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

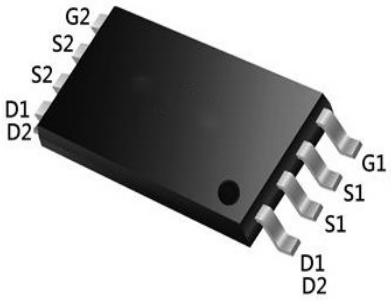
Product Summary

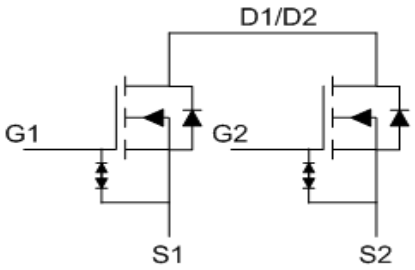
BVDSS	RDSON	ID
20V	12.3mΩ	7A

Description

The XXW8810B is the low RDSON trenched N-CH MOSFETs with robust ESD protection. This product is suitable for Lithium-ion battery pack applications.
The XR8810 meet the RoHS and Green Product requirement with full function reliability approved.

TSSOP8 Pin Configuration





Absolute Maximum Ratings (T_A=25℃ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±10	V
I_D	Continuous Drain Current	T_A= 25℃	7.0	A
		T_A= 100℃	4.1	A
I_{DM}	Pulsed Drain Current note1		19	A
P_D	Power Dissipation	T_A= 25℃	0.83	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		151	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

Electrical Characteristics (T_J=25℃ 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	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V,	-	-	1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±10V	-	-	±10	uA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	0.4	0.7	1	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	V_{GS}=4.5V, I_D=4A	-	12.3	17	mΩ
		V_{GS}=3.7V, I_D=4A	-	13.3	20	
		V_{GS}=2.5V, I_D=3A	-	14.8	25	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1.0MHz	-	545	-	pF
C_{oss}	Output Capacitance		-	103	-	pF
C_{rss}	Reverse Transfer Capacitance		-	90	-	pF
Q_g	Total Gate Charge	V_{DS}=10V, I_D=4.8A, V_{GS}=4.5V	-	8	-	nC
Q_{gs}	Gate-Source Charge		-	2.5	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	3	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=10V,R_L=1.5Ω, R_{GEN}=3Ω, V_{GS}=5V	-	0.5	-	ns
t_r	Turn-on Rise Time		-	1	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	12	-	ns
t_f	Turn-off Fall Time		-	4	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	7.0	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	19	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S=4.8A	-	-	1.2	V

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

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

ypical Performance Characteristics

Figure1: Output Characteristics

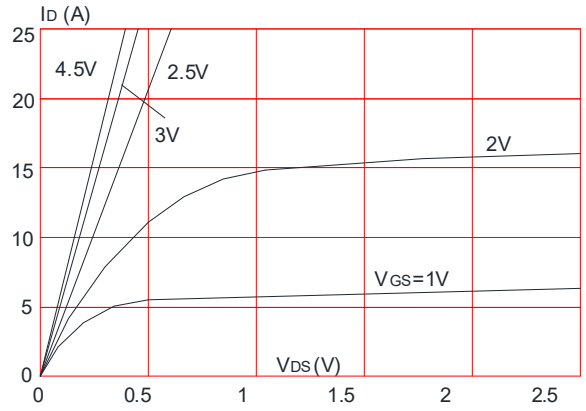


Figure 2: Typical Transfer Characteristics

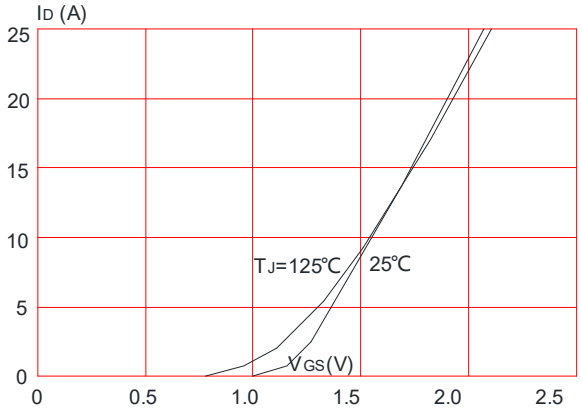


Figure 3: On-resistance vs. Drain Current

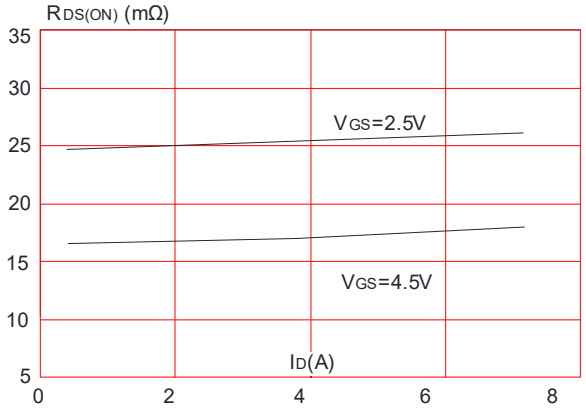


Figure 4: Body Diode Characteristics

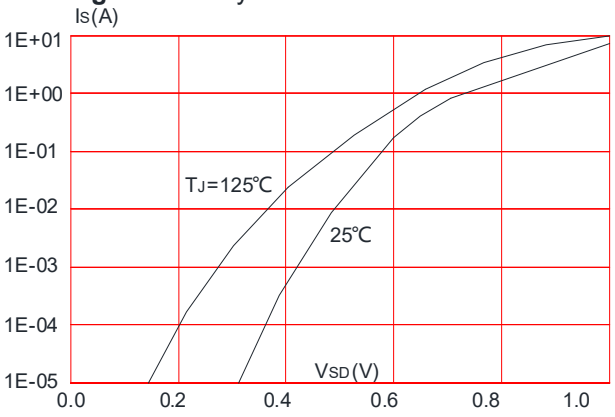


Figure 5: Gate Charge Characteristics

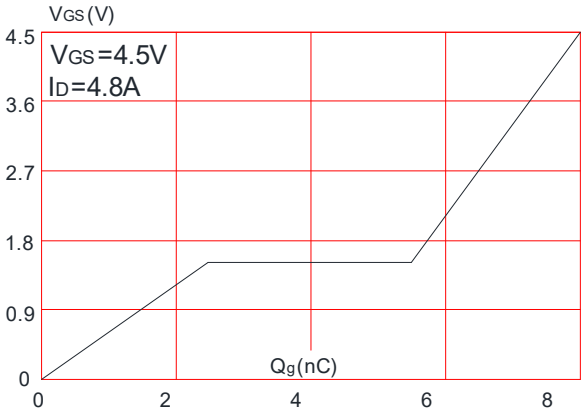


Figure 6: Capacitance Characteristics

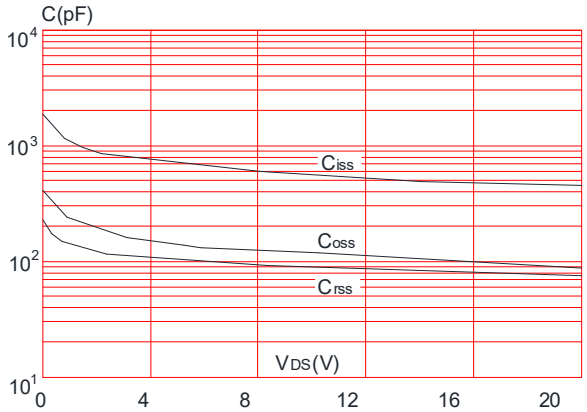


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

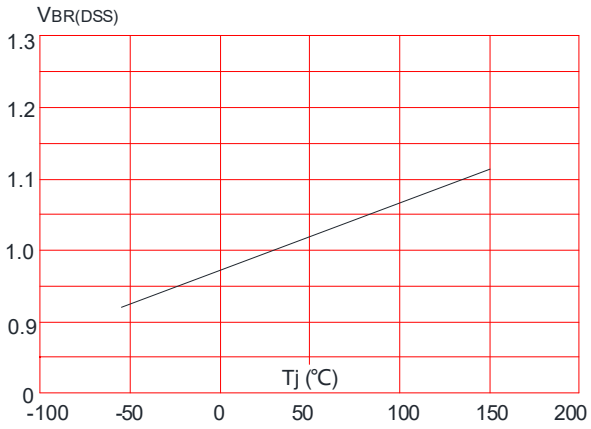


Figure 8: Normalized on Resistance vs. Junction Temperature

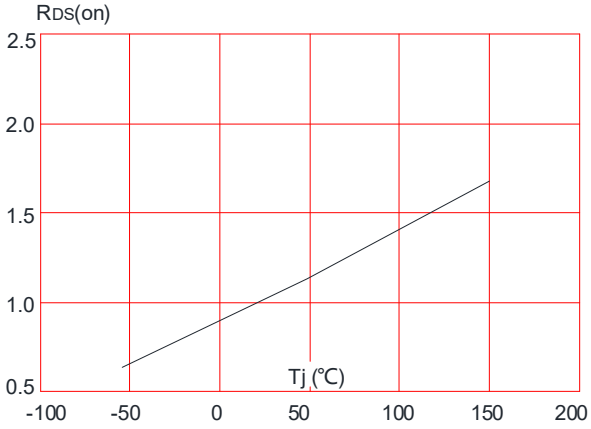


Figure 9: Maximum Safe Operating Area

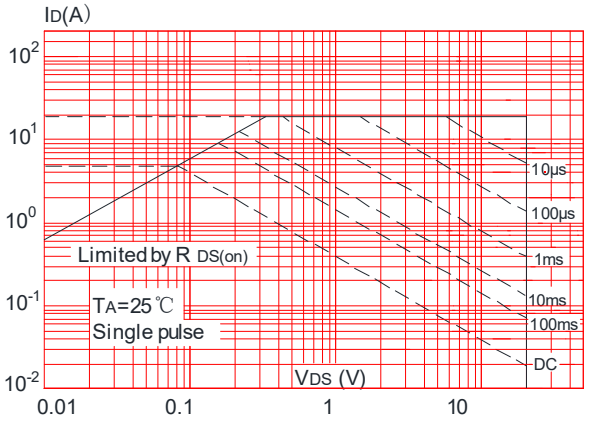


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

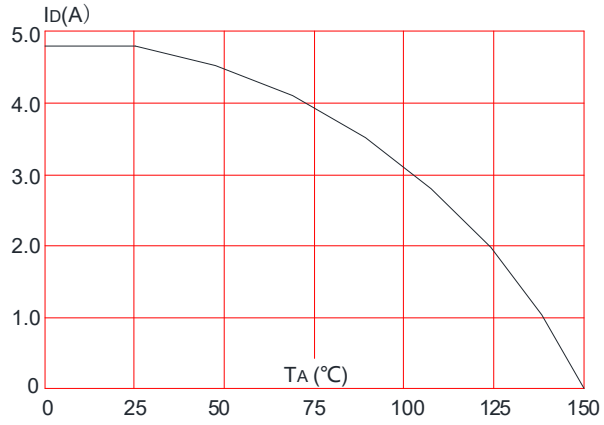
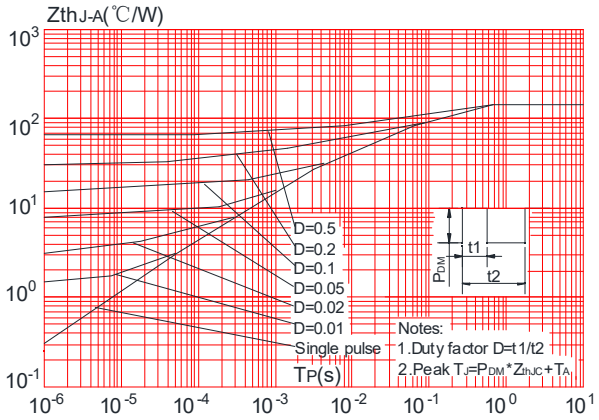


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



Test Circuit

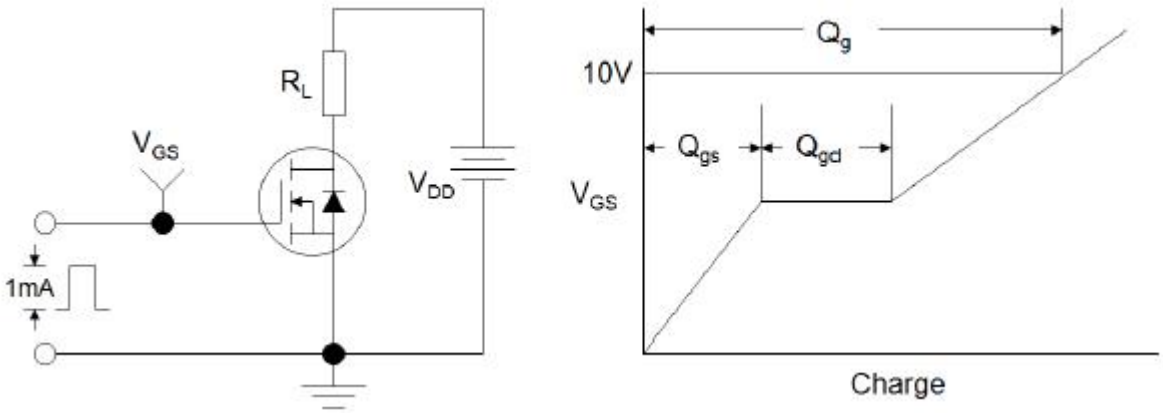


Figure1:Gate Charge Test Circuit & Waveform

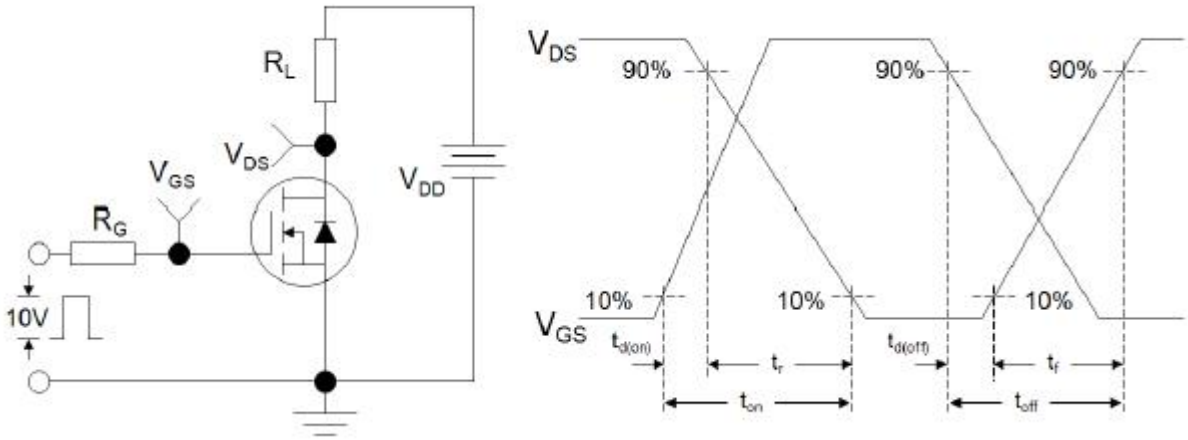


Figure 2: Resistive Switching Test Circuit & Waveforms

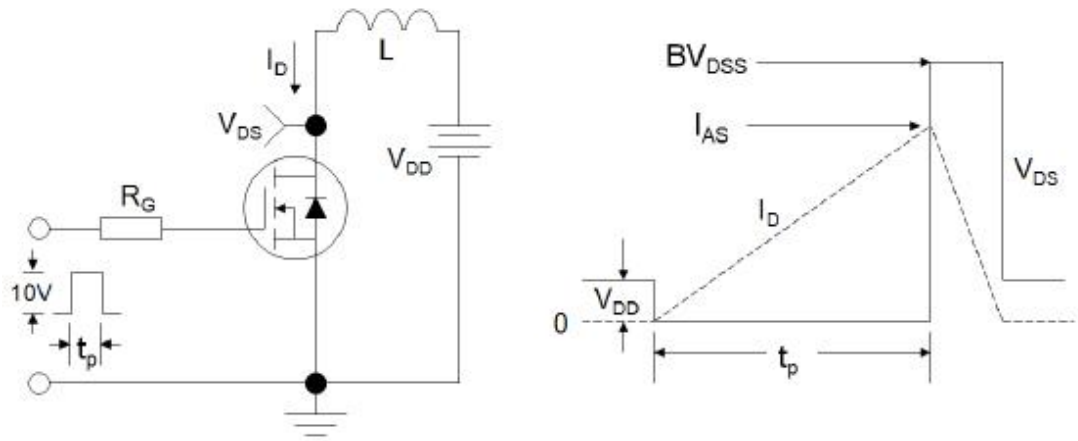
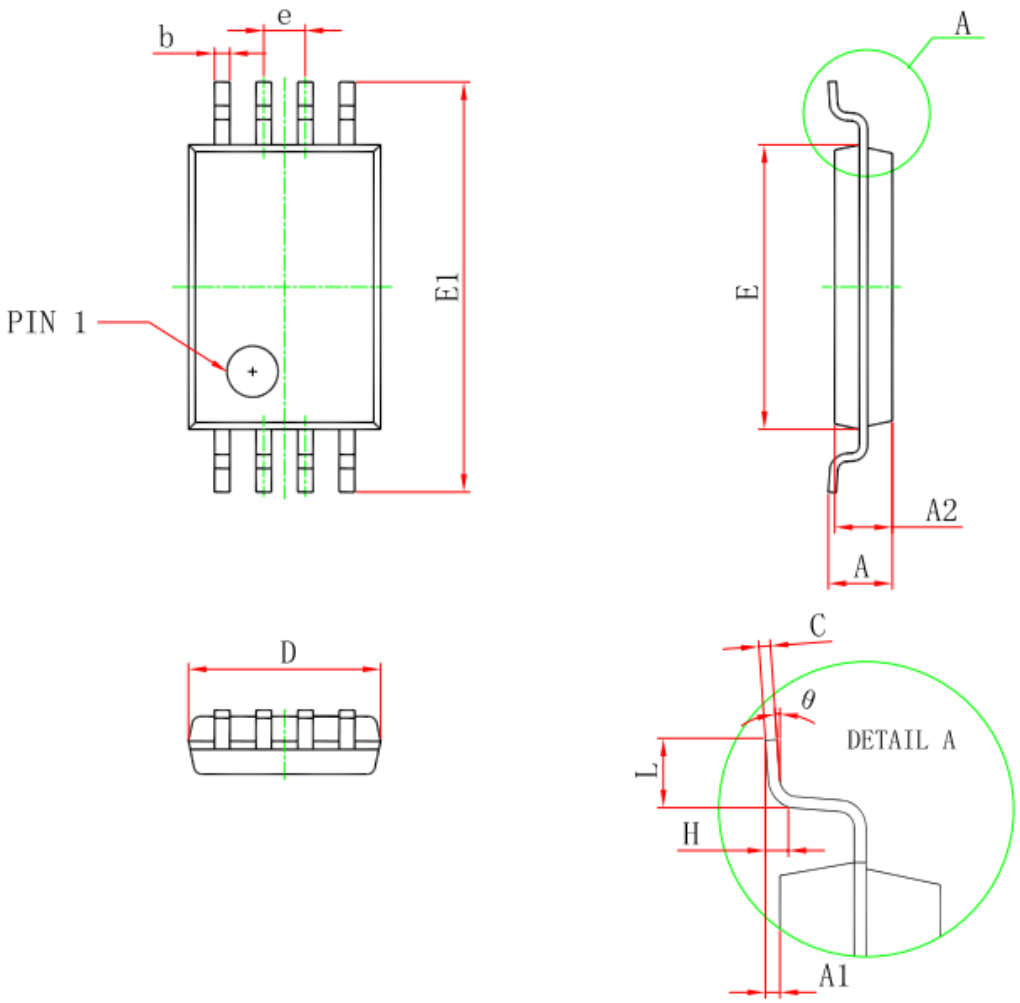


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

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°