



CST8810 Dual N-ch 20V Fast Switching MOSFETs

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

CST8810 Product Summary



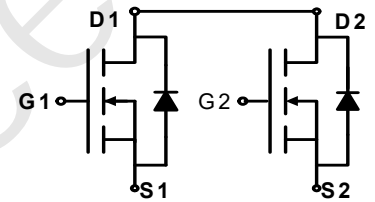
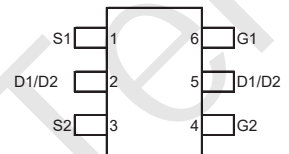
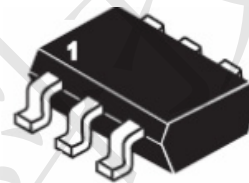
BVDSS	RDSON	ID
20V	12mΩ	7A

CST8810 Description

The CST8810 is the low RDSON trenched N-CH MOSFETs with robust ESD protection. This product is suitable for Lithium-ion battery pack applications.

The CST8810 meet the RoHS and Green Product requirement with full function reliability approved.

CST8810 SOT23-6L Pin Configuration



CST8810 Absolute Maximum Ratings (T_A=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	7	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

CST8810 Thermal Characteristic

Thermal Resistance, Junction-to-Ambient (Note 2)	R _{θJA}	100	°C/W
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Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	± 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	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=4.5A$	-	12	15	m Ω
		$V_{GS}=2.5V, I_D=3.5A$	-	14	18	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=4.5A$	-	10	-	S
Dynamic Characteristics (Note 4)						
Input Capacitance	C_{ISS}	$V_{DS}=10V, V_{GS}=0V,$ $F=1.0MHz$	-	900	-	PF
Output Capacitance	C_{OSS}		-	220	-	PF
Reverse Transfer Capacitance	C_{RSS}		-	100	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=10V, I_D=1A$ $V_{GS}=4.5V, R_{GEN}=6\Omega$	-	10	20	nS
Turn-on Rise Time	t_r		-	11	25	nS
Turn-Off Delay Time	$t_{d(off)}$		-	35	70	nS
Turn-Off Fall Time	t_f		-	30	60	nS
Total Gate Charge	Q_g	$V_{DS}=10V, I_D=6A,$ $V_{GS}=4.5V$	-	12	15	nC
Gate-Source Charge	Q_{gs}		-	2.3	-	nC
Gate-Drain Charge	Q_{gd}		-	1	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS}=0V, I_S=1.7A$	-	0.75	1.2	V
Diode Forward Current (Note 2)	I_S		-	-	6.5	A



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CST8810 Typical Electrical and Thermal Characteristics

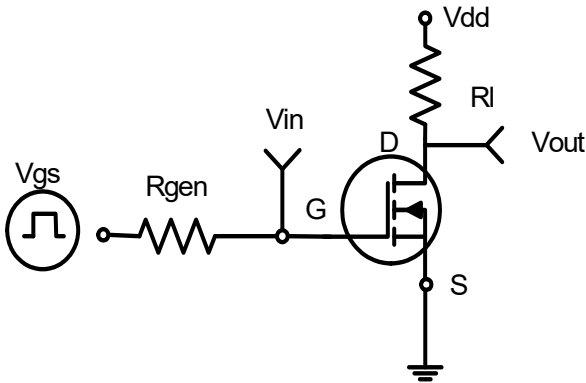


Figure 1: Switching Test Circuit

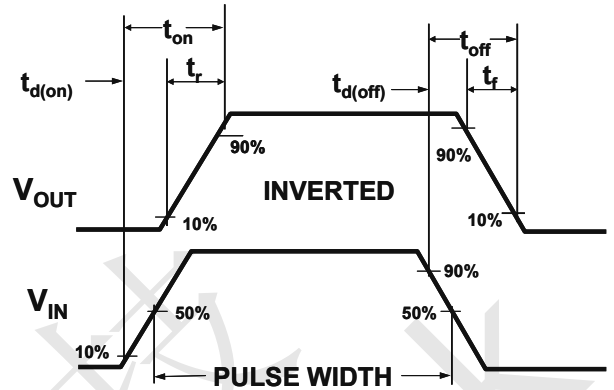


Figure 2: Switching Waveforms

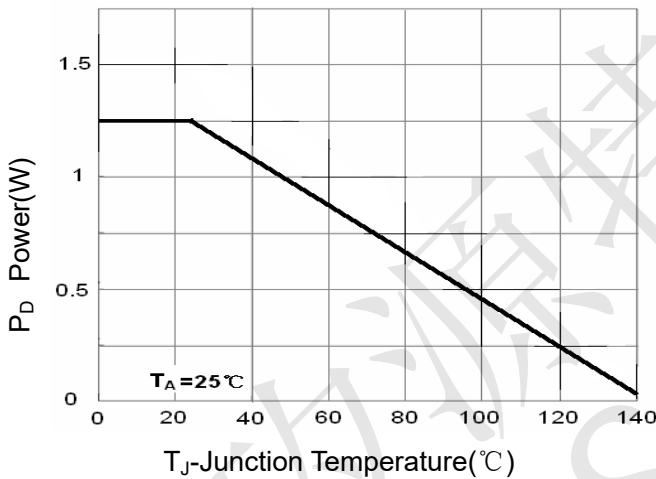


Figure 3 Power Dissipation

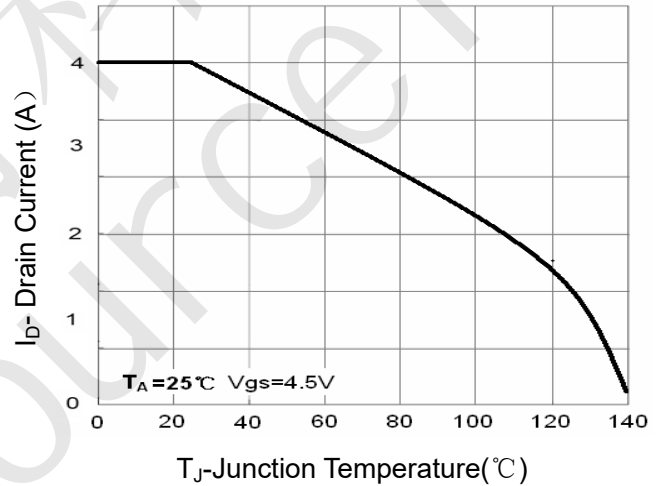


Figure 4 Drain Current

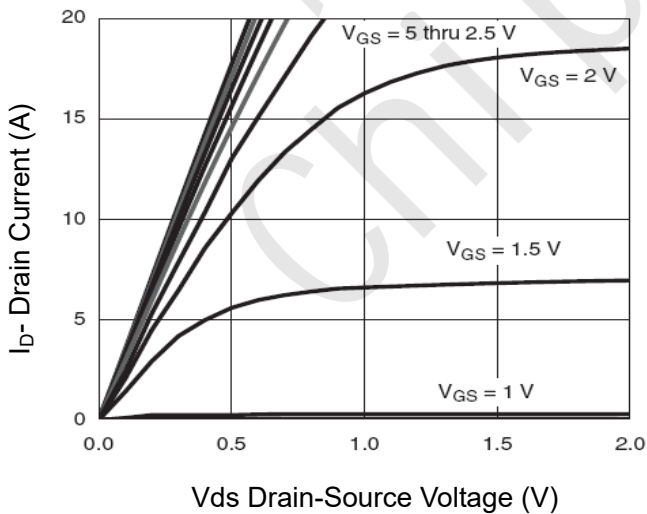


Figure 5 Output Characteristics

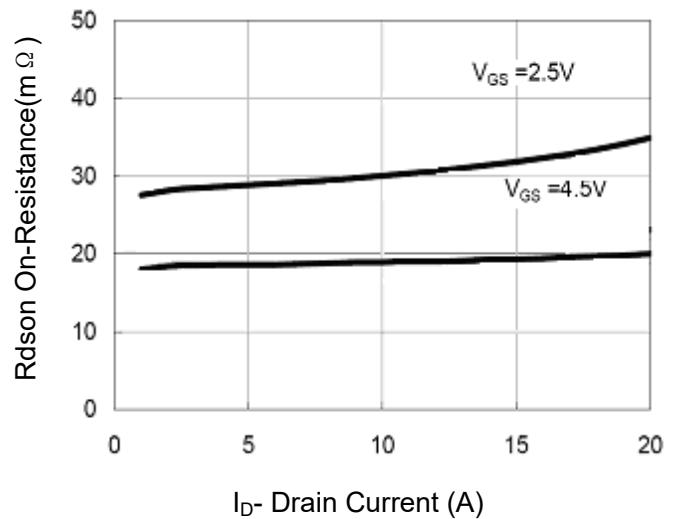


Figure 6 Drain-Source On-Resistance



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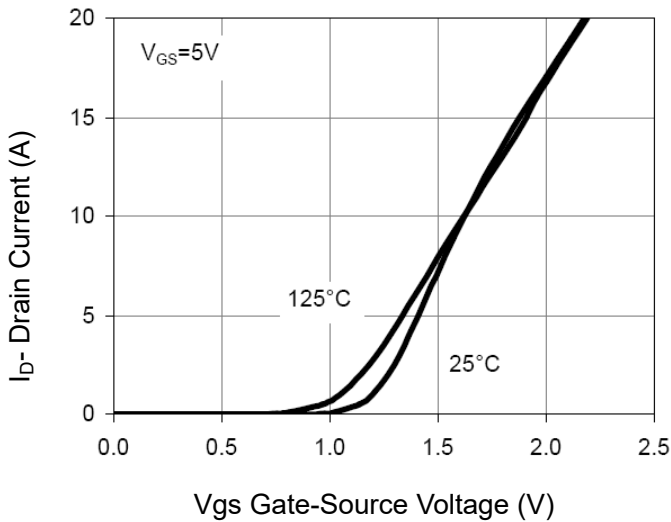


Figure 7 Transfer Characteristics

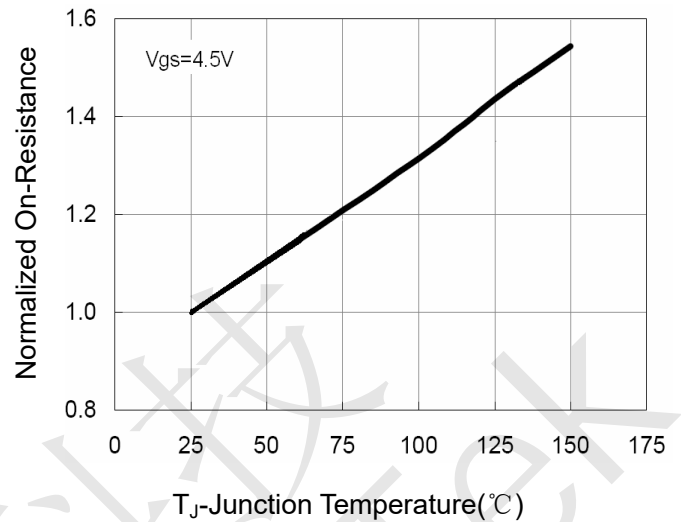


Figure 8 Drain-Source On-Resistance

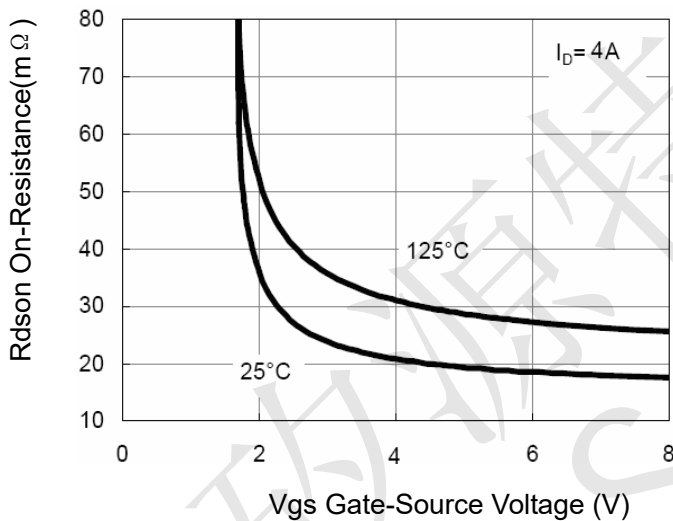


Figure 9 Rdson vs Vgs

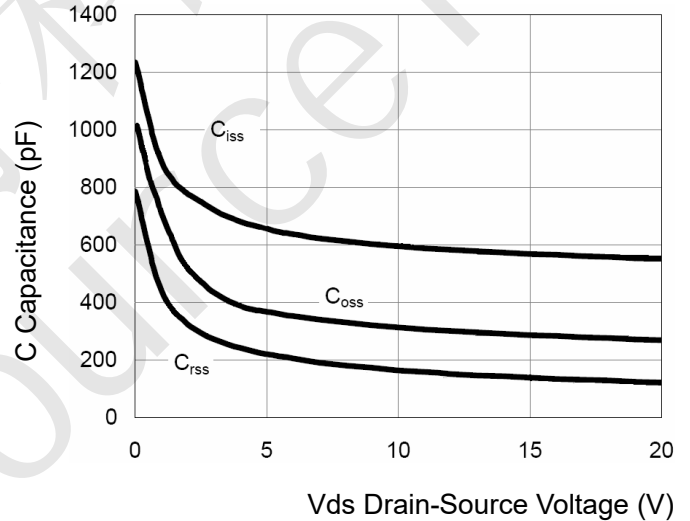


Figure 10 Capacitance vs Vds

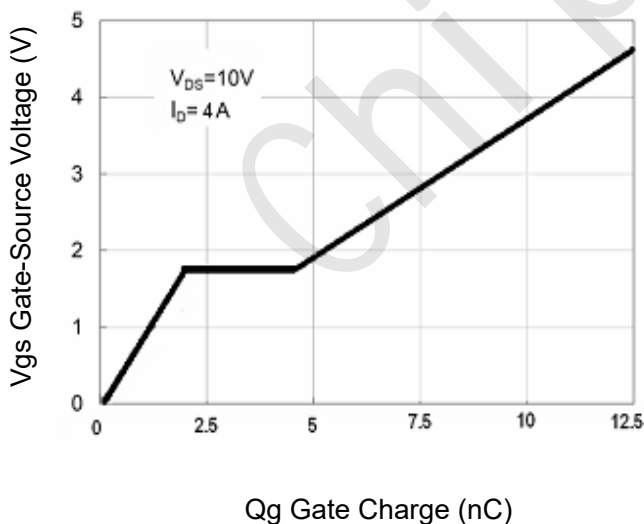


Figure 11 Gate Charge

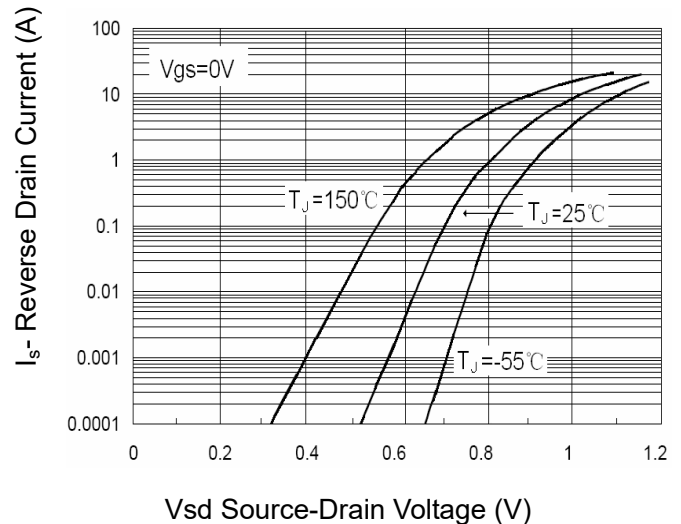


Figure 12 Source- Drain Diode Forward

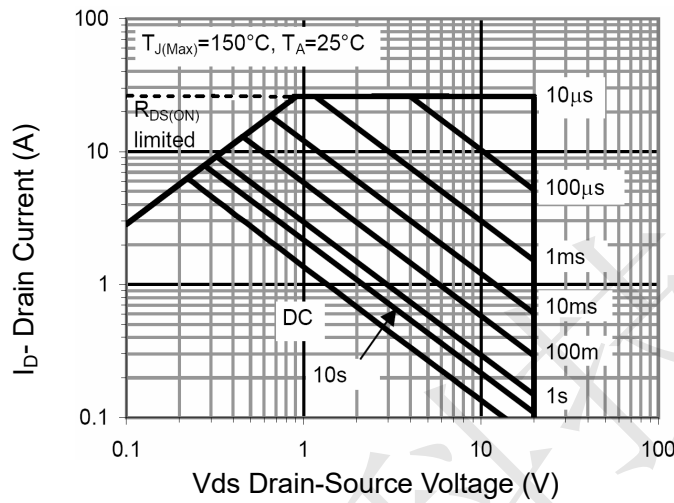


Figure 13 Safe Operation Area

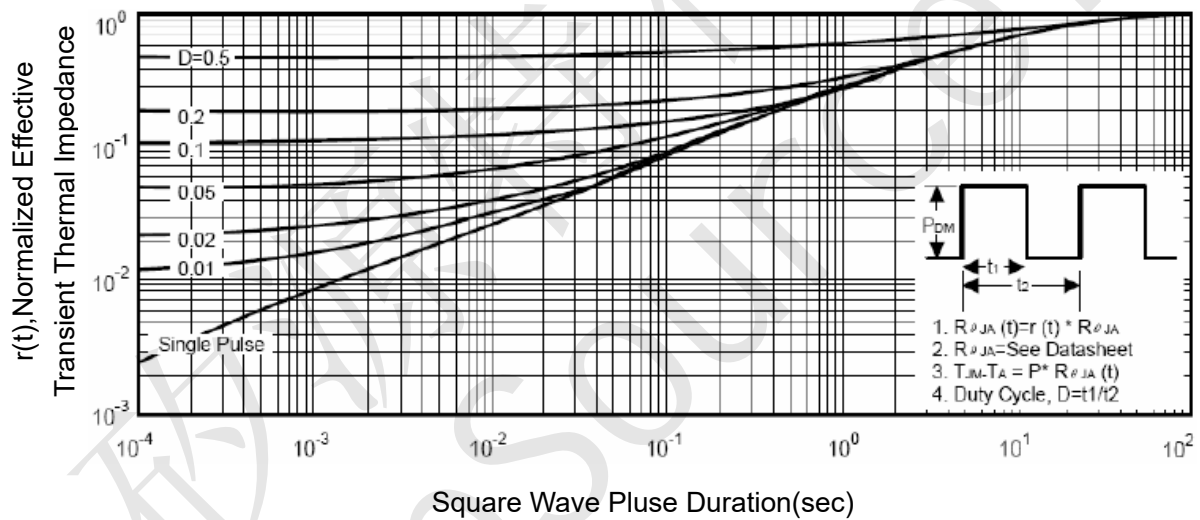
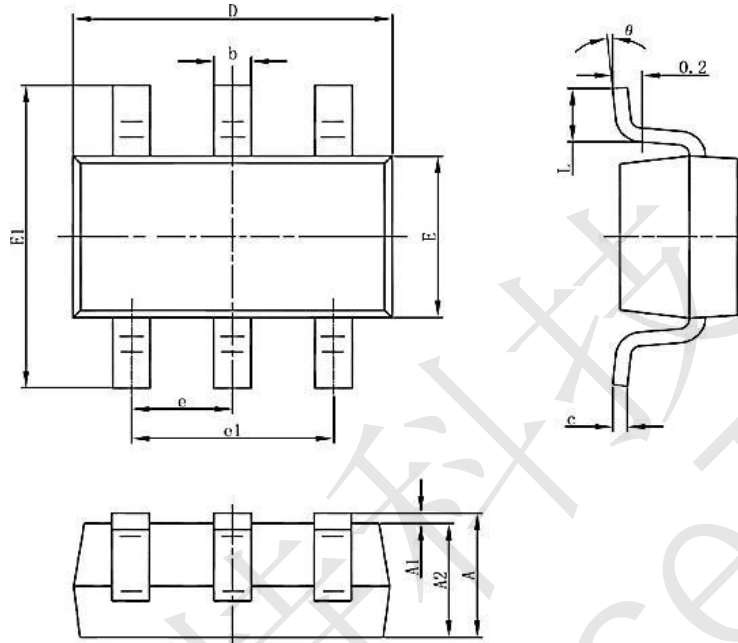


Figure 14 Normalized Maximum Transient Thermal Impedance



CST8810 SOT23-6L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
C	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 (BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0	8	0	8