Elektronische Bauelemente

SCP40N03S-C

40A, 30V, $R_{DS(ON)}$ 6.5mΩ

N-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product

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

DESCRIPTION

SCP40N03S-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

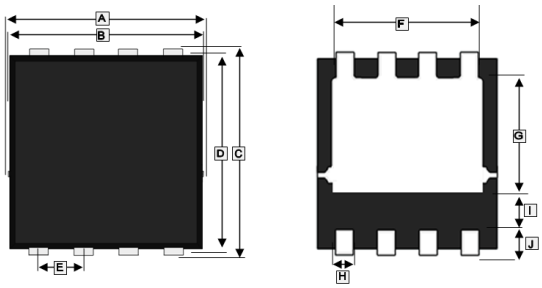
- Battery switch
- Load switch
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

APPLICATIONS

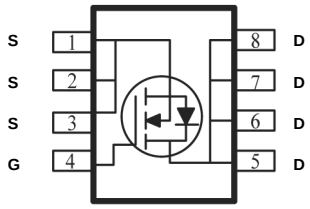
- SMPS and general purpose applications
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

MARKING

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



PACKAGE INFORMATION

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

ORDER INFORMATION

Part Number	Type
SCP40N03S-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}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_C=25℃	I_D	40	A
Pulsed Drain Current		I_{DM}	160	A
Single Pulse Avalanche Energy [2]		E_{AS}	270	mJ
Power Dissipation	T_A=25℃	P_D	3	W
	T_C=25℃		34.7	
Thermal Resistance from Junction to Ambient [1]		$R_{\theta JA}$	41.67	℃/W
Thermal Resistance from Junction to Case [1]		$R_{\theta JC}$	3.6	
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	$V_{(BR)DSS}$	30	-	-	V	V_{GS}=0, I_D=250μA
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0V
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0V, V_{GS}= ±20V
Gate-Threshold Voltage	$V_{GS(th)}$	1	1.5	2.5	V	V_{DS}=$V_{GS,}$ I_D=250μA
Static Drain-Source On-Resistance [3]	$R_{DS(ON)}$	-	4.5	6.5	mΩ	V_{GS}=10V, I_D=20A
		-	7.2	10.5		V_{GS}=4.5V, I_D=20A
Forward Transconductance	g_{fs}	-	24	-	S	V_{DS}=10V, I_D=20A
Total Gate Charge	Q_g	-	50	-	nC	V_{DS}=25V V_{GS}=10V I_D=10A
Gate-Source Charge	Q_{gs}	-	3	-		
Gate-Drain Charge	Q_{gd}	-	18	-		
Turn-on Delay Time	$T_{d(on)}$	-	12	-	nS	V_{DS}=15V I_D=10A V_{GS}=10V R_G=3Ω
Rise Time	T_r	-	36	-		
Turn-off Delay Time	$T_{d(off)}$	-	49	-		
Fall Time	T_f	-	12	-		
Input Capacitance	C_{iss}	-	2000	-	pF	V_{DS}=25V V_{GS}=0V f=1MHz
Output Capacitance	C_{oss}	-	228	-		
Reverse Transfer Capacitance	C_{rss}	-	155	-		
Drain-Source Diode						
Diode Forward Voltage [3]	V_{SD}	-	-	1.2	V	V_{GS}=0V, I_S=20A
Continuous Source Current [1]	I_S	-	-	40	A	
Pulsed Source Current	I_{SM}	-	-	160	A	

Notes:

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

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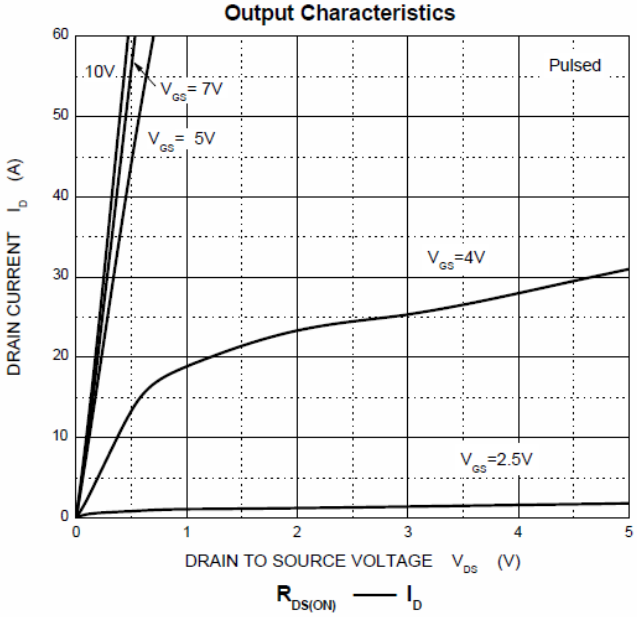
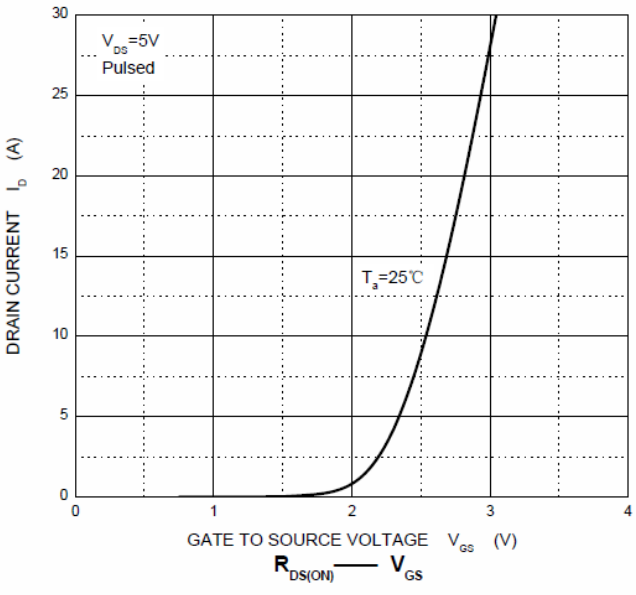
CHARACTERISTICS CURVE

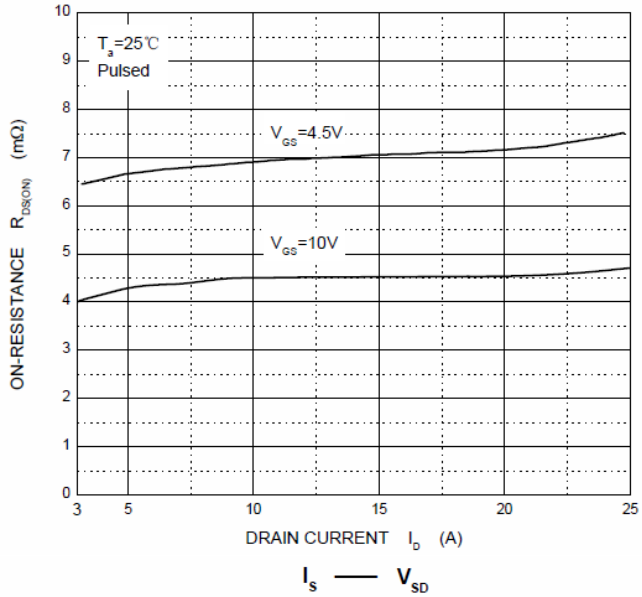
Output Characteristics



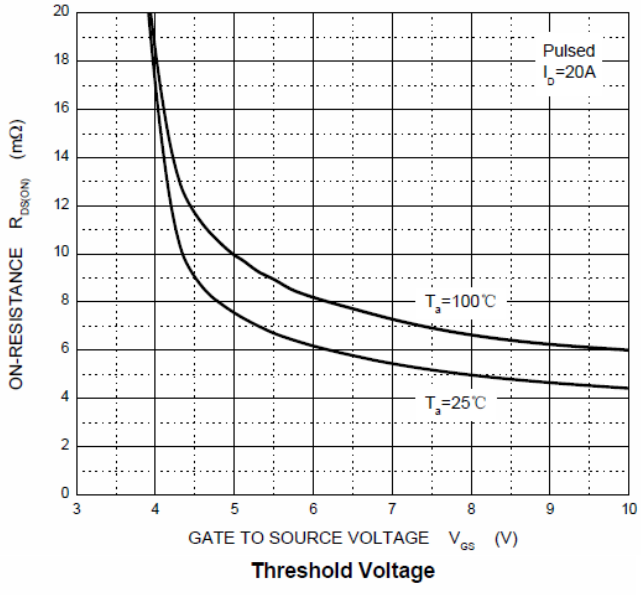
Transfer Characteristics



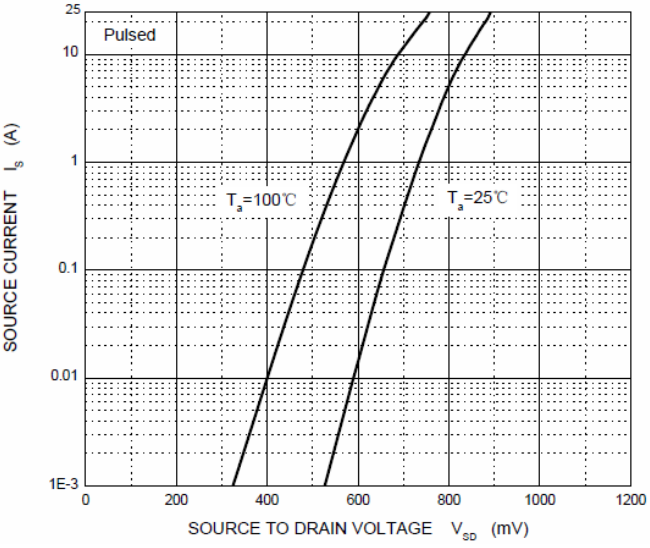
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage