Elektronische Bauelemente

SSQF07N65J

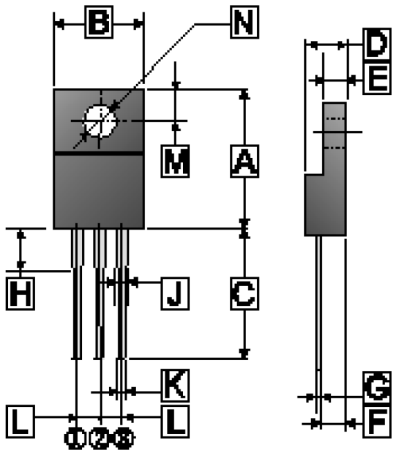
7.4A, 650V, $R_{DS(ON)}$ 1.3Ω
N-Ch Enhancement Mode Power MOSFET

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

DESCRIPTION

This advanced high voltage MOSFET is designed to stand high energy in the avalanche mode and switch efficiently. This new high energy device also offers a drain-to-source diode fast recovery time. Designed for high voltage, high speed switching applications such as power supplies, converters, power motor controls and bridge circuits.

ITO-220J

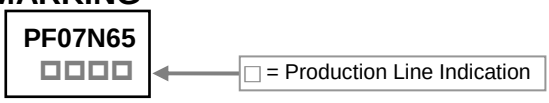


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	14.50	15.50	H	3.80 TYP.	
B	9.50	10.50	J	1.30 REF.	
C	13.20 REF.		K	0.30	0.90
D	4.24	4.84	L	2.54 REF.	
E	2.52	3.20	M	2.70 REF.	
F	2.50	2.90	N	ϕ 3.50 REF.	
G	0.47	0.75			

FEATURES

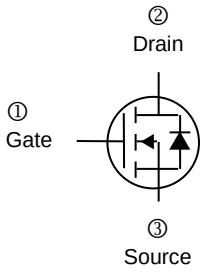
- High Current Rating
- Low $R_{DS(ON)}$
- Low Capacitance
- Low Total Gate Charge
- Tighter V_{SD} Specifications
- Avalanche Energy Specified
- Fast Switching Capability

MARKING



ORDER INFORMATION

Part Number	Type
SSQF07N65J	Lead (Pb)-free
SSQF07N65J-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}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current [1]	I_D	7.4	A
Pulsed Drain Current [2]	I_{DM}	29.6	A
Single Pulsed Avalanche Energy [3]	E_{AS}	500	mJ
Maximum Power Dissipation [1]	P_D	50	W
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55~150	℃
Thermal Resistance Rating			
Thermal Resistance from Junction-Ambient	$R_{\theta JA}$	62.5	℃/W
Thermal Resistance from Junction-Case [1]	$R_{\theta JC}$	2.5	

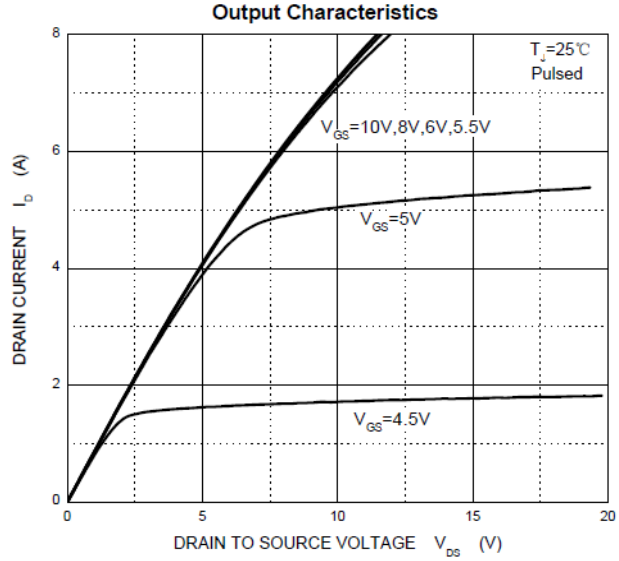
ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	650	-	-	V	V_{GS}=0V, I_D=250μA
Gate Threshold Voltage [4]		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current [4]		I_{GSS}	-	-	±100	nA	V_{GS}= ±30V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	10	μA	V_{DS}=520V, V_{GS}=0V
	T_J=125℃		-	-	20		
Static Drain-Source On-Resistance [4]		$R_{DS(ON)}$	-	1.1	1.3	Ω	V_{GS}=10V, I_D=3.7A
Forward Transconductance		g_{fs}	5	-	-	S	V_{DS}=40V, I_D=3.7A
Gate Resistance		R_g	-	4.6	-	Ω	f=1MHz
Total Gate Charge		Q_g	-	23	-	nC	I_D=7.4A V_{DS}=520V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	4.7	-		
Gate-Drain Change		Q_{gd}	-	8.5	-		
Turn-on Delay Time		$T_{d(on)}$	-	70	-	nS	V_{DD}=325V I_D=7.4A V_{GS}=10V R_G=25Ω
Rise Time		T_r	-	170	-		
Turn-off Delay Time		$T_{d(off)}$	-	140	-		
Fall Time		T_f	-	130	-		
Input Capacitance		C_{iss}	-	1130	-	pF	V_{GS}=0V V_{DS}=25V f=1MHz
Output Capacitance		C_{oss}	-	91	-		
Reverse Transfer Capacitance		C_{rss}	-	3	-		
Drain-Source Diode							
Diode Forward Voltage [4]		V_{SD}	-	-	1.4	V	I_S=7.4A, V_{GS}=0V

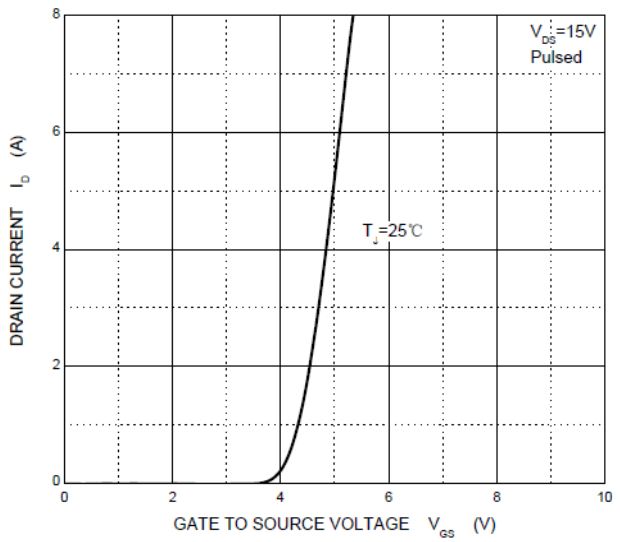
Notes:
1. T_C=25℃ Limited only by maximum temperature allowed.
2. Pulse Test: Pulse width≤10μs, duty cycle≤1%.
3. E_{AS} Condition: V_{DD}=50V, V_{GS}=10V, L=10mH, R_G=25Ω, Starting T_J=25℃.
4. Pulse Test: Pulse width≤300μs, duty cycle≤2%.

TYPICAL CHARACTERISTIC CURVES

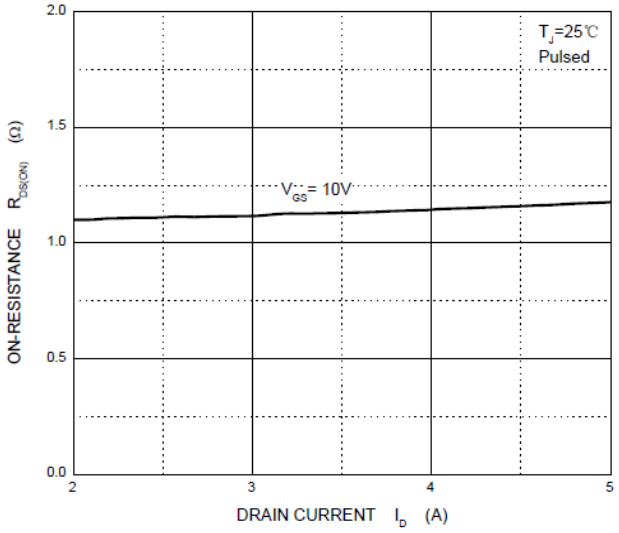
Output Characteristics



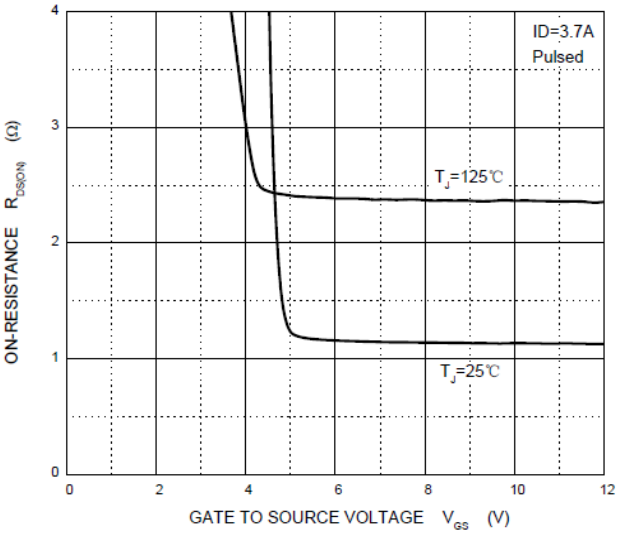
Transfer Characteristics



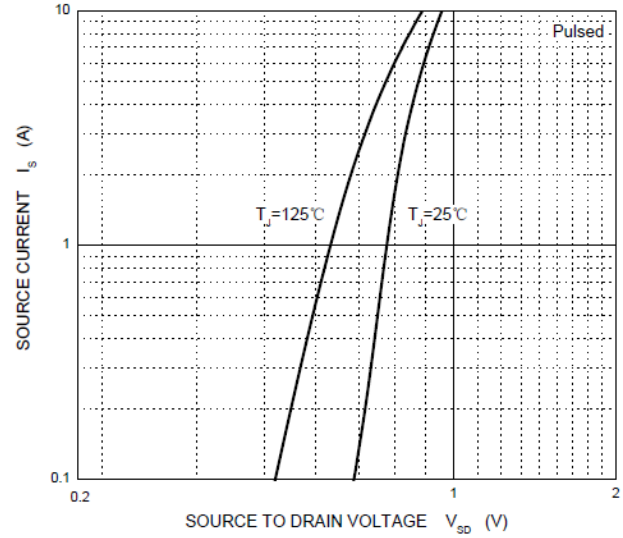
$R_{DS(ON)}$ —— I_D



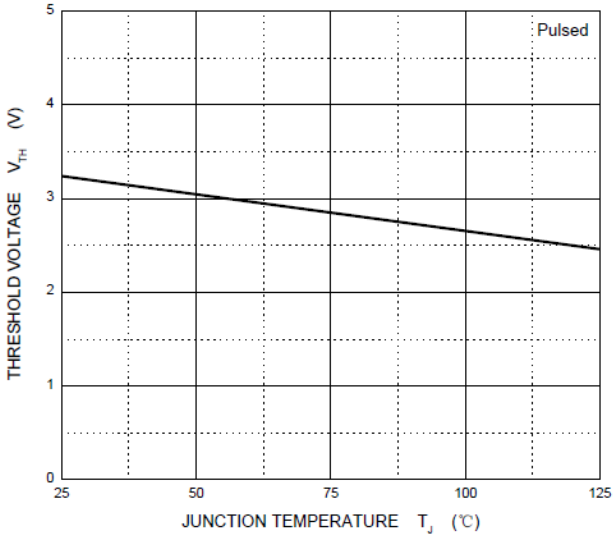
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



Threshold Voltage



TYPICAL CHARACTERISTIC CURVES