Elektronische Bauelemente

SCP20N07J-C

30A, 20V, $R_{DS(ON)}$ 7mΩ

N-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product

A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

SCP20N07J-C uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications

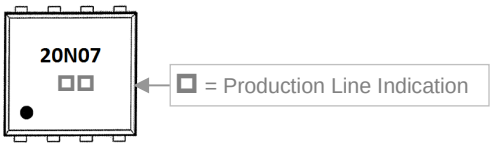
FEATURES

- High density cell design for ultra low $R_{DS(ON)}$
- Fully Characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special processing technology for high ESD capability

APPLICATIONS

- High side switch in POL DC/DC converter
- Secondary side synchronous rectifier

MARKING



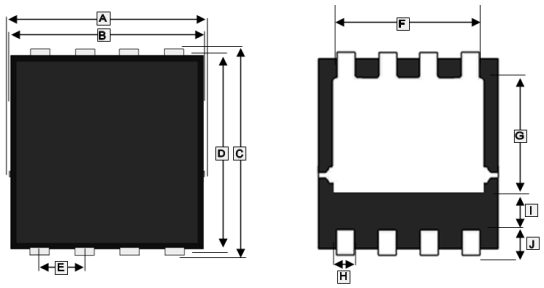
PACKAGE INFORMATION

Package	MPQ	Leader Size
DFN3x3-8J	5K	13 inch

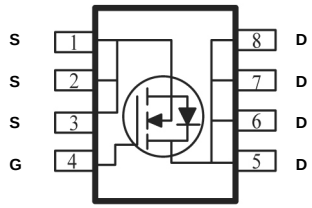
ORDER INFORMATION

Part Number	Type
SCP20N07J-C	Lead (Pb)-free and Halogen-free

DFN3x3-8J



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	3.2	3.4	G	1.78	1.98
B	3	3.2	H	0.25	0.35
C	3.25	3.45	I	0.35TYP.	
D	3	3.2	J	0.6TYP.	
E	0.65BSC.		K	0.1	0.25
F	2.39	2.59	L	0.7	0.8



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	30	A
Pulsed Drain Current [1]	I_{DM}	135	A
Single Pulse Avalanche Energy [2]	E_{AS}	420	mJ
Power Dissipation	P_D	3	W
Thermal Resistance from Junction to Ambient [3]	$R_{\theta JA}$	41.67	℃/W
Lead Temperature for Soldering Purposes @1/8" from case for 10s	T_L	260	℃
Junction and Storage Temperature Range	T_J, T_{STG}	150, -55~150	℃

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	20	-	-	V	V_{GS}=0, I_D=250μA
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=16V, V_{GS}=0
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0V, V_{GS}=±4.5V
Gate-Threshold Voltage [1]	$V_{GS(th)}$	0.4	0.7	1.5	V	V_{DS}=V_{GS}, I_D=250μA
Static Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	6.3	7	mΩ	V_{GS}=4.5V, I_D=10A
		-	8.2	10.5		V_{GS}=2.5V, I_D=10A
Forward Transconductance	g_{fs}	-	22	-	S	V_{DS}=5V, I_D=10A
Total Gate Charge	Q_g	-	30	-	nC	V_{DS}=10V V_{GS}=4.5V I_D=10A
Gate-Source Charge	Q_{gs}	-	1.8	-		
Gate-Drain Charge	Q_{gd}	-	3.3	-		
Turn-on Delay Time	$T_{d(on)}$	-	31	-	nS	V_{DS}=10V V_{GS}=4V R_G=3Ω R_L=0.75Ω
Rise Time	T_r	-	14	-		
Turn-off Delay Time	$T_{d(off)}$	-	64	-		
Fall Time	T_f	-	22	-		
Input Capacitance	C_{iss}	-	1218	-	pF	V_{DS}=8V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	236	-		
Reverse Transfer Capacitance	C_{rss}	-	226	-		
Drain-Source Diode						
Diode Forward Voltage [1]	V_{SD}	-	-	1.2	V	V_{GS}=0, I_S=5A
Continuous Source Current	I_S	-	-	26	A	
Pulsed Source Current [1]	I_{SM}	-	-	120	A	

Notes:

1. Pulse test: Pulse width≦300μs, duty cycle≦2%
2. Test condition: V_{DD}=15V, L=0.1mH, R_G=25Ω, Starting T_J=25℃.
3. Mounted on a 25.4mm × 25.4mm × 0.8mm glass epoxy board.

Elektronische Bauelemente

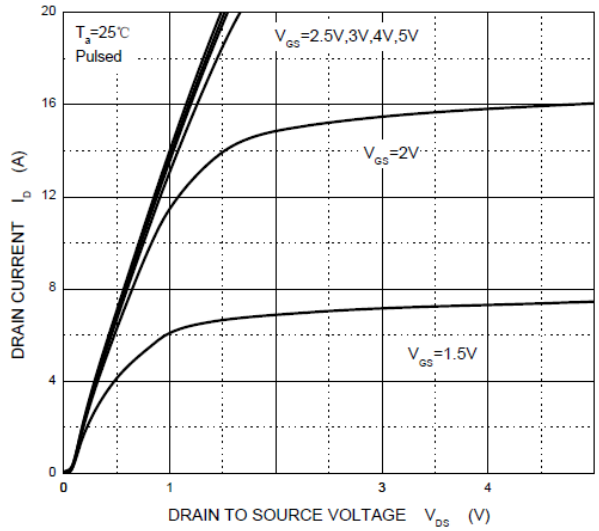
SCP20N07J-C

30A, 20V, $R_{DS(ON)}$ 7mΩ

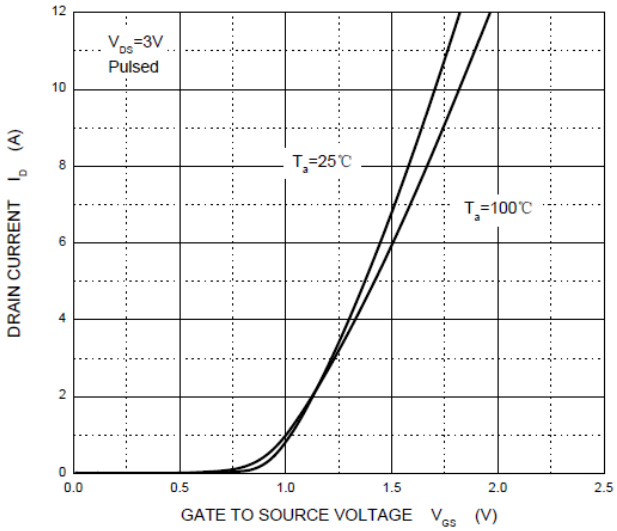
N-Channel Enhancement Mode Power MOSFET

CHARACTERISTICS CURVE

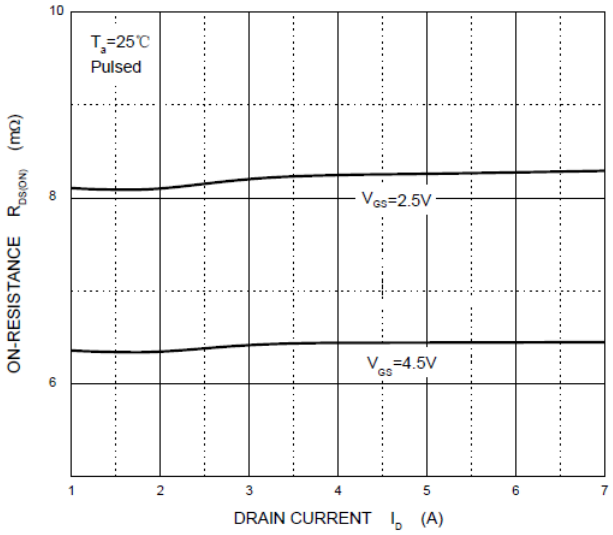
Output Characteristics



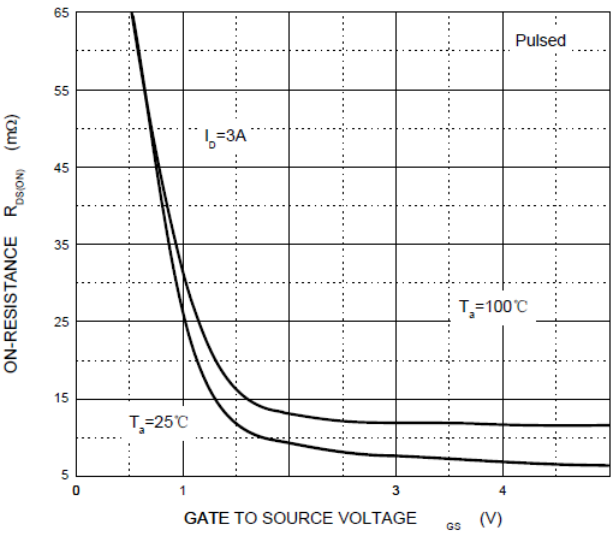
Transfer Characteristics



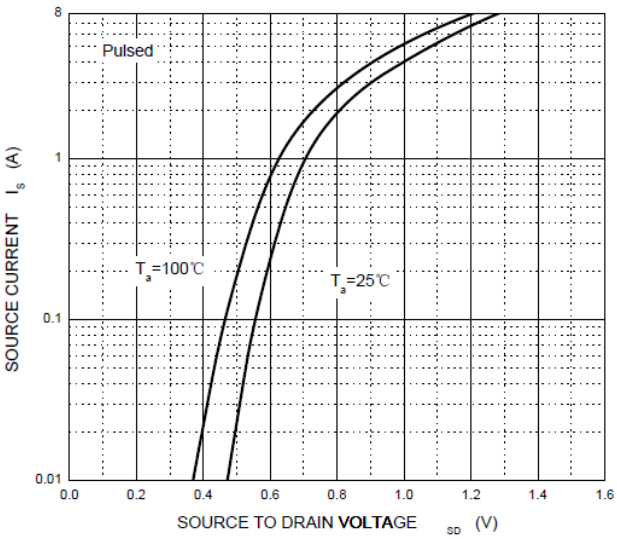
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage