Elektronische Bauelemente

SSG05N15SV-C

5.7A, 150V, $R_{DS(ON)}$ 48mΩ

N-Channel Shielded Gate Trench Power MOSFET

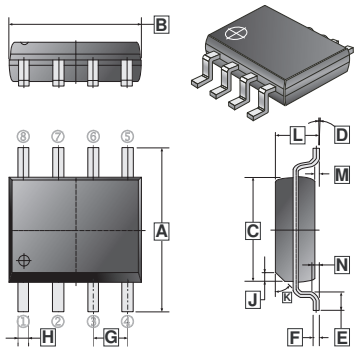
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSG05N15SV-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 SSG05N15SV-C meet the RoHS and Green Product requirement with full function reliability approved.

SOP-8



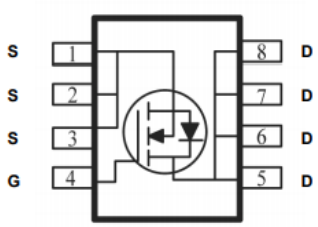
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.79	6.20	H	0.33	0.51
B	4.70	5.11	J	0.375 REF.	
C	3.80	4.00	K	45°REF.	
D	0°	8°	L	1.3	1.752
E	0.40	1.27	M	0	0.25
F	0.10	0.25	N	0.25 REF.	
G	1.27 TYP.				

FEATURES

- Shielded Gate Trench Technology
- Super Low Gate Charge
- Green Device Available

MARKING

05N15SV
□□□□ ←□=Date Code



PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SSG05N15SV-C	Lead (Pb)-free and Halogen-free

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25℃	I_D	5.7	A
	T_C=100℃		3.6	
Pulsed Drain Current [2]		I_{DM}	40	A
Power Dissipation	T_C=25℃	P_D	3.1	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Data				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	t≦10s, 40	℃/W
			Steady State, 75	
Thermal Resistance Junction-Lead [1]		$R_{\theta JL}$	23	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-Source Breakdown Voltage		BV_{DSS}	150	-	-	V	V_{GS}=0V, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer Conductance		g_{fs}	-	16	-	S	V_{DS}=5V, I_D=5A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±20V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=150V, V_{GS}=0
	T_J=100℃		-	-	100		V_{DS}=150V, V_{GS}=0
Drain-Source On-Resistance [3]		$R_{DS(ON)}$	-	44	48	mΩ	V_{GS}=10V, I_D=5.7A
Gate Resistance		R_g	-	5.9	-	Ω	V_{GS}=0V, V_{DS} Open, f=1MHz
Total Gate Charge		Q_g	-	10	-	nC	I_D=5A V_{DD}=75V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	3.2	-		
Gate-Drain Charge		Q_{gd}	-	3.8	-		
Turn-On Delay Time		$T_{d(on)}$	-	11	-	nS	V_{DD}=75V I_D=5A V_{GS}=10V R_G=10Ω
Rise Time		T_r	-	7	-		
Turn-Off Delay Time		$T_{d(off)}$	-	12	-		
Fall Time		T_f	-	3	-		
Input Capacitance		C_{iss}	-	500	-	pF	V_{GS}=0V V_{DS}=75V f=1MHz
Output Capacitance		C_{oss}	-	57	-		
Reverse Transfer Capacitance		C_{rss}	-	9.9	-		
Source-Drain Diode							
Forward On Voltage [3]		V_{SD}	-	0.9	1.2	V	I_F=20A, V_{GS}=0V
Reverse Recovery Time		T_{rr}	-	64	-	nS	V_R=75V, I_F=5A, dI_F/dt=100A/μs,
Reverse Recovery Charge		Q_{rr}	-	96	-	nC	

Notes:

1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. The Pulse width limited by maximum junction temperature, Pulse Width≤300μs, Duty Cycle≤2%.
3. The Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.

CHARACTERISTICS CURVE

Fig 1. Typical Output Characteristics

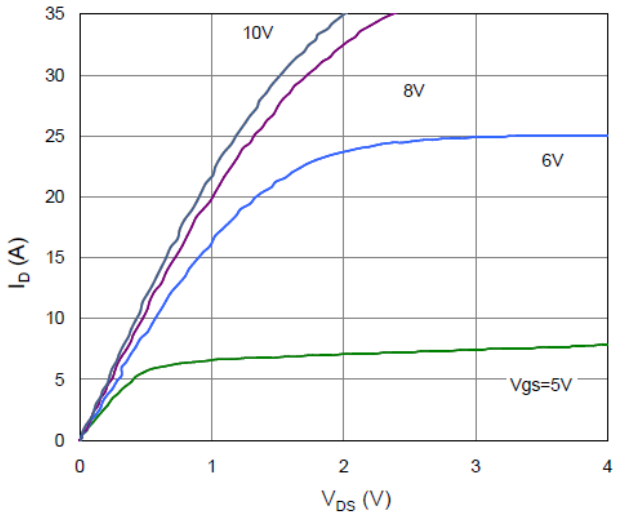


Figure 2. On-Resistance vs. Gate-Source Voltage

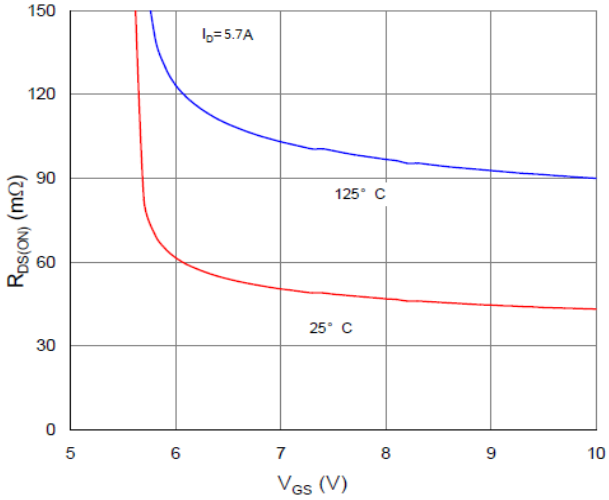


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

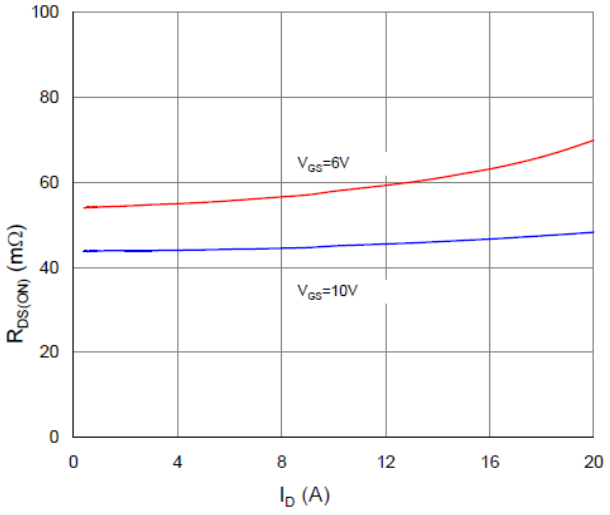


Figure 4. Normalized On-Resistance vs. Junction Temperature

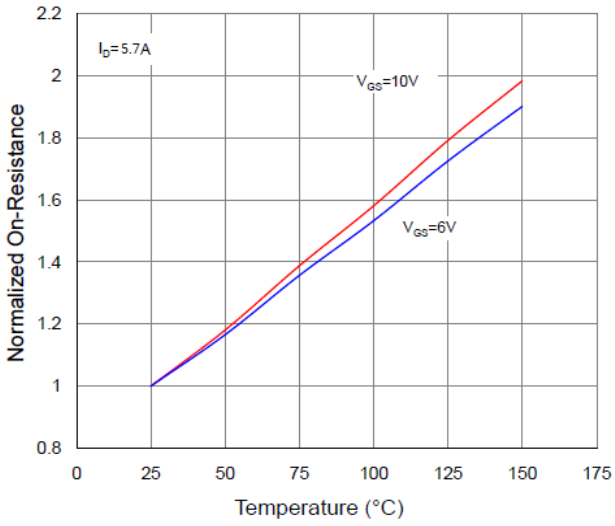


Figure 5. Typical Transfer Characteristics

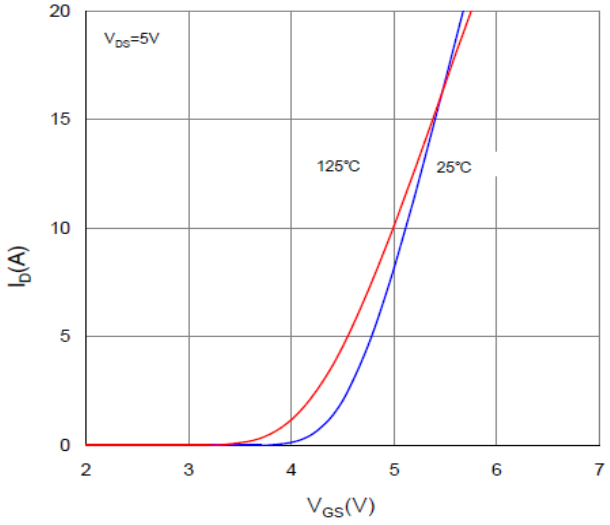
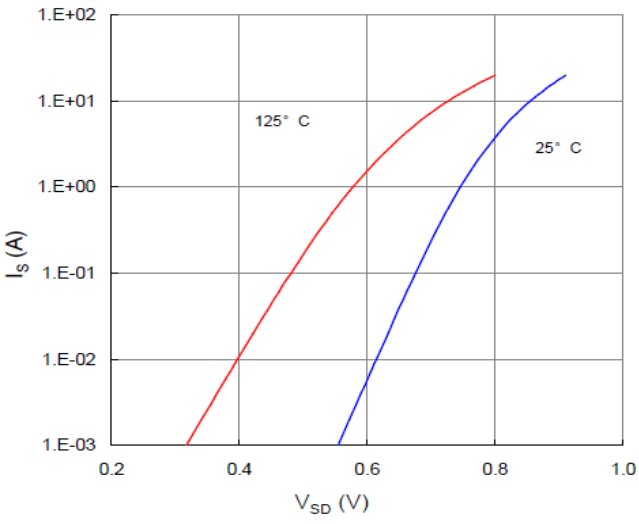


Figure 6. Typical Source-Drain Diode Forward Voltage



CHARACTERISTICS CURVE

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

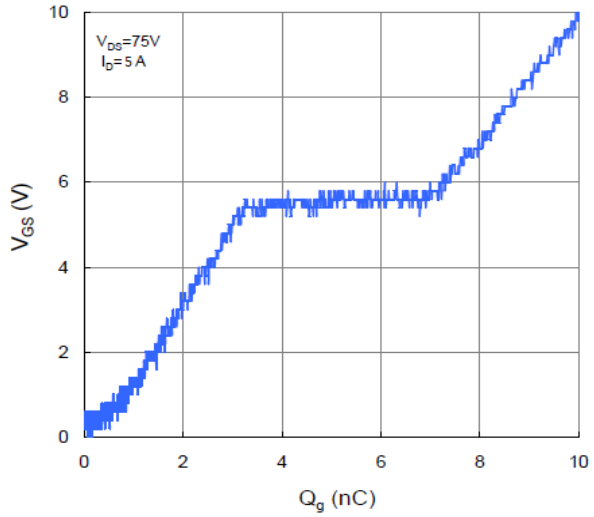


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

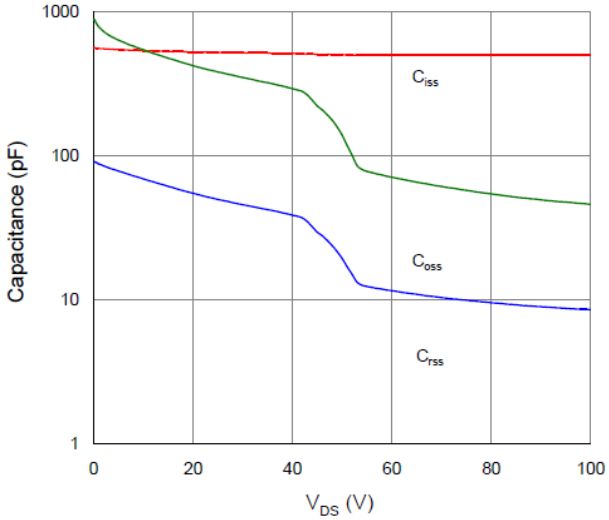


Figure 9. Maximum Safe Operating Area

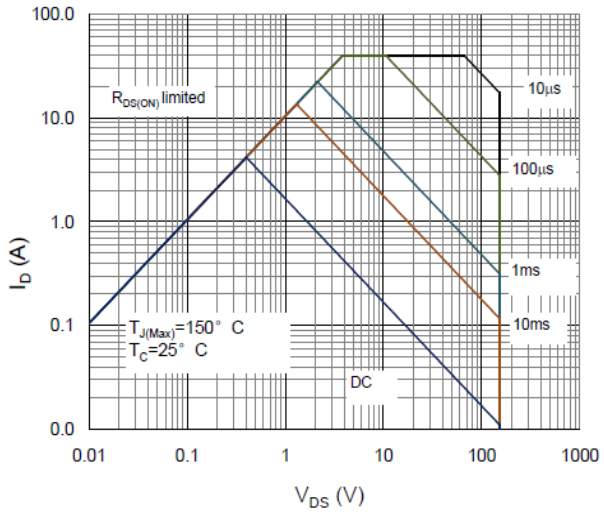


Figure 10. Maximun Drain Current vs. Case Temperature

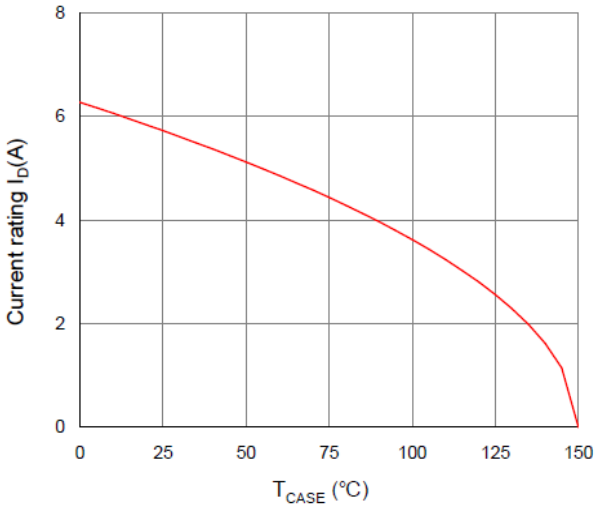


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case