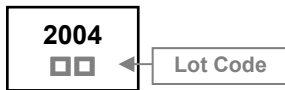


RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

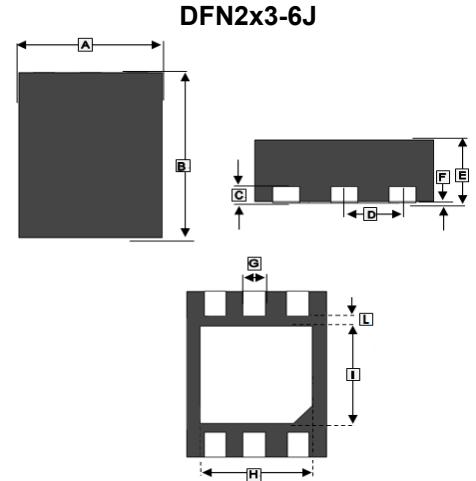
The SDN2004S-C uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. It is ESD protected. This device is suitable for use as a Uni-directional or Bi-directional load switch, facilitated by its common-drain configuration.

MARKING



PACKAGE INFORMATION

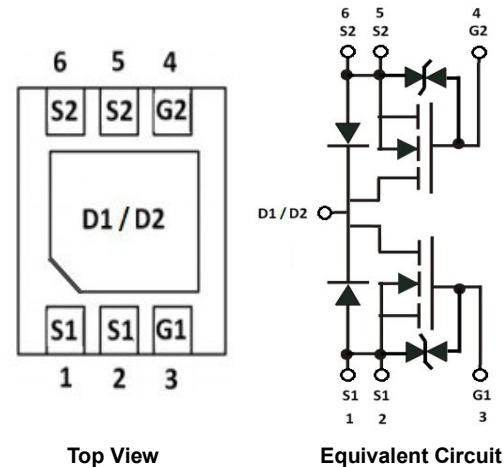
Package	MPQ	Leader Size
DFN2x3-6J	3K	7 inch



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.95	2.05	F	0	0.05
B	2.95	3.05	G	0.2	0.3
C	0.203 REF.		H	1.45	1.55
D	0.5 BSC.		I	1.65	1.75
E	0.7	0.8	L	0.2	-

ORDER INFORMATION

Part Number	Type
SDN2004S-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ 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	10	A
Pulsed Drain Current	I_{DM}	50	A
Power Dissipation ¹	P_D	1.5	W
Lead Temperature for Soldering Purposes @1/8" from case for 10s	T_L	260	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$
Thermal Resistance Rating			
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83	$^\circ\text{C} / \text{W}$

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

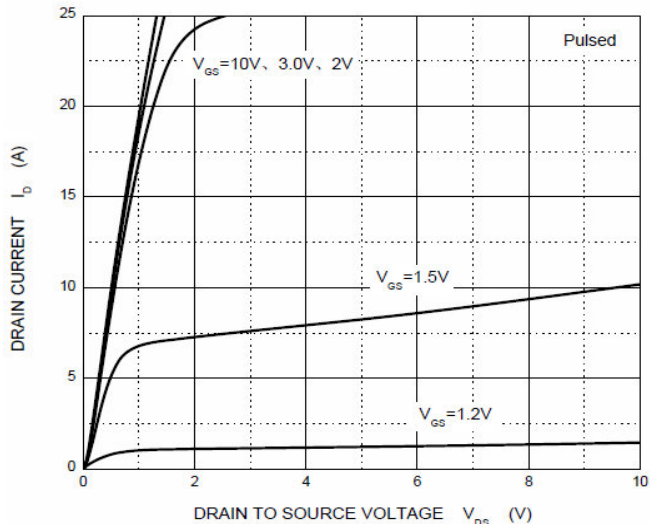
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Drain-source breakdown voltage	$V_{(BR)DSS}$	20	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate-Threshold Voltage ¹	$V_{GS(th)}$	0.4	-	1	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Gate-Body Leakage Current	I_{GSS}	-	-	± 1	μA	$V_{DS}=0V, V_{GS}= \pm 4.5V$
		-	-	± 10		$V_{DS}=0V, V_{GS}= \pm 8V$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=16V, V_{GS}=0V$
Drain-Source On-Resistance ¹	$R_{DS(ON)}$	-	7.3	9	m Ω	$V_{GS}=4.5V, I_D=3A$
		-	7.6	9.3		$V_{GS}=4V, I_D=3A$
		-	7.8	9.7		$V_{GS}=3.8V, I_D=3A$
		-	8.2	10.5		$V_{GS}=3.1V, I_D=3A$
		-	9	12.5		$V_{GS}=2.5V, I_D=3A$
Forward Transconductance ¹	g_{fs}	9	36	-	S	$V_{DS}=5V, I_D=7A$
Diode Forward Voltage ¹	V_{SD}	-	-	1	V	$I_S=1A, V_{GS}=0V$
Total Gate Charge	Q_g	-	17	-	nC	$V_{DS}=10V$ $V_{GS}=4.5V$ $I_D=7A$
Gate-Source Charge	Q_{gs}	-	2	-		
Gate-Drain Charge	Q_{gd}	-	5.1	-		
Turn-On Delay Time	$T_{d(ON)}$	-	2.2	-	nS	$V_{DD}=10V$ $V_{GS}=5V$ $R_L=1.35\Omega$ $R_G=3\Omega$
Rise Time	T_r	-	5.9	-		
Turn-Off Delay Time	$T_{d(OFF)}$	-	40	-		
Fall Time	T_f	-	90	-		
Input Capacitance	C_{iss}	-	1950		pF	$V_{DS}=10V$ $V_{GS}=0V$ $f=1MHz$
Output Capacitance	C_{oss}	-	250			
Reverse Transfer Capacitance	C_{rss}	-	210			
Source-Drain Diode						
Diode Forward Current	I_S	-	-	6	A	

Note:

1. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

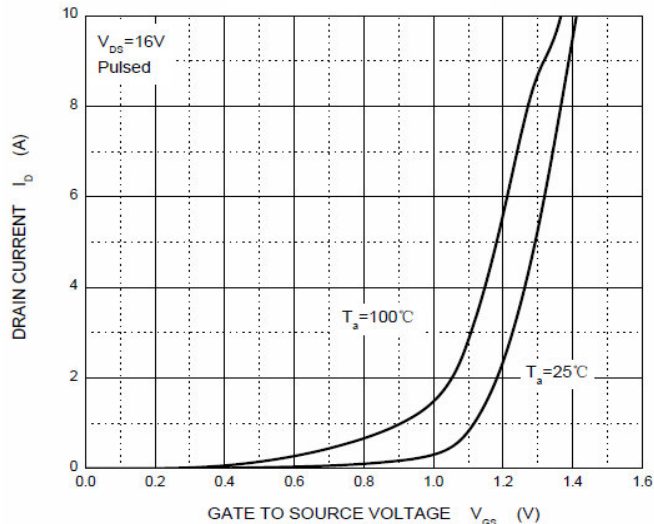
CHARACTERISTIC CURVE

Output Characteristics

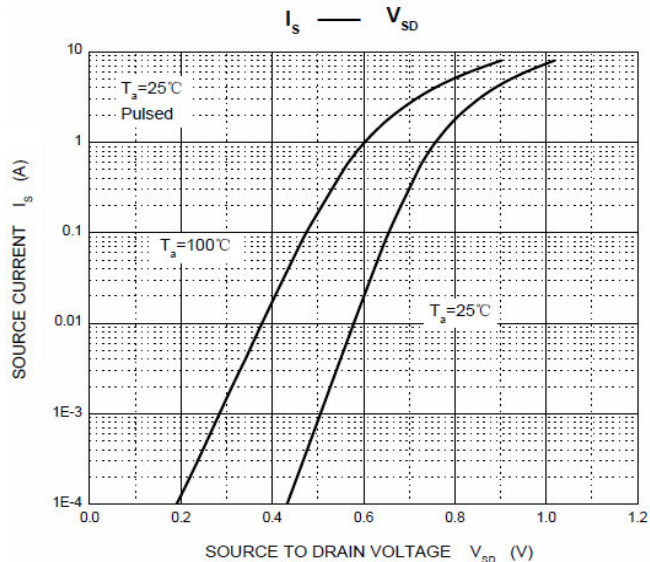
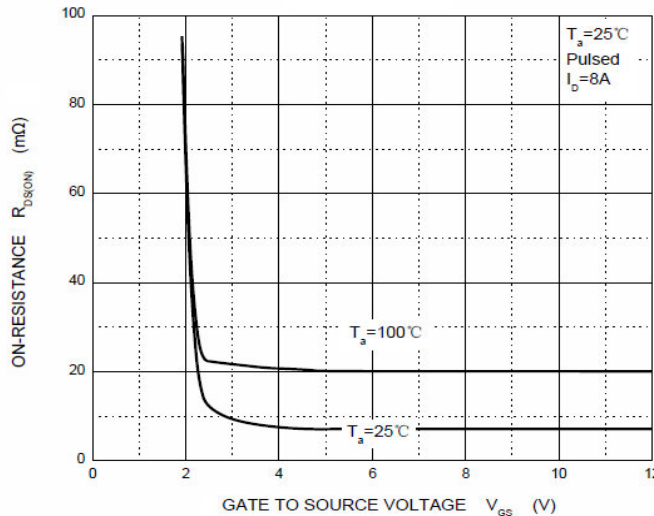
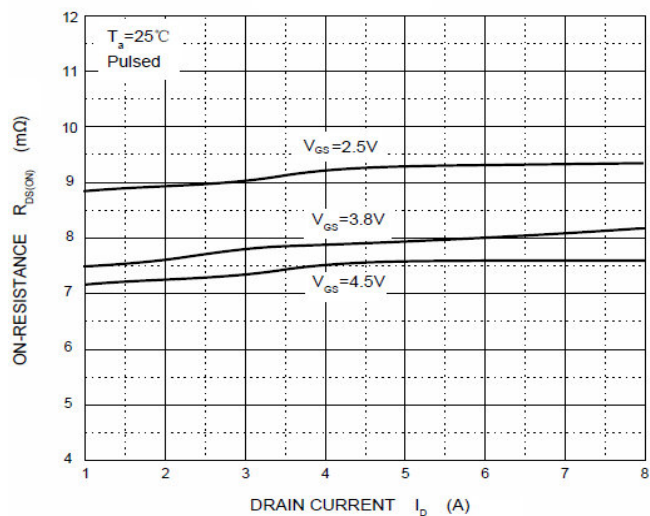


$R_{DS(ON)}$ — I_D

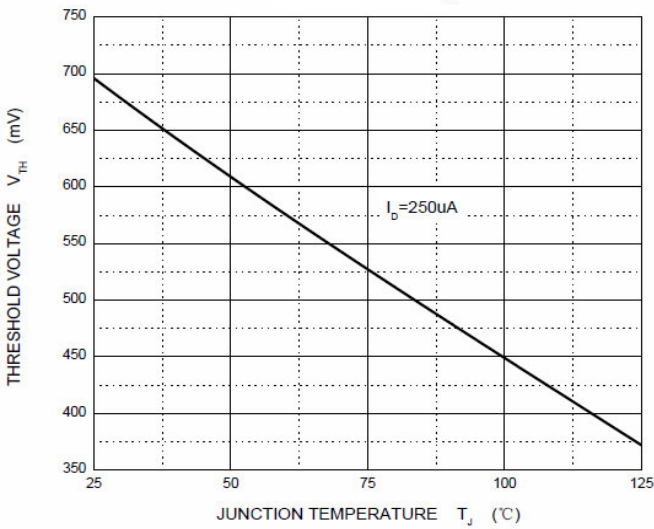
Transfer Characteristics



$R_{DS(ON)}$ — V_{GS}

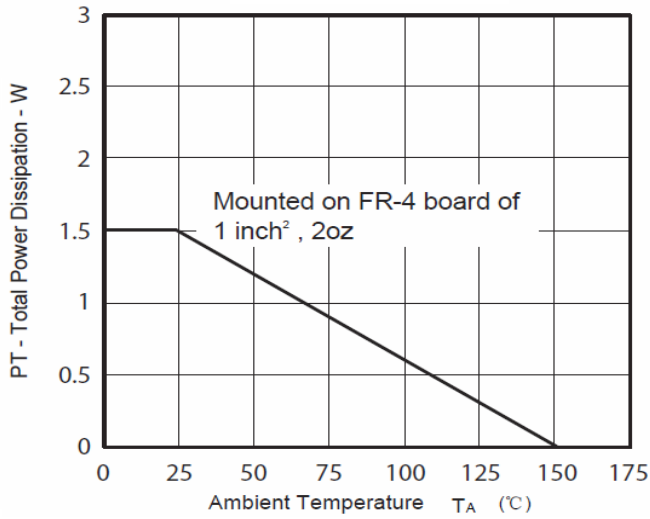


Threshold Voltage

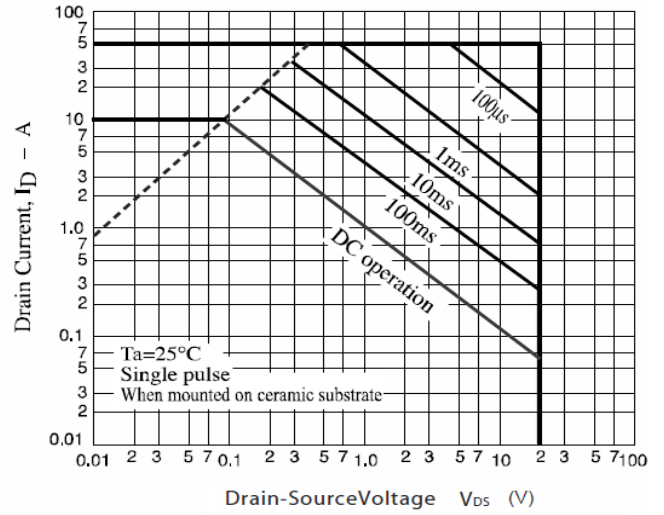


CHARACTERISTIC CURVE

TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



Maximum Safe Operating Area



$R_{DS(ON)}$ vs. T_A

