

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

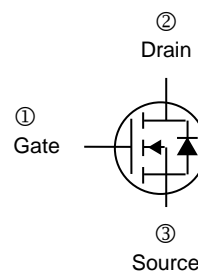
- Shielded Gate Trench Technology
- Super Low Gate Charge
- Green Device Available

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 @ $V_{GS}=10V$	I_D	$T_C=25^\circ C$	72	A
		$T_C=100^\circ C$	43	
Pulsed Drain Current ^{2,3}	I_{DM}	270	A	
Total Power Dissipation ¹	P_D	$T_C=25^\circ C$ 32.8	W	
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ C$	
Thermal Resistance Ratings				
Maximum Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	62	$^\circ C/W$	
Maximum Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	3.8		

ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions	
Drain-Source Breakdown Voltage	BV_{DSS}	60	-	-	V	$V_{GS}=0V, I_D=250\mu A$	
Gate Threshold Voltage	$V_{GS(th)}$	2	-	4	V	$V_{DS}=V_{GS}, I_D=250\mu A$	
Forward Transfer Conductance	g_{fs}	-	65	-	S	$V_{DS}=5V, I_D=15A$	
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20V$	
Drain-Source Leakage Current	I_{DSS}	$T_J=25^\circ\text{C}$	-	-	1	μA	$V_{DS}=48V, V_{GS}=0$
		$T_J=55^\circ\text{C}$	-	-	5		$V_{DS}=48V, V_{GS}=0$
Static Drain-Source On-Resistance ³	$R_{DS(ON)}$	-	3.4	4.2	m Ω	$V_{GS}=10V, I_D=15A$	
		-	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	$V_{DD}=30V$ $I_D=15A$ $V_{GS}=10V$ $R_G=3\Omega$	
Rise Time	T_r	-	9	-			
Turn-off Delay Time	$T_{d(off)}$	-	60	-			
Fall Time	T_f	-	15	-			
Input Capacitance	C_{iss}	-	3509	-	pF	$V_{GS}=0V$ $V_{DS}=30V$ $f=1\text{MHz}$	
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	$I_F=15A, di/dt=100A/\mu s,$ $T_J=25^\circ\text{C}$	
Reverse Recovery Charge	Q_{rr}	-	85	-	nC		

Notes:

1. The data tested by surface mounted on a 1 inch² 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 $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS CURVE

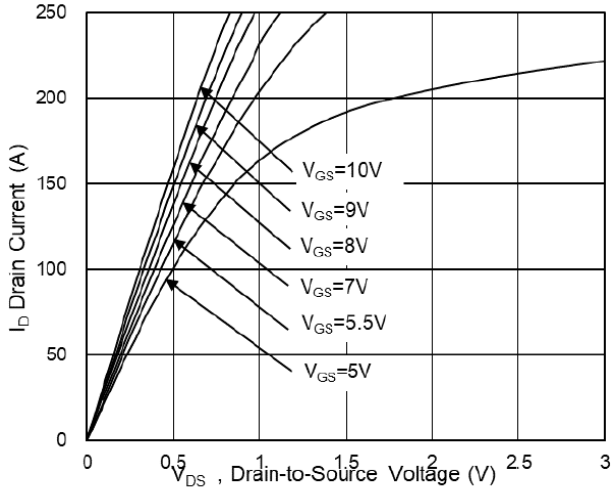


Fig.1 Typical Output Characteristics

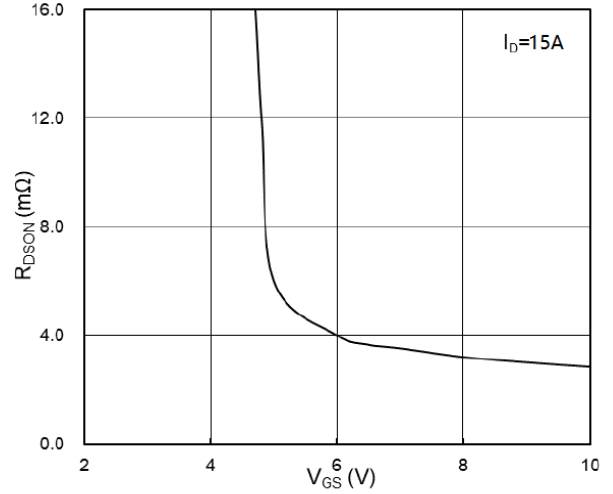


Fig.2 On-Resistance vs G-S Voltage

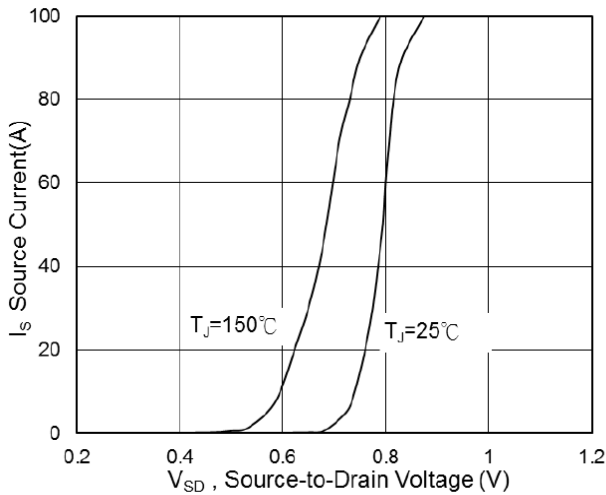


Fig.3 Diode Forward Voltage vs Current

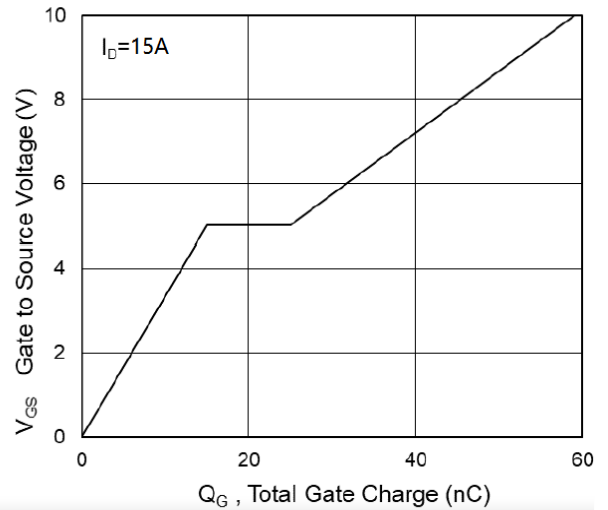


Fig.4 Gate-Charge Characteristics

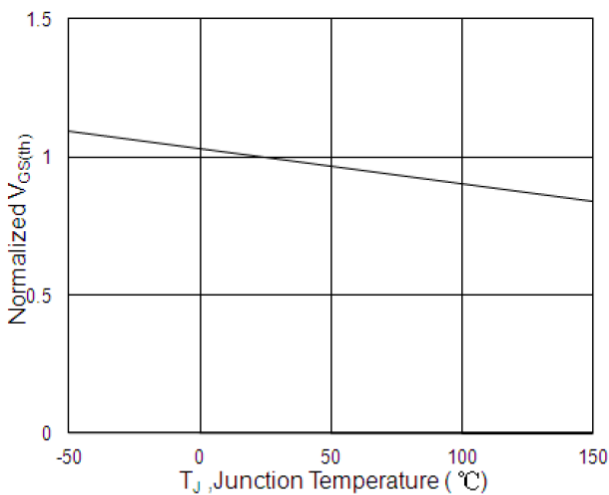


Fig.5 Normalized $V_{GS(th)}$ vs T_J

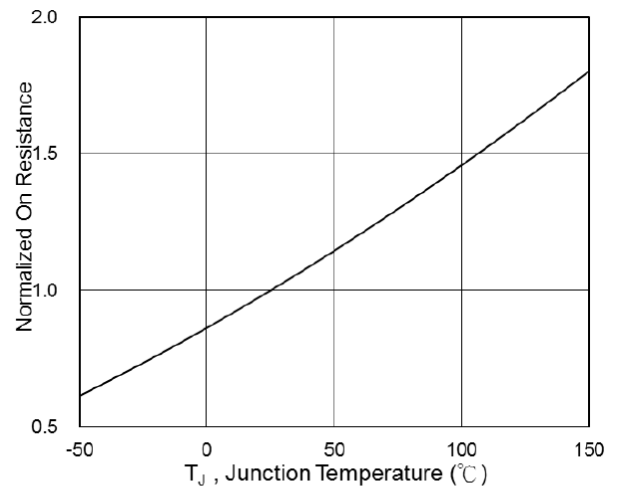


Fig.6 Normalized $R_{DS(ON)}$ vs T_J

TYPICAL CHARACTERISTICS CURVE

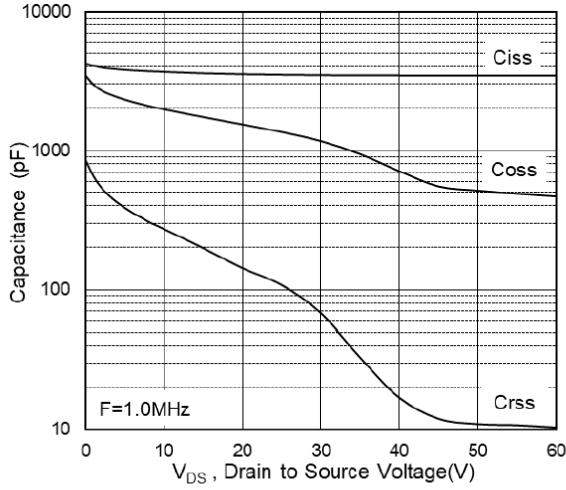


Fig.7 Capacitance

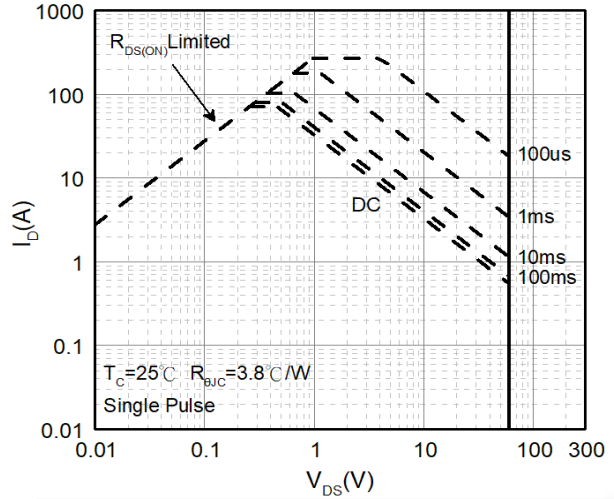


Fig.8 Safe Operating Area

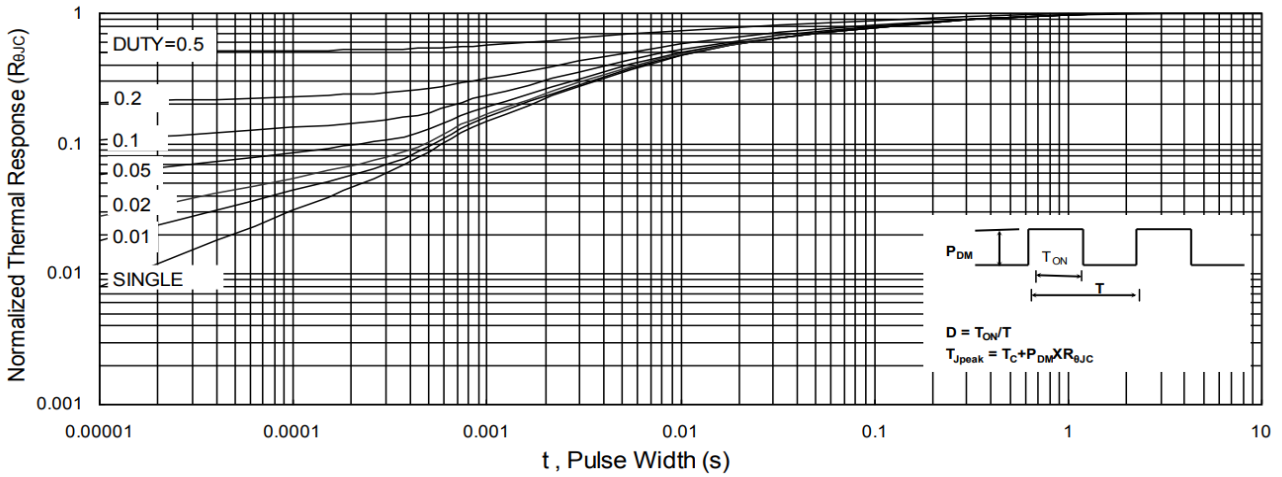


Fig.9 Normalized Maximum Transient Thermal Impedance

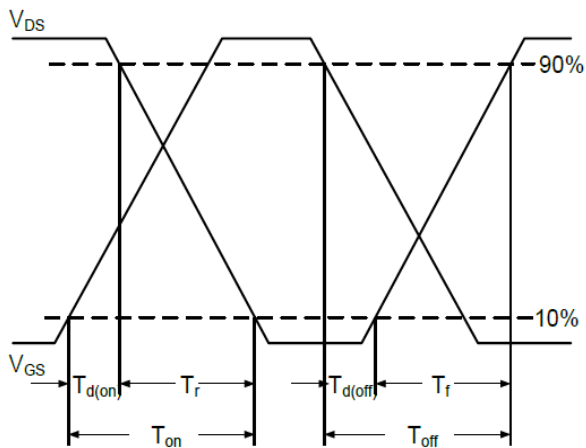


Fig.10 Switching Time Waveform

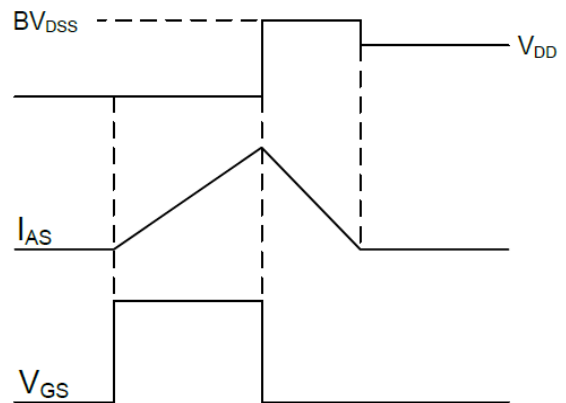
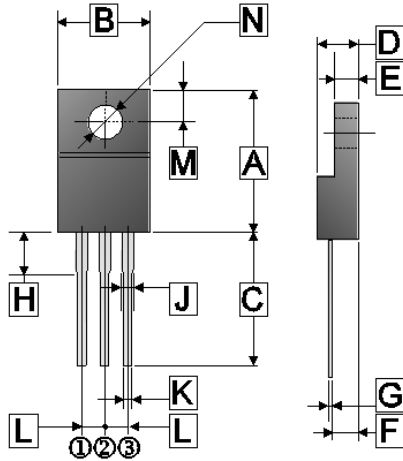


Fig.11 Unclamped Inductive Waveform

PACKAGE OUTLINE DIMENSIONS

ITO-220J



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.	