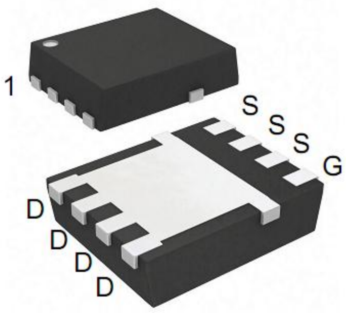
Description:

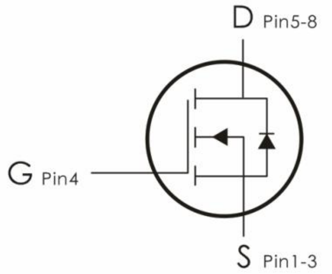
This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

1) V_{DS}=20V,I_D=150A,$R_{DS(ON)}$<2.8mΩ @V_{GS}=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.





Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
NB003NG	B003N	DFN5*6-8	5000 pcs/Reel

Absolute Maximum Ratings[1]: (T

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±10	V
I_D	Continuous Drain Curren	150	A
I_{DM}	Pulsed Drain Current	720	
P_D	Power Dissipation	143	W
E_{AS}	Single pulse avalanche energy	182	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics[2]:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	1.05	℃/W

Electrical Characteristics[3]： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=20V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±12V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	0.5	0.9	1.2	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=4.5V,I_D=30A	---	2	3	mΩ
		V_{GS}=2.5V,I_D=20A	---	3	4	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz	---	10497	---	pF
C_{oss}	Output Capacitance		---	1661	--	
C_{rss}	Reverse Transfer Capacitance		---	1496	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=10V, I_D=50A, R_G=3Ω	---	6.4	---	ns
t_r	Rise Time		---	4.7	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	22.6	---	ns
t_f	Fall Time		---	6	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=10V, I_D=50A	---	8.3	---	nc
Q_{gs}	Gate-Source Charge		---	6.7	---	nc
Q_{gd}	Gate-Drain “Miller” Charge		---	19.3	---	nc
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=30A	0.4	0.8	1.2	V
I_S	Continuous Drain Curren	VD=VG=0V	---	---	150	A
I_{SM}	Pulsed Drain Current		---	---	720	A

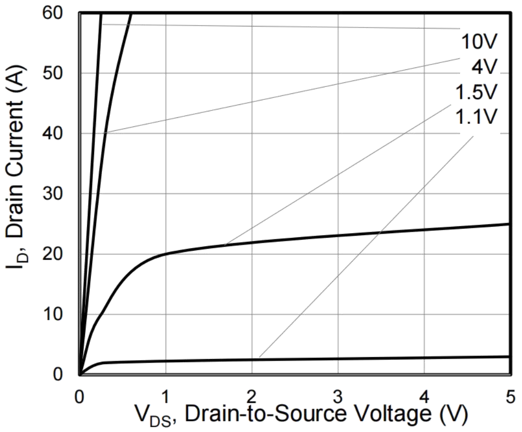
Notes:

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 reliabilitymay be affected.

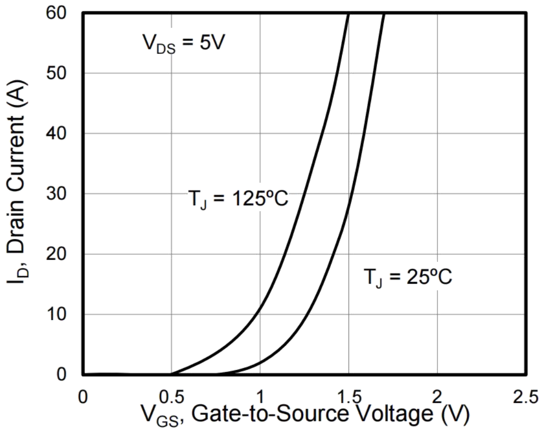
2.When mounted on 1 inch square copper board t ≤ 10sec The value in any given application depends on the user's specific board design.

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.

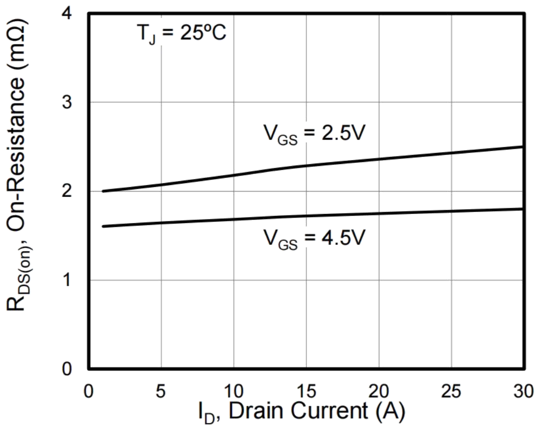
Typical Characteristics： (T$_C$=25℃ unless otherwise noted)



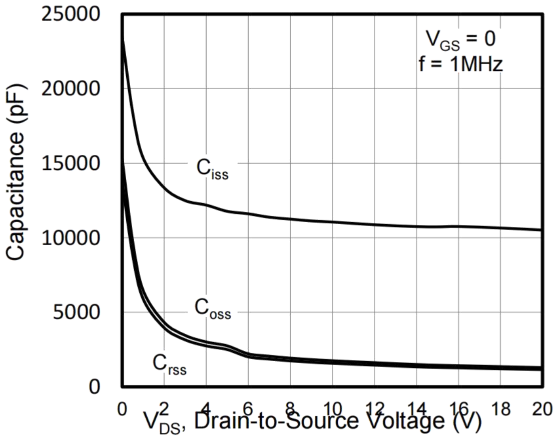
Output Characteristics



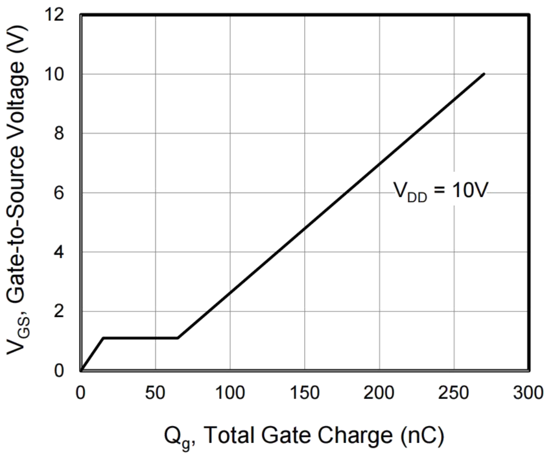
Typical Transfer Characteristics



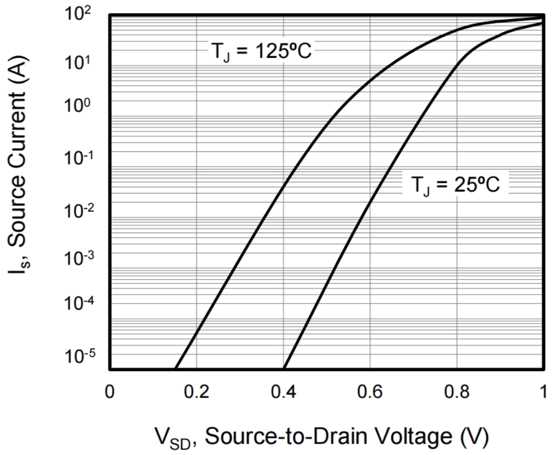
On-resistance vs. Drain Current



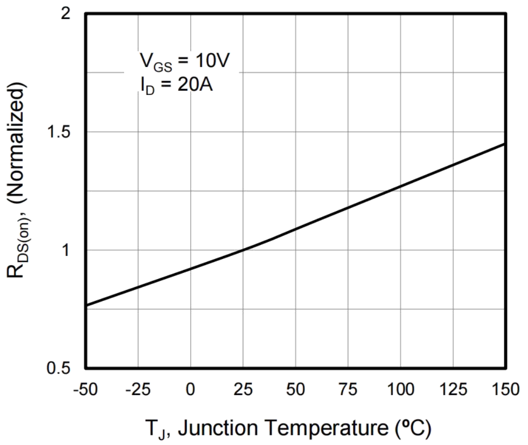
Capacitance



Gate Charge

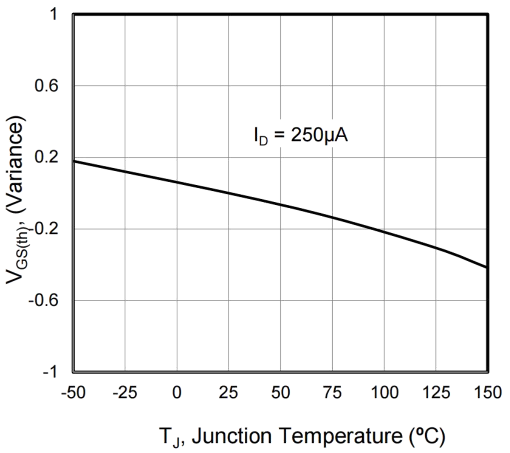


Body Diode Forward Voltage



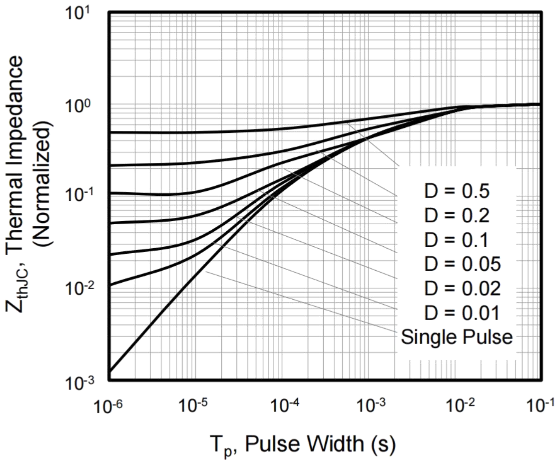
On-Resistance vs.

Junction Temperature



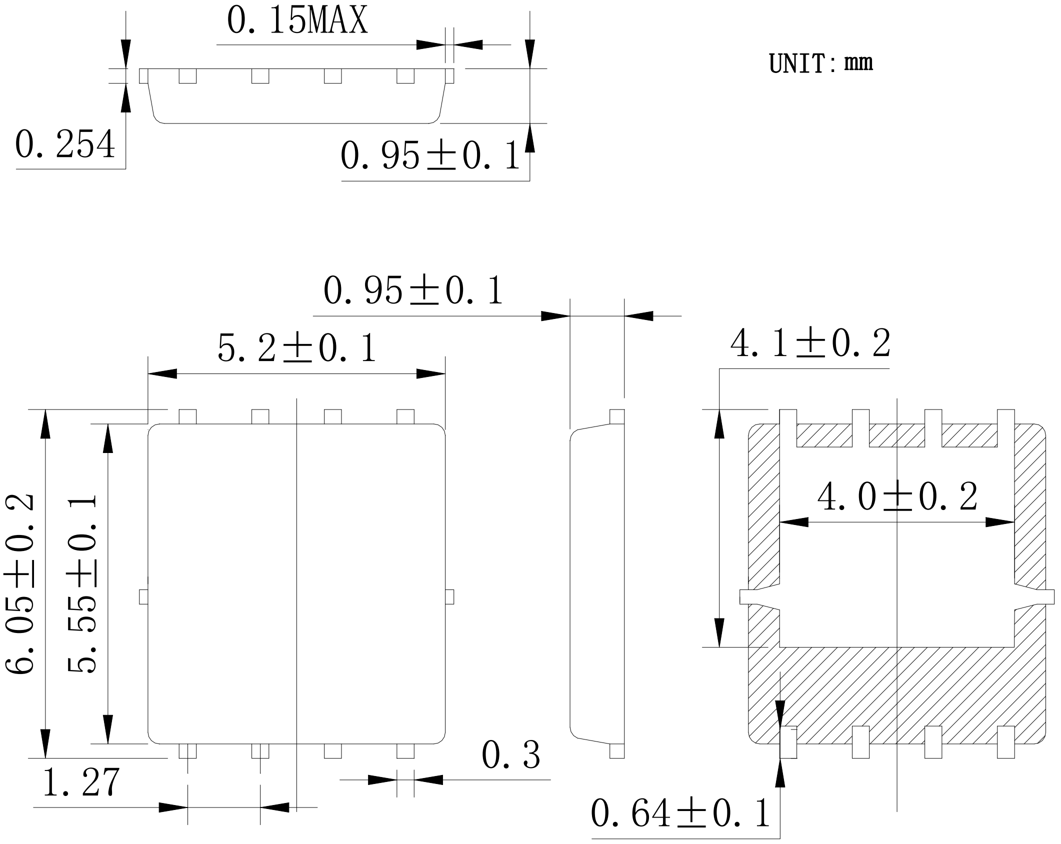
Threshold Voltage vs.

Junction Temperature



Transient Thermal Impedance

DFN5×6-8　Package Information：



Marking Information：

①. Doingter LOGO

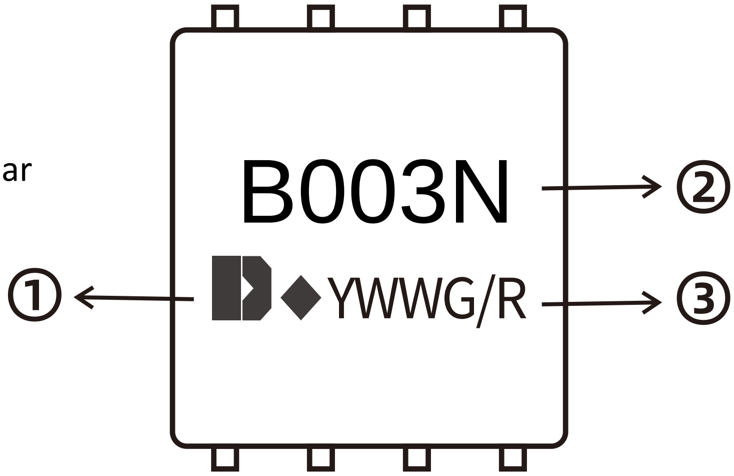
②. Part NO.

③. Date Code(YWWG / R)

Y：Year Code，last digit of the year

WW：Week Code(01-53)

G/R：G(Green) /R(Lead Free)



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2024-04-29	**Release of final version**

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