Elektronische Bauelemente

SSG14N10SG

14A, 100V, $R_{DS(ON)}$ 8.5mΩ

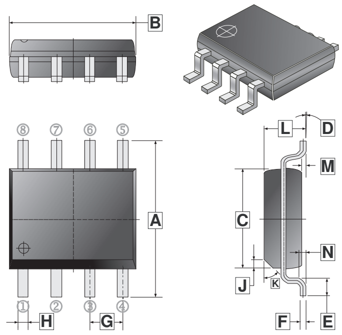
N-Ch Enhancement Mode Power MOSFET

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

DESCRIPTION

The SSG14N10SG is the highest performance trench 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 SSG14N10SG meet the RoHS and Green Product with Function reliability approved.

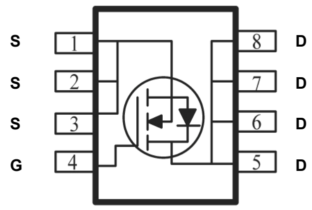
SOP-8



REF.	Millimeter Min.	Max.	REF.	Millimeter Min.	Max.
A	5.80	6.20	H	0.33	0.51
B	4.700	5.10	J	0.375 REF.	
C	3.80	4.00	K	45°REF.	
D	0°	8°	L	1.35	1.75
E	0.40	1.27	M	0.10	0.25
F	0.17	0.25	N	0.25 REF.	
G	1.27 TYP.				

FEATURES

- $R_{DS(on)}$≦8.5mΩ @V_{GS}=10V
- $R_{DS(on)}$≦10.5mΩ @V_{GS}=4.5V
- High speed power switching, Logic Level
- Enhanced Body diode dv/dt capability
- Enhanced Avalanche Ruggedness
- 100% UIS Tested, 100% Rg Tested
- SOP-8 Package



MARKING

14N10SG
□□□□ ← Date Code

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13 inch

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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current (Silicon Limited)	T_C=25°C	I_D	14	A
	T_C=100°C		8.9	
Pulsed Drain Current		I_{DM}	80	A
Avalanche Energy, Single Pulse, @L=0.1mH	T_C=25°C	E_{AS}	80	mJ
Power Dissipation	T_C=25°C	P_D	3.1	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 ~ 150	°C
Thermal Resistance Ratings				
Maximum Thermal Resistance Junction-Ambient		$R_{θJA}$	t≦10sec, 40	°C / W
			Steady State, 75	
Maximum Thermal Resistance Junction-Lead		$R_{θJL}$	23	

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

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-Source Breakdown Voltage		BV_{DSS}	100	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	1.4	1.9	2.4	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer conductance		g_{fs}	-	70	-	S	V_{DS}=5V, I_D=14A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±20V
Drain-Source Leakage Current	T_J=25°C	I_{DSS}	-	-	1	μA	V_{DS}=100V, V_{GS}=0
	T_J=100°C		-	-	100		
Static Drain-Source On-Resistance		$R_{DS(ON)}$	-	7.1	8.5	mΩ	V_{GS}=10V, I_D=14A
			-	8.4	10.5	mΩ	V_{GS}=4.5V, I_D=10A
Total Gate Charge		Q_g	-	49	-	nC	V_{GS}=10V
Total Gate Charge		Q_g	-	21	-		V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	8	-		I_D=14A V_{DD}=50V V_{GS}=10V
Gate-Drain (“Miller”) Change		Q_{gd}	-	7	-		
Turn-on Delay Time		$T_{d(on)}$	-	10	-	nS	V_{DD}=50V I_D=14A V_{GS}=10V R_G=10Ω
Rise Time		T_r	-	5	-		
Turn-off Delay Time		$T_{d(off)}$	-	32	-		
Fall Time		T_f	-	6	-		
Input Capacitance		C_{iss}	-	3350	-	pF	V_{GS}=0 V_{DS}=50V f=1.0MHz
Output Capacitance		C_{oss}	-	270	-		
Reverse Transfer Capacitance		C_{rss}	-	15	-		
Source-Drain Diode							
Forward On Voltage		V_{SD}	-	0.9	1.2	V	I_F=14A, V_{GS}=0
Reverse Recovery Time		T_{rr}	-	47	-	nS	V_R=50V, I_F=14A, dI/dt=500A/μs
Reverse Recovery Charge		Q_{rr}	-	226	-	nC	

TYPICAL CHARACTERISTICS CURVE

Fig 1. Typical Output Characteristics

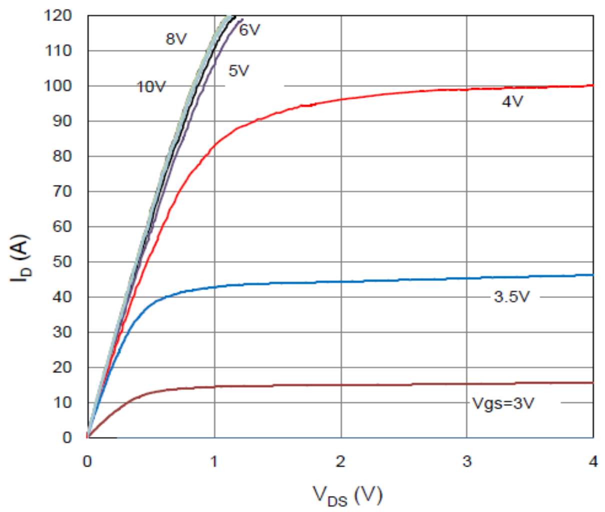


Figure 2. On-Resistance vs. Gate-Source Voltage

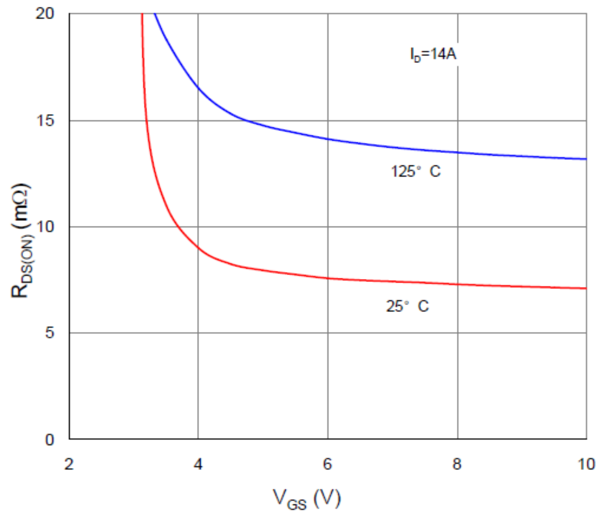


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

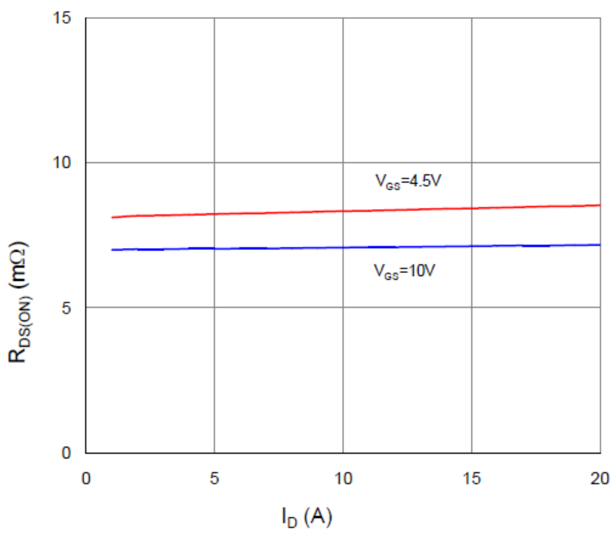


Figure 4. Normalized On-Resistance vs. Junction Temperature

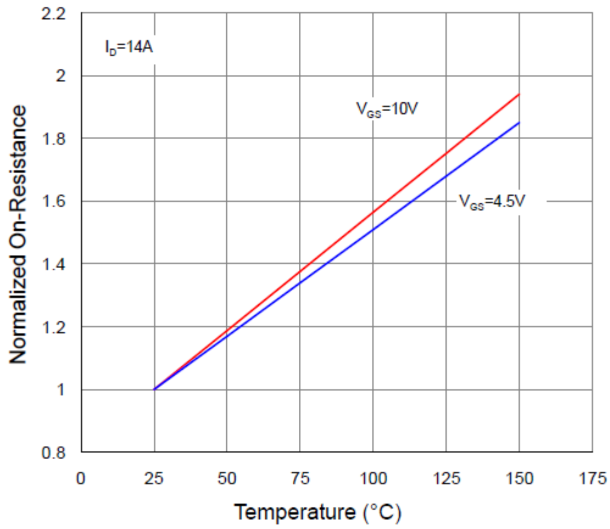


Figure 5. Typical Transfer Characteristics

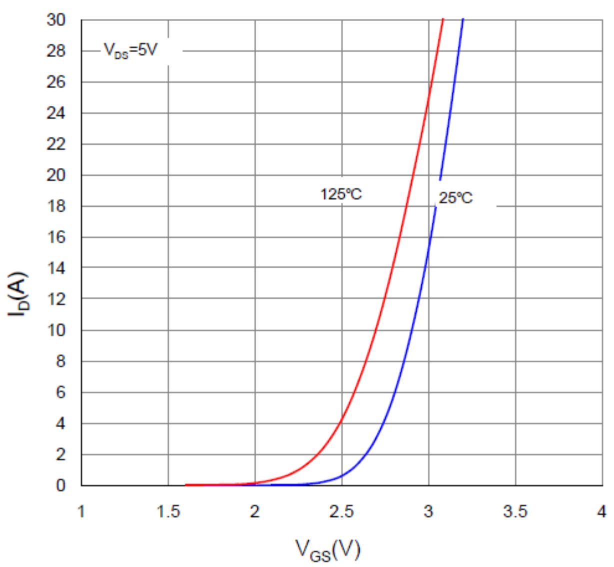
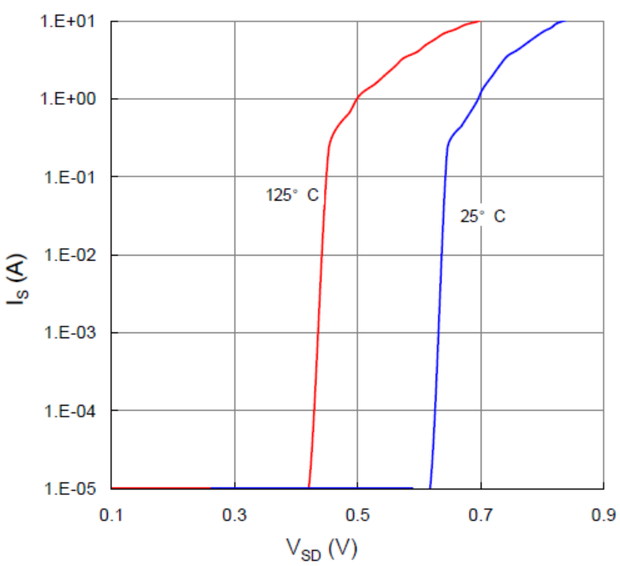


Figure 6. Typical Source-Drain Diode Forward Voltage



TYPICAL CHARACTERISTICS CURVE

Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

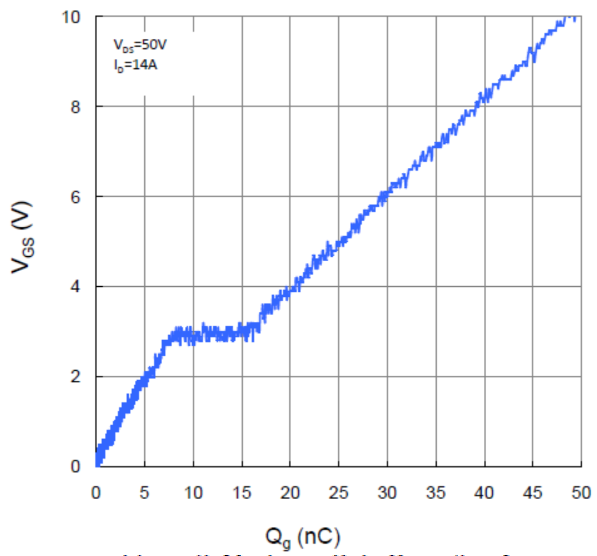


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

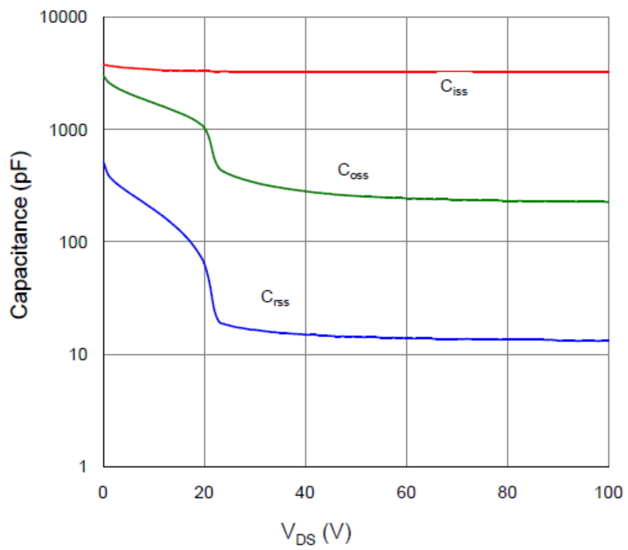


Figure 9. Maximum Safe Operating Area

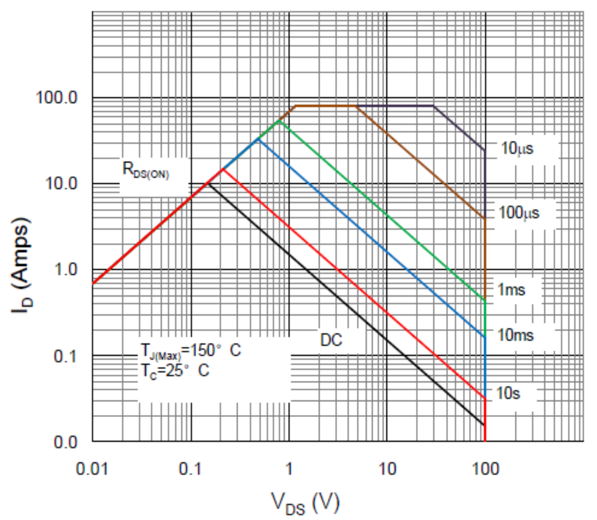


Figure 10. Maximun Drain Current vs. Case Temperature

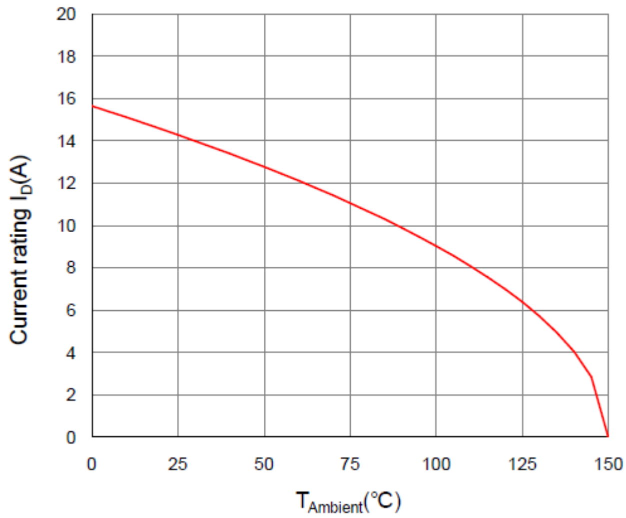


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient