SSQ130N80SG

130A, 80V, $R_{DS(ON)}$ 5.8mΩ
N-Ch Enhancement Mode Power MOSFET

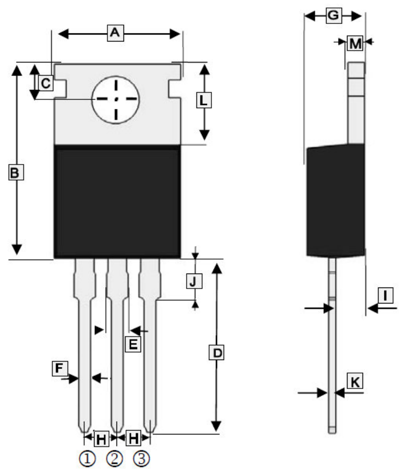
Elektronische Bauelemente

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

DESCRIPTION

The SSQ130N80SG 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 SSQ130N80SG meet the RoHS and Green Product with Function reliability approved.

TO-220

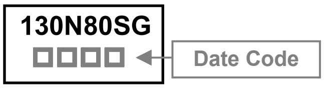


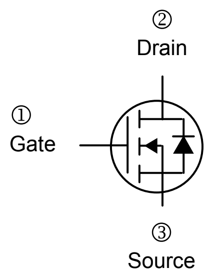
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	9.96	10.36	H	2.54 BSC.	
B	14.7	16	I	2.04	2.92
C	2.74 BSC.		J	3.745 REF.	
D	12.7	14.73	K	0.356	0.5
E	1.15	1.82	L	5.85	6.85
F	0.39	1.01	M	0.51	1.39
G	3.56	4.82			

FEATURES

- $R_{DS(on)} \leqq 5.8m\Omega$ @V_{GS}=10V
- $R_{DS(on)} \leqq 8m\Omega$ @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
- TO-220 Package

MARKING





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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	80	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current (Silicon Limited)	T_C=25°C	I_D	130	A
	T_C=100°C		92	
Continuous Drain Current (Package Limited)	T_C=25°C		120	
Pulsed Drain Current		I_{DM}	380	A
Avalanche Energy, Single Pulse, @L=0.3mH	T_C=25°C	E_{AS}	240	mJ
Power Dissipation	T_C=25°C	P_D	176	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 ~ 175	°C
Thermal Resistance Ratings				
Maximum Thermal Resistance Junction-Ambient		$R_{\theta JA}$	65	°C / W
Maximum Thermal Resistance Junction-Case		$R_{\theta JC}$	0.85	

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

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-Source Breakdown Voltage		BV_{DSS}	80	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	1	1.7	2.4	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer conductance		g_{fs}	-	65	-	S	V_{DS}=5V, I_D=20A
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}=80V, V_{GS}=0
	T_J=100°C		-	-	100		
Static Drain-Source On-Resistance		$R_{DS(ON)}$	-	4.3	5.8	mΩ	V_{GS}=10V, I_D=20A
			-	5.9	8		V_{GS}=4.5V, I_D=20A
Total Gate Charge		Q_g	-	46	-	nC	V_{GS}=10V
			-	22	-		V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	9	-		I_D=20A V_{DD}=40V V_{GS}=10V
Gate-Drain ("Miller") Change		Q_{gd}	-	8	-		
Turn-on Delay Time		$T_{d(on)}$	-	11	-	nS	V_{DD}=40V I_D=20A V_{GS}=10V R_G=10Ω
Rise Time		T_r	-	7	-		
Turn-off Delay Time		$T_{d(off)}$	-	38	-		
Fall Time		T_f	-	9	-		
Input Capacitance		C_{iss}	-	3130	-	pF	V_{GS}=0 V_{DS}=40V f=1.0MHz
Output Capacitance		C_{oss}	-	385	-		
Reverse Transfer Capacitance		C_{rss}	-	18	-		
Source-Drain Diode							
Forward On Voltage		V_{SD}	-	0.9	1.2	V	I_F=20A, V_{GS}=0
Reverse Recovery Time		T_{rr}	-	48	-	nS	V_R=40V, I_F=20A, dI/dt=400A/μs
Reverse Recovery Charge		Q_{rr}	-	190	-	nC	

TYPICAL CHARACTERISTICS CURVE

Fig 1. Typical Output Characteristics

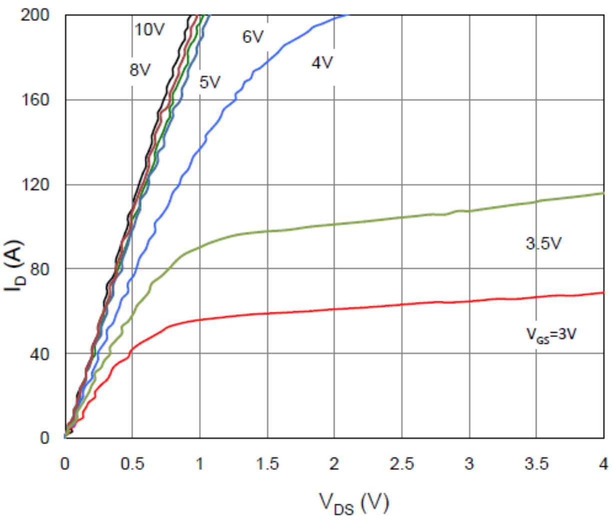


Figure 2. On-Resistance vs. Gate-Source Voltage

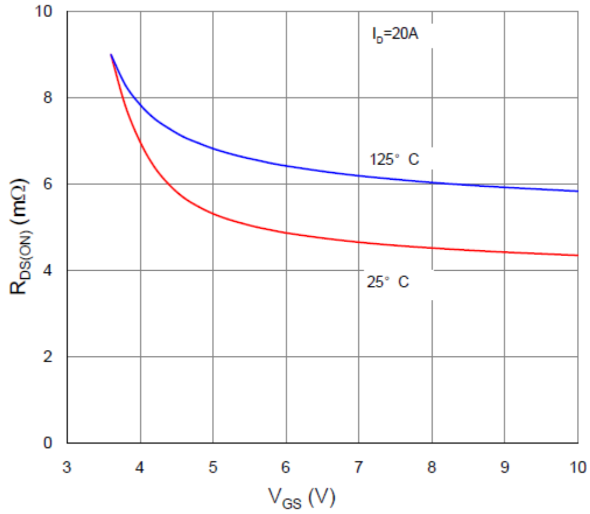


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

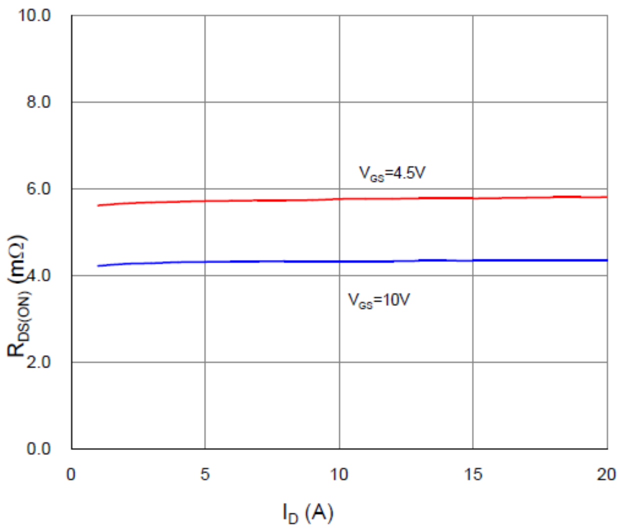


Figure 4. Normalized On-Resistance vs. Junction Temperature

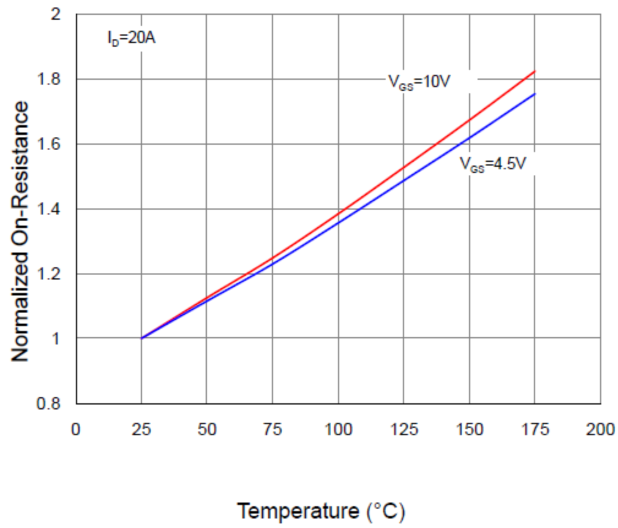


Figure 5. Typical Transfer Characteristics

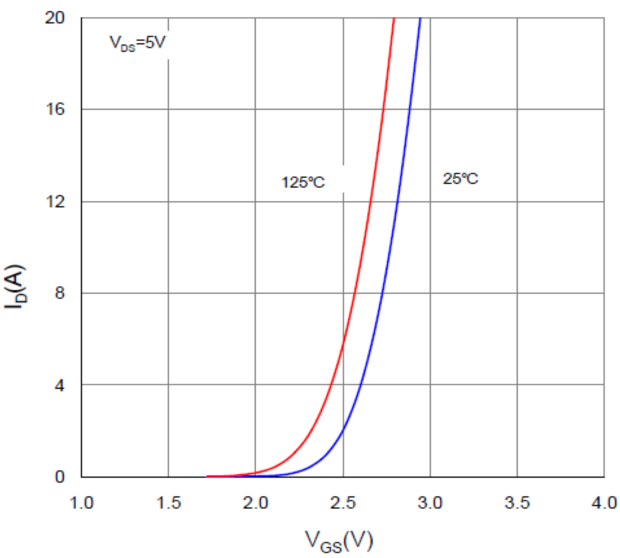
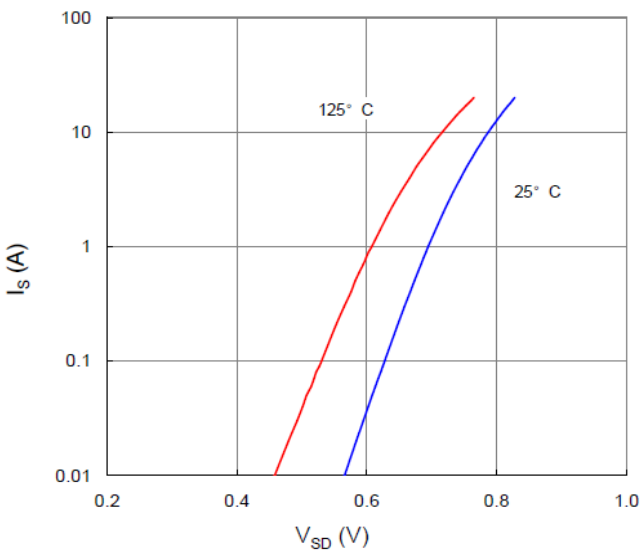


Figure 6. Typical Source-Drain Diode Forward Voltage



TYPICAL CHARACTERISTICS CURVE

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

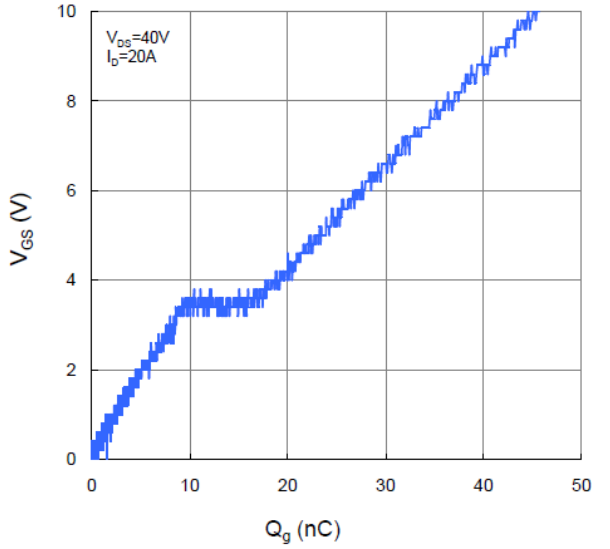


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

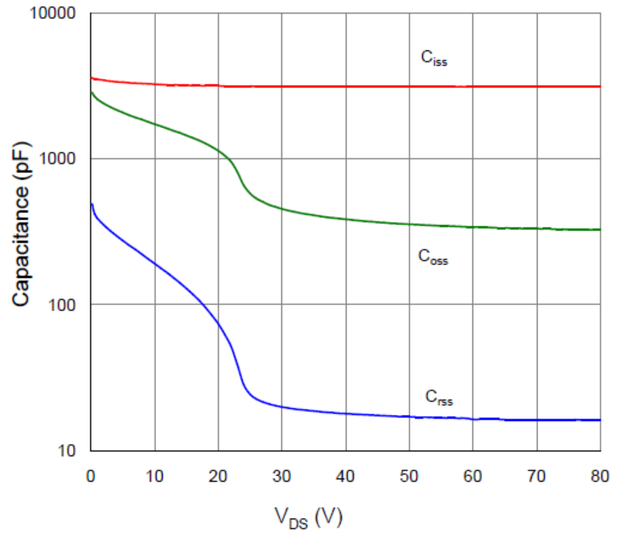


Figure 9. Maximum Safe Operating Area

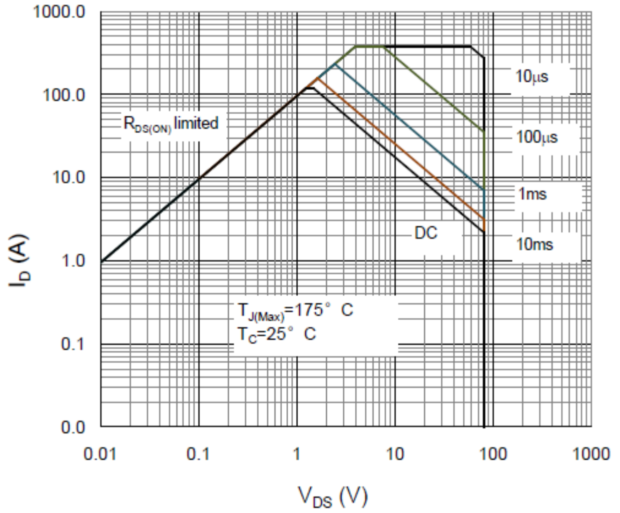


Figure 10. Maximun Drain Current vs. Case Temperature

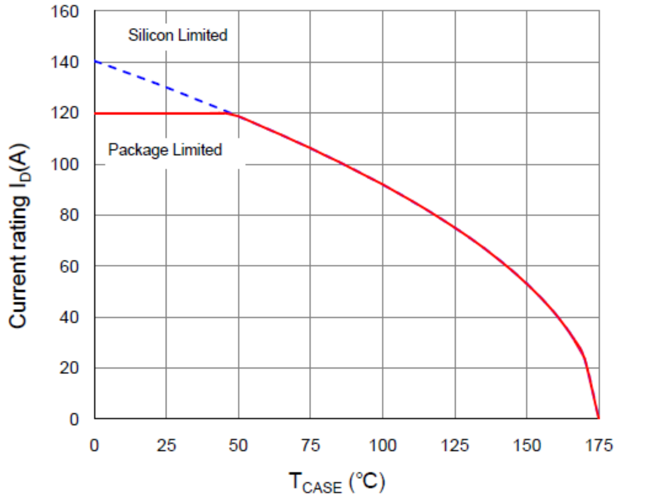


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case