Elektronische Bauelemente

SSQF72N06SV-C

72A, 60V, $R_{DS(ON)}$ 4.3mΩ

N-Channel Shielded Gate Trench Power MOSFET

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

DESCRIPTION

The SSQF72N06SV-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.

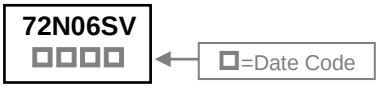
The SSQF72N06SV-C meet the RoHS and Green Product requirement with full function reliability approved.

ITO-220J

FEATURES

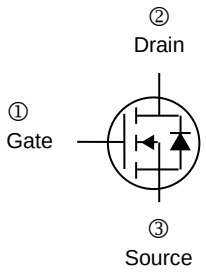
- Shielded Gate Trench Technology
- Super Low Gate Charge
- Green Device Available

MARKING



ORDER INFORMATION

Part Number	Type
SSQF72N06SV-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_C=25°C	I_D	72	A
	T_C=100°C		43	
Pulsed Drain Current [2 3]		I_{DM}	270	A
Total Power Dissipation [1]	T_C=25°C	P_D	32.8	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings				
Maximum Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	62	°C/W
Maximum Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	3.8	

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

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-Source Breakdown Voltage		BV_{DSS}	60	-	-	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}	-	65	-	S	V_{DS}=5V, I_D=15A
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}=48V, V_{GS}=0
	T_J=55°C		-	-	5		V_{DS}=48V, V_{GS}=0
Static Drain-Source On-Resistance [3]		$R_{DS(ON)}$	-	3.4	4.3	mΩ	V_{GS}=10V, I_D=9A
			-	4.9	6.2		V_{GS}=7V, I_D=10A
Total Gate Charge		Q_g	-	59	-	nC	I_D=15A V_{DS}=30V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	15	-		
Gate-Drain (“Miller”) Change		Q_{gd}	-	10	-		
Turn-on Delay Time		$T_{d(on)}$	-	20	-	nS	V_{DD}=30V I_D=15A V_{GS}=10V R_G=3Ω
Rise Time		T_r	-	9	-		
Turn-off Delay Time		$T_{d(off)}$	-	60	-		
Fall Time		T_f	-	15	-		
Input Capacitance		C_{iss}	-	3509	-	pF	V_{GS}=0V V_{DS}=30V f=1MHz
Output Capacitance		C_{oss}	-	1175	-		
Reverse Transfer Capacitance		C_{rss}	-	68	-		
Source-Drain Diode							
Diode Forward Voltage [3]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0V
Continuous Source Current [1]		I_S	-	-	72	A	
Pulsed Source Current [2 3]		I_{SM}	-	-	270		
Reverse Recovery Time		t_{rr}	-	24	-	nS	I_F=15A, dI/dt=100A/μs, T_J=25°C
Reverse Recovery Charge		Q_{rr}	-	85	-	nC	

Notes:
1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. The power dissipation is limited by 150°C junction temperature.
3. The data tested by pulsed, Pulse Width≦300μs, Duty Cycle≦2%.

TYPICAL CHARACTERISTICS CURVE

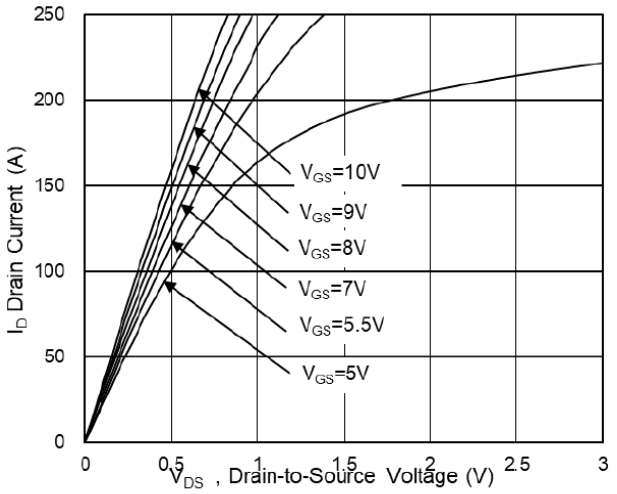


Fig.1 Typical Output Characteristics

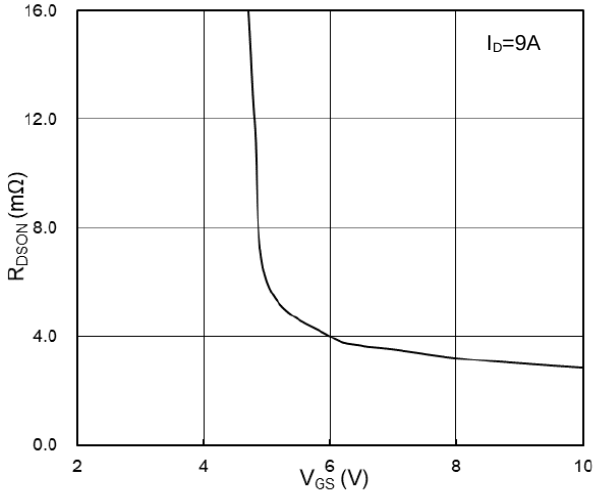


Fig.2 On-Resistance vs G-S Voltage

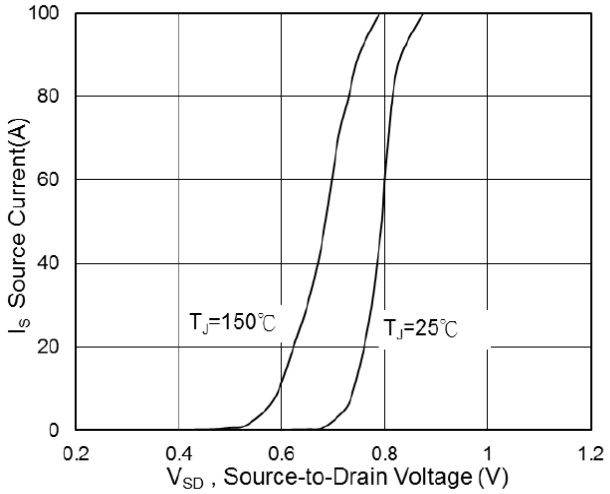


Fig.3 Diode Forward Voltage vs Current

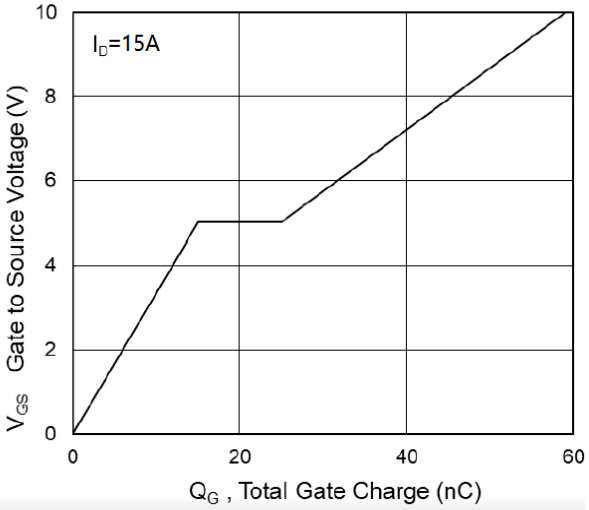


Fig.4 Gate-Charge Characteristics

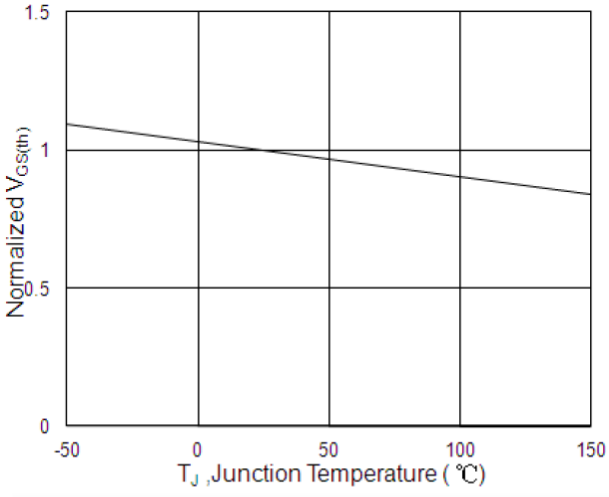


Fig.5 Normalized $V_{GS(th)}$ vs T_J

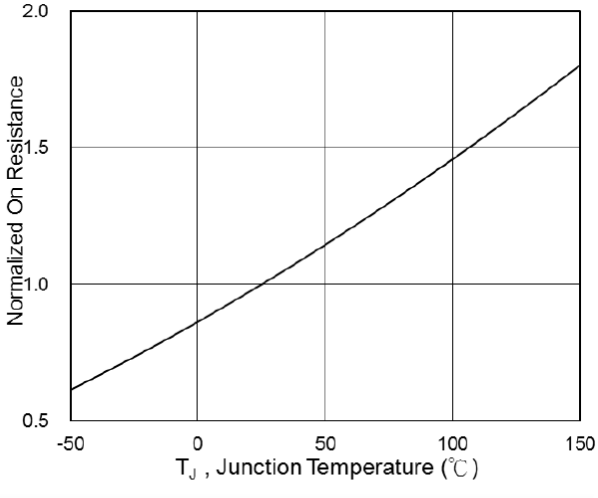


Fig.6 Normalized R_{DSON} vs T_J

TYPICAL CHARACTERISTICS CURVE

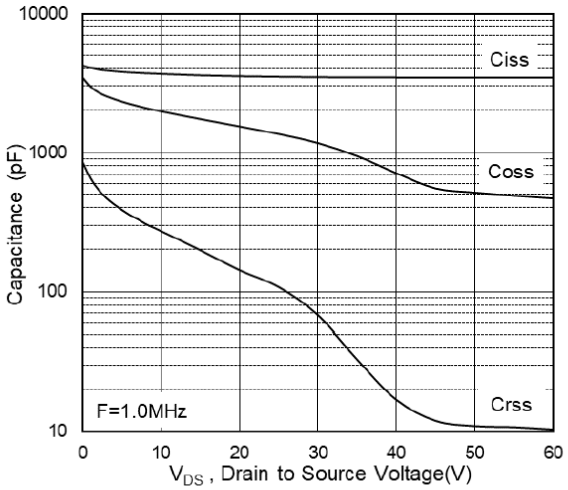


Fig.7 Capacitance

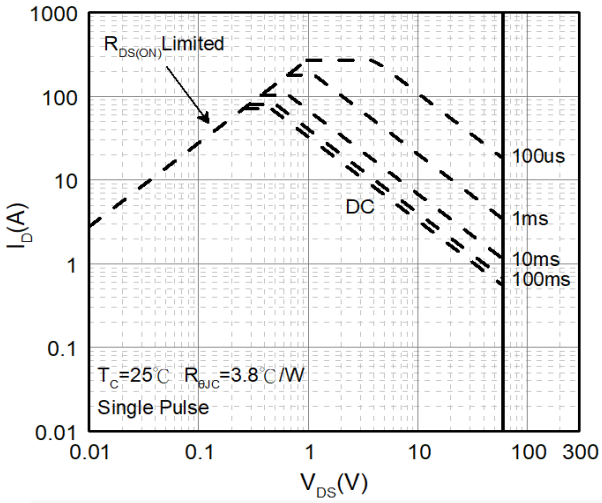


Fig.8 Safe Operating Area

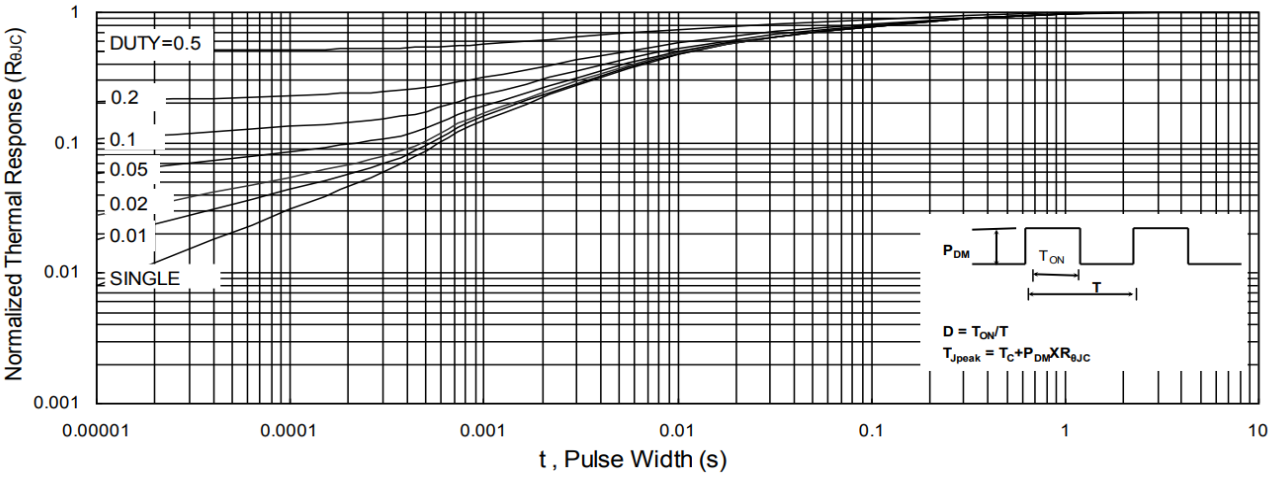


Fig.9 Normalized Maximum Transient Thermal Impedance

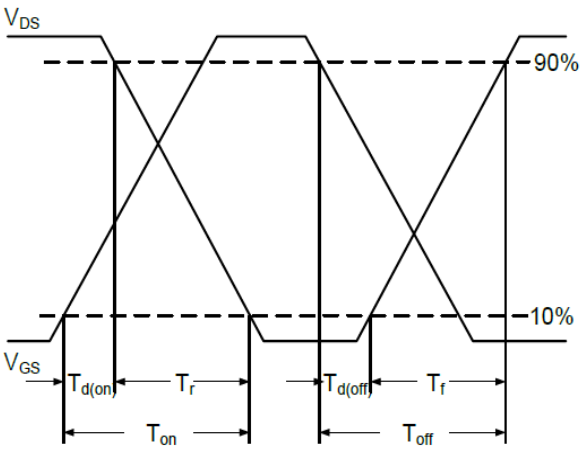


Fig.10 Switching Time Waveform

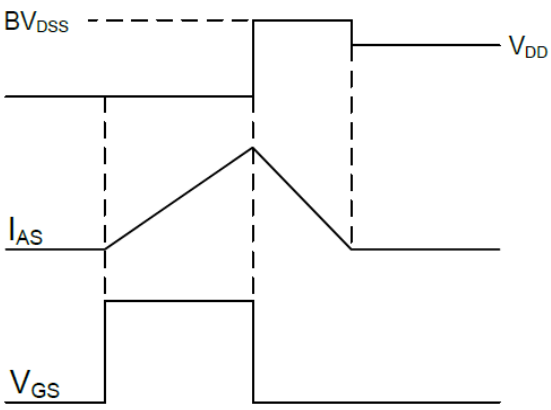


Fig.11 Unclamped Inductive Waveform

PACKAGE OUTLINE DIMENSIONS

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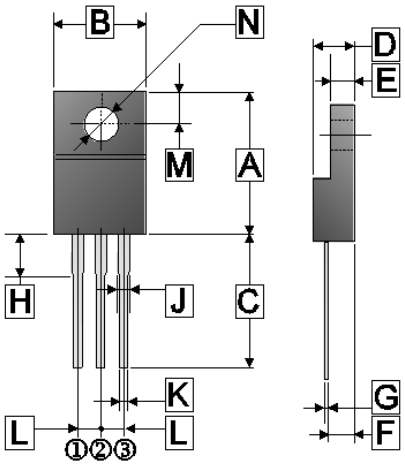

REF.	Millimeter	
	Min.	Max.
A	14.50	15.50
B	9.50	10.50
C	13.20 REF.	
D	4.24	4.84
E	2.52	3.20
F	2.50	2.90
G	0.47	0.75
H	3.80 TYP.	
J	1.30 REF.	
K	0.30	0.90
L	2.54 REF.	
M	2.70 REF.	
N	ϕ 3.50 REF.	