Elektronische Bauelemente

SSG18N15S-C

18A, 150V, $R_{DS(ON)}$ 78mΩ
N-Ch Shielded Gate Trench Power MOSFET

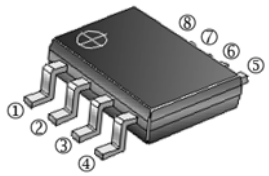
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSG18N15S-C is the Shielded Gate Technology N-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The SSG18N15S-C meet the RoHS and Green Product requirement with full function reliability approved.

SOP-8

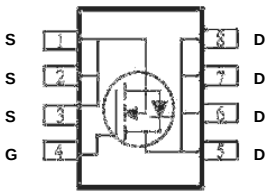


FEATURES

- Automative Lighting
- Load Switch
- Uninterruptible power supply

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	3K	13 inch



ORDER INFORMATION

Part Number	Type
SSG18N15S-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_C=25℃ unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current @V_{GS}=10V	T_C=25℃	I_D	18	A
	T_C=100℃		11	
Pulsed Drain Current [1]		I_{DM}	54	A
Total Power Dissipation	T_C=25℃	P_D	60	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient		$R_{\theta JA}$	85	℃/W
Thermal Resistance Junction-Lead		$R_{\theta JL}$	2.5	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	150	-	-	V	V_{GS}=0V, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	1	-	3	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer Conductance		g_{fs}	-	23	-	S	V_{DS}=5V, I_D=10A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V, V_{DS}=0V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=150V, V_{GS}=0V
	T_J=100℃		-	-	100		
Static Drain-Source On-Resistance [3]		$R_{DS(ON)}$	-	63	78	mΩ	V_{GS}=10V, I_D=10A
			-	72	90		V_{GS}=4.5V, I_D=8A
Gate Resistance		R_g	-	5	-	Ω	V_{GS}=0V, V_{DS} Open, f=1MHz
Total Gate Charge		Q_g	-	11	-	nC	V_{DD}=75V V_{GS}=10V I_D=10A
Gate-Source Charge		Q_{gs}	-	1.2	-		
Gate-Drain Change		Q_{gd}	-	4	-		
Turn-on Delay Time		$T_{d(on)}$	-	9.8	-	nS	V_{DD}=75V V_{GS}=10V I_D=10A R_G=10Ω
Rise Time		T_r	-	6	-		
Turn-off Delay Time		$T_{d(off)}$	-	15	-		
Fall Time		T_f	-	4.1	-		
Input Capacitance		C_{iss}	-	630	-	pF	V_{GS}=0V V_{DS}=75V f=1MHz
Output Capacitance		C_{oss}	-	50	-		
Reverse Transfer Capacitance		C_{rss}	-	13.5	-		
Source-Drain Diode							
Forward on Voltage [3]		V_{SD}	-	-	1.2	V	I_F=10A, V_{GS}=0V
Reverse Recovery Time		T_{rr}	-	55	-	nS	I_F=10A, V_R=75V, dI/dt=100A/μs
Reverse Recovery Charge		Q_{rr}	-	124	-	nC	

Notes:
1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2oz copper.
2. The data tested by pulsed , pulse width≦300μs , duty cycle≦2%
3. The power dissipation is limited by 150℃ juncti on temperature.
4. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

TYPICAL CHARACTERISTICS CURVE

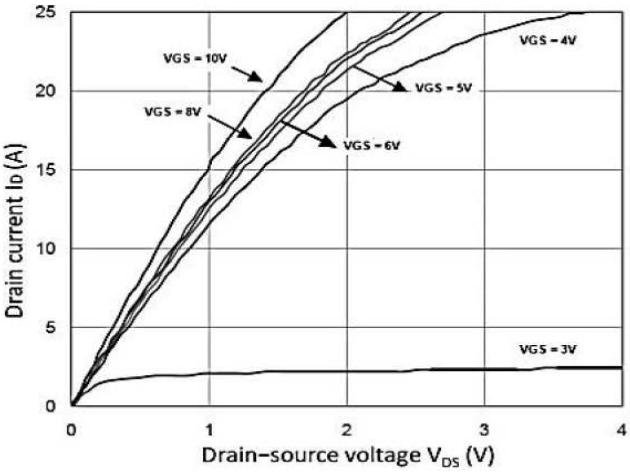


Figure 1. Output Characteristics

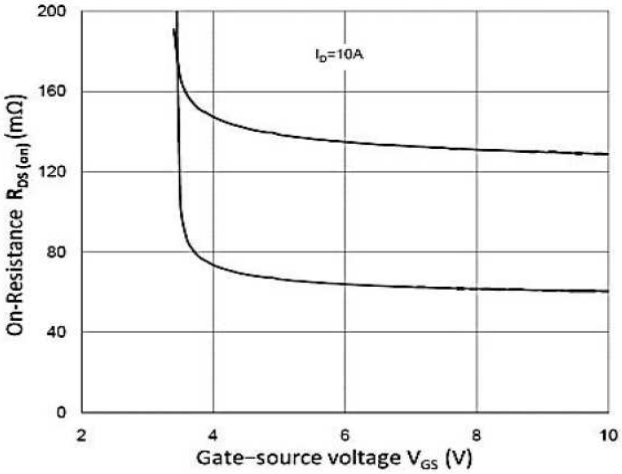


Figure 2. R DS (on) vs. V GS

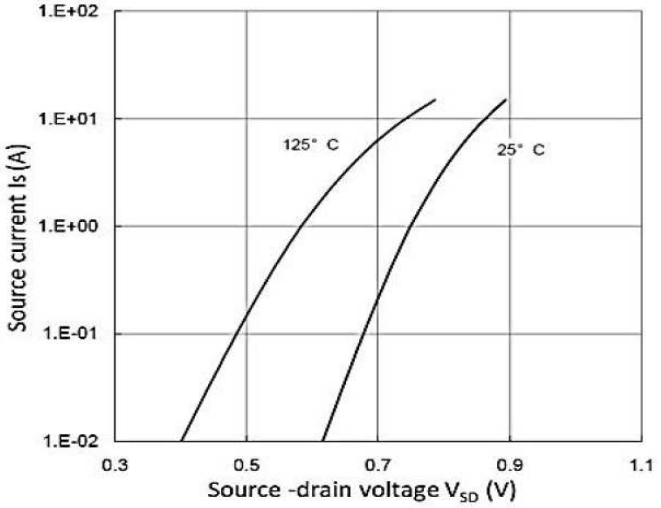


Figure 3. Forward Characteristics of Reverse

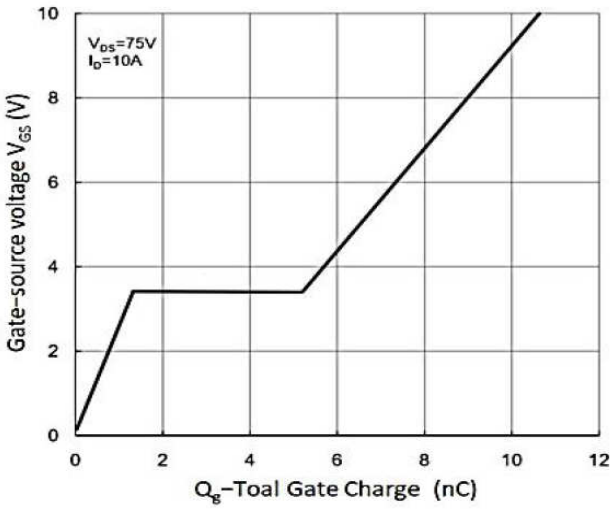


Figure 4. Gate Charge Characteristics

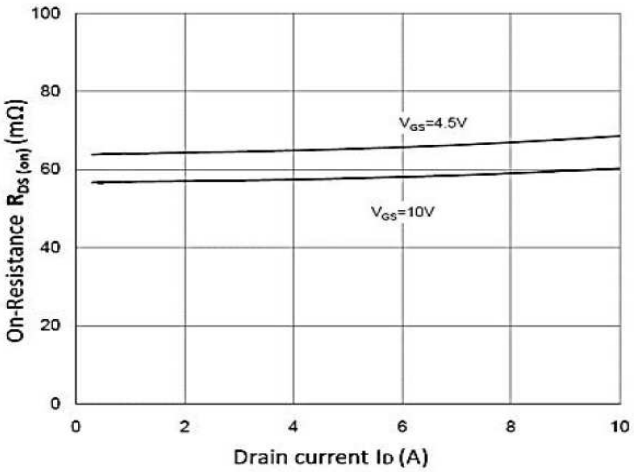


Figure 5. RDS(ON) vs. ID

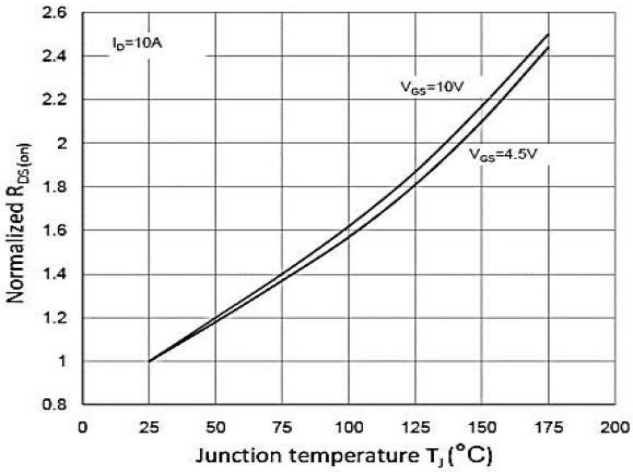


Figure 6. Normalized RDS(on) vs. TJ

TYPICAL CHARACTERISTICS CURVE

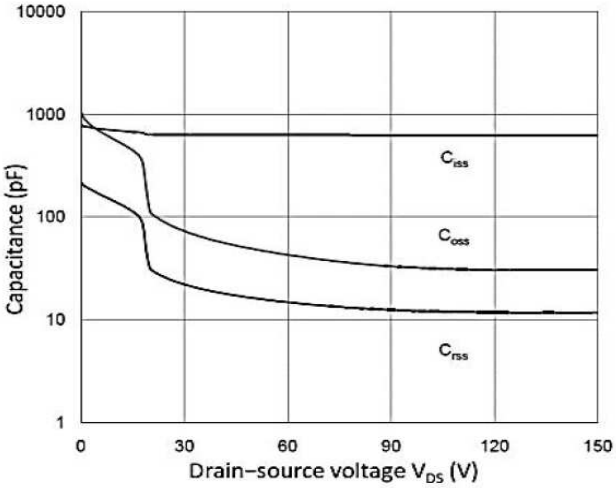


Figure 7. Capacitance Characteristics

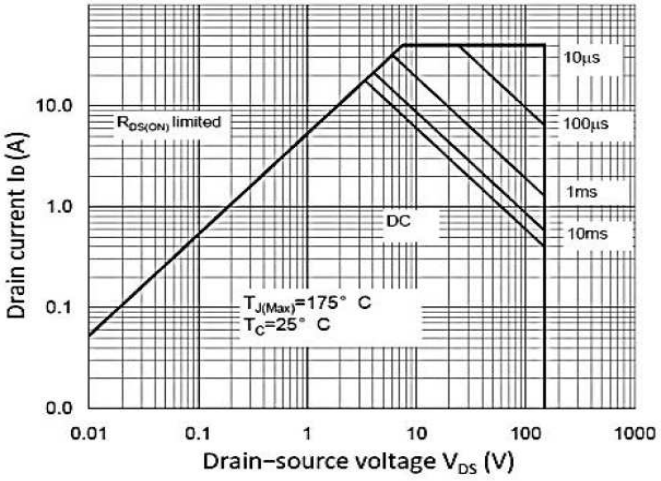


Figure 8. Safe Operating Area

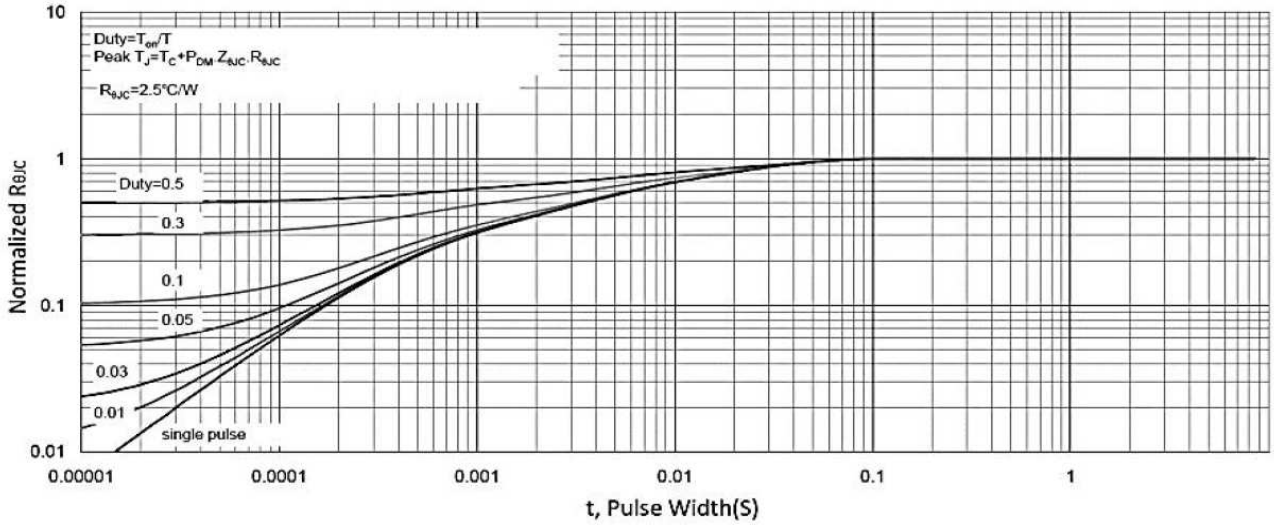


Figure 9. Normalized Maximum Transient Thermal Impedance

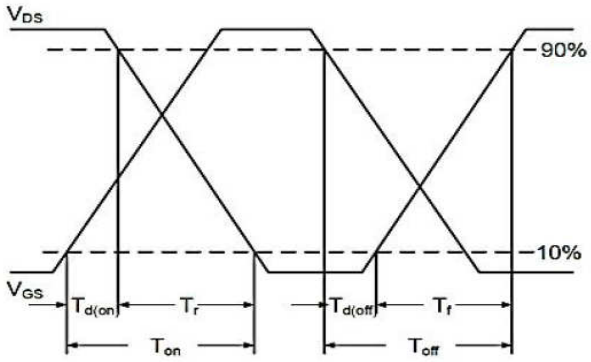


Figure 10. Switching Time Waveform

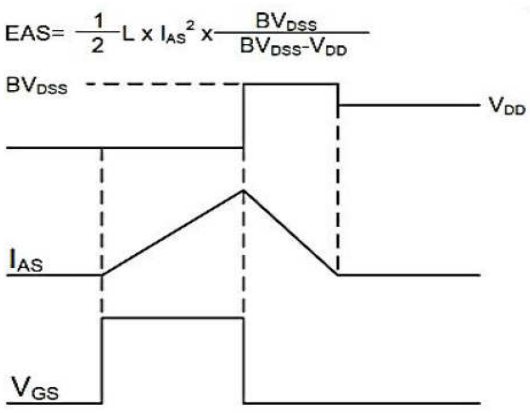


Figure 11. Unclamped Inductive Switching

PACKAGE OUTLINE DIMENSIONS

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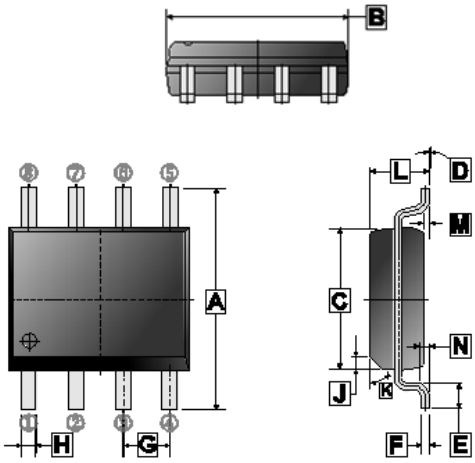

REF.	Millimeter	
	Min.	Max.
A	5.80	6.20
B	4.38	5.20
C	3.70	4.10
D	0°	8°
E	0.40	1.27
F	0.10	0.26
G	1.27 TYP.	
H	0.30	0.51
J	0.375 REF.	
K	45° REF.	
L	1.30	1.80
M	0	0.25
N	0.25 REF.	

MOUNTING PAD LAYOUT

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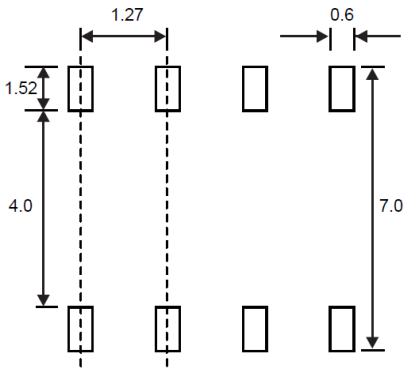

*Dimensions in millimeters