South Sea Semiconductor

SSM9926

Dual N-Channel Enhancement Mode MOSFET

Product Summary		
V_{DS} (V)	I_D (A)	$R_{DS(ON)}$ (mΩ) Max
20V	5A	30 @ V_{GS} = 4.0V
		40 @ V_{GS} = 2.5V

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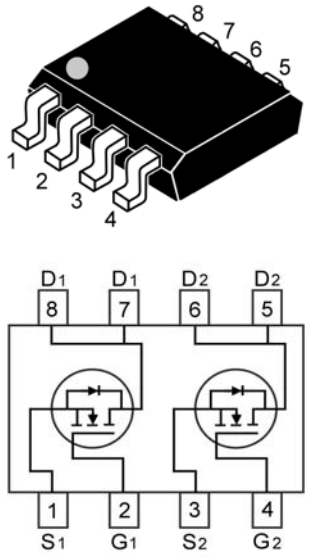

FEATURES

◆Super high dense cell design for low $R_{DS(ON)}$.

◆Rugged and reliable.

◆Surface Mount Package.

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)			
Parameter	**Symbol**	**Limit**	**Unit**
Drain-Source Voltage	V_{DS}	20	V
Gate-Soure Voltage	V_{GS}	±10	V
Drain Current-Continuous @Tc=25°C	I_D	5	A
-Pulsed[b]	I_{DM}	25	A
Drain-Source Diode Forward Current[a]	I_S	1.7	A
Maximum Power Dissipation[a]	P_D	2	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 to 150	°C
THERMAL CHARACTERISTICS			
Thermal Resistance, Junction-to-Ambient[a]	$R_{\theta JA}$	62.5	°C/W

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ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)						
Parameter	**Symbol**	**Condition**	**Min**	**Typ[c]**	**Max**	**Unit**
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-16V, V_{GS}=0V			1	μA
Gate-Body Leakage	I_{GSS}	V_{GS}=±10V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.6			V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.0V, I_D=5A		25	30	mΩ
		V_{GS}=2.5V, I_D=5A		35	40	
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=6A		12		S
Input Capacitance	C_{ISS}	V_{DS}=8V,		908		pF
Output Capacitance	C_{OSS}	V_{GS}=0V,		192		
Reverse Transfer Capacitance	C_{RSS}	f =1.0MHz		151		
Turn-On Delay Time	$t_{D(ON)}$	V_D=10V , I_D=1A ,		35		ns
Rise Time	t_r	V_{GEN}=4.5V,		13		
Turn-Off Delay Time	$t_{D(OFF)}$	R_{GEN}=10Ω,		45		
Fall Time	t_f	R_L=10Ω		25		
Total Gate Charge	Q_g	V_{DS}=10V,		15		nC
Gate-Source Charge	Q_{gs}	I_D=1A,		2.5		
Gate-Drain Charge	Q_{gd}	V_{GS}=4.5V		2.5		
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1.7A		0.7	1.2	V

Notes：

a. Surface Mounted on FR4 Board, t≦10sec.

b. Pulse Test：Pulse Width≦300μs, Duty Cycle≦2%.

c. Guaranteed by design, not subject to production testing.

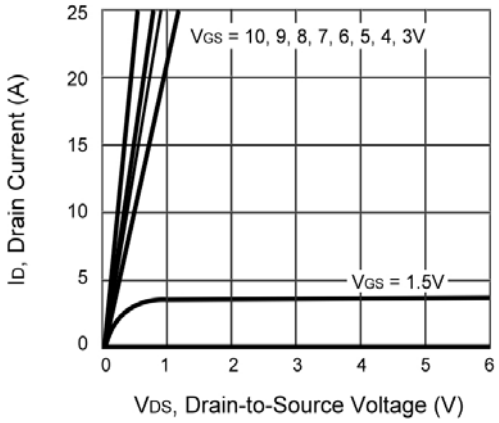

Figure 1. Output Characteristics

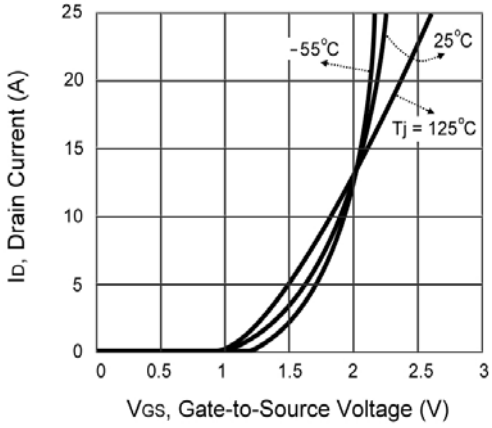

Figure 2. Transfer Characteristics

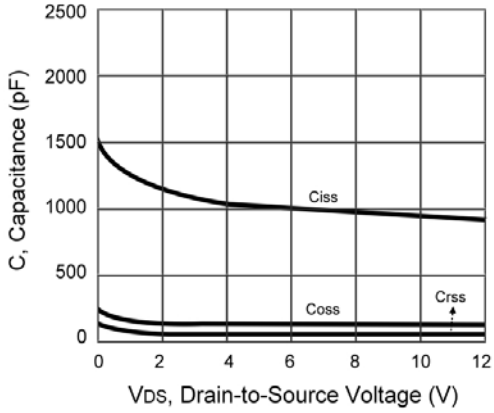

Figure 3. Capacitance

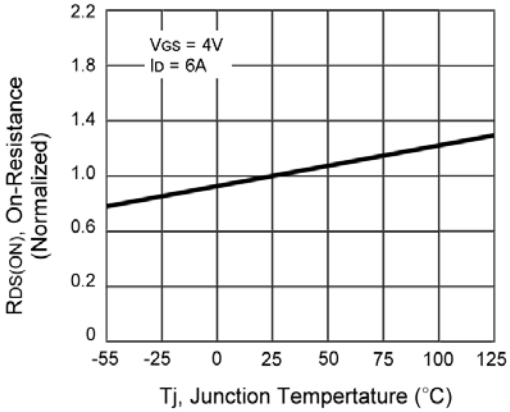

Figure 4. On-Resistance Variation with Temperature

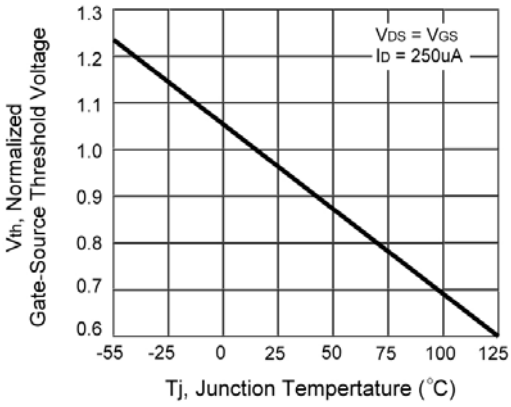

Figure 5. Gate Threshold Variation with Temperature

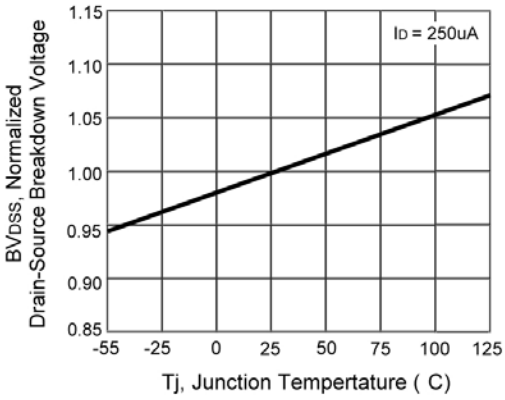

Figure 6. Breakdown Voltage Variaton withTemperature

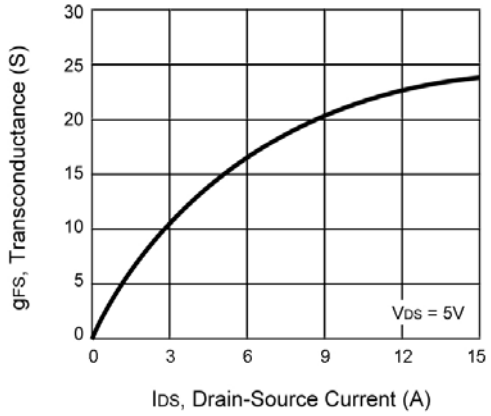

Figure 7. Transconductance Variation with Drain Current

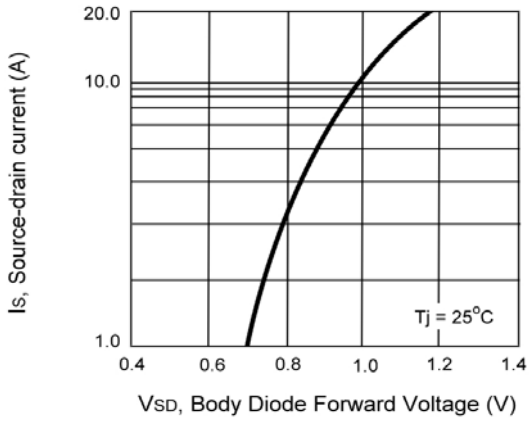

Figure 8. Body Diode Forward Voltage Variation with Source Current

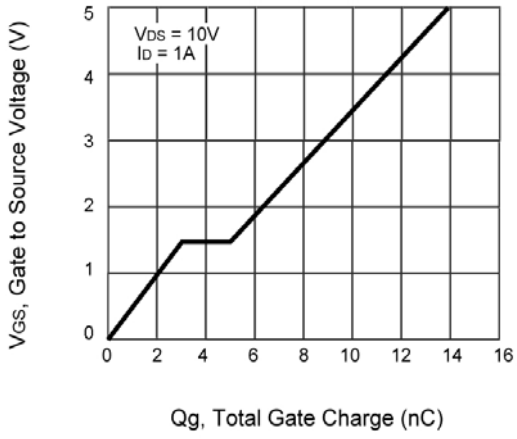

Figure 9. Gate Charge

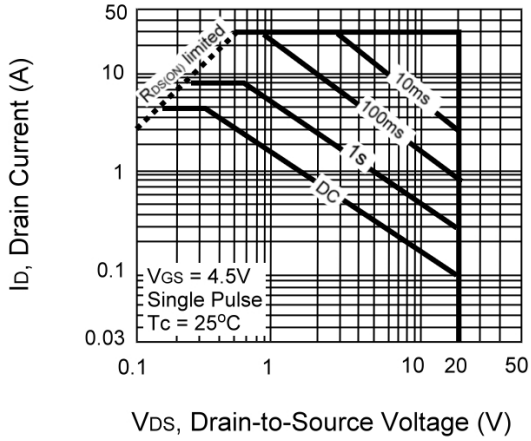

Figure 10. Maximum Safe Operating Area

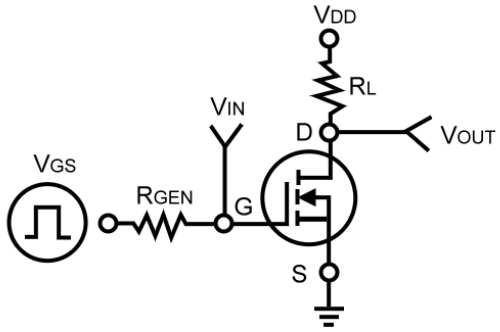

Figure 11. Switching Test Circuit

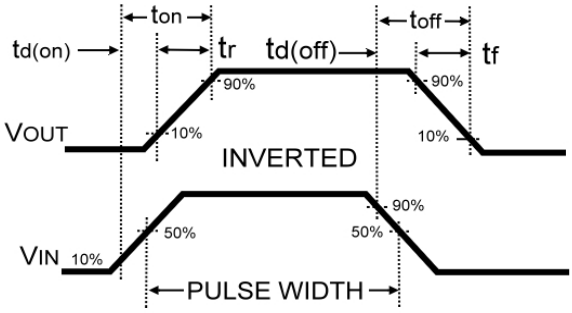

Figure 12. Switching Waveforms

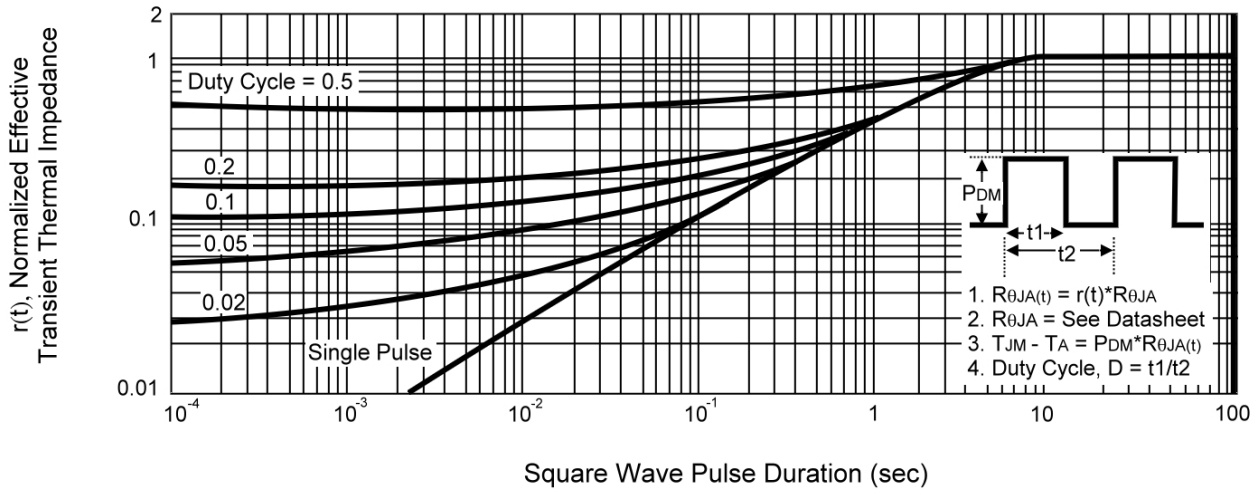

Figure 13. Normalized Thermal Transient Impedance Curve

Package Outline Dimensions

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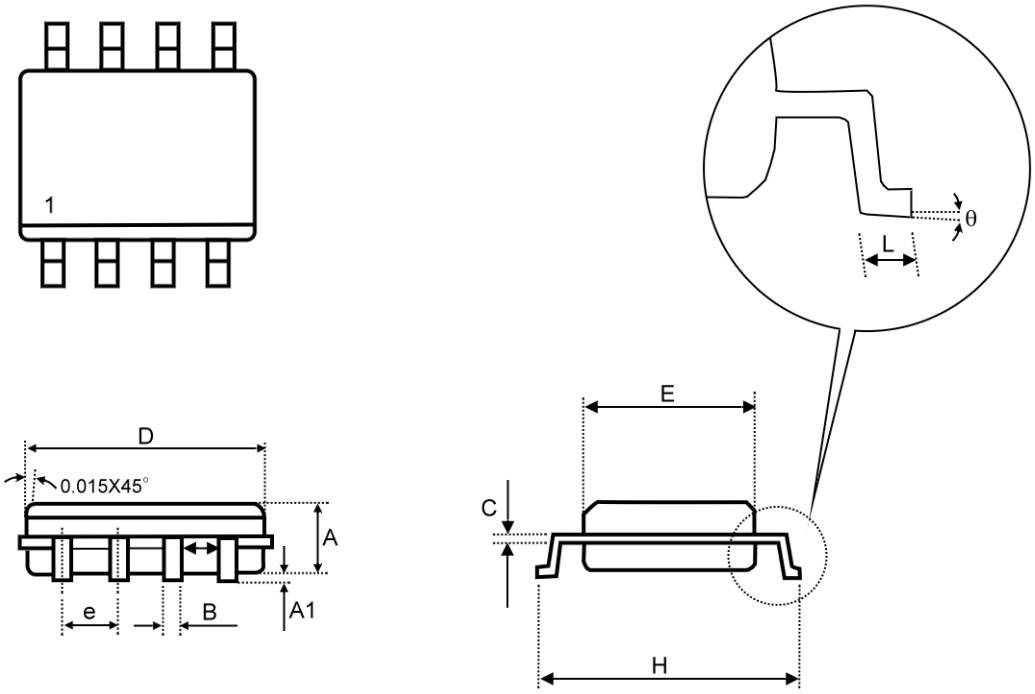

SYMBOLS	MILLIMETERS		INCHES	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
B	0.41 TYP.		0.016 TYP.	
C	0.20 TYP.		0.008 TYP.	
D	4.80	4.98	0.189	0.196
E	3.81	3.99	0.150	0.157
e	1.25 TYP.		0.05 TYP.	
H	5.79	6.20	0.228	0.244
L	0.41	1.27	0.016	0.050
θ	0^o	8^o	0^o	8^o

Carrier Tape & Reel Dimensions

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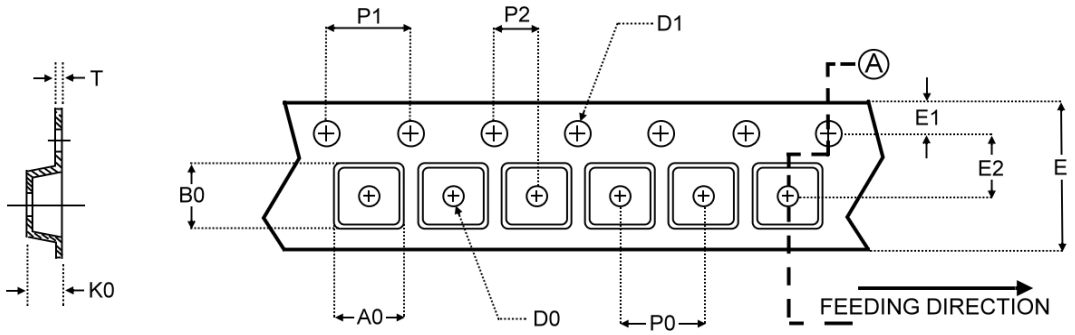
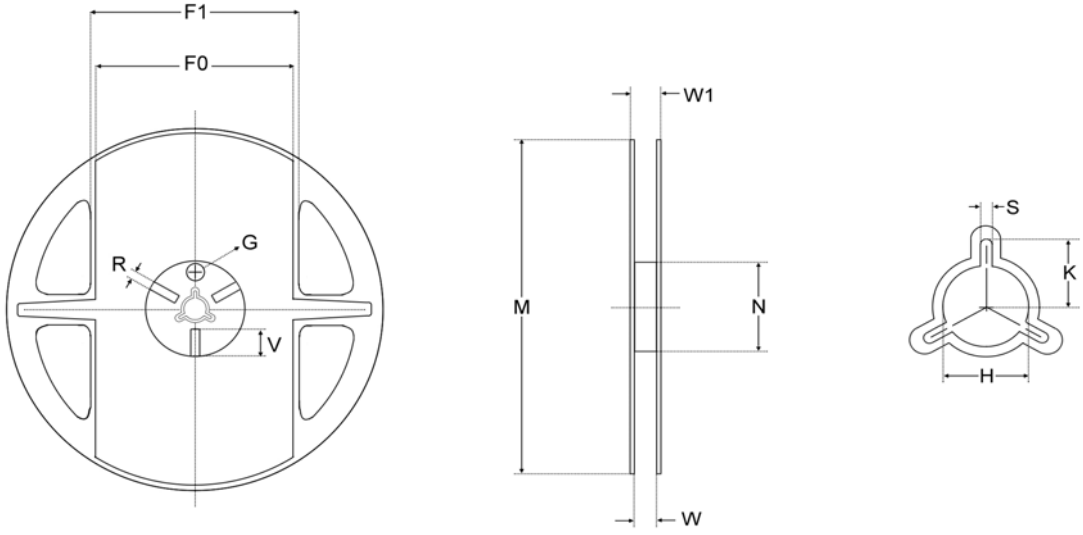


Package	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
SOP 8N 150mil	6.40	5.20	2.10	ϕ 1.50 (Min.)	ϕ 1.50 + 0.10 - 0.00	12.00 ± 0.30	1.75	5.50 ± 0.05	8.00	4.00	2.00 ± 0.05	0.30 ± 0.05

UNIT : mm



Tape Size	Reel Size	M	N	W	W1	H	K	S	G	R	V
12mm	ϕ 330	330 ± 1	62 ± 1.5	12.4 + 0.2	16.8 - 0.4	ϕ 12.75 0.15	-	2.0 ± 0.15	-	-	-

UNIT : mm