

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

## DESCRIPTION

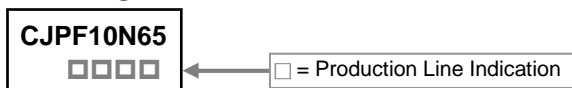
The SSQF10N65J is the highest performance trench N-Ch MOSFETs with extreme high cell density, which provide excellent  $R_{DS(ON)}$  and gate charge for most of the synchronous buck converter applications.

The SSQF10N65J meet the RoHS and Green Product requirement with full function reliability approved.

## FEATURES

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

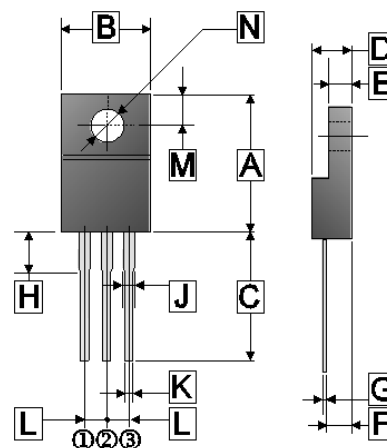
## MARKING



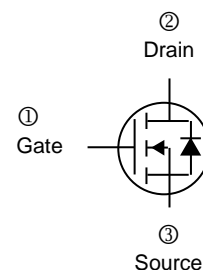
## ORDER INFORMATION

Part Number	Type
SSQF10N65J	Lead (Pb)-free
SSQF10N65J-C	Lead (Pb)-free and Halogen-free

## ITO-220J



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	14.80	15.2	H	2.20	REF.
B	9.96	10.36	J	0.90	REF.
C	13.20	REF.	K	0.50	0.75
D	4.30	4.70	L	2.54	REF.
E	2.80	3.20	M	2.70	REF.
F	2.50	2.90	N	∅ 3.50	REF.
G	0.50	0.75			



## ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	650	V
Gate-Source Voltage	$V_{GS}$	±30	V
Continuous Drain Current	$I_D$	10	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	40	A
Single Pulsed Avalanche Energy <sup>2</sup>	$E_{AS}$	500	mJ
Maximum Lead Temperature for Soldering Purposes @ 1/8" from case for 5 seconds	$T_L$	260	°C
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~150	
Thermal Resistance Ratings			
Thermal Resistance from Junction-Ambient	$R_{\theta JA}$	62.5	°C/W

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

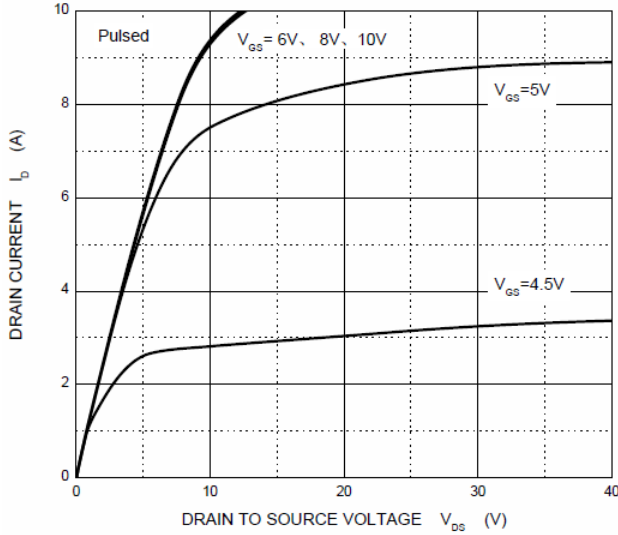
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	650	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate Threshold Voltage <sup>3</sup>	$V_{GS(th)}$	2	-	4	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Gate-Source Leakage Current <sup>3</sup>	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS}=\pm 30V$
Drain-Source Leakage Current	$I_{DSS}$	-	-	1	$\mu A$	$V_{DS}=650V, V_{GS}=0V$
Static Drain-Source On-Resistance <sup>3</sup>	$R_{DS(ON)}$	-	0.75	1	$\Omega$	$V_{GS}=10V, I_D=5A$
Total Gate Charge	$Q_g$	-	44	-	nC	$I_D=10A$ $V_{DS}=520V$ $V_{GS}=10V$
Gate-Source Charge	$Q_{gs}$	-	6.7	-		
Gate-Drain Charge	$Q_{gd}$	-	18.5	-		
Turn-on Delay Time	$T_{d(on)}$	-	23	-	nS	$V_{DD}=325V$ $I_D=10A$ $V_{GS}=10V$ $R_G=25\Omega$
Rise Time	$T_r$	-	69	-		
Turn-off Delay Time	$T_{d(off)}$	-	144	-		
Fall Time	$T_f$	-	77	-		
Input Capacitance	$C_{iss}$	-	1570	-	pF	$V_{GS}=0V$ $V_{DS}=25V$ $f=1MHz$
Output Capacitance	$C_{oss}$	-	166	-		
Reverse Transfer Capacitance	$C_{rss}$	-	18	-		
<b>Source-Drain Diode</b>						
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	-	-	1.4	V	$I_S=10A, V_{GS}=0V$
Continuous Source Current	$I_S$	-	-	10	A	
Pulsed Source Current	$I_{SM}$	-	-	38		

Notes:

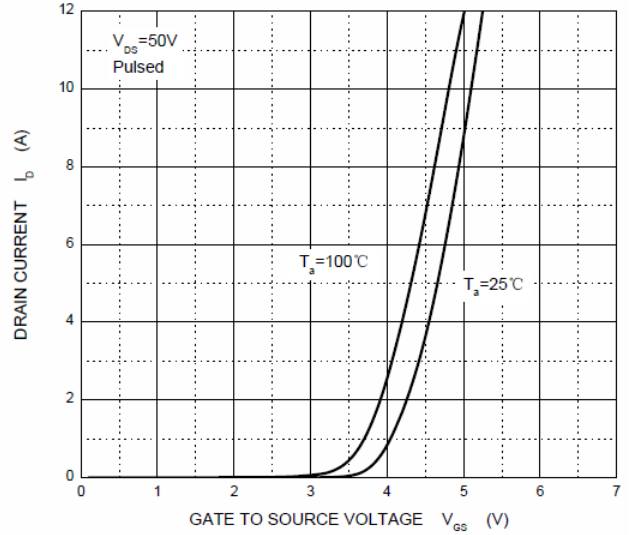
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2.  $L=10mH, I_{AS}=10A, V_{DD}=50V, R_G=25\Omega$ , Starting  $T_J=25^\circ\text{C}$ .
3. Pulse Test: Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .

**TYPICAL CHARACTERISTIC**

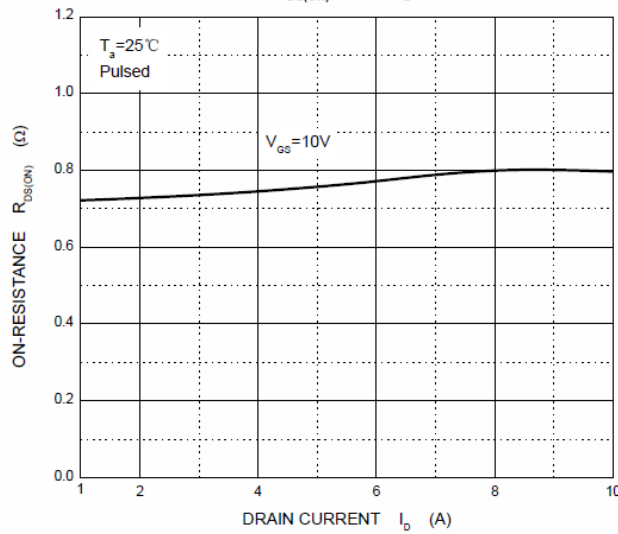
**Output Characteristics**



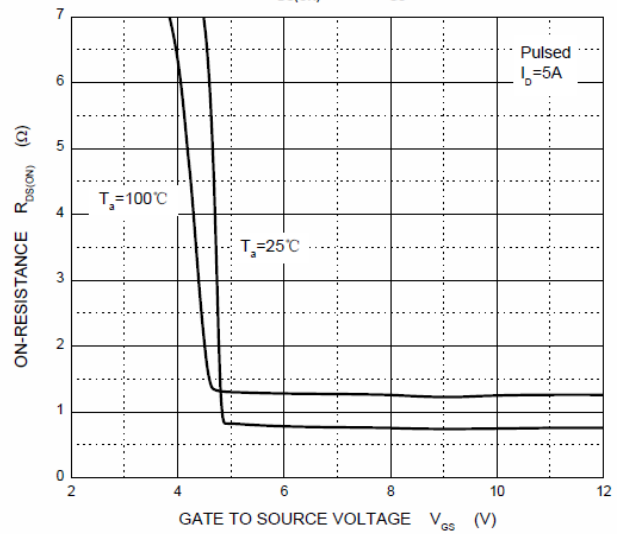
**Transfer Characteristics**



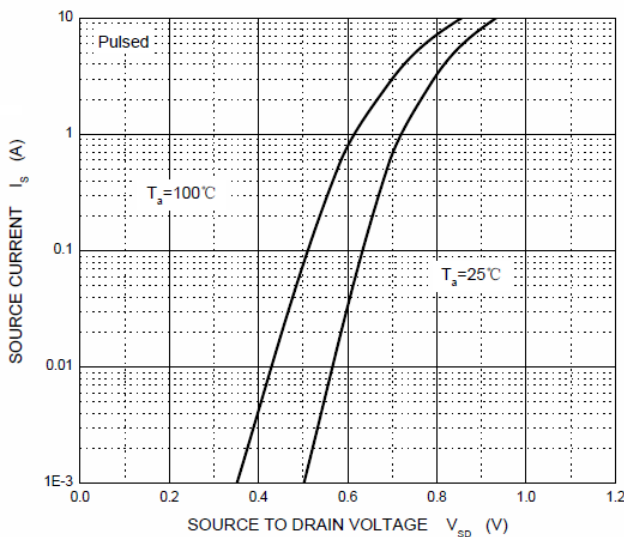
**$R_{DS(ON)}$  —  $I_D$**



**$R_{DS(ON)}$  —  $V_{GS}$**



**$I_S$  —  $V_{SD}$**



**Threshold Voltage**

