WANSEMI
万芯半导体

WX012BP02N2

Enhancement Mode P-Channel Power MOSFET

DFN2X2/PMOS/-16V/±12V/-0.6V/-20A/16mΩ

Rev0.5

-16V, 16mΩ, -20A, P-Channel MOSFET

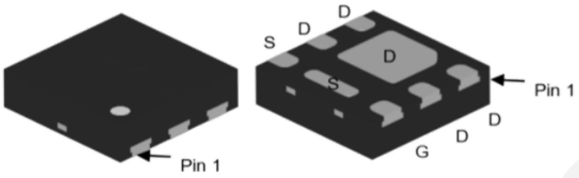
1.Features

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

V_{DS} Typ.	$R_{DS(on)}$ Typ.	I_D Max.
-16V	16mΩ @ -4.5V	-20A
	21mΩ @ -2.5V	

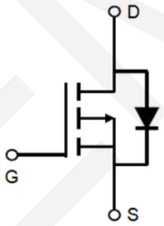
2.Applications

- Battery Protection
- Battery Powered Systems
- Power Management in Notebook Computer
- Portable Equipment



Pin Description

DFN2X2-6L



Schematic Diagram

3.Package Marking and Ordering Information

Part no.	Marking	Package	PCS/Reel	PCS/CTN.
WX012BP02N2	012P02	DFN2X2	4,000	160,000

4.Absolute Max Ratings at Ta=25℃ (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V_{DSS}	-16	V
Gate to Source Voltage	V_{GSS}	±12	V
Drain Current-Continuous	I_D	-12	A
Drain Current (Pulse)	I_{DM}	-48	A
Maximum Power Dissipation	P_D	1.9	W
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 to +150	℃

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

5.Thermal Resistance Ratings (Note 2)

Parameter	Symbol	Value	Unit
Maximum Junction-to-Ambien	$R_{\theta JA}$	64	℃/W

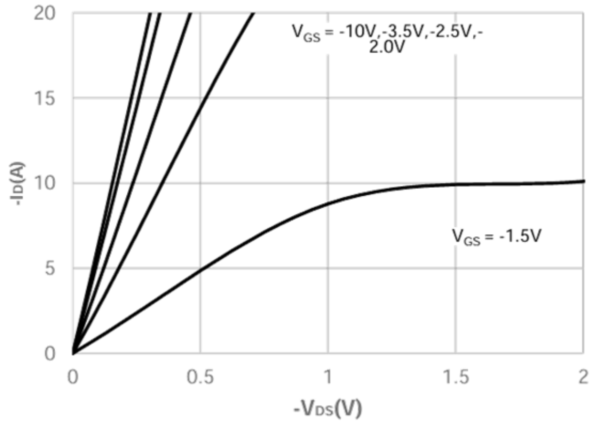
Note 2：When mounted on 1 inch square copper board t ≤ 10sec The value in any given application depends on the user's specific board design.

6.Electrical Characteristics at Ta=25℃ (Note 3)

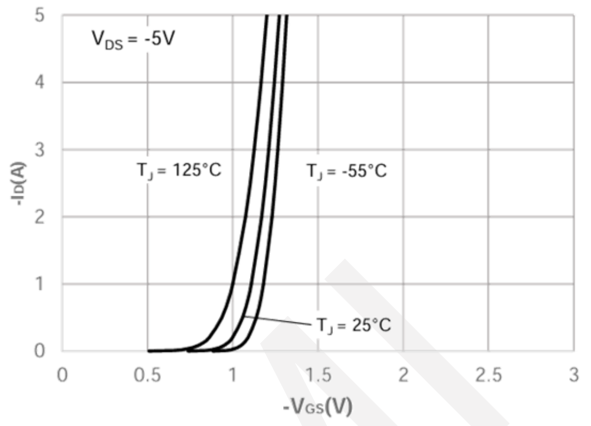
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = -250μA, V_{GS} = 0V	-16	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS} = -16V, V_{GS} = 0V	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=-250μA	-0.4	-0.6	-1.0	V
Drain to Source On-State Resistance	$R_{DS(on)}$	I_D =-4.1A, V_{GS} =-4.5V	-	16	23	mΩ
		I_D =-3A, V_{GS} = -2.5V	-	21	29	mΩ
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-8V, Frequency=1.0MHz	-	1352	-	pF
Output Capacitance	C_{oss}		-	190	-	pF
Reverse Transfer Capacitance	C_{rss}		-	167	-	pF
Turn-ON Delay Time	$t_{d(on)}$	V_{DD} =-10V, I_D =-3A, R_G = 3Ω, V_{GS} = -4.5V	-	7.2	-	ns
Turn-ON Rise Time	t_r		-	17.5	-	ns
Turn-OFF Delay Time	$t_{d(off)}$		-	62	-	ns
Turn-ON Fall Time	t_f		-	45	-	ns
Total Gate Charge	Q_g	V_{DS} = -8V, V_{GS} = 0 to -4.5V, I_D = -3A	-	14	-	nC
Gate-Source Charge	Q_{gs}		-	2.2	-	nC
Gate-Drain Charge	Q_{gd}		-	2.9	-	nC
Diode Forward Voltage	V_{SD}	I_{SD} = -4.1A, V_{GS} = 0	-0.5	-	-1.2	V

Note 3：Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

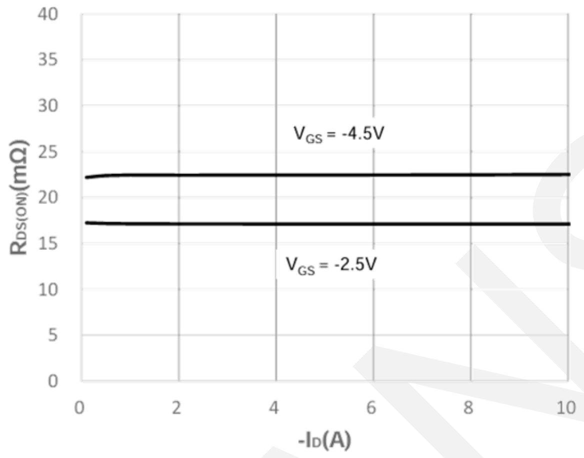
7.Typical electrical and thermal characteristics



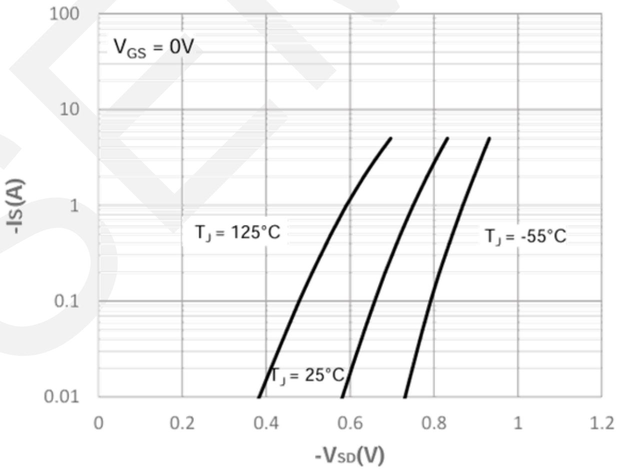
Typical Output Characteristics



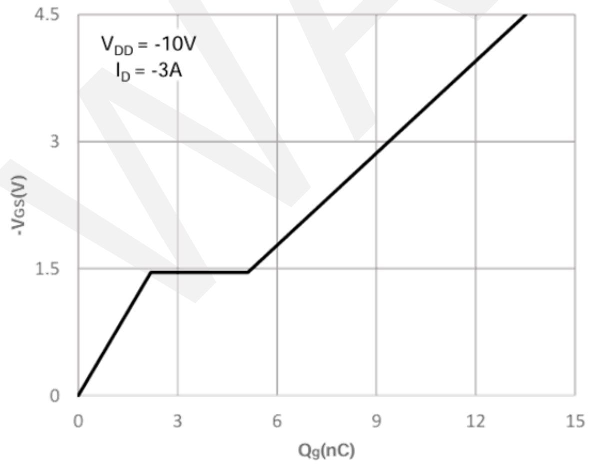
Typical Transfer Characteristics



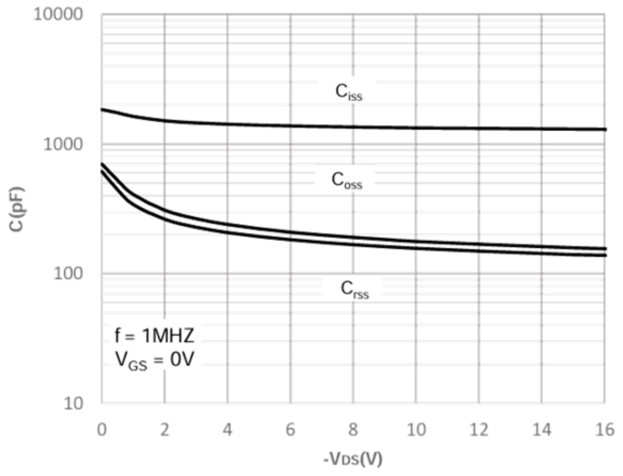
On-resistance vs. Drain Current



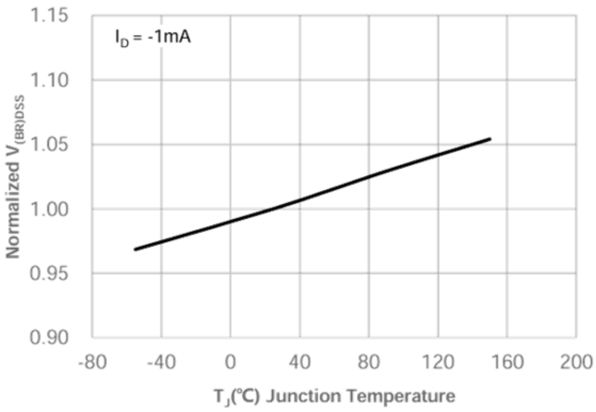
Body Diode Characteristics



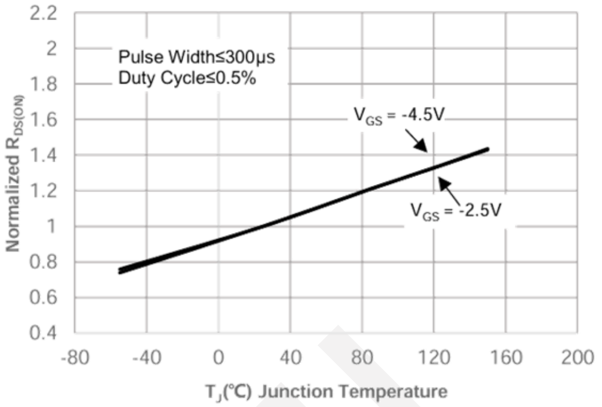
Gate Charge Characteristics



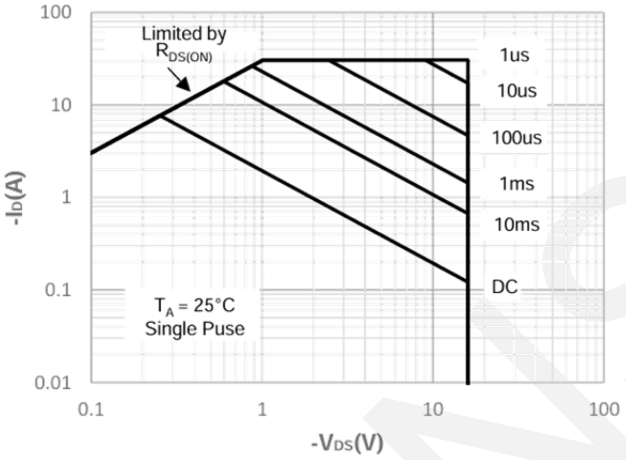
Capacitance Characteristics



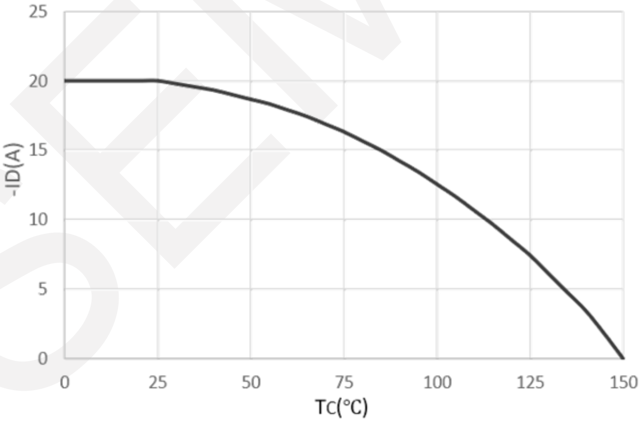
Normalized Breakdown voltage vs. Junction Temperature



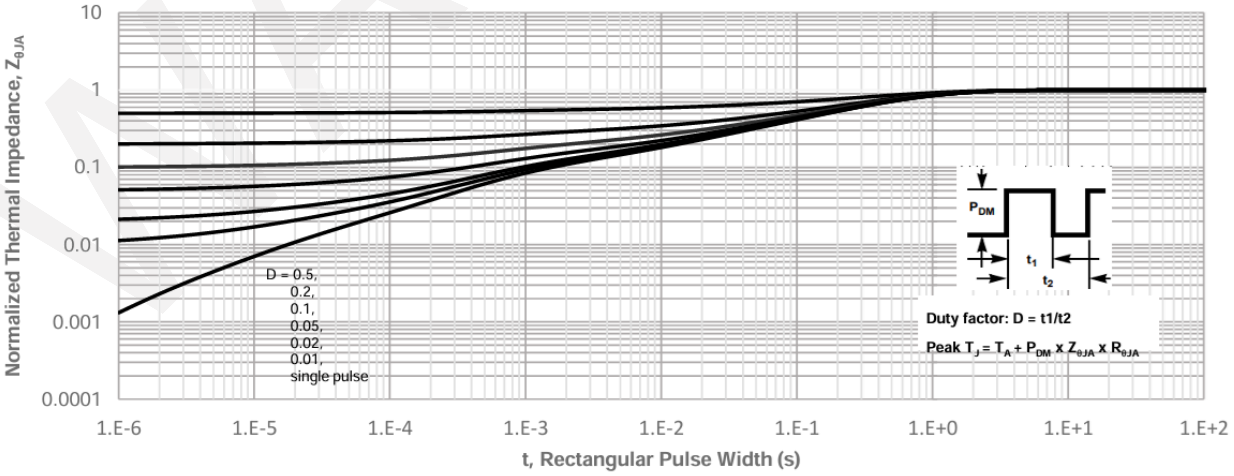
Normalized on Resistance vs. Junction Temperature



Normalized Breakdown voltage vs. Junction Temperature

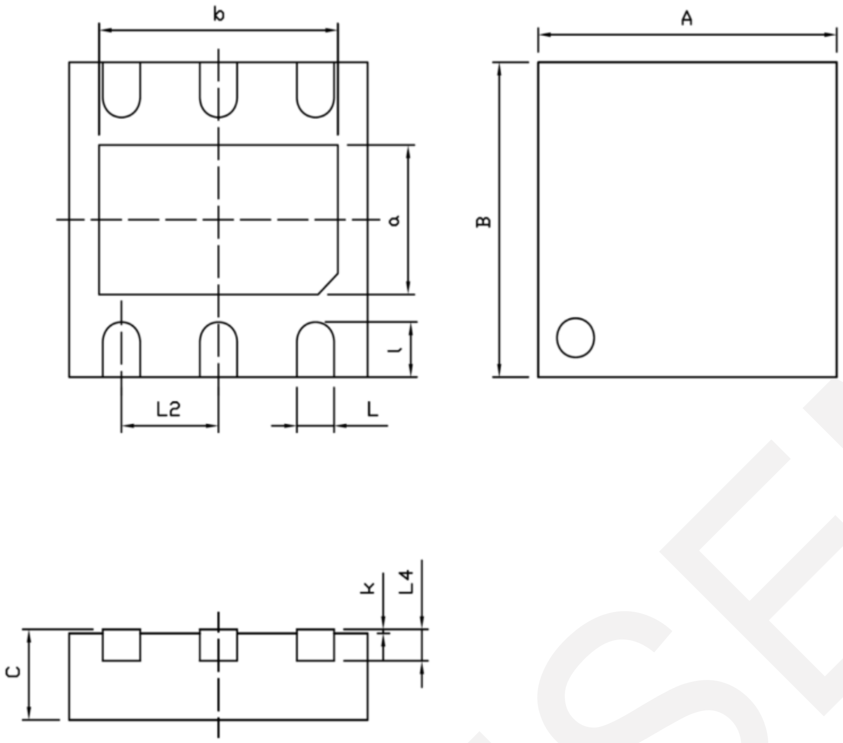


Current De-rating



Normalized Maximum Transient Thermal Impedance

8.Package Dimensions



Symbol	Dimensions In Millimeterer		
	MIN	TYP	MAX
A	1.95	2.00	2.05
B	1.95	2.00	2.05
C	0.45	0.50	0.55
L	0.20	0.25	0.30
L2	–	0.65	–
L4	–	0.152	–
a	0.90	0.95	1.00
b	1.55	1.60	1.65
l	0.30	0.35	0.40
k	0.00	–	0.05

9.Important Notice

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