Elektronische Bauelemente

SSG17N06S-C

17A, 60V, $R_{DS(ON)}$ 5.8mΩ

N-Ch Shielded Gate Trench Power MOSFET

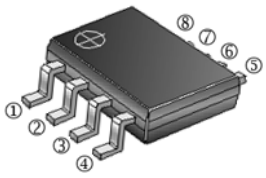
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSG17N06S-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 SSG17N06S-C meet the RoHS and Green Product requirement with full function reliability approved.

SOP-8



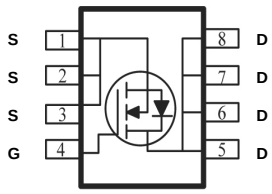
FEATURES

- Shielded Gate Trench Technology
- High Speed Power Switching
- Super Low Gate Charge
- Green Device Available

MARKING

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13 inch



ORDER INFORMATION

Part Number	Type
SSG17N06S-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_A=25℃	I_D	17	A
	T_A=70℃		11	
Pulsed Drain Current [2]		I_{DM}	90	A
Total Power Dissipation [3]	T_A=25℃	P_D	3.1	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	t≦10s, 40	℃/W
			Steady State ,75	
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	25	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	60	-	-	V	V_{GS}=0V, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	1	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
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}=32V, V_{GS}=0V
	T_J=55℃		-	-	5		
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	4.5	5.8	mΩ	V_{GS}=10V, I_D=10A
			-	6.4	8.5		V_{GS}=4.5V, I_D=8A
Total Gate Charge		Q_g	-	17.8	-	nC	I_D=15A V_{DS}=30V V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	5.8	-		
Gate-Drain Change		Q_{gd}	-	7.9	-		
Turn-on Delay Time		$T_{d(on)}$	-	7.5	-	nS	V_{DD}=30V I_D=15A V_{GS}=10V R_G=3Ω
Rise Time		T_r	-	6	-		
Turn-off Delay Time		$T_{d(off)}$	-	29	-		
Fall Time		T_f	-	7.5	-		
Input Capacitance		C_{iss}	-	1625	-	pF	V_{GS}=0V V_{DS}=30V f=1MHz
Output Capacitance		C_{oss}	-	438	-		
Reverse Transfer Capacitance		C_{rss}	-	25	-		
Source-Drain Diode							
Forward on Voltage [2]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0V
Continuous Source Current [1]		I_S	-	-	17	A	V_G=V_D=0, Force Current
Reverse Recovery Time		T_{rr}	-	23	-	nS	I_F=20A, dI/dt=400A/μs, T_J=25℃
Reverse Recovery Charge		Q_{rr}	-	60	-	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℃ junction temperature.

TYPICAL CHARACTERISTICS CURVE

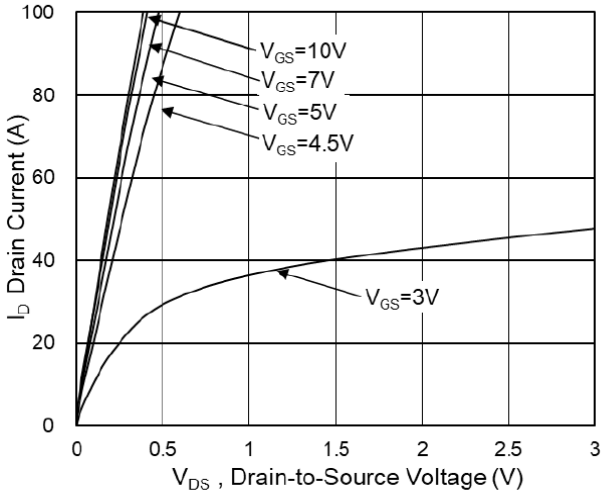


Fig.1 Typical Output Characteristics

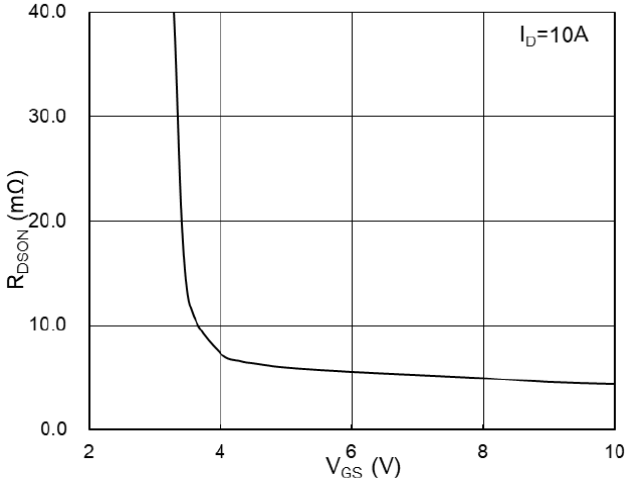


Fig.2 On-Resistance vs G-S Voltage

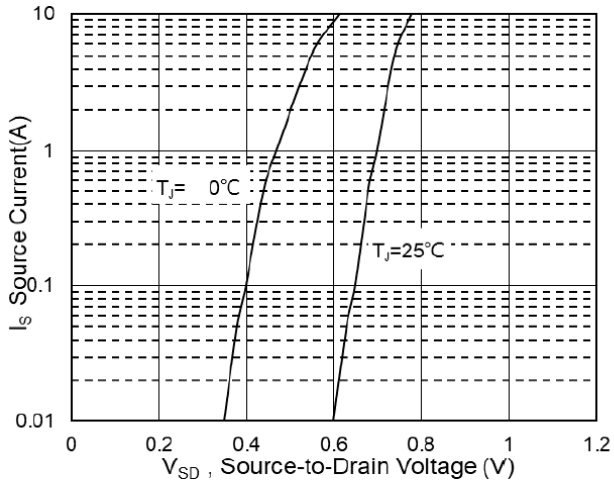


Fig.3 Source Drain Forward Characteristics

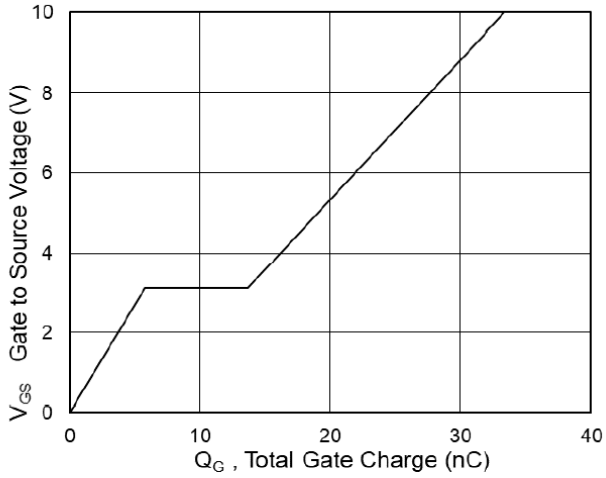


Fig.4 Gate-Charge Characteristics

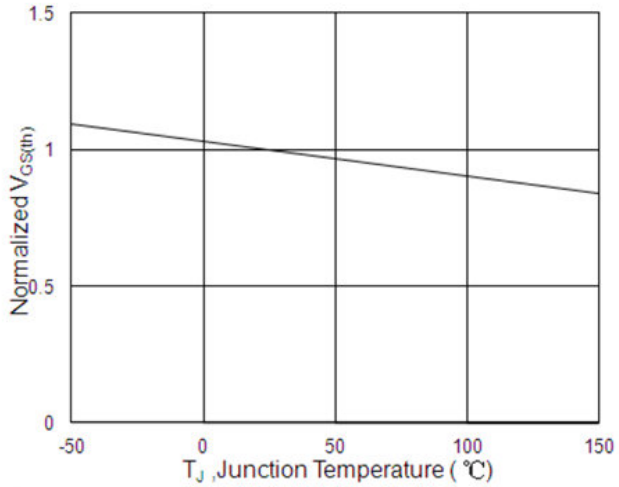


Fig.5 Normalized $V_{GS(th)}$ vs T_J

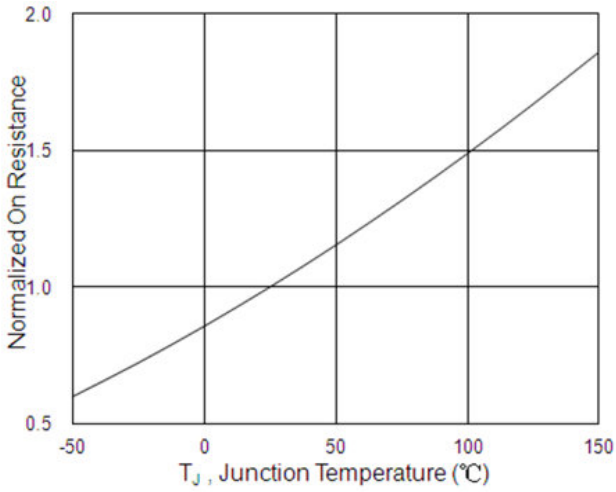


Fig.6 Normalized R_{DSON} vs T_J

TYPICAL CHARACTERISTICS CURVE

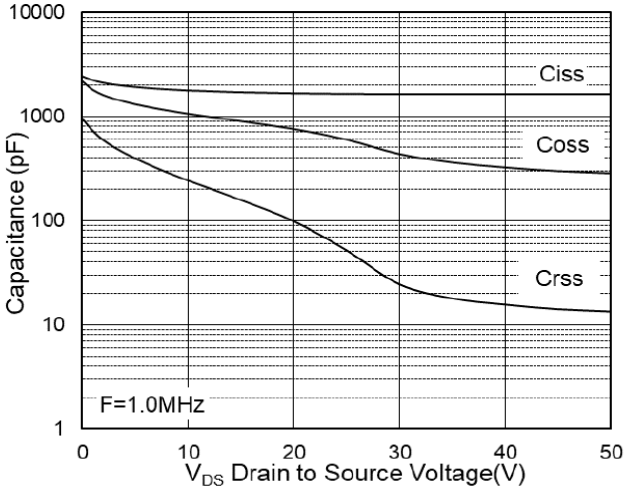


Fig.7 Capacitance

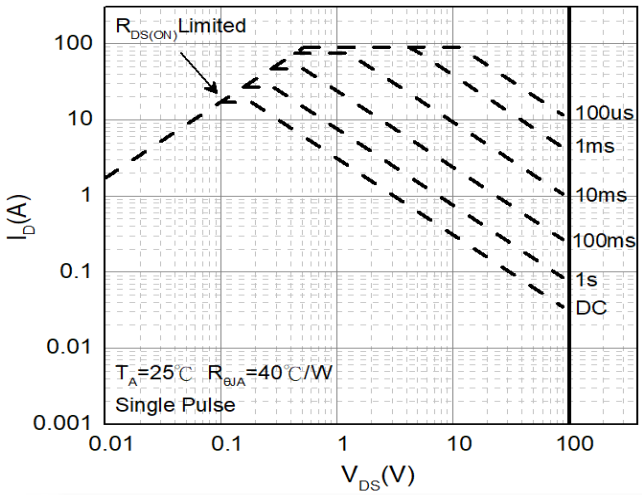


Fig.8 Safe Operating Area

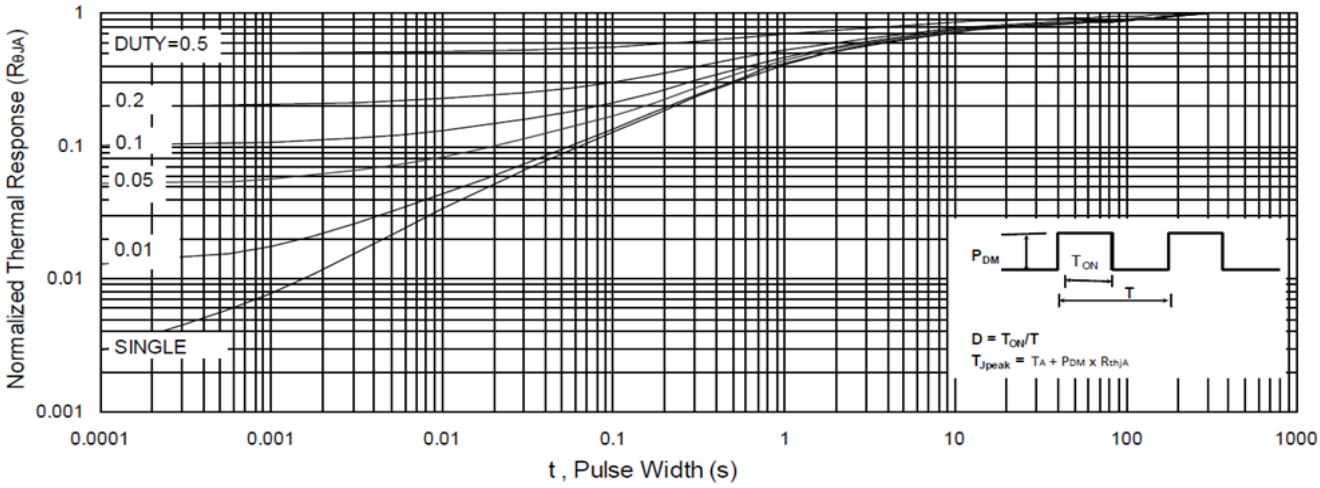


Fig.9 Normalized Maximum Transient Thermal Impedance

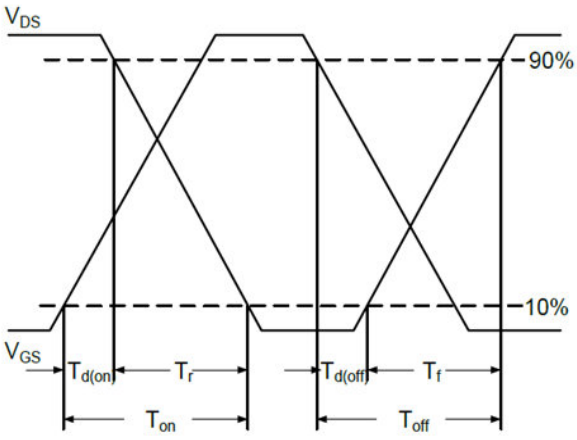


Fig.10 Switching Time Waveform

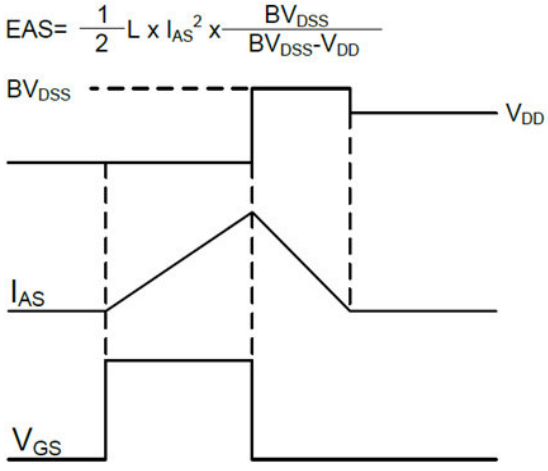


Fig.11 Unclamped Inductive Switching Waveform

PACKAGE OUTLINE DIMENSIONS

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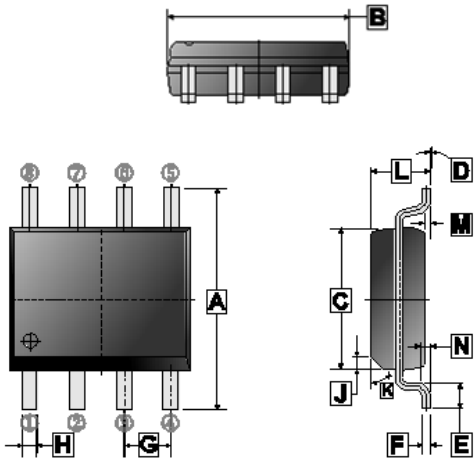

REF.	Millimeter	
	Min.	Max.
A	5.79	6.20
B	4.70	5.11
C	3.80	4.00
D	0°	8°
E	0.40	1.27
F	0.10	0.25
G	1.27 TYP.	
H	0.33	0.51
J	0.375 REF.	
K	45° REF.	
L	1.30	1.752
M	0	0.25
N	0.25 REF.	

MOUNTING PAD LAYOUT

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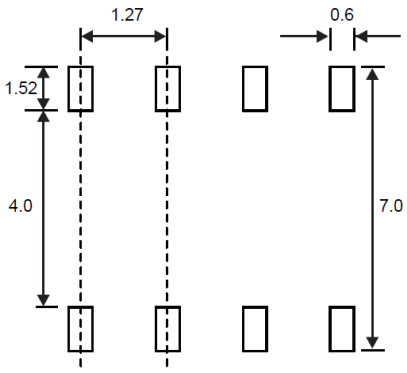

*Dimensions in millimeters