



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



CST8205A Product Summary

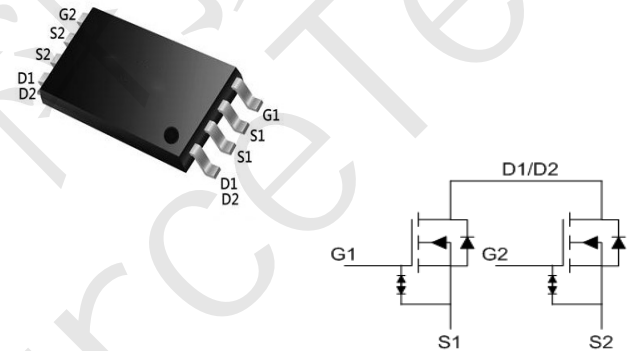
BVDSS	RDS(on)	ID
20V	19mΩ	6A

CST8205A Description

The CST8205A is the low RDS(on) trenched N-CH MOSFETs with robust ESD protection. This product is suitable for Lithium-ion battery pack applications.

The CST8205A meet the RoHS and Green Product requirement with full function reliability approved.

CST8205A TSSOP8 Pin Configuration



CST8205A Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±10	V
Drain Current-Continuous	I _D	6	A
Drain Current-Pulsed (Note 1)	I _{DM}	25	A
Maximum Power Dissipation	P _D	1.25	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 To 150	°C

CST8205A Thermal Characteristic

Thermal Resistance, Junction-to-Ambient (Note 2)	R _{θJA}	100	°C/W
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CST8205A N-Channel Enhancement Mode Power MOSFET

Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.7	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=4A$	-	19	27	m Ω
		$V_{GS}=2.5V, I_D=3A$	-	24	35	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=4A$	-	10	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{iss}	$V_{DS}=8V, V_{GS}=0V,$ $F=1.0MHz$	-	600	-	PF
Output Capacitance	C_{oss}		-	330	-	PF
Reverse Transfer Capacitance	C_{rss}		-	140	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=10V, I_D=1A$ $V_{GS}=4V, R_{GEN}=10\Omega$	-	18	-	nS
Turn-on Rise Time	t_r		-	5	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	43	-	nS
Turn-Off Fall Time	t_f		-	20	-	nS
Total Gate Charge	Q_g	$V_{DS}=10V, I_D=4A,$ $V_{GS}=4.5V$	-	11	-	nC
Gate-Source Charge	Q_{gs}		-	2.3	-	nC
Gate-Drain Charge	Q_{gd}		-	2.5	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS}=0V, I_S=2A$	-	0.8	1.2	V
Diode Forward Current (Note 2)	I_S		-	-	2	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production



CST8205A Typical Electrical and Thermal Characteristics

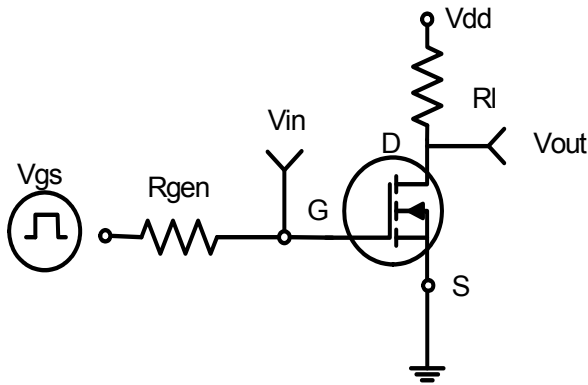


Figure 1: Switching Test Circuit

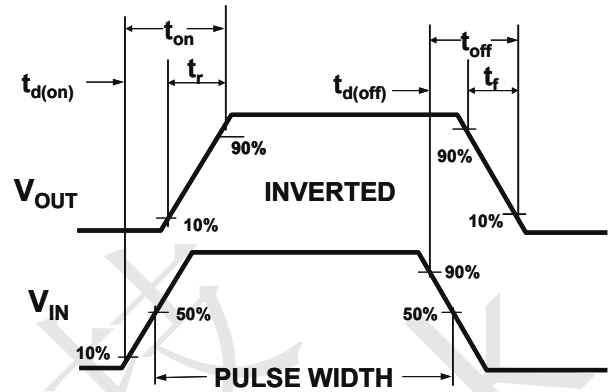


Figure 2: Switching Waveforms

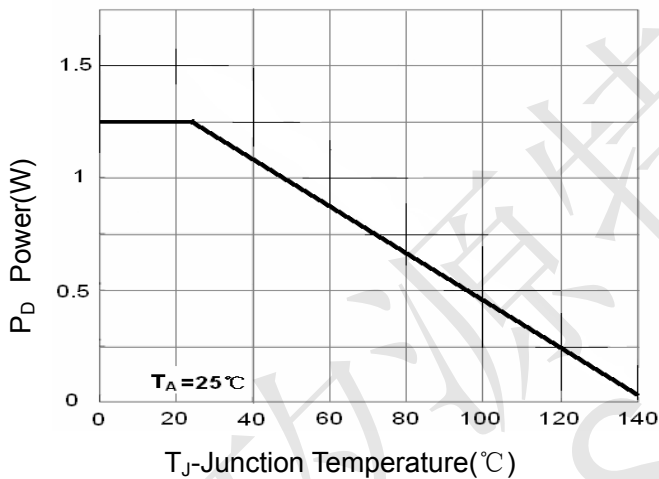


Figure 3 Power Dissipation

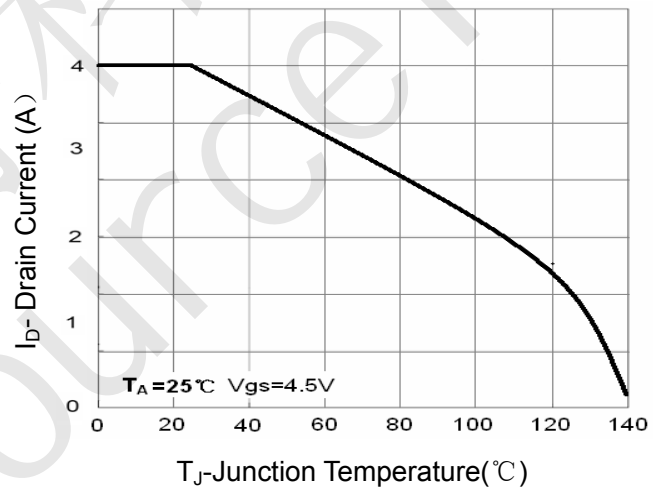


Figure 4 Drain Current

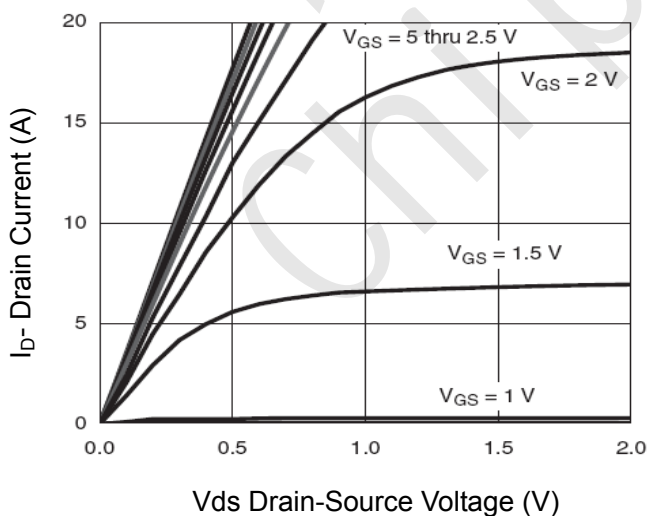


Figure 5 Output Characteristics

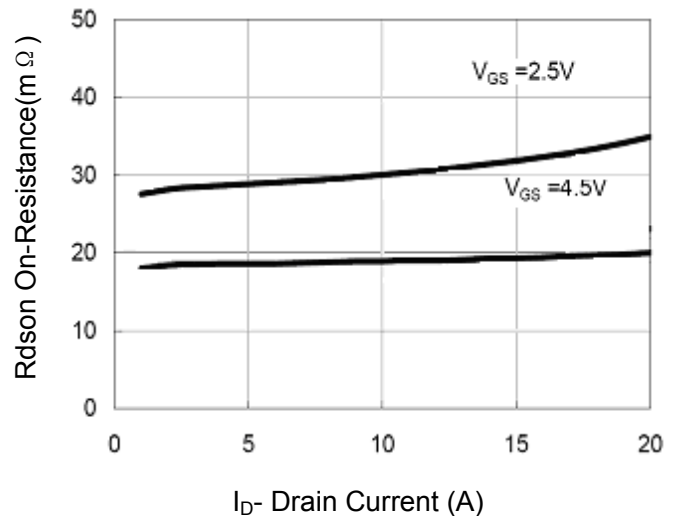


Figure 6 Drain-Source On-Resistance



CST8205A Dual N-ch 20V Fast Switching MOSFETs

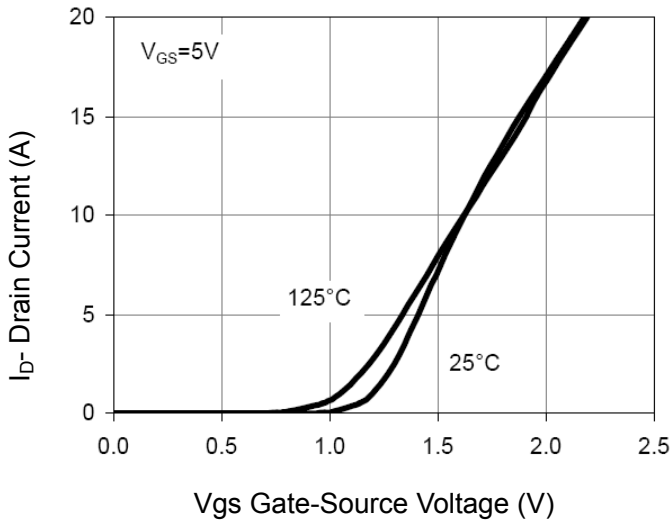


Figure 7 Transfer Characteristics

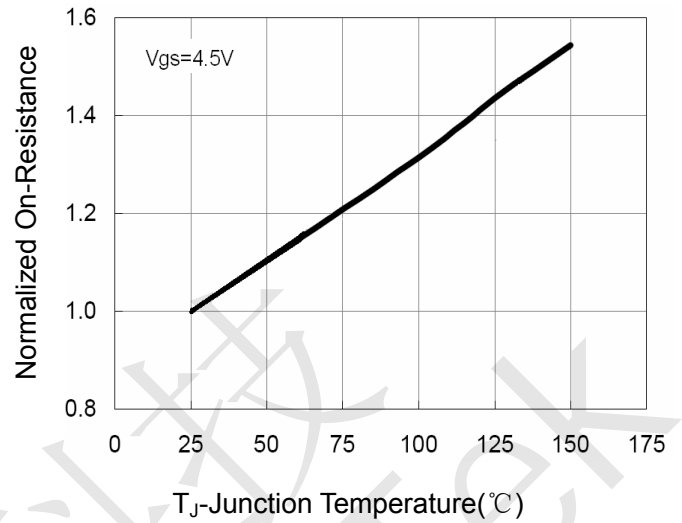


Figure 8 Drain-Source On-Resistance

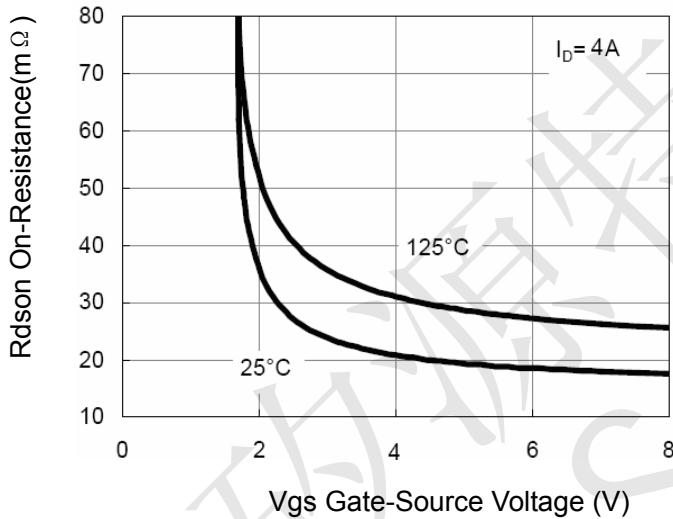


Figure 9 $R_{DS(on)}$ vs V_{GS}

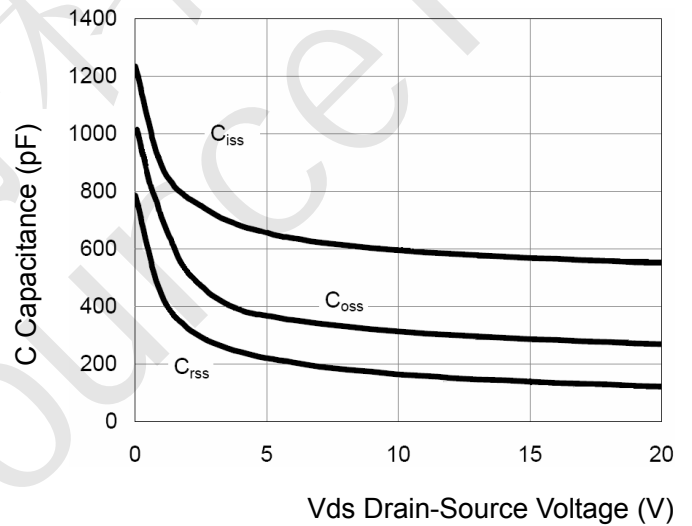


Figure 10 Capacitance vs V_{DS}

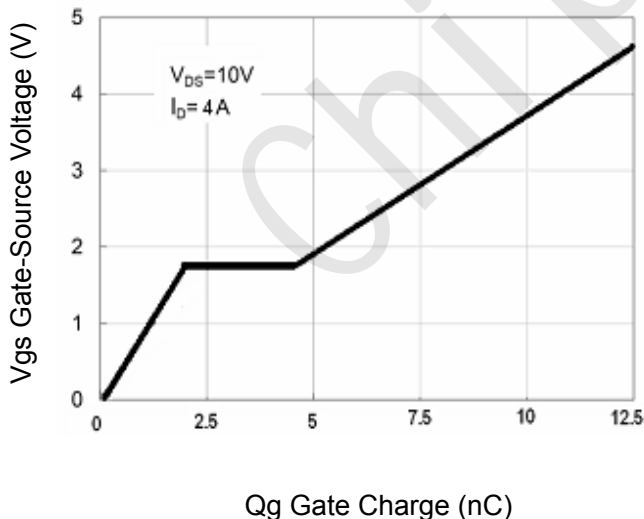


Figure 11 Gate Charge

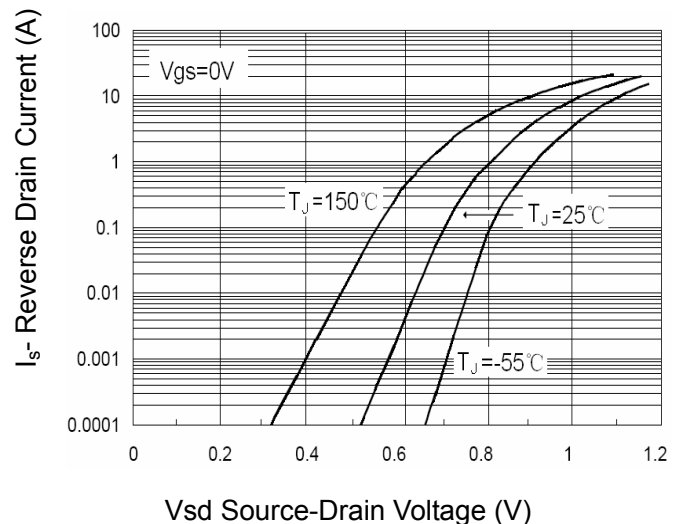


Figure 12 Source- Drain Diode Forward



CST8205A Dual N-ch 20V Fast Switching MOSFETs

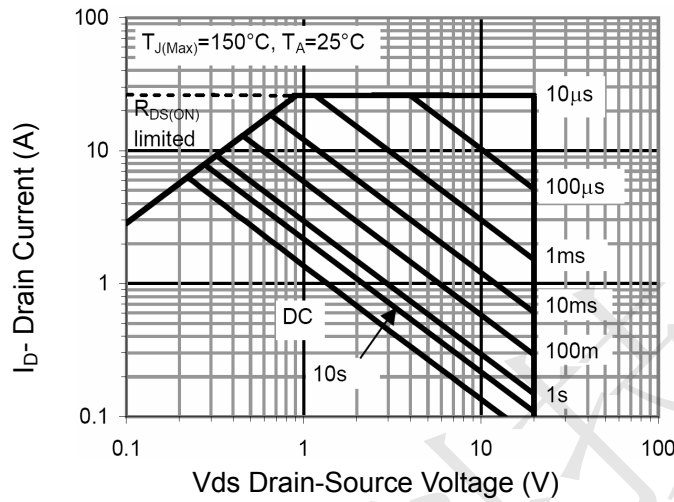


Figure 13 Safe Operation Area

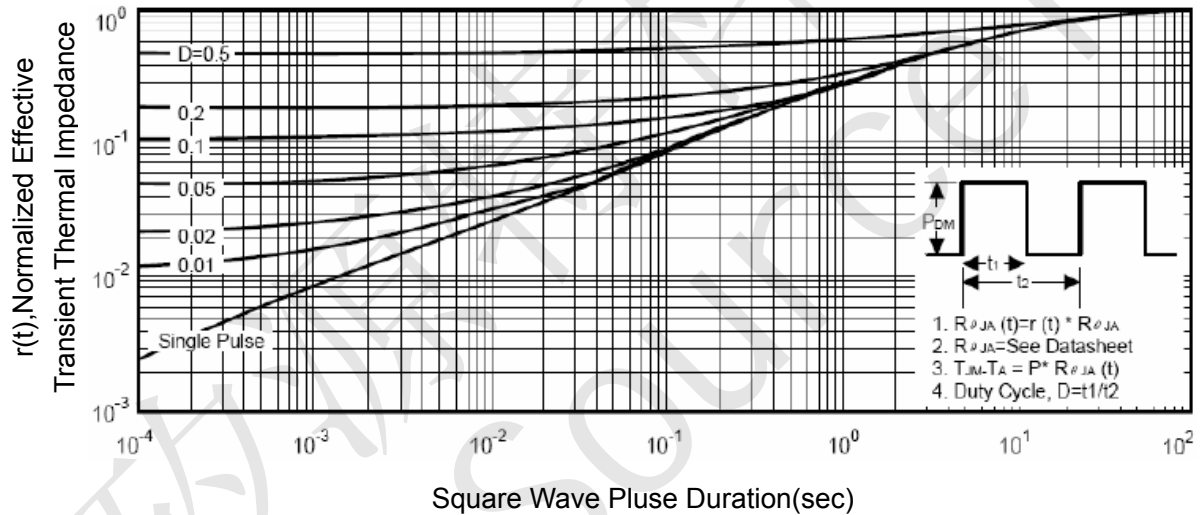
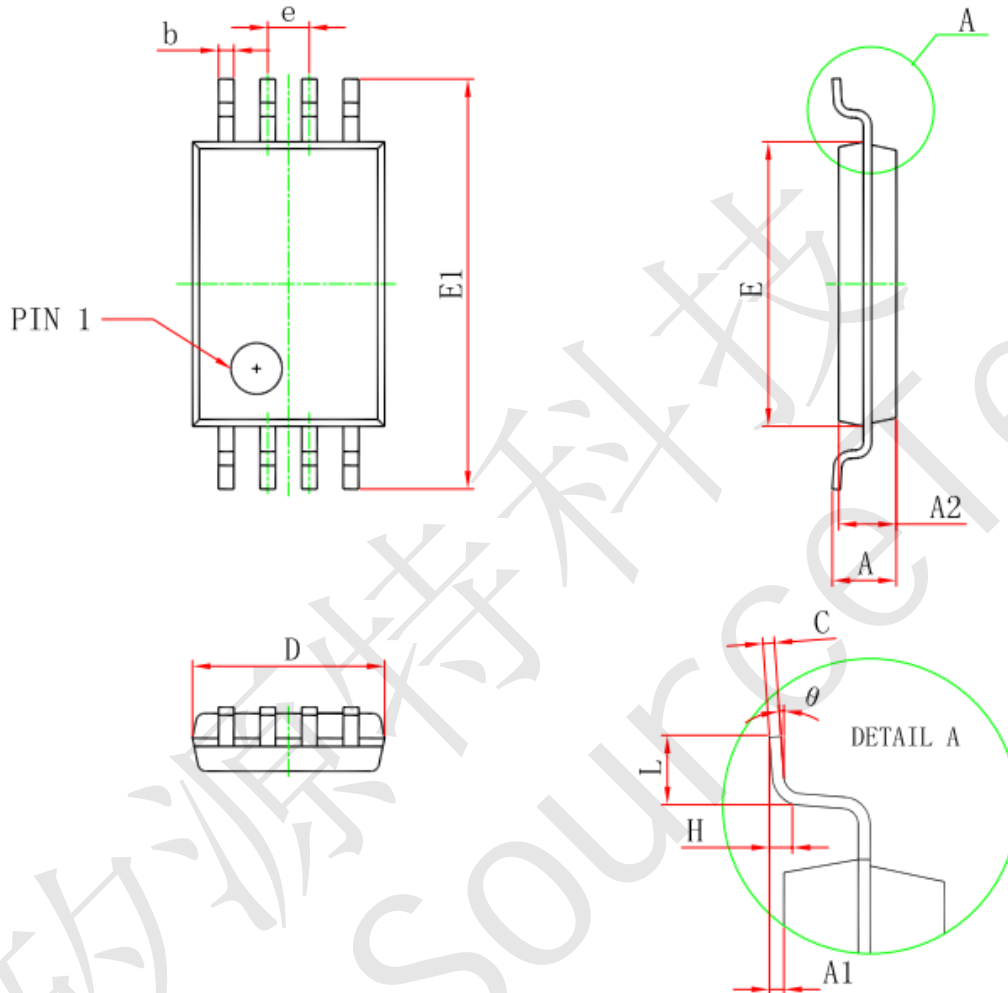


Figure 14 Normalized Maximum Transient Thermal Impedance



CST8205A TSSOP8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.200		0.047
A2	0.800	1.000	0.031	0.039
A1	0.050	0.150	0.002	0.006
e	0.65 (BSC)		0.026 (BSC)	
L	0.500	0.700	0.020	0.028
H	0.25(TYP)		0.01(TYP)	
θ	1°	7°	1°	7°