Elektronische Bauelemente

SSQF07N60L

7A, 600V, $R_{DS(ON)}$ 1.3Ω

N-Channel Enhancement Mode Power MOSFET

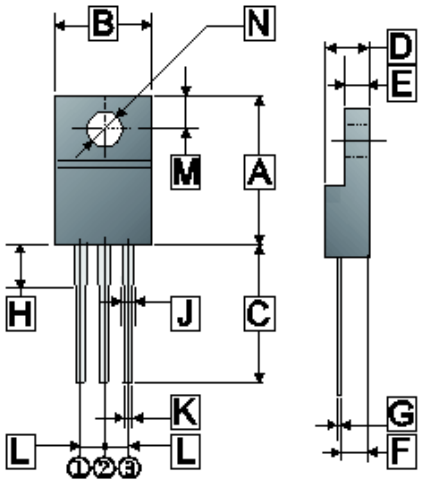
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SSQF07N60L is the highest performance 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 SSQF07N60L meet the RoHS and Green Product requirement with full function reliability approved.

ITO-220



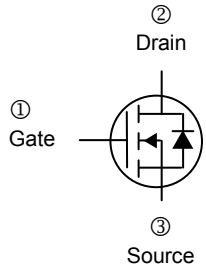
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	14.50	16.50	H	1.80	4.35
B	9.50	10.72	J	0.80	1.70
C	12.58	14.22	K	0.30	0.95
D	4.20	5.10	L	2.34	2.75
E	2.30	3.30	M	2.40	3.60
F	2.30	3.10	N	ϕ3.0	ϕ3.8
G	0.30	0.75			

FEATURES

- Advanced High Cell Density Technology
- Low Gate Charge
- Low C_{rss}
- Fast Switching

ORDER INFORMATION

Part Number	Type
SSQF07N60L	Lead (Pb)-free
SSQF07N60L-C	Lead (Pb)-free and Halogen-free



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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	600	V
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current [4] @V_{GS}=10V	T_C=25°C	I_D	7	A
	T_C=100°C		4.6	
Pulsed Drain Current [1]		I_{DM}	28	A
Total Power Dissipation	T_C=25°C	P_D	30.2	W
Maximum Lead Temperature for Soldering Purposes		T_L	300	°C
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient		$R_{\theta JA}$	62.5	°C / W
Thermal Resistance Junction-Case		$R_{\theta JC}$	4.16	

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

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-Source Breakdown Voltage		BV_{DSS}	600	-	-	V	V_{GS}=0V, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±30V
Drain-Source Leakage Current	T_C=25°C	I_{DSS}	-	-	10	μA	V_{DS}=600V, V_{GS}=0
	T_C=125°C		-	-	100		V_{DS}=480V, V_{GS}=0
Static Drain-Source On-Resistance		$R_{DS(ON)}$	-	1	1.3	Ω	V_{GS}=10V, I_D=3.5A
			-	1.75	3.5		V_{GS}=10V, I_D=3.5A, T_C=100°C
			-	2.6	6		V_{GS}=10V, I_D=3.5A, T_C=150°C
Forward Transconductance [2]		g_{fs}	-	5.6	-	S	V_{DS}=40V, I_D=7A
Gate Resistance		R_g	1	-	4	Ω	f=1MHz
Total Gate Charge [2,3]		Q_g	-	32	-	nC	I_D=7A V_{DS}=480V V_{GS}=10V
Gate-Source Charge [2,3]		Q_{gs}	-	6	-		
Gate-Drain ("Miller") Change [2,3]		Q_{gd}	-	15	-		
Turn-on Delay Time [2,3]		$T_{d(on)}$	-	11	-	nS	V_{DD}=300V I_D=7A R_G=25Ω
Rise Time [2,3]		T_r	-	35	-		
Turn-off Delay Time [2,3]		$T_{d(off)}$	-	46	-		
Fall Time [2,3]		T_f	-	40	-		
Input Capacitance		C_{iss}	-	1100	-	pF	V_{GS}=0V V_{DS}=25V f=1MHz
Output Capacitance		C_{oss}	-	251	-		
Reverse Transfer Capacitance		C_{rss}	-	14	-		
Source-Drain Diode							
Diode Forward Voltage		V_{SD}	-	-	1.4	V	I_S=7A, V_{GS}=0V
Continuous Source Current		I_S	-	-	7	A	
Pulsed Source Current		I_{SM}	-	-	28	A	
Reverse Recovery Time [2]		T_{rr}	-	345	-	nS	V_{GS}=0V, I_S=7A, dI/dt=100A/μs
Reverse Recovery Charge [2]		Q_{rr}	-	3.2	-	nC	

Notes:
1. Pulse Width limited by maximum junction temperature.
2. Pulse Test: Pulse Width≦300μs, Duty Cycle≦2%.
3. Essentially independent of operating temperature.
4. Drain current limited by maximum junction temperature.

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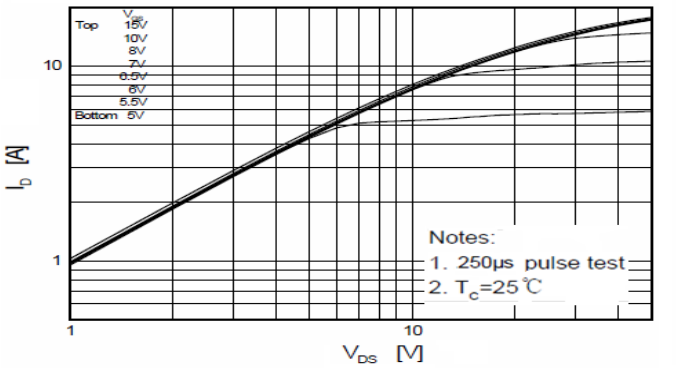
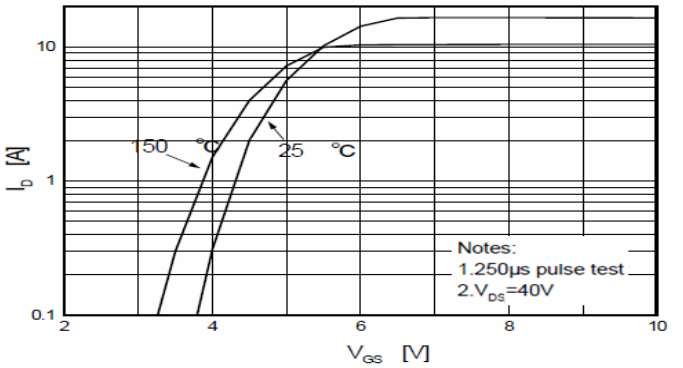
TYPICAL CHARACTERISTICS CURVE

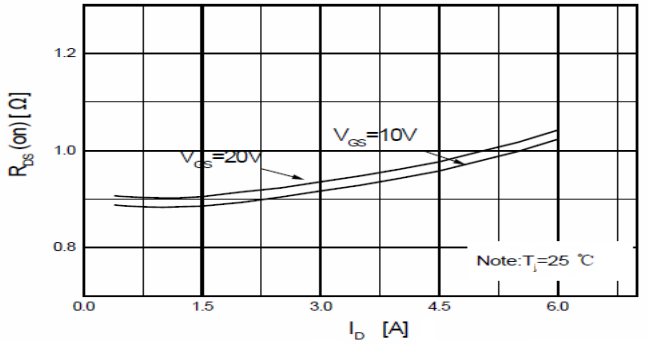
On-Region Characteristics



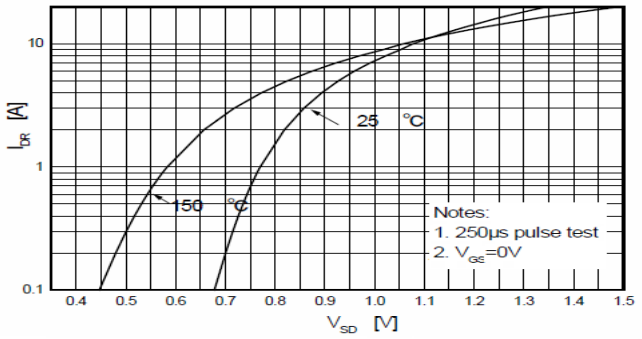
Transfer Characteristics



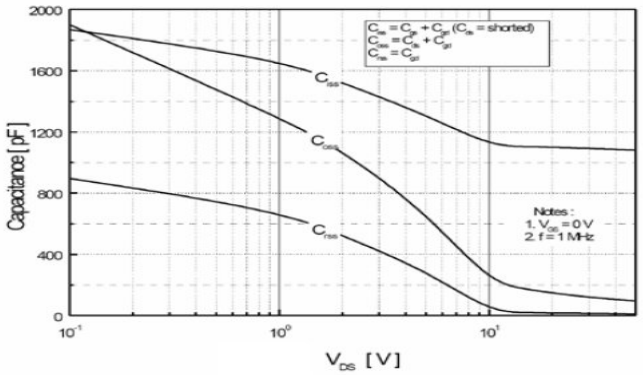
On-Resistance Variation vs. Drain Current and Gate Voltage



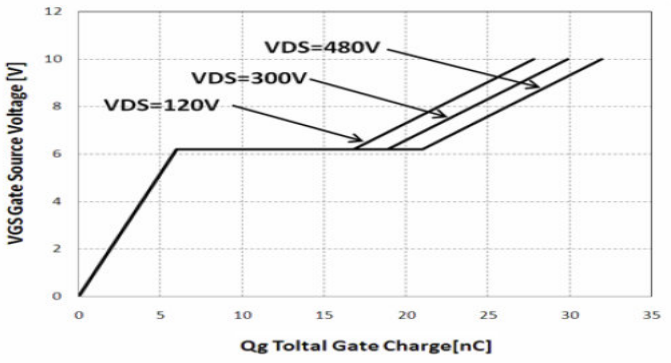
Body Diode Forward Voltage Variation vs. Source Current and Temperature



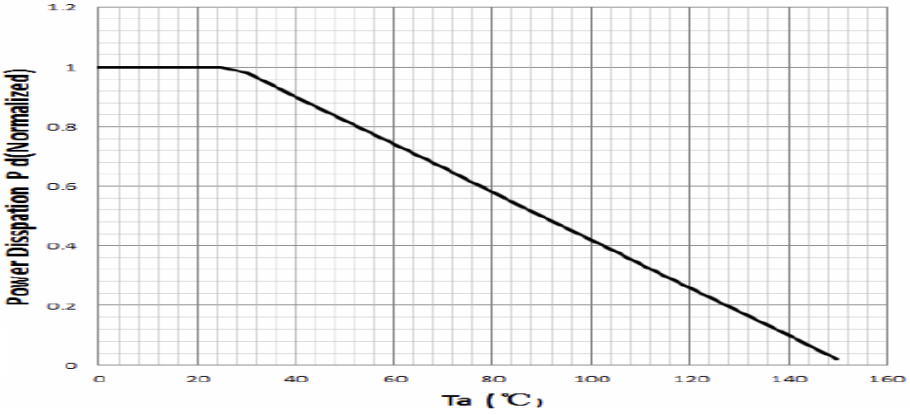
Capacitance Characteristics



Gate Charge Characteristics

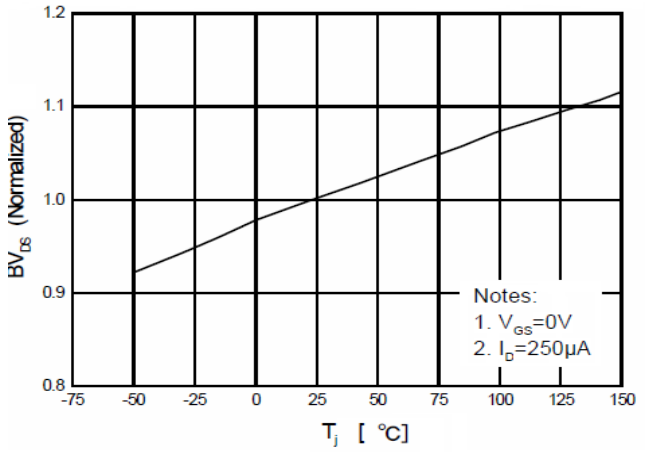


Power Disspation vs. Temperature

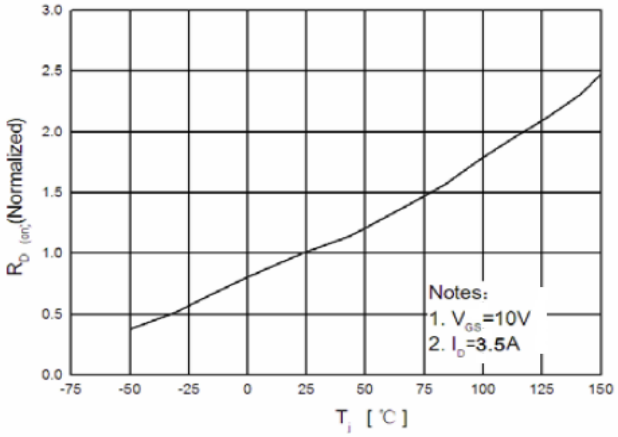


TYPICAL CHARACTERISTICS CURVE

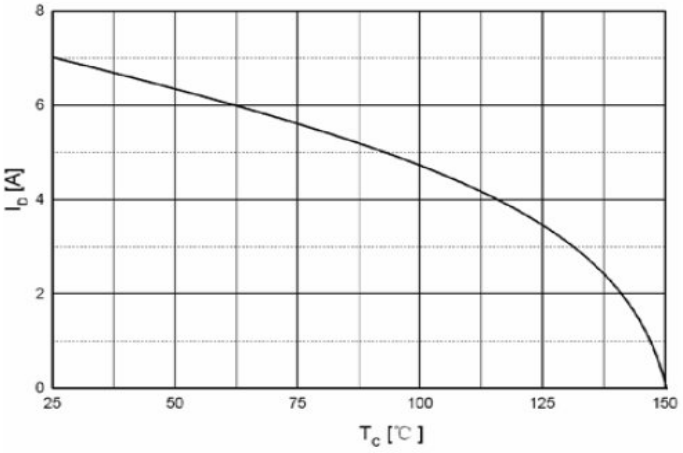
Breakdown Voltage Variation vs. Temperature



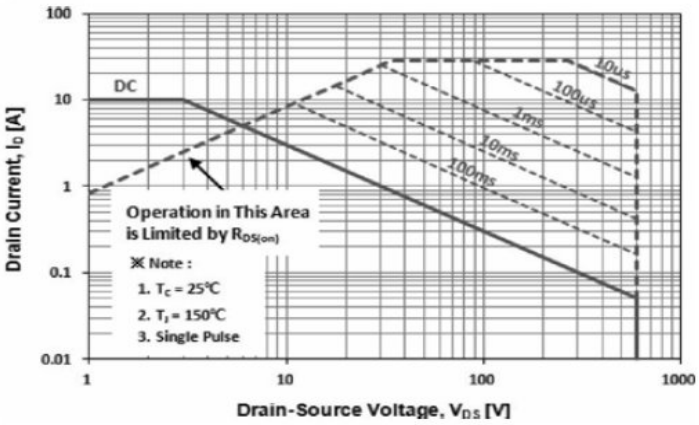
On-Resistance Variation vs. Temperature



Maximum Drain Current vs. Case Temperature



Maximum Safe Operating Area



Transient Thermal Response Curve