



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

#### CST4801 Product Summary

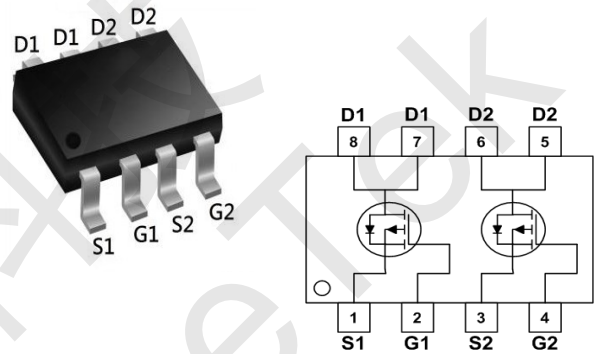
BVDSS	RDSON	ID
-30V	42mΩ	-6A

#### CST4801 Description

The CST4801 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 CST4801 meet the RoHS and Green Product requirement 100% EAS guaranteed with full function reliability approved.

#### CST4801 SOP8 Pin Configuration



#### CST4801 Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	-30	V
$V_{GS}$	Gate-Source Voltage	$\pm 12$	V
$I_{D@T_A=25^\circ C}$	Continuous Drain Current	-6	A
$I_{D@T_A=70^\circ C}$	Continuous Drain Current	-3.6	A
$I_{DM}$	Pulsed Drain Current <sup>2</sup>	-16	A
$P_{D@T_A=25^\circ C}$	Total Power Dissipation <sup>3</sup>	1.4	W
$P_{D@T_A=70^\circ C}$	Total Power Dissipation <sup>3</sup>	0.9	W
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ C$
$T_J$	Operating Junction Temperature Range	-55 to 150	$^\circ C$

#### CST4801 Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient <sup>1</sup>	---	105	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient <sup>1</sup> (t ≤ 10s)	---	---	$^\circ C/W$



### CST4801 Dual P-Ch 30V Fast Switching MOSFETs

#### CST4801 Electrical Characteristics ( $T_J=25^\circ\text{C}$ unless otherwise noted)

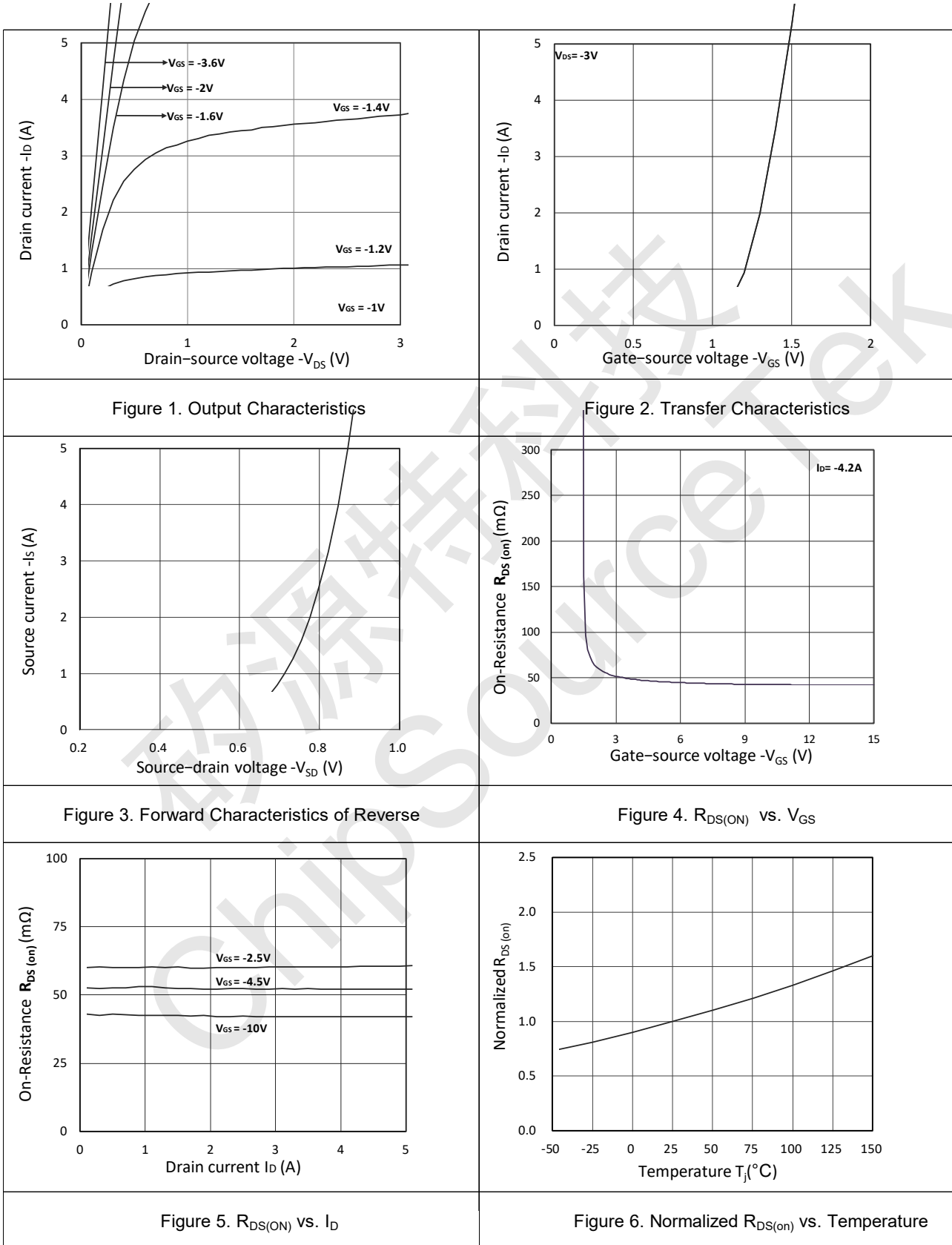
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -30V, V_{GS} = 0V$	-	-	-1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 12V$	-	-	$\pm 100$	nA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.7	-1	-1.3	V
Drain-Source on-Resistance <sup>3</sup>	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.2A$	-	42	60	m $\Omega$
		$V_{GS} = -4.5V, I_D = -4A$	-	52	75	
		$V_{GS} = -2.5V, I_D = -1A$	-	60	90	
<b>Dynamic Characteristics<sup>4</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = -15V, V_{GS} = 0V,$ $f = 1MHz$	-	745	-	pF
Output Capacitance	$C_{oss}$		-	70	-	
Reverse Transfer Capacitance	$C_{rss}$		-	57	-	
<b>Switching Characteristics<sup>4</sup></b>						
Total Gate Charge	$Q_g$	$V_{GS} = -4.5V, V_{DS} = -15V,$ $I_D = -4.2A$	-	8	-	nC
Gate-Source Charge	$Q_{gs}$		-	1.8	-	
Gate-Drain Charge	$Q_{gd}$		-	2.7	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{GS} = -10V, V_{DD} = -15V,$ $I_D = -4.2A, R_{GEN} = 6\Omega$	-	7	-	ns
Rise Time	$t_r$		-	3	-	
Turn-off Delay Time	$t_{d(off)}$		-	30	-	
Fall Time	$t_f$		-	12	-	
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	$I_S = -4.2A, V_{GS} = 0V$	-	-	-1.2	V
Continuous Source Current	$I_S$		-	-	$-\hat{I}$	A

#### Notes:

1. Repetitive rating, pulse width limited by junction temperature  $T_{J(MAX)}=150^\circ\text{C}$
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 $\leq 300\mu s$ , duty cycle $\leq 2\%$ .
4. This value is guaranteed by design hence it is not included in the production test.



CST4801 Typical Characteristics





### CST4801 Dual P-Ch 30V Fast Switching MOSFETs

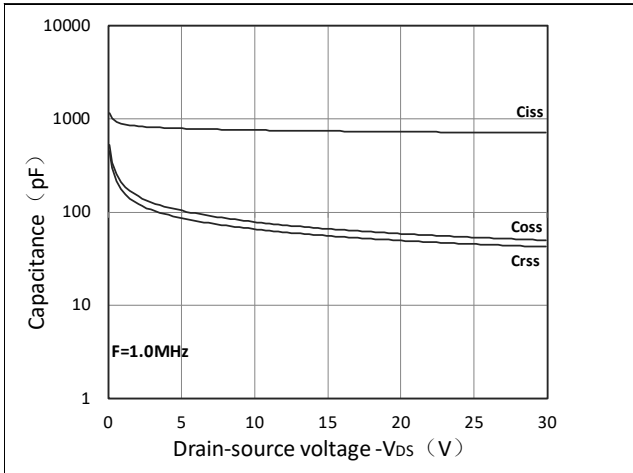


Figure 7. Capacitance Characteristics

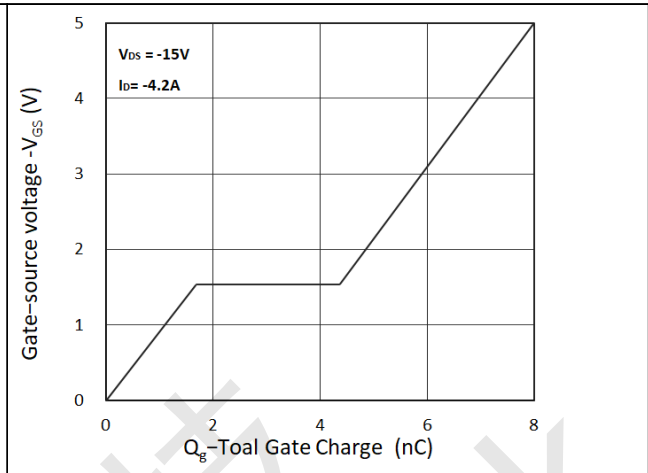


Figure 8. Gate Charge Characteristics

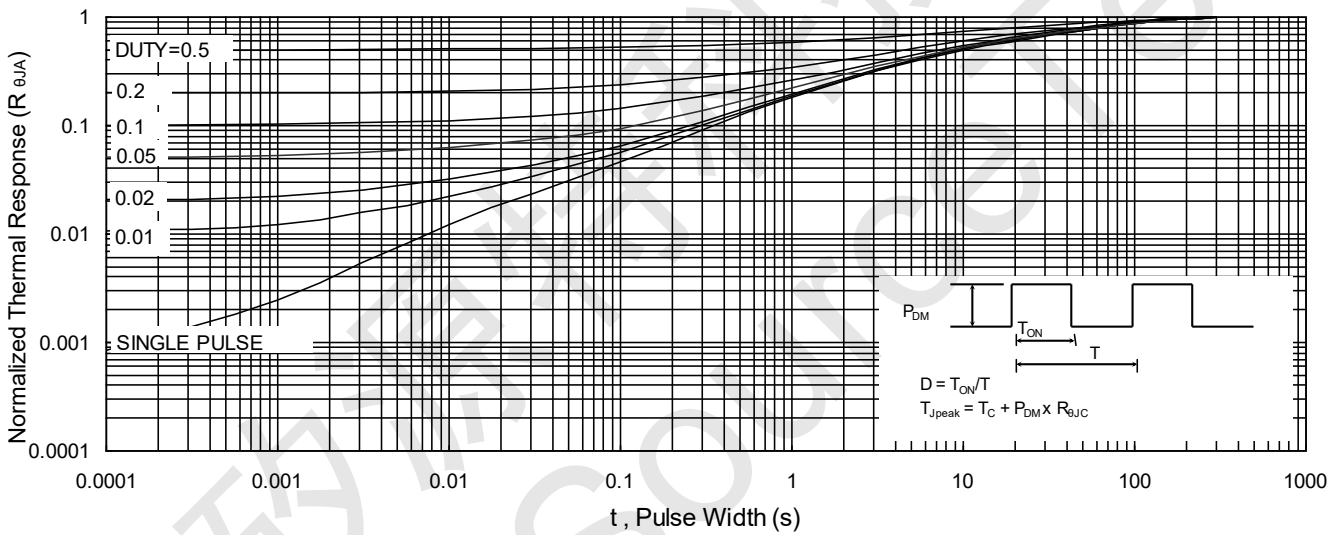


Fig.9 Normalized Maximum Transient Thermal Impedance

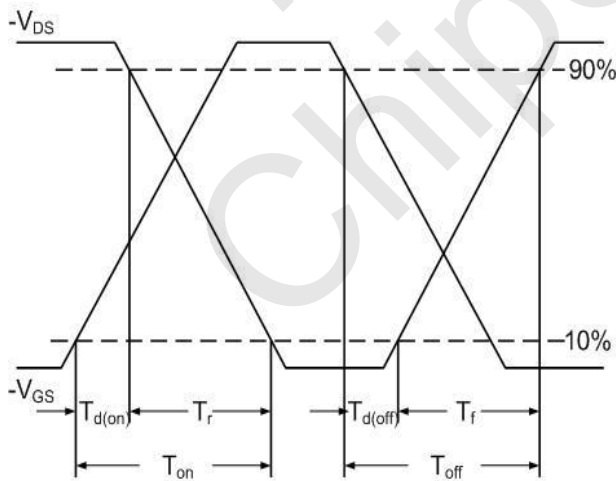


Fig.10 Switching Time Waveform

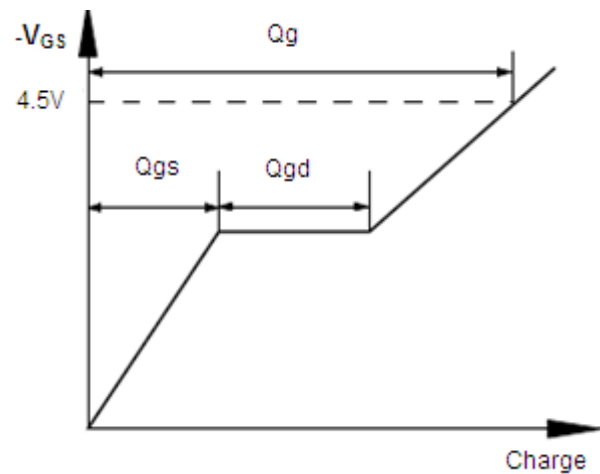


Fig.11 Gate Charge Waveform



CST4801 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°