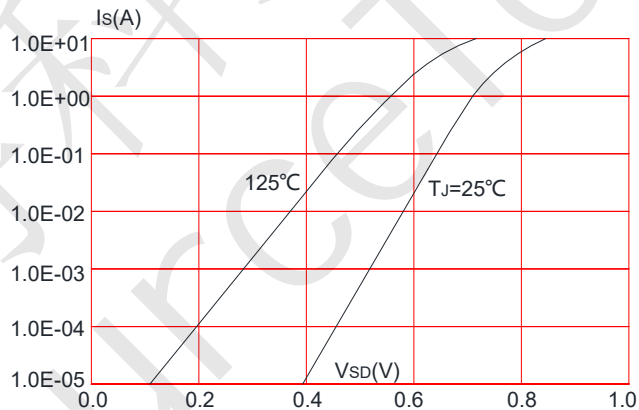
**Figure 2: Typical Transfer Characteristics**



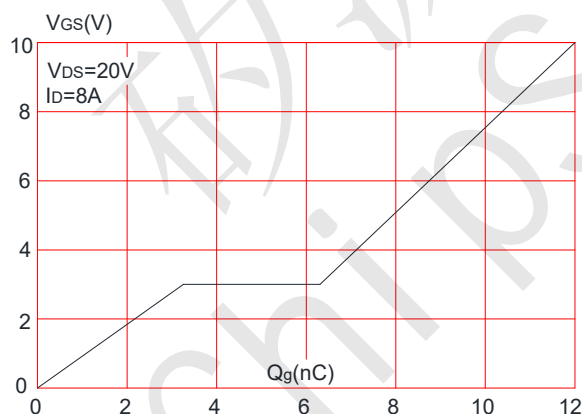
**Figure 3: On-resistance vs. Drain Current**



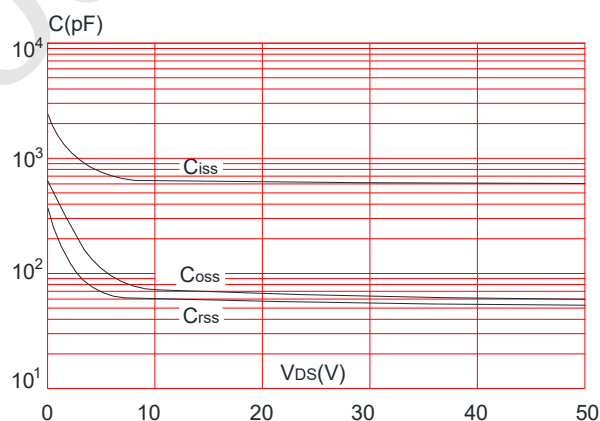
**Figure 4: Body Diode Characteristics**



**Figure 5: Gate Charge Characteristics**



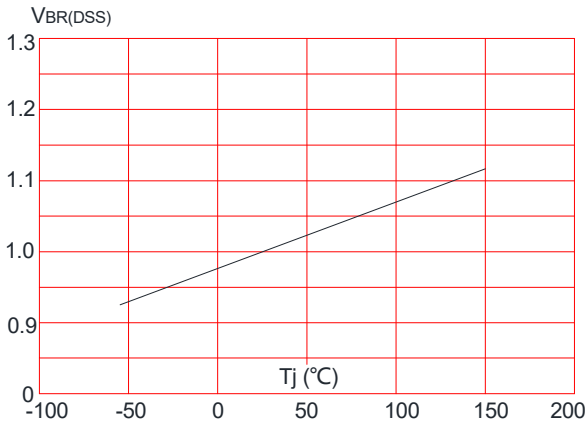
**Figure 6: Capacitance Characteristics**



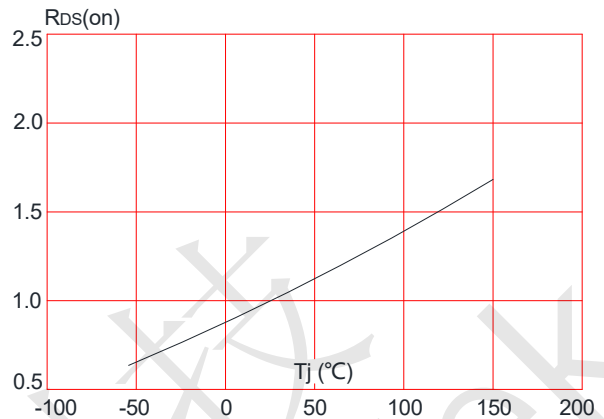


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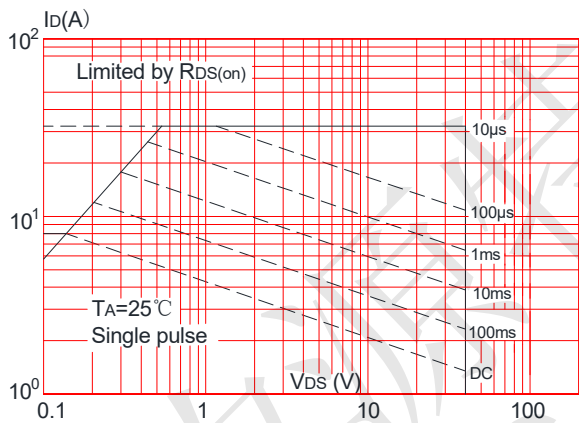
**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature



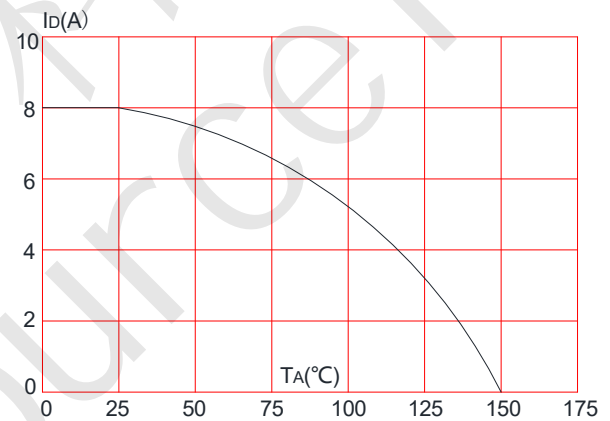
**Figure 8:** Normalized on Resistance vs. Junction Temperature



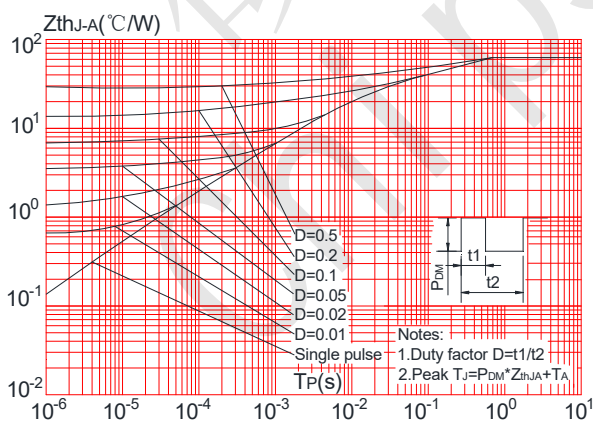
**Figure 9:** Maximum Safe Operating Area



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

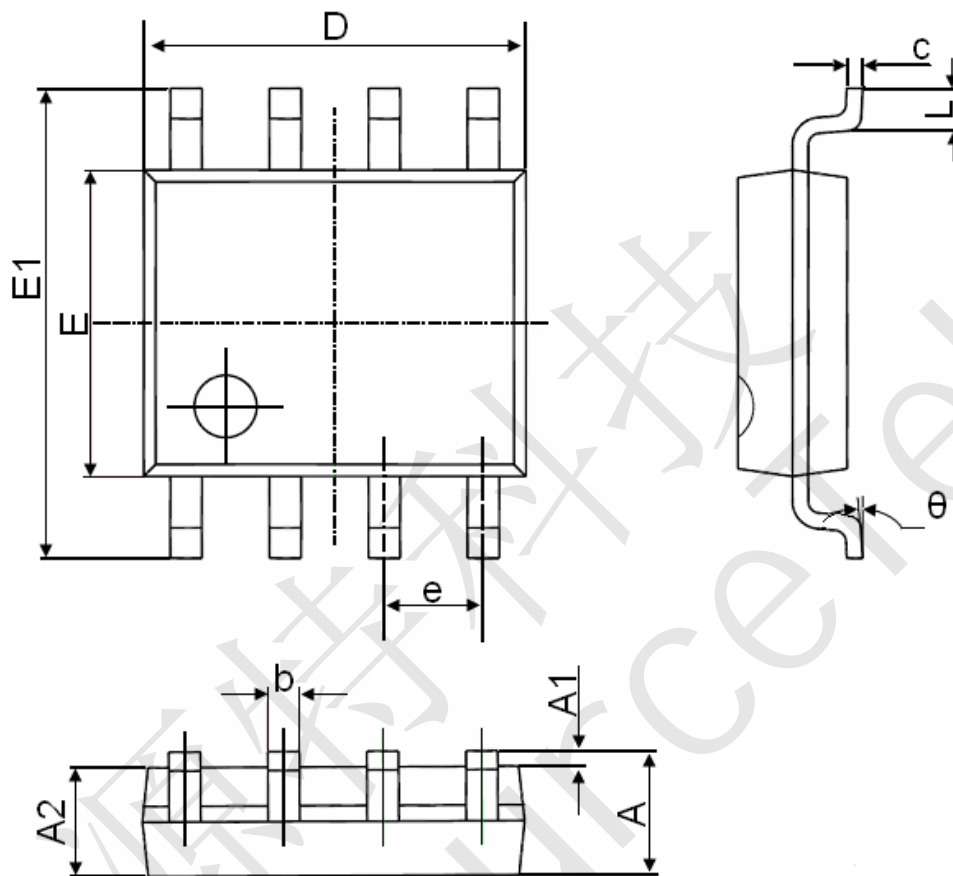


**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Ambient





CST4882 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
$\theta$	0°	8°	0°	8°