VUDD002R220PA

Datasheet

General Description

$V_{(BR)DSS}$	$R_{DS(ON)\_max}$	I_D
-20V	22mΩ@-4.5V	-11A
	40mΩ@-2.5V	

Symbol

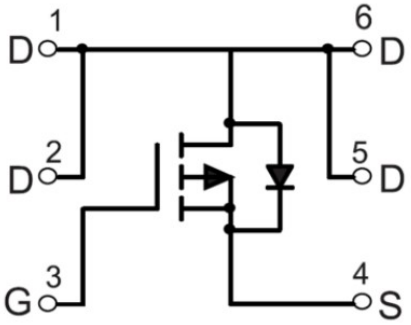
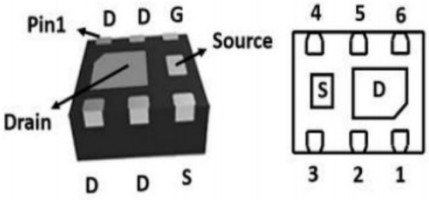


Figure 1 Symbol of VUDD002R220PA

Features

- Excellent $R_{DS(ON)}$, low gate voltages
- Trench Technology Power MOSFET
- Low gate charge

Package Type



DFNWB2X2-6L-J

Figure 2 Package Type of VUDD002R220PA

Application

- High Side Load Switch
- Load/Power Switching
- Low Current Inverters

Ordering Information

Product Name	Package
VUDD002R220PA	DFNWB2X2-6L-J

Absolute Maximum Ratings (T_A= 25 ºC, unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	±12	V
Continuous Drain Current	I_D	-11	A
Plused Drain Current Note1	I_{DM}	-44	A
Total Power Dissipation Note2	P_D	0.75	W
Junction Temperature	T_J	150	ºC
Storage Temperature	T_{STG}	-55 to 150	ºC

Thermal Resistance

Parameter	Symbol	Min	Typ	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$		167		ºC/W

Electrical Characteristics (T_A= 25 ºC, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Statistic Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D= -250uA	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= -20V, V_{GS}=0V			-1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±12V, V_{DS}= 0V			±100	nA
Gate Threshold Voltage Note3	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250uA	-0.45	-0.6	-1.0	V
Static Drain-Source On-Resistance Note3	$R_{DS(ON)}$	V_{GS}= -4.5V, I_D= -7.2A		17	22	mΩ
		V_{GS}= -2.5V, I_D= -6.4A		27	40	
Forward tranconductance Note3	g_{FS}	V_{DS}= -10V, I_D= -7.2A		16		S
Dynamic Characteristics Note4						
Input Capacitance	C_{ISS}	V_{DS}= -15V		2700		pF
Output Capacitance	C_{OSS}	V_{GS}=0V		680		pF
Reverse Transfer Capacitance	C_{RSS}	f=1MHz		590		pF
Switching Parameters Note4						
Total Gate Charge	Q_g	V_{DS}= -6V		35		nC
Gate-source Charge	Q_{gs}	V_{GS}= -4.5V		5		
Gate-drain Charge	Q_{gd}	I_D= -10A		10		
Turn-on Delay Time Note3	$t_{d(on)}$	V_{DD}= -10V		11		ns
Turn-on Rise Time Note3	t_r	V_{GS}= -4.5V		35		
Turn-off Delay Time Note3	$t_{d(off)}$	I_D= -1A		30		
Turn-off Fall Time Note3	t_f	R_G=10Ω		10		
Diode Characteristics						
Diode Forward Current	Is				-11	A
Diode Forward Voltage Note2	V_{SD}	V_{GS}=0V, I_S= -1.9A			-1.2	V

Notes :

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at Ta=25°C.
3. Pulse Test: Pulse With ≤300μs,Duty Cycle≤2%.
4. Guaranteed by design, not subject to production testing.

Typical Performance Characteristics

Figure 3: Transfer Characteristics

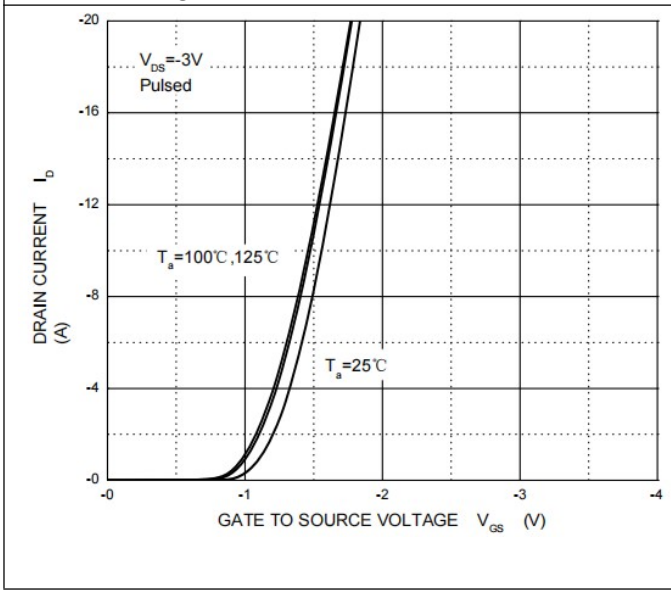


Figure 4: Output Characteristics

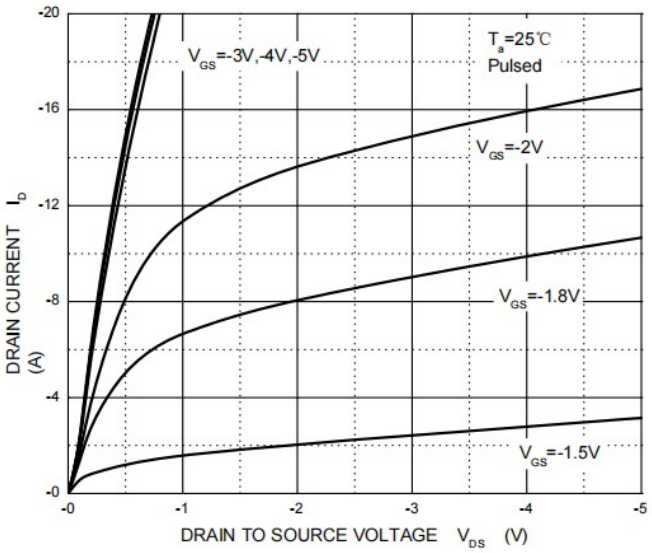


Figure 5: On-Resistance vs. Drain Current

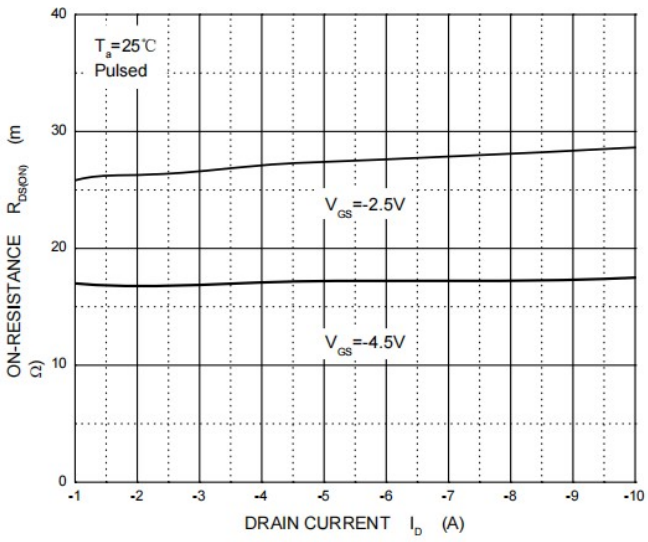


Figure 6: On-Resistance vs. Gate Voltage

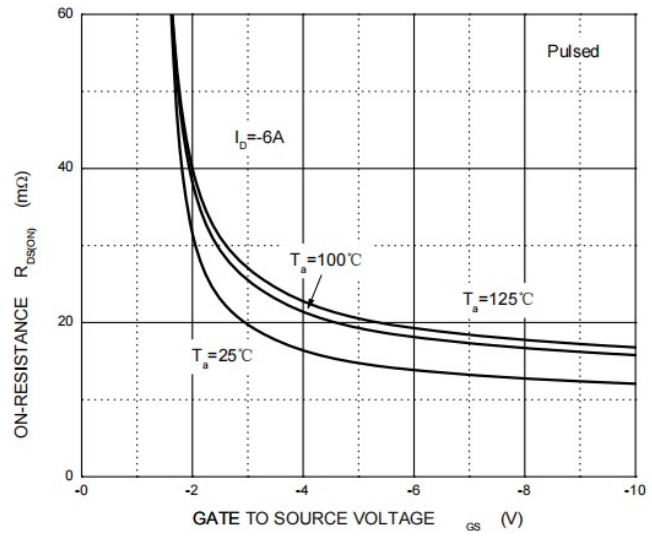


Figure 7: Body Diode Characteristics

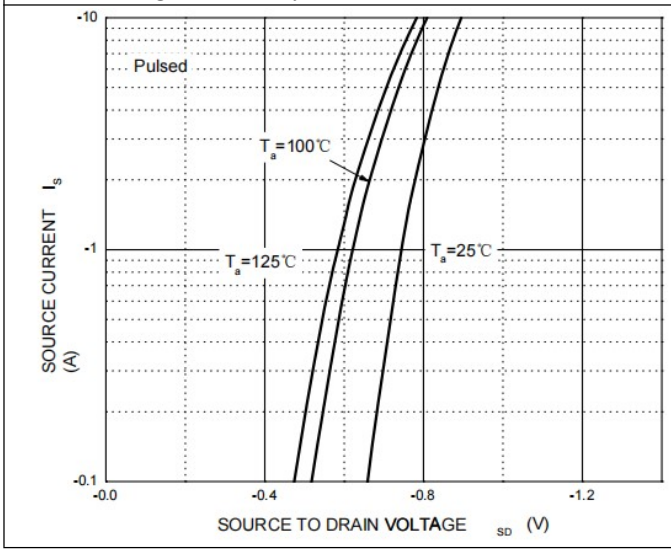
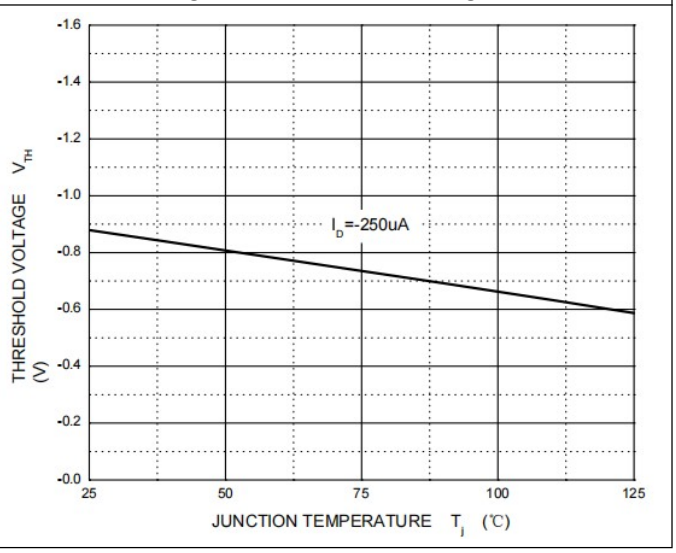
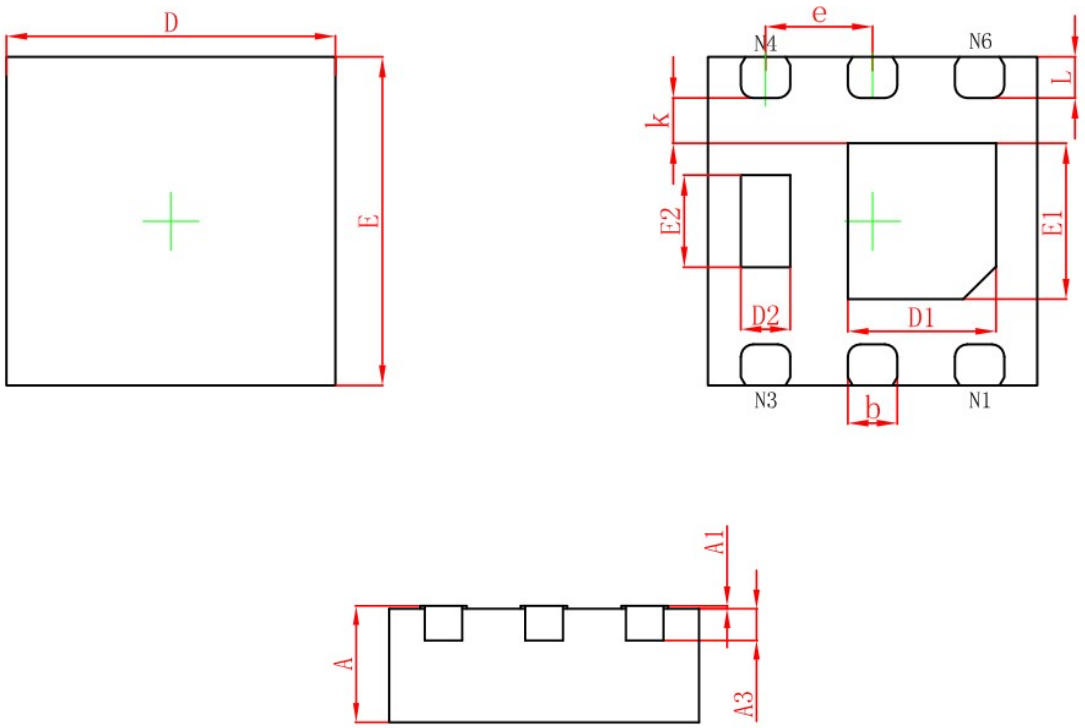


Figure 8: Threshold Voltage



Mechanical Dimensions:

DFNWB2×2-6L-J Package Information



Symbol	Dimensions (Unit:mm)		Dimensions (Unit:inch)	
	Min.	Max.	Min.	Max.
A	0.700	0.800		0.032
A1	0.000	0.050	0.000	0.002
A3	0.203REF		0.008REF	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.800	1.000	0.031	0.039
E1	0.850	1.050	0.033	0.041
D2	0.200	0.400	0.008	0.016
E2	0.460	0.660	0.018	0.026
k	0.200MIN		0.008MIN	
b	0.250	0.350	0.010	0.014
e	0.650TYP		0.026TYP	
L	0.174	0.326	0.007	0.013

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