



CST8V06S Dual N-Ch 60V Fast Switching MOSFETs

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

CST8V06S Product Summary



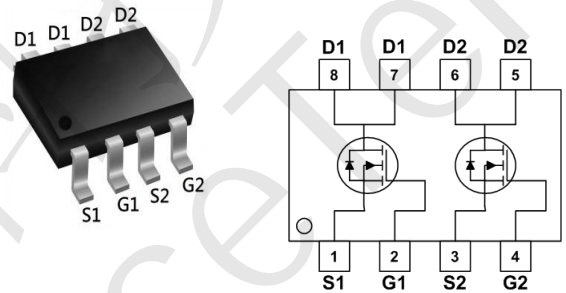
BVDSS	RDS(on)	ID
60V	25mΩ	8.0A

CST8V06S Description

The CST8V06S is the high cell density trenched N-ch MOSFETs, which provide excellent RDS(on) and gate charge for most of the synchronous buck converter applications.

The CST8V06S meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

CST8V06S SOP8 Pin Configuration



CST8V06S Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _A =25°C	Continuous Drain Current, V _{GS} @ 10V ¹	8.0	A
I _D @T _A =70°C	Continuous Drain Current, V _{GS} @ 10V ¹	5.5	A
I _{DM}	Pulsed Drain Current ²	25	A
EAS	Single Pulse Avalanche Energy ³	28	mJ
I _{AS}	Avalanche Current	10	A
P _D @T _A =25°C	Total Power Dissipation ⁴	1.5	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

CST8V06S Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient ¹	---	80	°C/W
R _{θJC}	Thermal Resistance Junction-Case ¹	---	25	°C/W



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CST8V06S Electrical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit	
Static Characteristics							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60	-	-	V	
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	± 100	nA	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$	$T_J = 25^\circ\text{C}$	-	-	1	μA
			$T_J = 100^\circ\text{C}$	-	-	100	
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.2	1.7	2.5	V	
Drain-Source on-Resistance ⁴	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$	-	25	32	m Ω	
		$V_{GS} = 4.5V, I_D = 5A$	-	31	40		
Forward Transconductance ⁴	g_{fs}	$V_{DS} = 5V, I_D = 10A$	-	15.5	-	S	
Dynamic Characteristics⁵							
Input Capacitance	C_{iss}	$V_{DS} = 30V, V_{GS} = 0V, f = 1\text{MHz}$	-	1355	-	pF	
Output Capacitance	C_{oss}		-	60	-		
Reverse Transfer Capacitance	C_{rss}		-	49	-		
Gate Resistance	R_G	$f = 1\text{MHz}$	-	1.2	-	Ω	
Switching Characteristics⁵							
Total Gate Charge	Q_g	$V_{GS} = 10V, V_{DD} = 30V, I_D = 10A$	-	22	-	nC	
Gate-Source Charge	Q_{gs}		-	4.2	-		
Gate-Drain Charge	Q_{gd}		-	6.9	-		
Turn-on Delay Time	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 30V, R_G = 3\Omega, I_D = 10A$	-	6.4	-	ns	
Rise Time	t_r		-	15.3	-		
Turn-off Delay Time	$t_{d(off)}$		-	25	-		
Fall Time	t_f		-	7.6	-		
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 10A, dI_F/dt = 100A/\mu s$	-	26	-	ns	
Body Diode Reverse Recovery Charge	Q_{rr}		-	45	-	nC	
Drain-Source Body Diode Characteristics							
Diode Forward Voltage ⁴	V_{SD}	$I_S = 10A, V_{GS} = 0V$	-	-	1.2	V	
Continuous Source Current	I_S	$T_C = 25^\circ\text{C}$	-	-	8	A	

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)} = 150^\circ\text{C}$
2. The EAS data shows Max. rating . The test condition is $V_{DD} = 25V, V_{GS} = 10V, L = 0.4\text{mH}, I_{AS} = 14A$
3. 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.
4. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
5. This value is guaranteed by design hence it is not included in the production test.



CST8V06S Typical Performance Characteristics

Figure 1: Output Characteristics

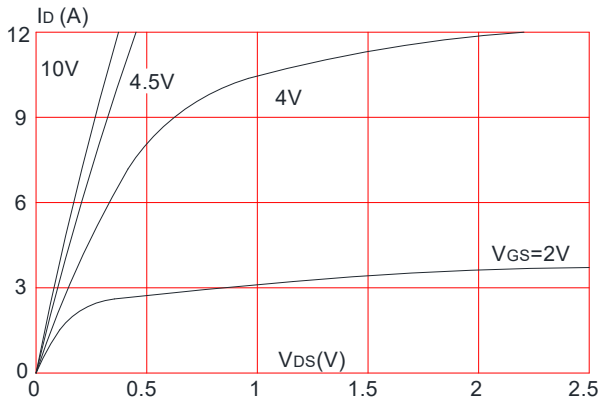


Figure 2: Typical Transfer Characteristics

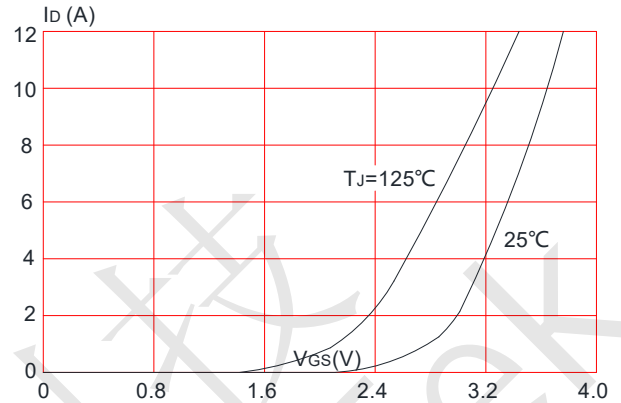


Figure 3: On-resistance vs. Drain Current

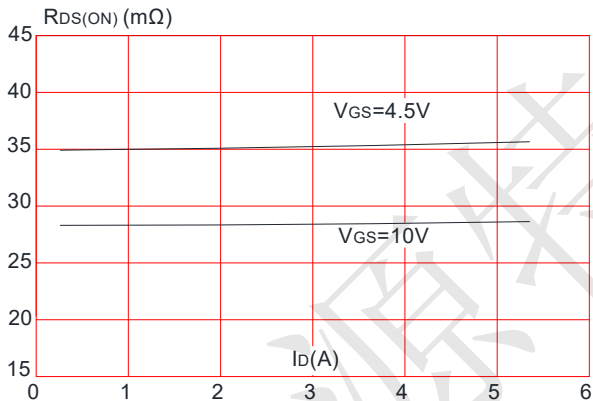


Figure 4: Body Diode Characteristics

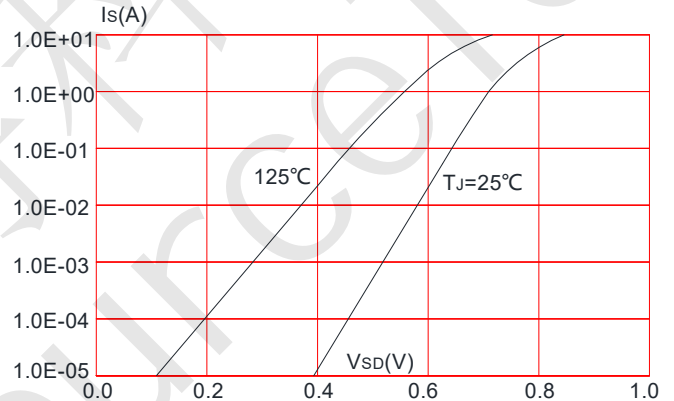


Figure 5: Gate Charge Characteristics

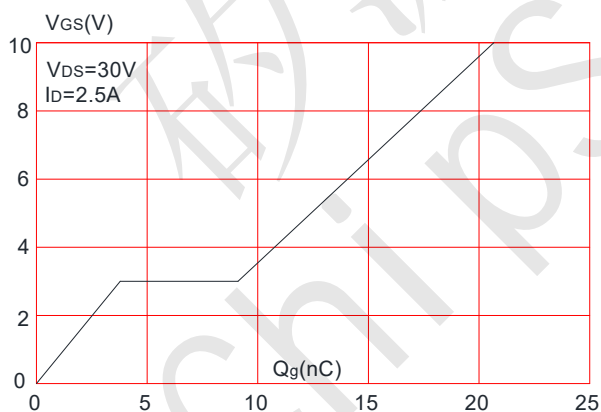
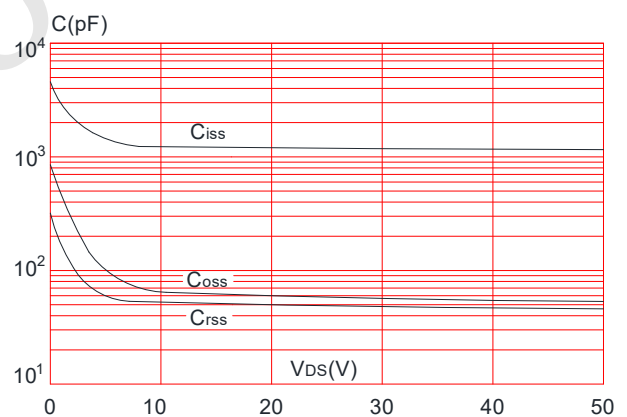


Figure 6: Capacitance Characteristics





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Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

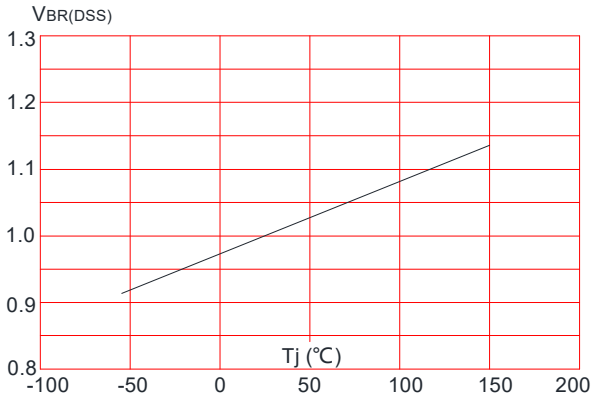


Figure 8: Normalized on Resistance vs. Junction Temperature

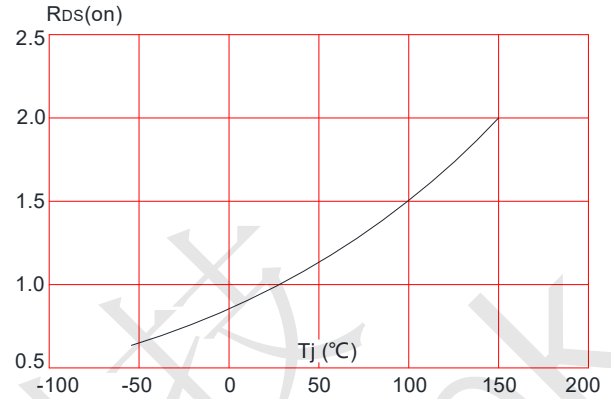


Figure 9: Maximum Safe Operating Area

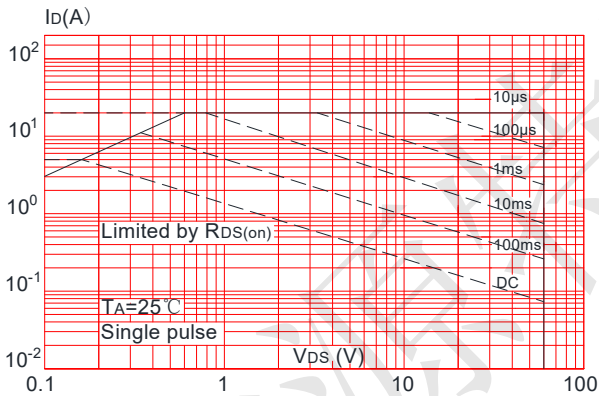


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

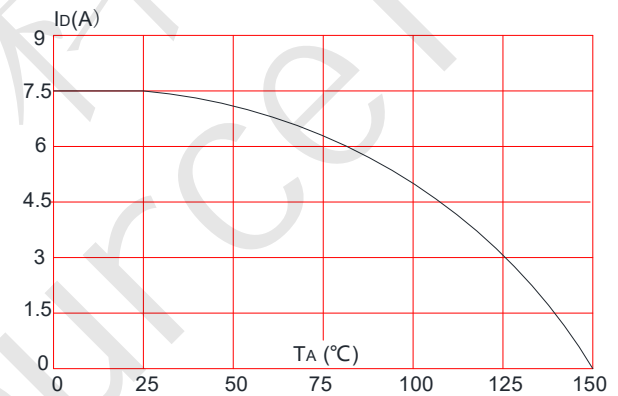
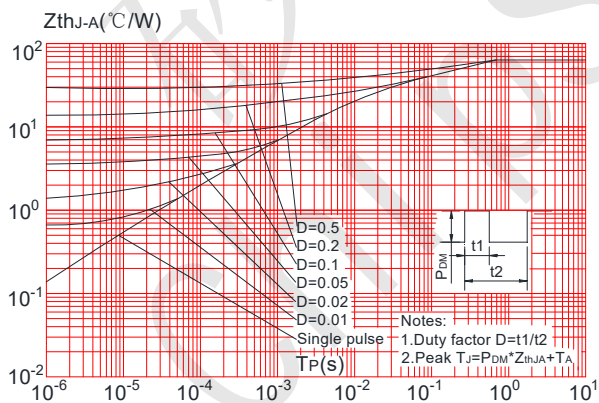
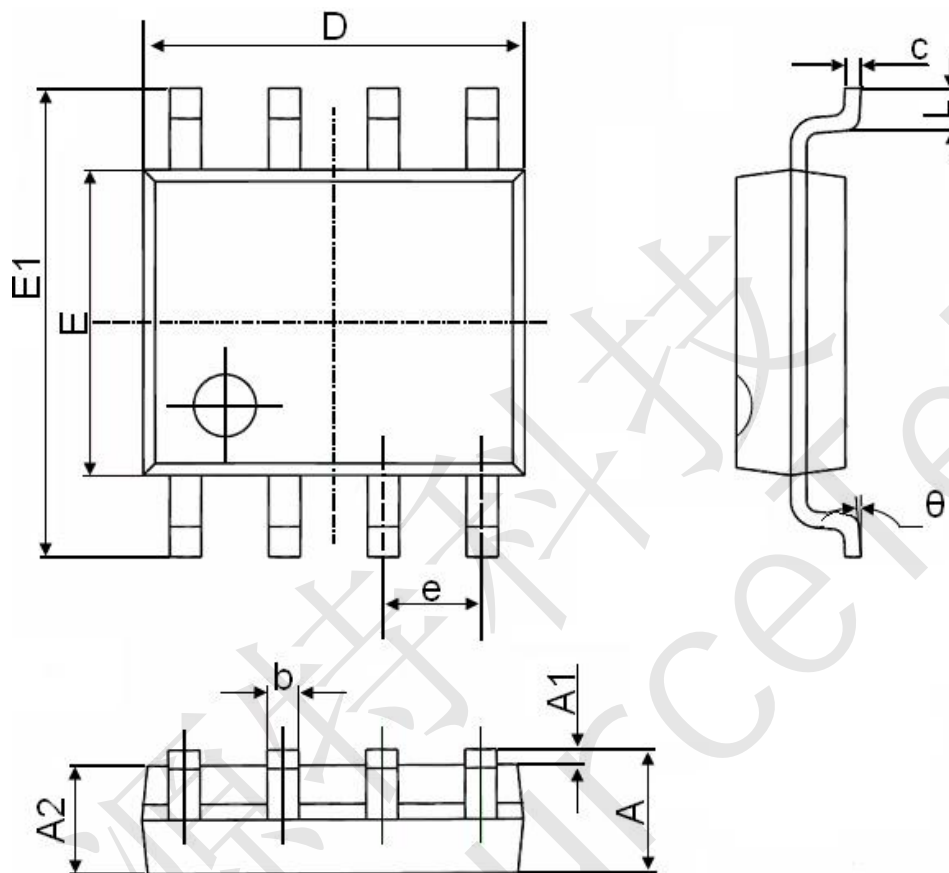


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient





CST8V06S 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°