Elektronische Bauelemente

SSQF12N65J

12A, 650V, $R_{DS(ON)}$ 0.85Ω
N-Ch Enhancement Mode Power MOSFET

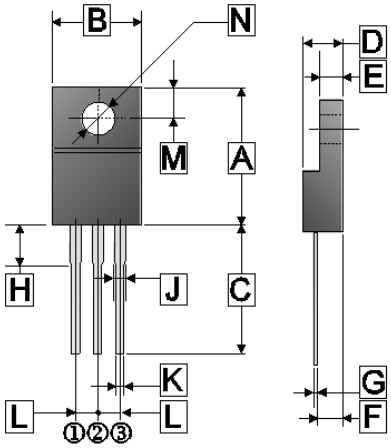
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SSQF12N65J is the highest performance trench 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 SSQF12N65J meet the RoHS and Green Product requirement with full function reliability approved.

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

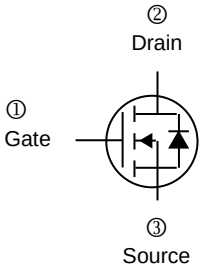
- High Current Rating
- Super Low Gate Charge
- Lower $R_{DS(ON)}$
- Low Reverse Transfer Capacitance
- Fast Switching Capability

MARKING

PF12N65
□□□□ = Production Line Indication

ORDER INFORMATION

Part Number	Type
SSQF12N65J	Lead (Pb)-free
SSQF12N65J-C	Lead (Pb)-free and Halogen-free



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current [1]	I_D	12	A
Pulsed Drain Current [2]	I_{DM}	48	A
Single Pulsed Avalanche Energy [3]	E_{AS}	540	mJ
Power Dissipation [1]	P_D	50	W
Maximum Lead Temperature for Soldering Purposes @1/8" from case for 5 seconds	T_L	260	℃
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings			
Thermal Resistance from Junction-Ambient [5]	$R_{\theta JA}$	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	I_{DSS}	-	-	10	μA	V_{DS}=650V, V_{GS}=0V
Static Drain-Source On-Resistance [4]	$R_{DS(ON)}$	-	0.7	0.85	Ω	V_{GS}=10V, I_D=6A
Total Gate Charge	Q_g	-	42	-	nC	I_D=12A V_{DS}=520V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	8.6	-		
Gate-Drain Change	Q_{gd}	-	21	-		
Turn-on Delay Time	$T_{d(on)}$	-	30	-	nS	V_{DD}=325V I_D=12A V_{GS}=10V R_G=25Ω
Rise Time	T_r	-	90	-		
Turn-off Delay Time	$T_{d(off)}$	-	160	-		
Fall Time	T_f	-	90	-		
Input Capacitance	C_{iss}	-	1800	-	pF	V_{GS}=0V V_{DS}=25V f=1MHz
Output Capacitance	C_{oss}	-	200	-		
Reverse Transfer Capacitance	C_{rss}	-	25	-		
Source-Drain Diode						
Diode Forward Voltage [4]	V_{SD}	-	-	1.4	V	I_S=12A, V_{GS}=0V

Notes:

1. T_C=25℃ Limited only by maximum temperature allowed.
2. Pulse Test: Pulse width≤10μs, duty cycle≤1%.
3. EAS condition: V_{DD}=50V, V_{GS}=10V, L=7.5mH, R_G=25Ω.
4. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
5. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25℃

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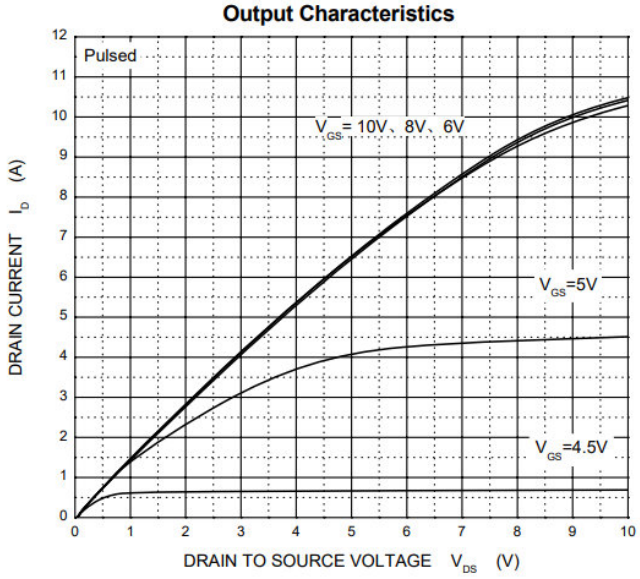
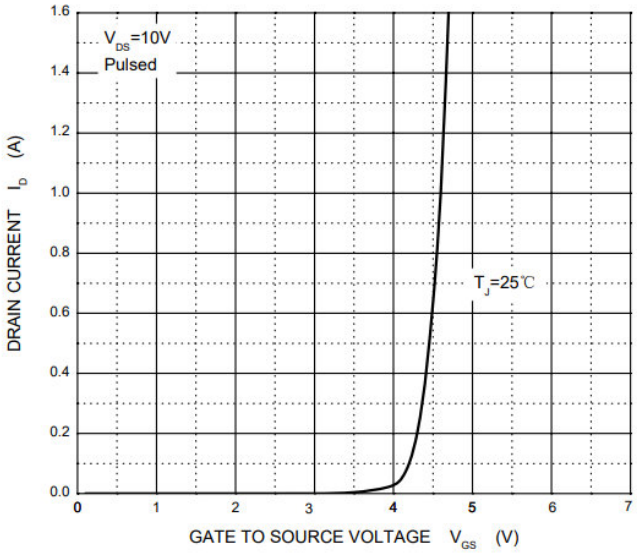
TYPICAL CHARACTERISTIC

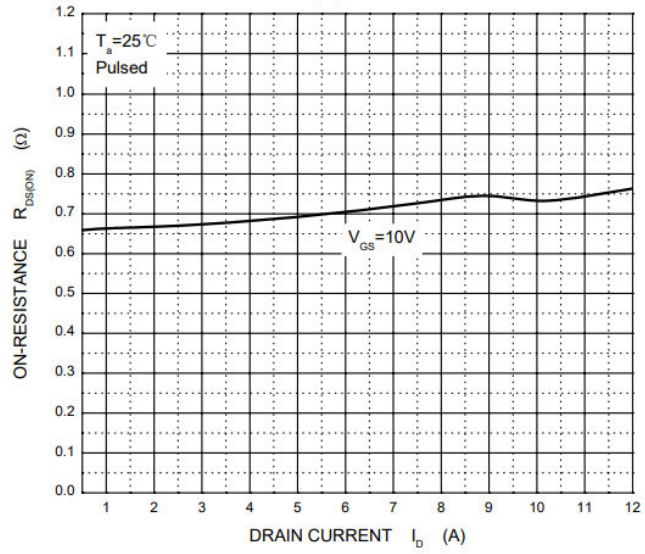
Output Characteristics



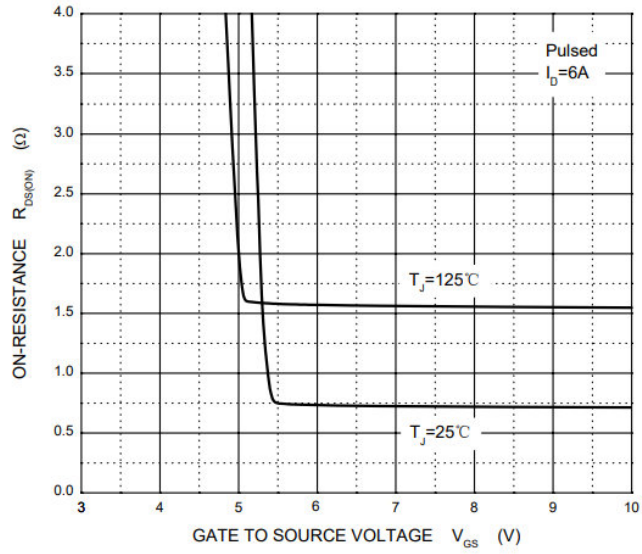
Transfer Characteristics



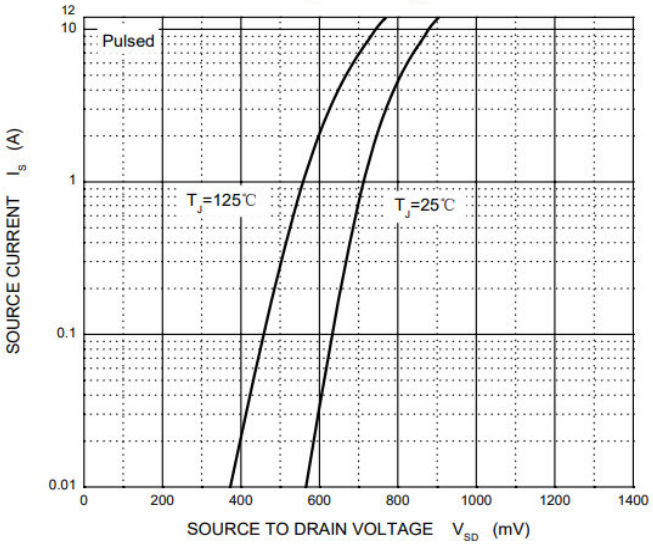
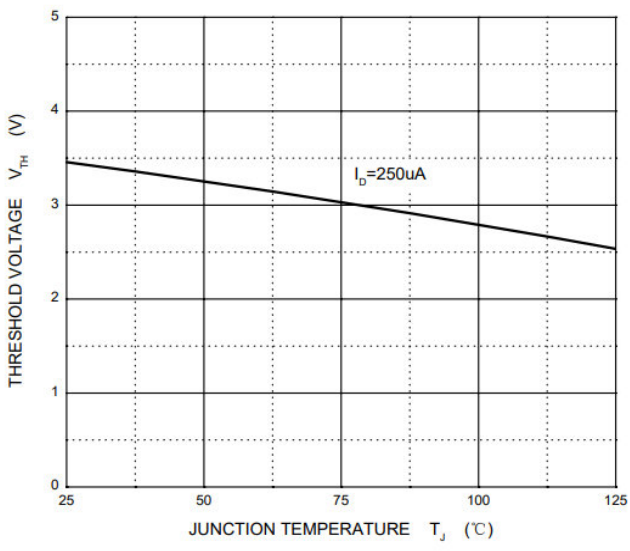
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage