Elektronische Bauelemente

SSG18N06-C

18A, 60V, $R_{DS(ON)}$ 6.5mΩ
N-Ch Enhancement Mode Power MOSFET

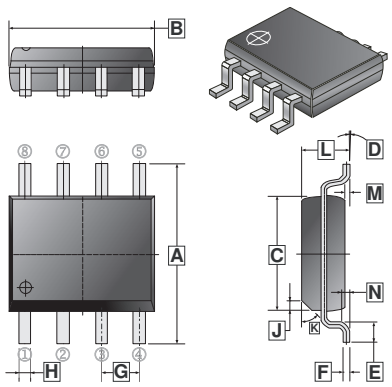
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSG18N06-C is the highest performance trench N-Ch MOSFETs with extreme high cell density, which provide excellent R_{DSON} and gate charge for most of the synchronous buck converter applications.

The SSG18N06-C meet the RoHS and Green Product requirement with full function reliability approved.

SOP-8

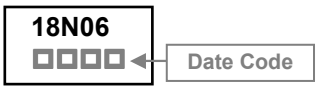


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.79	6.20	H	0.33	0.51
B	4.70	5.11	J	0.375 REF.	
C	3.80	4.00	K	45°REF.	
D	0°	8°	L	1.3	1.752
E	0.40	1.27	M	0	0.25
F	0.10	0.25	N	0.25 REF.	
G	1.27 TYP.				

FEATURES

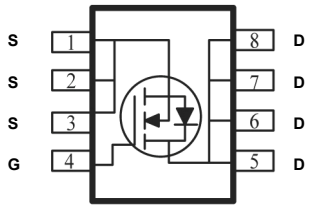
- Advanced high cell density Trench technology
- Super Low Gate Charge
- Green Device Available
- Excellent CdV/dt effect decline

MARKING CODE



PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13' inch



ORDER INFORMATION

Part Number	Type
SSG18N06-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

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°C	I_D	18	A
	T_A=100°C		13.5	
Pulsed Drain Current [2]		I_{DM}	130	A
Power Dissipation [3]	T_A=25°C	P_D	3.1	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings				
Thermal Resistance Junction-ambient [1]	t≦10s	$R_{\theta JA}$	40	°C / W
	Steady State		80	

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-Source Breakdown Voltage	BV_{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
Forward Transfer conductance	g_{fs}	-	65	-	S	V_{DS}=5V, I_D=18A
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=48V,V_{GS}=0, T_J=25°C
		-	-	5		V_{DS}=48V,V_{GS}=0, T_J=55°C
Drain-Source On-Resistance [2]	$R_{DS(ON)}$	-	-	6.5	mΩ	V_{GS}=10V, I_D=8A
		-	-	8.5		V_{GS}=4.5V, I_D=4A
Total Gate Charge	Q_g	-	75	-	nC	I_D=18A V_{DS}=48V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	15.5	-		
Gate-Drain (“Miller”) Charge	Q_{gd}	-	20.3	-		
Turn-On Delay Time	$T_{d(on)}$	-	18.5	-	nS	V_{DD}=30V I_D=18A V_{GS}=10V R_G=3.3Ω
Rise Time	T_r	-	8.8	-		
Turn-Off Delay Time	$T_{d(off)}$	-	58.8	-		
Fall Time	T_f	-	15.8	-		
Input Capacitance	C_{iss}	-	4006	-	pF	V_{GS}=0V V_{DS}=25V f=1MHz
Output Capacitance	C_{oss}	-	320	-		
Reverse Transfer Capacitance	C_{rss}	-	222	-		
Source-Drain Diode						
Forward On Voltage [2]	V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0V, T_J=25°C
Continuous Source Current [1]	I_S	-	-	18	A	V_G=V_D=0V, Force Current
Pulsed Source Current [2]	I_{SM}	-	-	130	A	
Reverse Recovery Time	t_{rr}	-	22.9	-	nS	I_F=18A,dI/dt=100A/μs, T_J=25°C
Reverse Recovery Charge	Q_{rr}	-	11.6	-	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 ≦ 300us, duty cycle ≦ 2%.
3. The power dissipation is limited by 150°C junction temperature.

CHARACTERISTICS CURVE

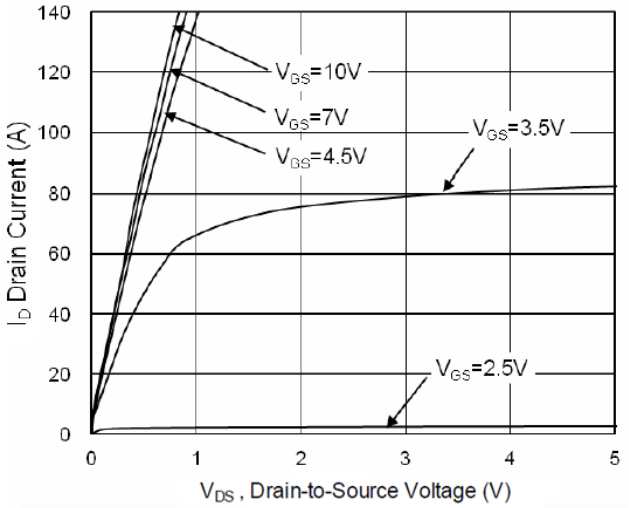


Fig.1 Typical Output Characteristics

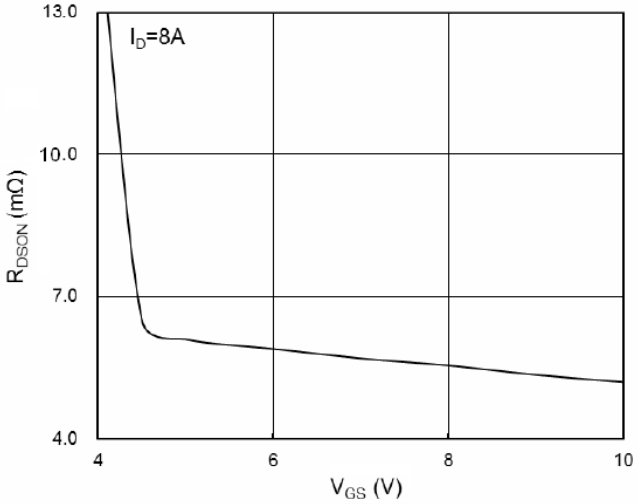


Fig.2 On-Resistance vs. Gate-Source Voltage

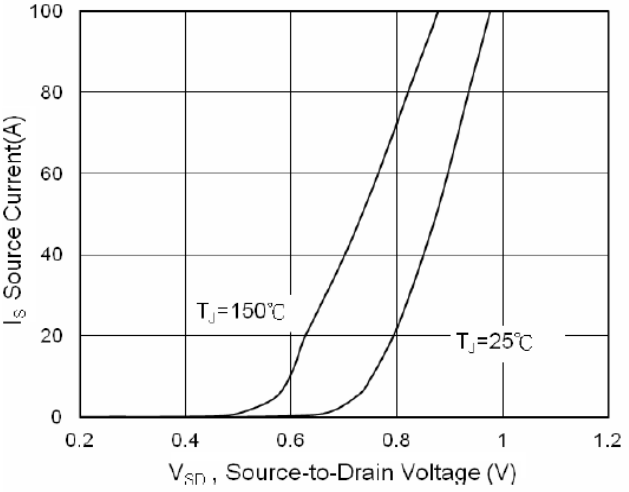


Fig.3 Forward Characteristics of Reverse

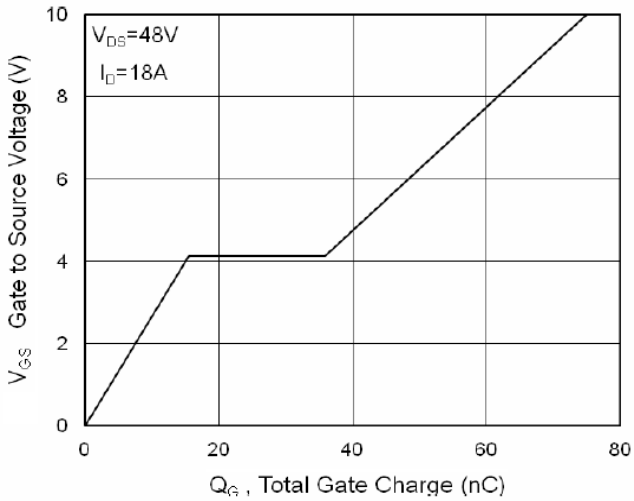


Fig.4 Gate-Charge Characteristics

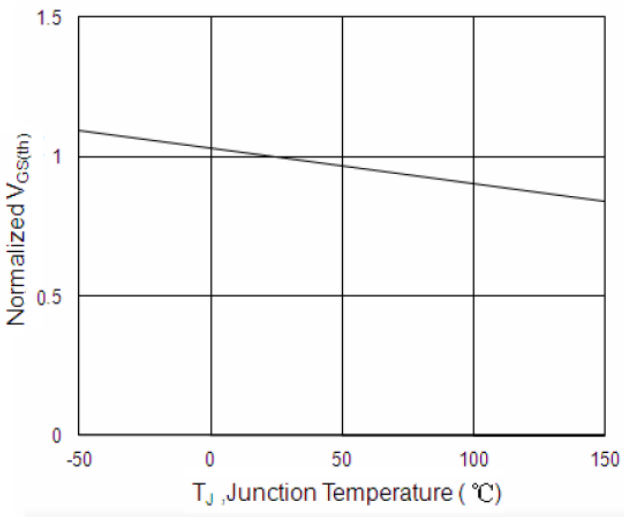


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

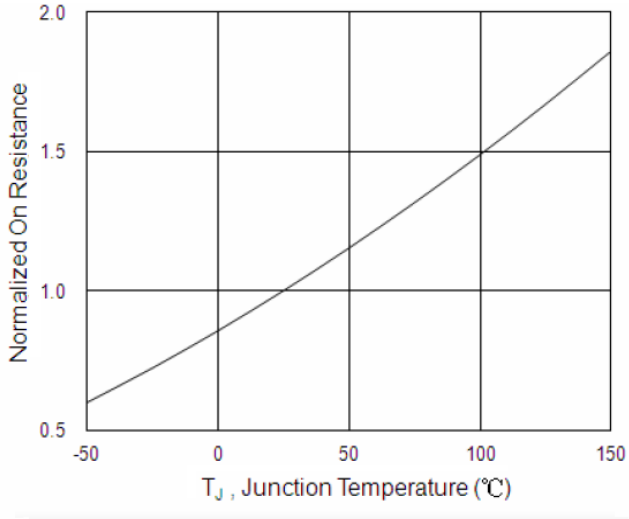


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTICS CURVE

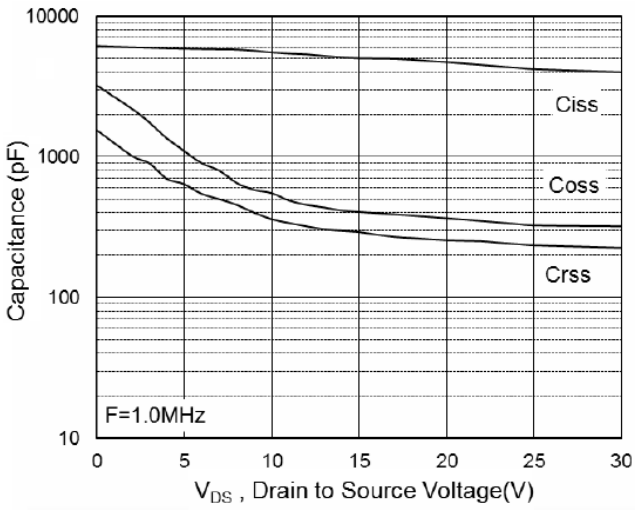


Fig.7 Capacitance

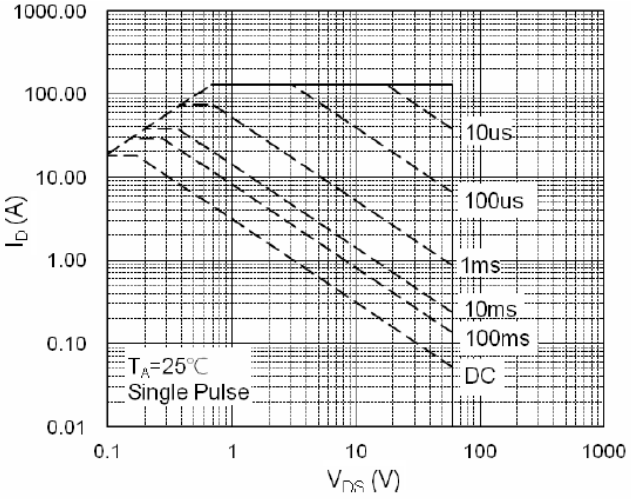


Fig.8 Safe Operating Area

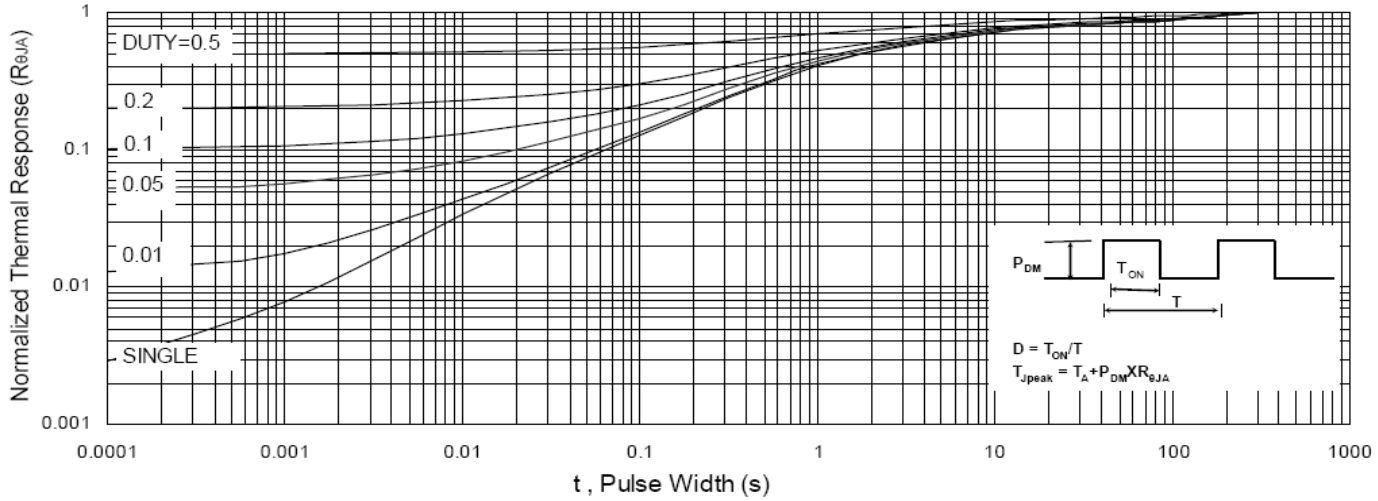


Fig.9 Normalized Maximum Transient Thermal Impedance

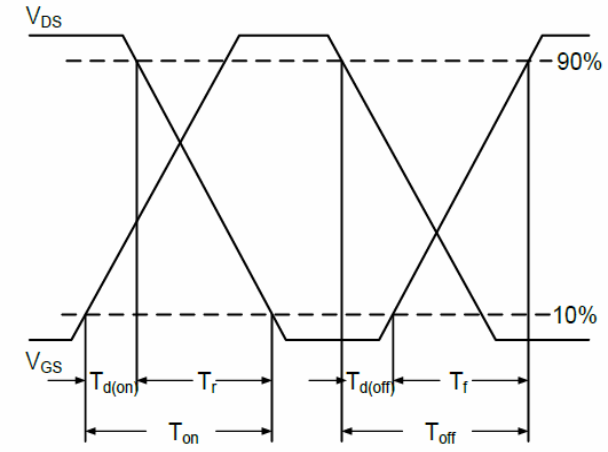


Fig.10 Switching Time Waveform

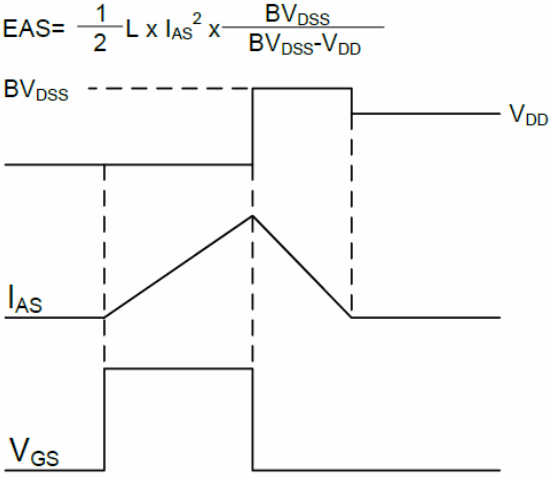


Fig.11 Unclamped Inductive Switching Waveform