

SE8209
Dual N-Channel Enhancement Mode Field Effect Transistor

Revision:A

Features

For a single mosfet

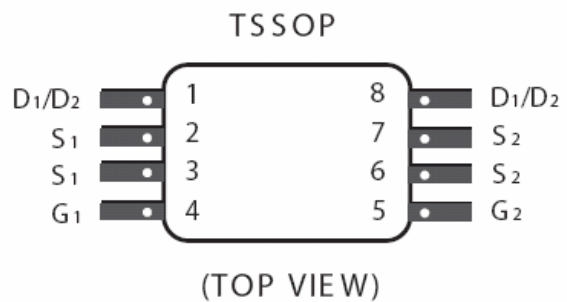
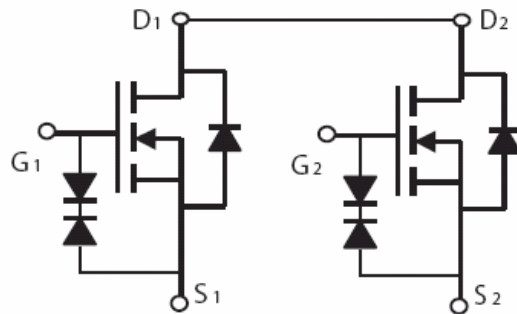
- $V_{DSS} = 20\text{ V}$
- $R_{DS(ON)} = 26\text{m}\Omega @ V_{GS}=4.0\text{V} @ I_{DS}=5\text{A}$
 $R_{DS(ON)} = 40\text{m}\Omega @ V_{GS}=2.5\text{V} @ I_{DS}=3\text{A}$

Applications

- Battery protection
- Load switch
- Power management

Construction

- Silicon epitaxial planer



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 12	V
Drain Current (Note 1)	Continuous	I_D	6	A
	Pulsed	I_{DM}	24	
Drain-Source Diode Forward Current		I_S	1.7	A
Maximum Power Dissipation		P_D	1.5	W
Operating Junction Temperature Range		T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature Range		T_{STG}		

Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
B _{VDSS}	Drain-Source Breakdown Voltage	I _D =250μA, V _{GS} =0 V	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =16 V, V _{GS} =0 V			1	μA
I _{GSS}	Gate-Body leakage	V _{DS} =0 V, V _{GS} =±12 V			±10	μA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} I _D =250μA	0.5	0.8	1.5	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =4.0V, I _D =5A	-	22	26	mΩ
		V _{GS} =2.5V, I _D =3A	-	30	40	
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =5A		19		S
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =8V, f=1.0MHz		693		pF
C _{oss}	Output Capacitance			189		pF
C _{rss}	Reverse Transfer Capacitance			136		pF
SWITCHING PARAMETERS						
Q _g	Total Gate Charge	V _{GS} =4.0V		11		nC
Q _{gs}	Gate Source Charge	V _{DS} =10V		1.8		
Q _{gd}	Gate Drain Charge	I _D =5A		4.9		
t _{d(on)}	Turn-On DelayTime	V _{GEN} =4.0V		31		ns
t _{d(off)}	Turn-Off DelayTime	R _{GEN} =10Ω		96		
t _{d(r)}	Turn-On Rise Time	V _{DD} =10V		62		
t _{d(f)}	Turn-Off Fall Time	I _D =1A		40		

Figure 1. Output Characteristics

Figure 2. Transfer Characteristics

Figure 3. On-Resistance vs. Drain Current and Gate Voltage

Figure 4. On-Resistance Variation with Drain Current and Temperature

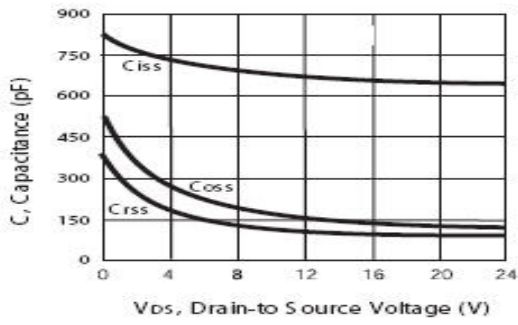


Figure 9. Capacitance

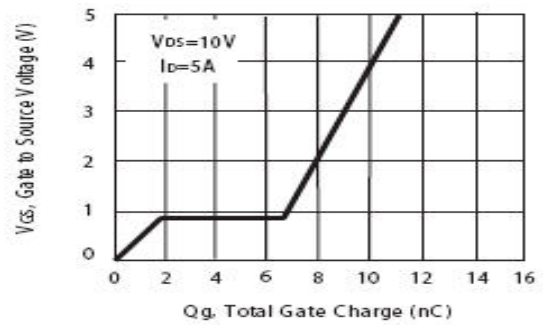


Figure 10. Gate Charge

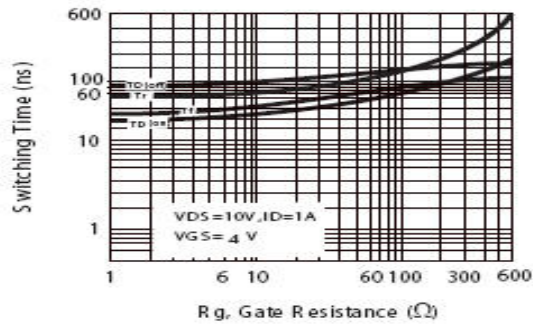


Figure 11. switching characteristics

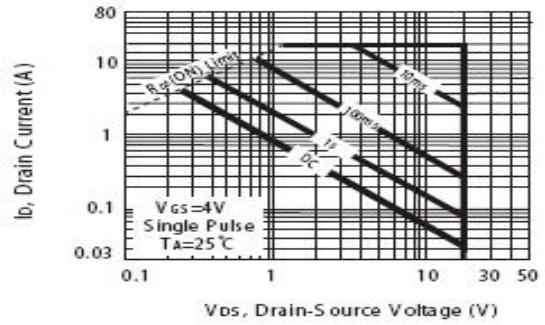


Figure 12. Maximum Safe Operating Area

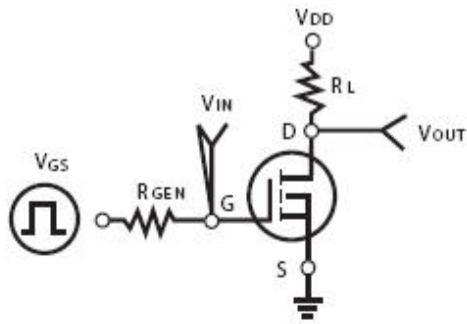


Figure 11. Switching Test Circuit

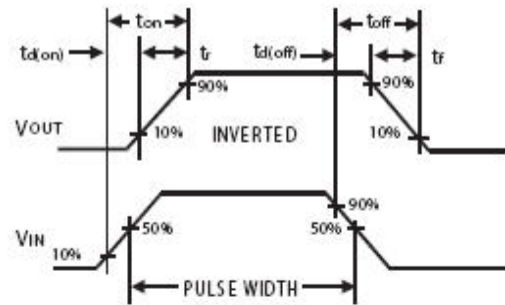
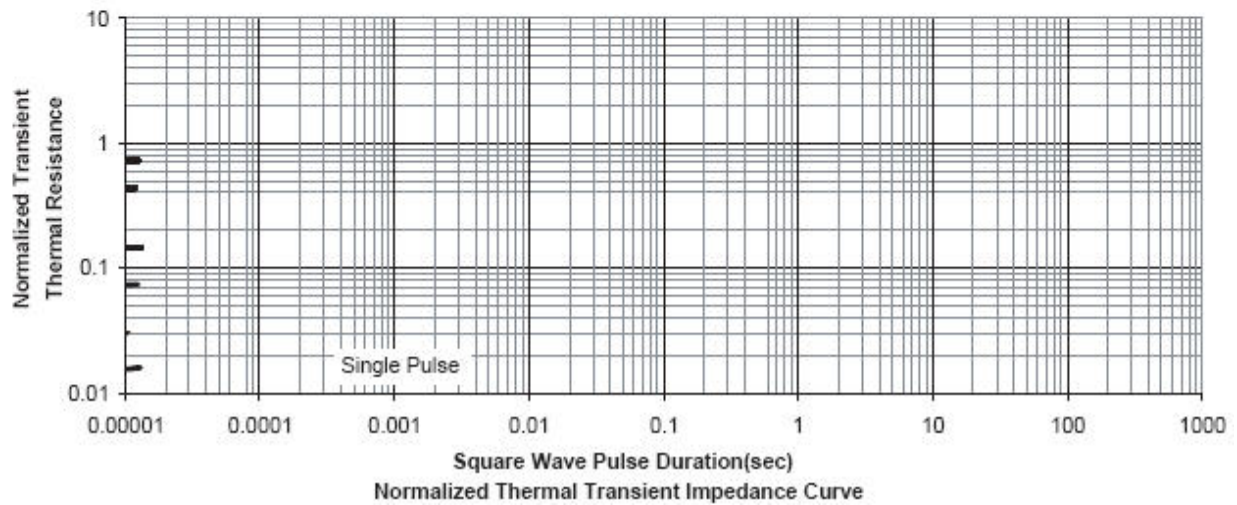
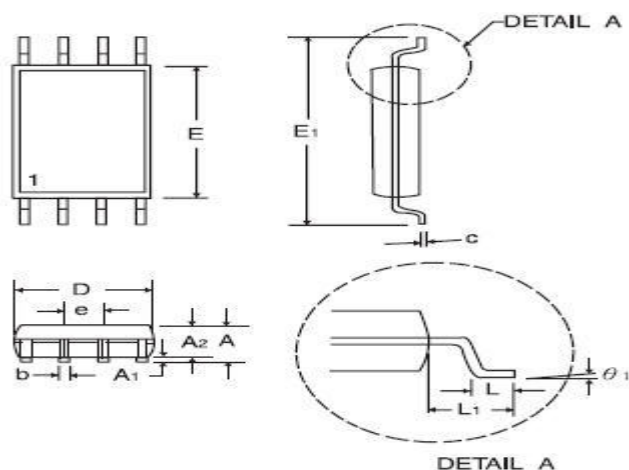


Figure 12. Switching Waveforms



Typical Characteristics



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.05	1.20	0.041	0.047
A1	0.05	0.15	0.002	0.006
A2	-	1.05	-	0.041
b	0.20	0.28	0.008	0.011
c	0.127		0.005	
D-8	2.90	3.10	0.114	0.122
E	4.30	4.50	0.169	0.177
E1	6.20	6.60	0.244	0.260
e	0.65BSC		0.025BSC	
L	0.50	0.70	0.020	0.028
L1	1.00		0.039	
θ_1	0°	8°	0°	8°

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