Elektronische Bauelemente

SCPD2002S-C

15A, 18V, $R_{DS(ON)}$ 5.5mΩ

Dual N-Channel Enhancement Mode Power MOSFET

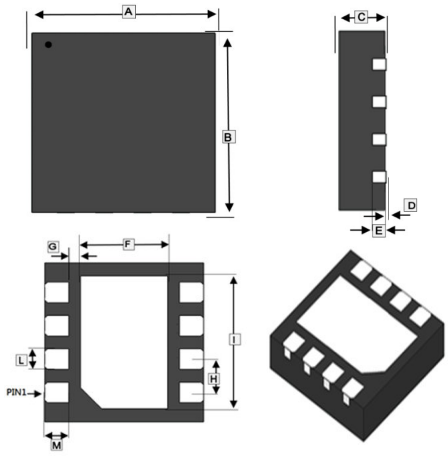
RoHS Compliant Product

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

DESCRIPTION

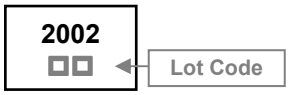
SCPD2002S-C uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use as a Uni-directional or Bi-directional load switch, facilitated by its common-drain configuration.

DFN3x3-8JD



REF.	Millimeter Min.	Millimeter Max.	REF.	Millimeter Min.	Millimeter Max.
A	2.9	3.1	G	0.2	-
B	2.9	3.1	H	0.65REF	
C	0.7	0.8	I	2.2	2.4
D	0	0.1	L	0.25	0.35
E	0.2REF.		M	0.32	0.48
F	1.4	1.6			

MARKING

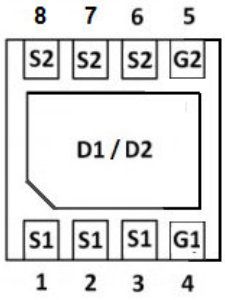


PACKAGE INFORMATION

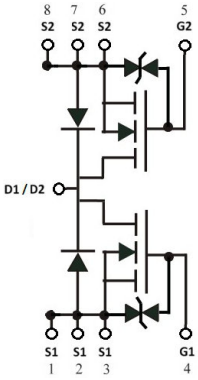
Package	MPQ	Leader Size
DFN3x3-8JD	5K	13 inch

ORDER INFORMATION

Part Number	Type
SCPD2002S-C	Lead (Pb)-free and Halogen-free



Top View



Equivalent Circuit

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	18	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current [1]	T_A=25°C	I_D	15	A
	T_A=70°C		13	
	T_C=25°C		55	
	T_C=100°C		35	
Pulsed Drain Current [1,2]		I_{DM}	100	A
Power Dissipation [3]		P_D	3	W
Lead Temperature for Soldering Purposes @1/8" from case for 10s		T_L	260	°C
Junction and Storage Temperature Range		T_J, T_{STG}	150, -55~150	°C
Thermal Resistance Rating				
Thermal Resistance from Junction to Ambient		$R_{\theta JA}$	42	°C / W

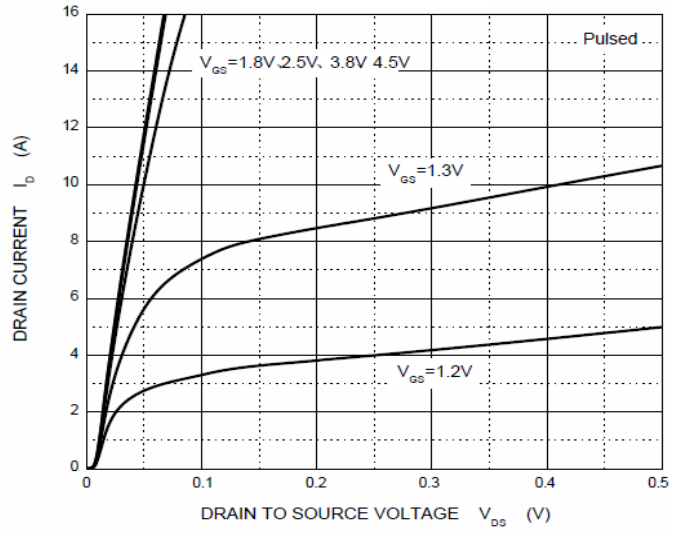
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	18	-	-	V	V_{GS}=0V, I_D=250μA
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=16V, V_{GS}=0V
Gate-Body Leakage Current	I_{GSS}	-	-	±1	μA	V_{DS}=0V, V_{GS}= ±4.5V
		-	-	±10		V_{DS}=0V, V_{GS}= ±8V
Gate-Threshold Voltage [4]	$V_{GS(th)}$	0.4	-	1	V	V_{DS}=V_{GS}, I_D=250μA
Static Drain-Source On-Resistance [4]	$R_{DS(ON)}$	-	4.4	5.5	mΩ	V_{GS}=4.5V, I_D=3A
		-	4.5	5.8		V_{GS}=4V, I_D=3A
		-	4.6	6		V_{GS}=3.8V, I_D=3A
		-	4.9	6.3		V_{GS}=3.1V, I_D=3A
		-	5.4	6.5		V_{GS}=2.5V, I_D=3A
Forward Transconductance [4]	g_{fs}	8	42	-	S	V_{DS}=5V, I_D=3A
Diode forward voltage [4]	V_{SD}	-	-	1	V	V_{GS}=0V, I_S=1A
Total Gate Charge	Q_g	-	26.5	-	nC	V_{DS}=10V V_{GS}=4.5V I_D=3A
Gate-Source Charge	Q_{gs}	-	2.4	-		
Gate-Drain Charge	Q_{gd}	-	7.6	-		
Turn-on Delay Time	$T_{d(on)}$	-	4.5	-	nS	V_{DD}=10V V_{GS}=5V I_D=3A R_G=3Ω R_L=1.35Ω
Rise Time	T_r	-	8.9	-		
Turn-off Delay Time	$T_{d(off)}$	-	85	-		
Fall Time	T_f	-	24	-		
Input Capacitance	C_{iss}	-	1970	-	pF	V_{DS}=10V V_{GS}=0V f=1MHz
Output Capacitance	C_{oss}	-	315	-		
Reverse Transfer Capacitance	C_{rss}	-	285	-		
Drain-Source Diode						
Diode Forward Current [5]	I_S	-	-	15	A	

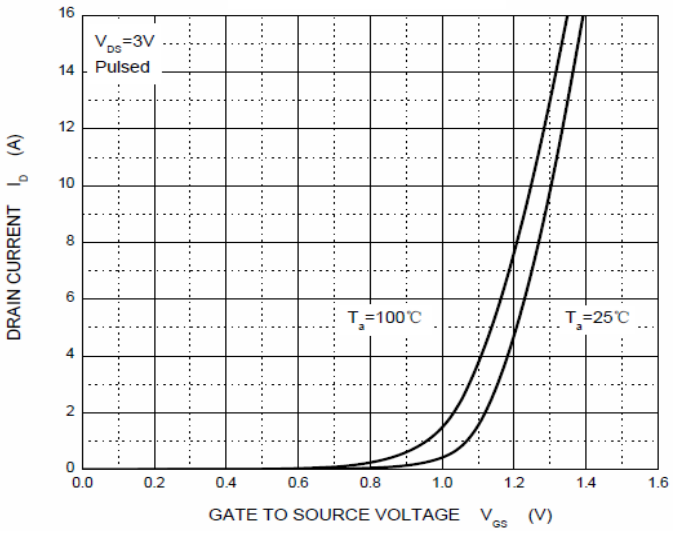
Notes:
1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. Pulse Test: Pulse width<10uS, duty cycle<0.5%.
3. The power dissipation is limited by 150°C junction temperature.
4. Pulse Test: Pulse width≤300uS, duty cycle≤0.5%.
5. The data is theoretically the same as I_D, in real applications, should be limited by total power dissipation.

CHARACTERISTICS CURVE

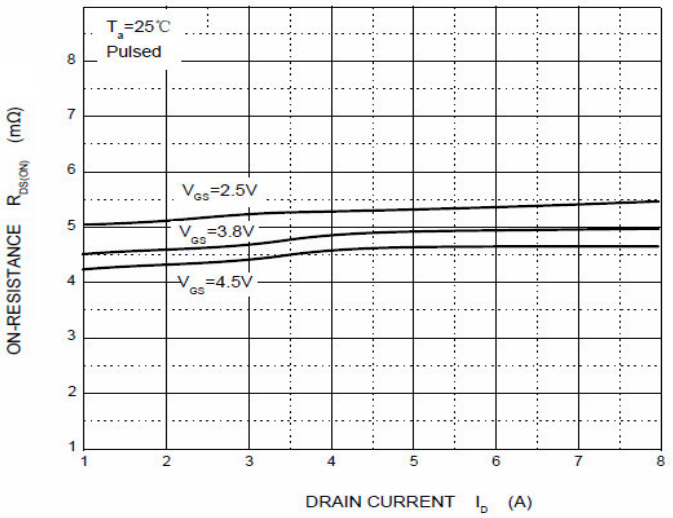
Output Characteristics



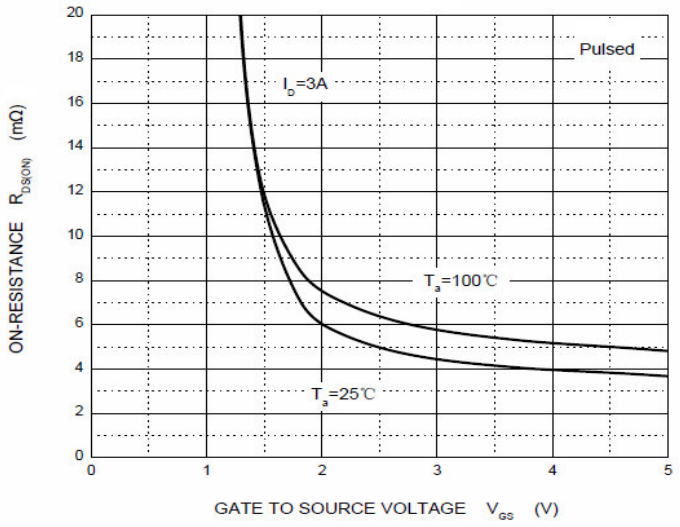
Transfer Characteristics



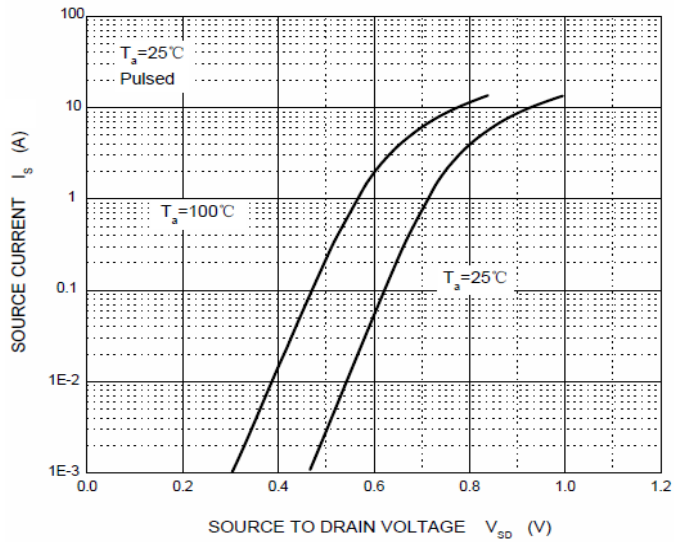
$R_{DS(ON)}$ — I_D



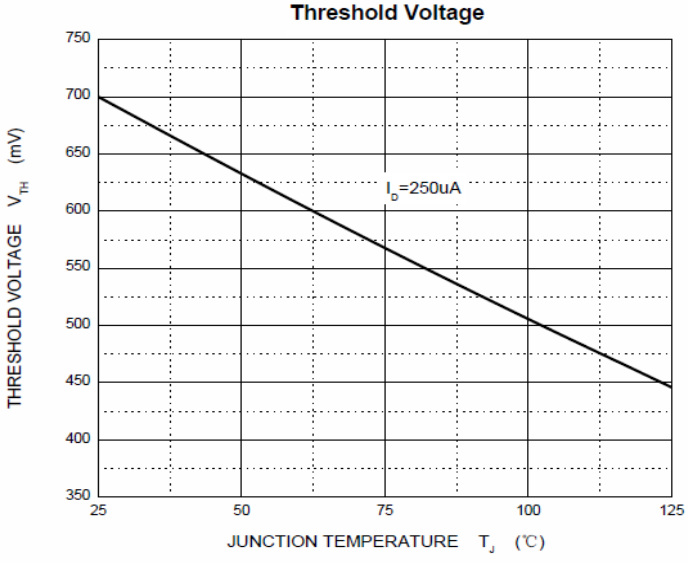
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage



CHARACTERISTICS CURVE