



CST4886 Dual N-Ch 100V Fast Switching MOSFETs

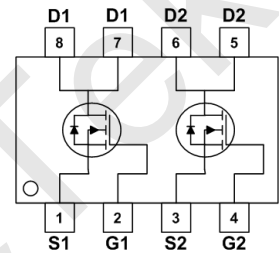
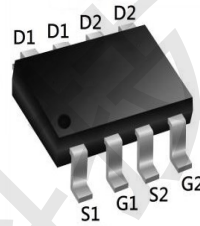
- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

CST4886 Product Summary



BVDSS	RDS(on)	ID
100V	88mΩ	8.0A

CST4886 SOP8 Pin Configuration



CST4886 Description

The CST4886 is the highest performance trench N-ch MOSFETs with extreme high cell density, which provide excellent RDS(on) and gate charge for most of the synchronous buck converter applications.

The CST4886 meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

CST4886 Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	100	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current, V _{GS} @ 10V ¹	8	A
I _D @T _C =100°C	Continuous Drain Current, V _{GS} @ 10V ¹	5	A
I _{DM}	Pulsed Drain Current ²	15	A
EAS	Single Pulse Avalanche Energy ³	6.1	mJ
P _D @T _A =25°C	Total Power Dissipation ³	5	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

CST4886 Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient ¹	---	125	°C/W
R _{θJC}	Thermal Resistance Junction-Case ¹	---	3.6	°C/W



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CST4886 Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	100	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.5	V
R _{DS(on)}	Static Drain-Source on-Resistance note3	V _{GS} =10V, I _D =3A	-	88	115	mΩ
		V _{GS} =4.5V, I _D =2A	-	100	140	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	610	-	pF
C _{oss}	Output Capacitance		-	40	-	pF
C _{rss}	Reverse Transfer Capacitance		-	25	-	pF
Q _g	Total Gate Charge	V _{DS} =50V, I _D =2A, V _{GS} =10V	-	12	-	nC
Q _{gs}	Gate-Source Charge		-	2.2	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	2.5	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =50V, I _D =3A, R _G =1.8Ω, V _{GS} =10V	-	7	-	ns
t _r	Turn-on Rise Time		-	5	-	ns
t _{d(off)}	Turn-off Delay Time		-	16	-	ns
t _f	Turn-off Fall Time		-	6	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	3	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	8	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =3A	-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time	I _F =3A, di/dt=100A/μs	-	21	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	21	-	nC

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

2. EAS condition : T_J=25°C, V_{DD}=50V, V_G=10V, L=0.5mH, R_G=25Ω, I_{AS}=4A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%



CST4886 Typical Performance Characteristics

Figure 1: Output Characteristics

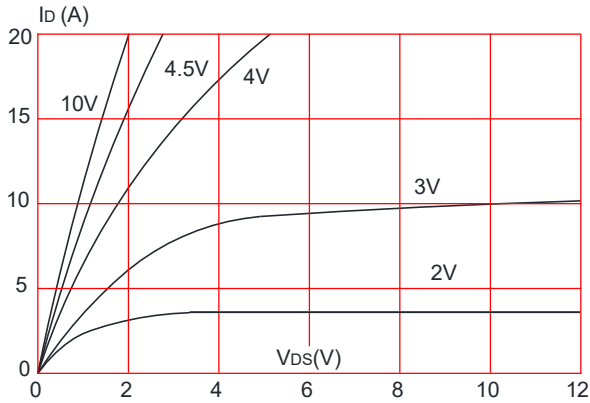


Figure 2: Typical Transfer Characteristics

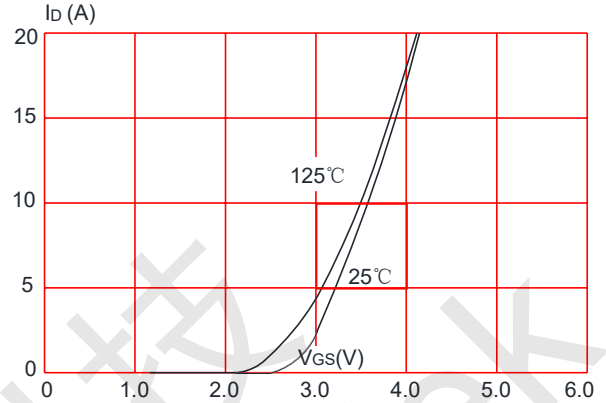


Figure 3: On-resistance vs. Drain Current

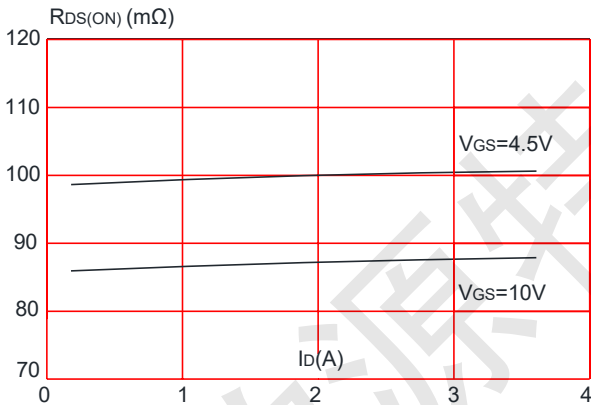


Figure 4: Body Diode Characteristics

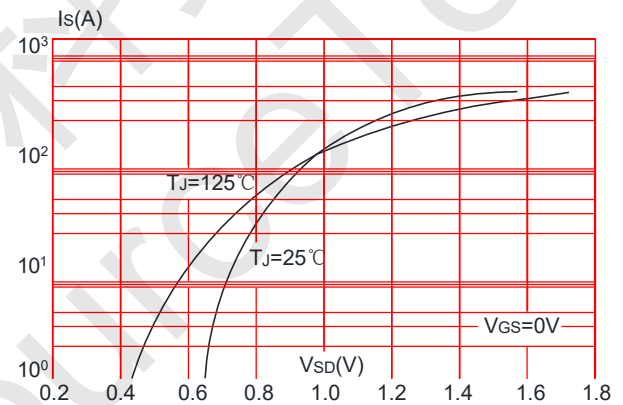


Figure 5: Gate Charge Characteristics

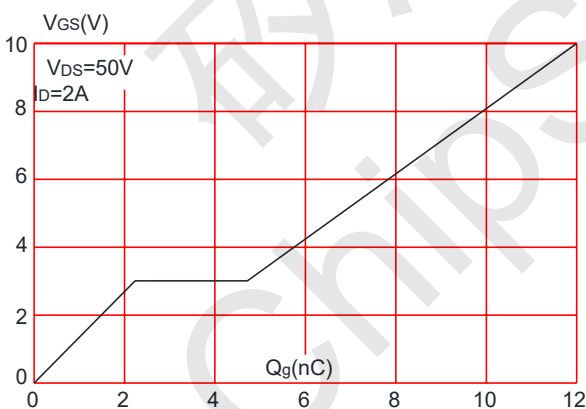
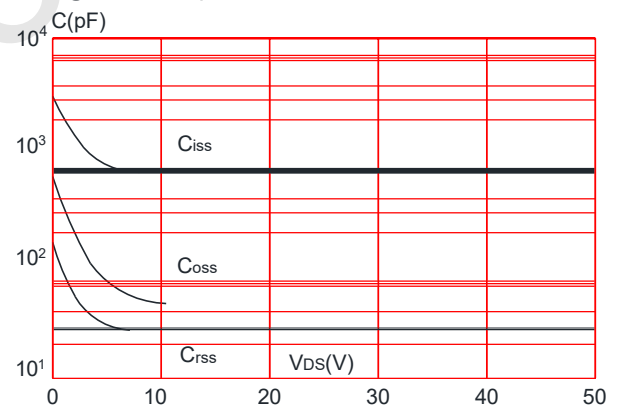


Figure 6: Capacitance Characteristics





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Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

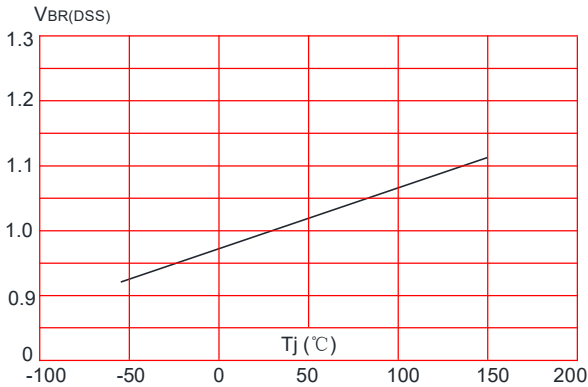


Figure 8: Normalized on Resistance vs. Junction Temperature

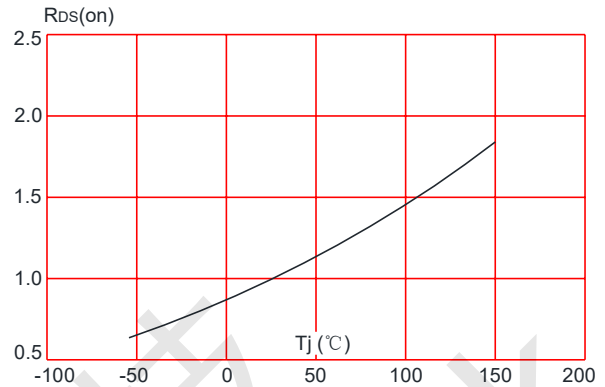


Figure 9: Maximum Safe Operating Area

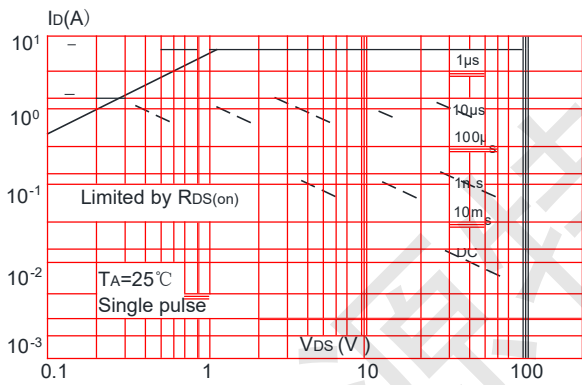


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

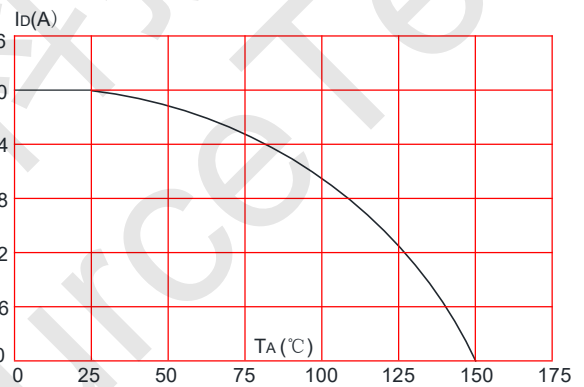
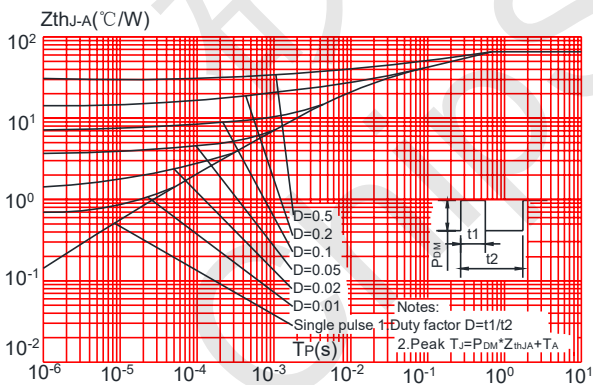
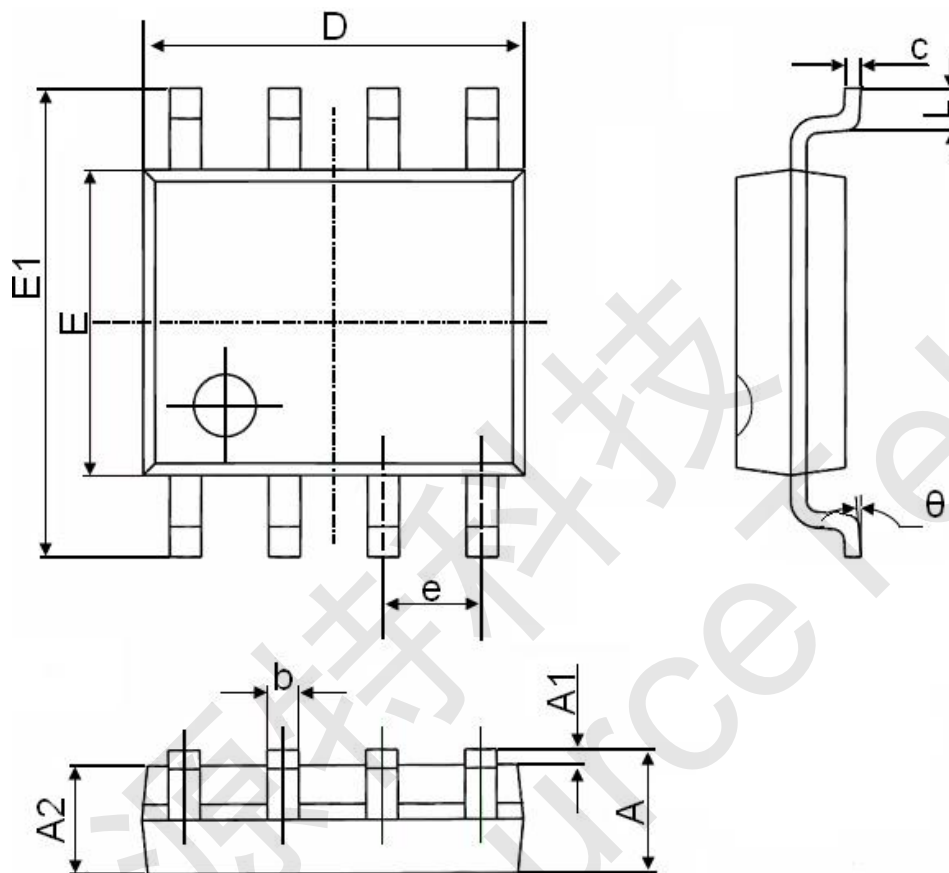


Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient





CST4886 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°