

# NB8304RD

## N-Channel Logic Level Enhancement Mode MOSFET



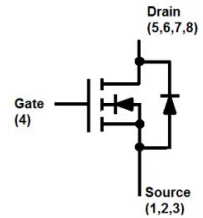
DFN3333-8A

### 1. FEATURES

- Low RDS(on) trench technology.
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.

### 2. APPLICATION

- Power Routing
- DC/DC Conversion
- Motor Drives



### 3. ORDERING INFORMATION

Device	Marking	Shipping
NB8304RD	N2R	2000/Tape&Reel

### 4. MAXIMUM RATINGS(Ta = 25°C unless otherwise stated)

Parameter	Symbol	Limits	Unit	
Drain-to-Source Voltage	VDSS	30	V	
Gate-to-Source Voltage	VGS	±20	V	
Continuous Drain Current	ID	TC = 25°C	75	A
		TC = 100°C	45	
Pulsed Drain Current (Note 1)	IDM	300		
Avalanche Current	IAS	23		
Avalanche Energy(L = 0.1mH)	EAS	26.45	mJ	
Power Dissipation	PD	TC = 25°C	21	W
		TC = 100°C	8.3	
Operating Junction Temperature	TJ	-55 ~+150	°C	
Storage Temperature Range	Tstg	-55 ~+150		

1.Pulse width limited by maximum junction temperature.

2.50°C/W when mounted on a 1 in<sup>2</sup> pad of 2 oz copper.

### 5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 2)	RθJA	50	°C/W
Maximum Junction-to-Case	RθJC	6	



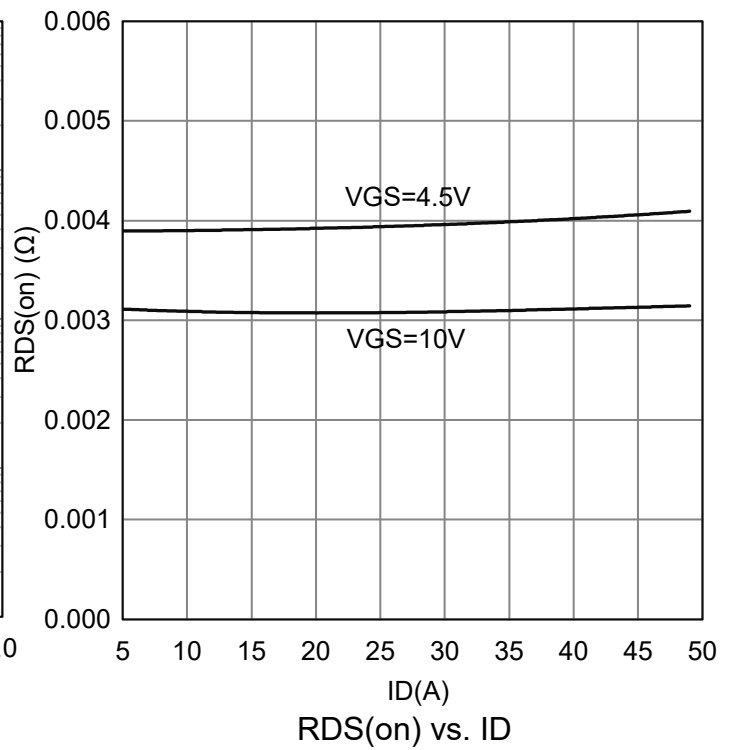
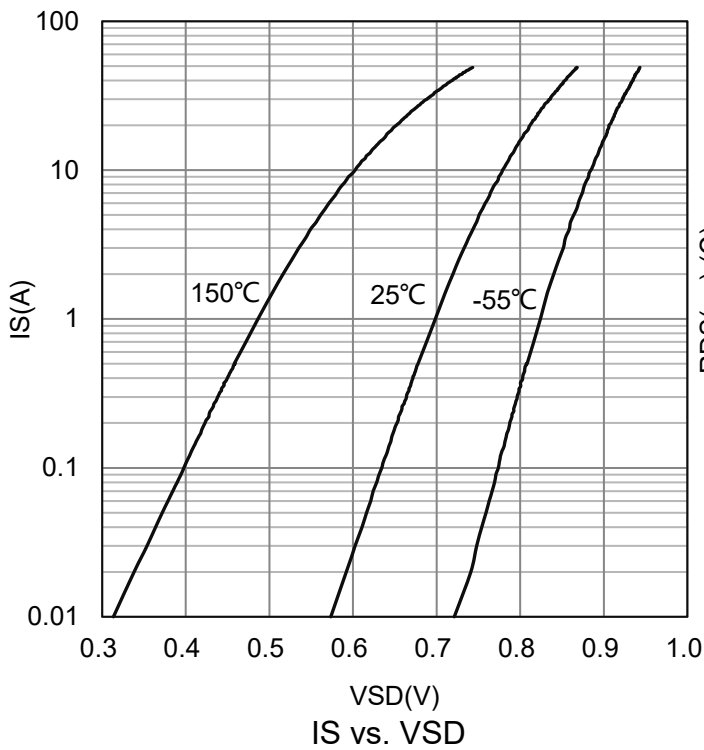
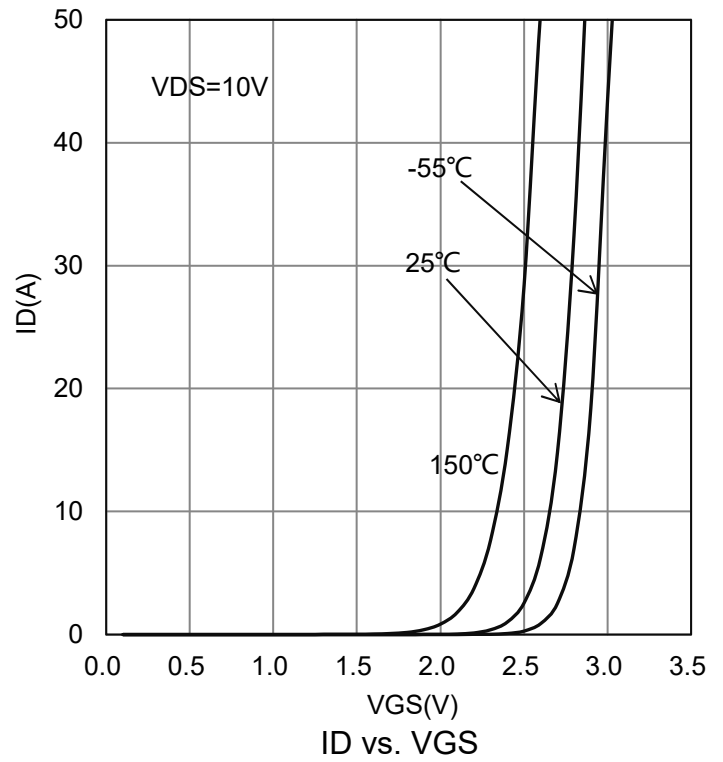
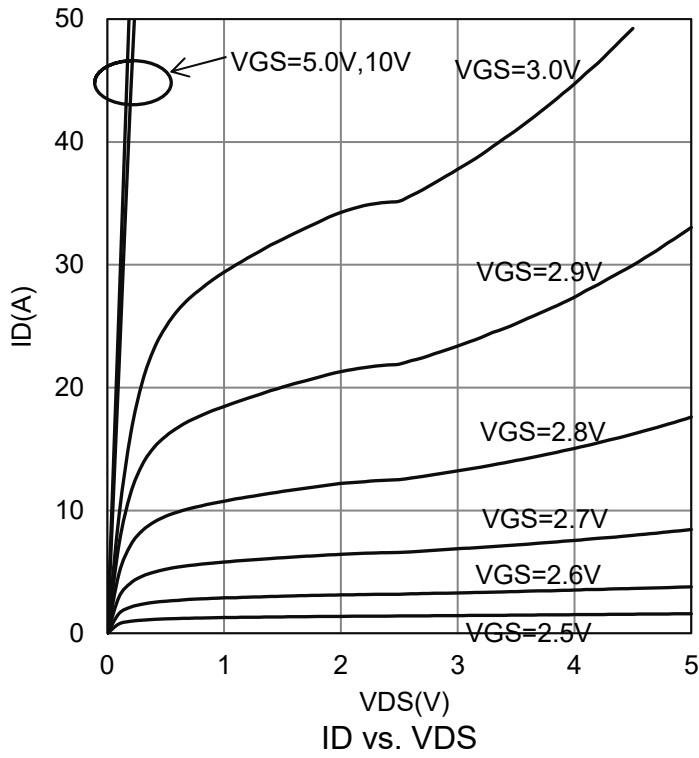
**6. ELECTRICAL CHARACTERISTICS**

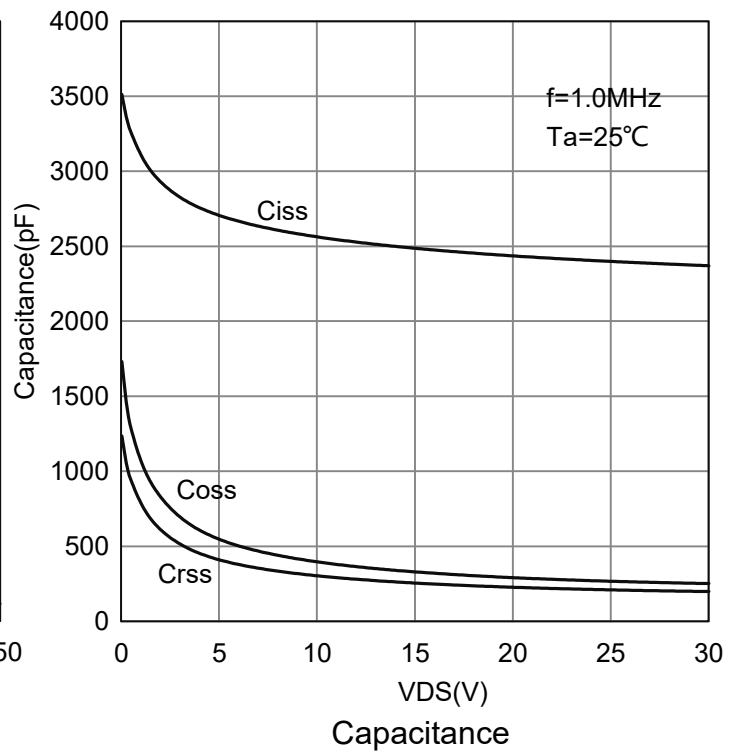
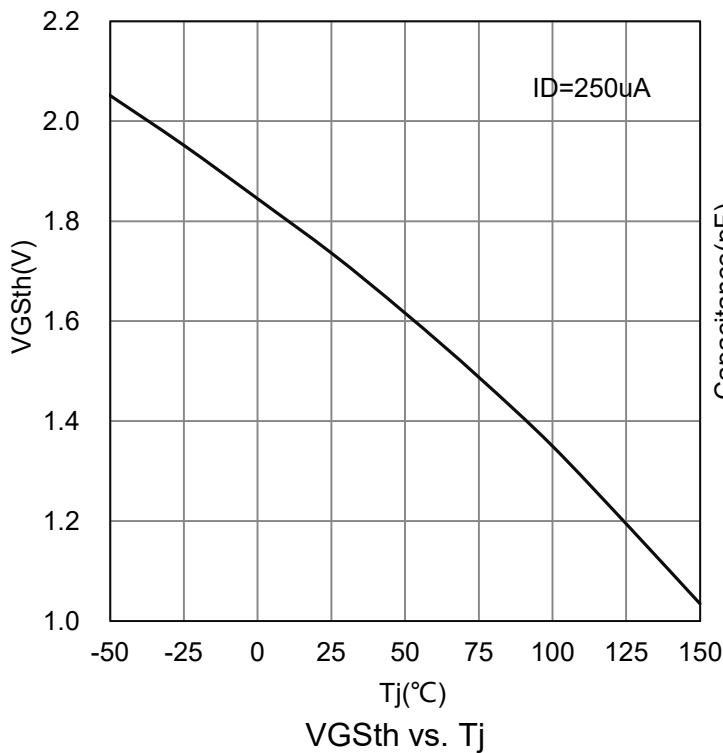
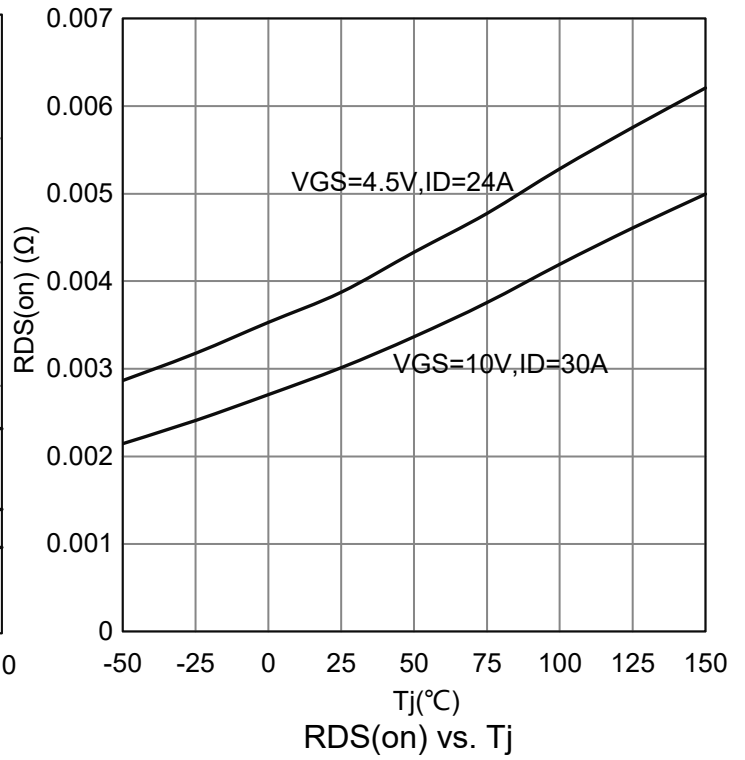
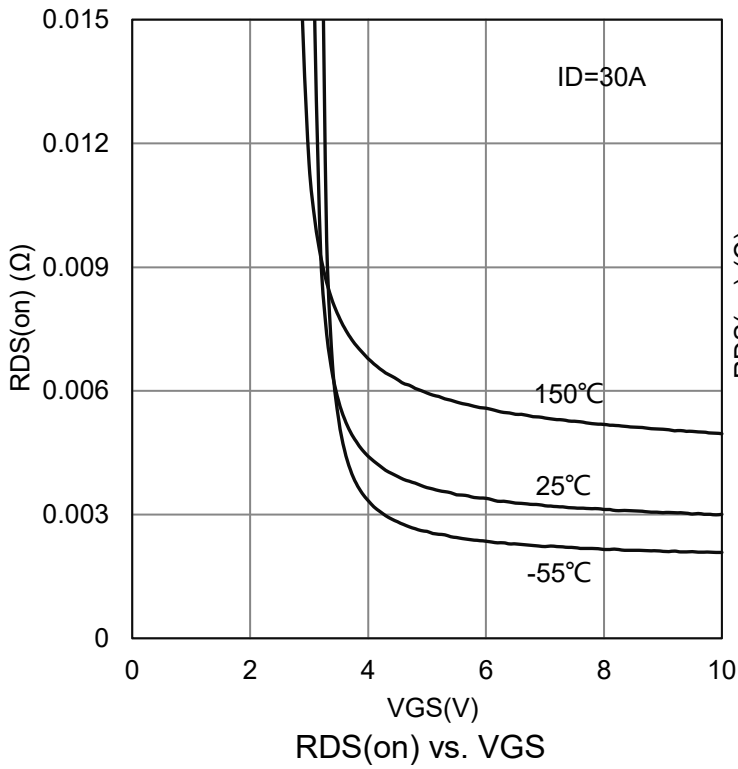
Characteristic	Symbol	Min.	Typ.	Max.	Unit
<b>Static</b>					
Drain-Source Breakdown Voltage (VGS = 0V, ID = 250μA)	V(BR)DSS	30	-	-	V
Gate-Source Threshold Voltage (VDS = VGS, ID = 250 μA)	VGS(th)	1	1.7	3	V
Gate-Body Leakage (VDS = 0 V, VGS = ±20 V)	IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = 24 V, VGS = 0 V)	IDSS	-	-	1	μA
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 27 A) (VGS = 4.5 V, ID = 24 A)	RDS(on)	- -	- -	4 5	mΩ
<b>Dynamic</b>					
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1MHz)	Ciss	-	2477	pF
Output Capacitance		Coss	-	330	
Reverse Transfer Capacitance		Crss	-	255	
Total Gate Charge(VGS=4.5V)	(VDS = 15 V, VGS = 10 V, ID = 15A)	Qg	-	26	nC
Total Gate Charge(VGS=10V)		Qg	-	53	
Gate-Source Charge		Qgs	-	7	
Gate-Drain Charge		Qgd	-	10	
Turn-On Delay Time	(VDS=15 V, ID=24A, VGS=10V, RGS = 2.7 Ω)	td(on)	-	10	ns
Rise Time		tr	-	16.5	
Turn-Off Delay Time		td(off)	-	65	
Fall Time		tf	-	32	
Gate Resistance (VGS = 15mV, VDS = 0V, f = 1MHz)	Rg	-	1	-	Ω
<b>Source-Drain Diode Ratings and Characteristics(TC= 25°C)</b>					
Continuous Current	IS	-	-	75	A
Pulsed Current(Note 5)	ISM	-	-	300	A
Forward Voltage (IS=2A, VGS = 0V)	VSD	-	-	1.3	V

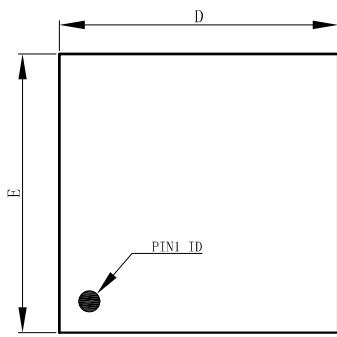
3.Pulse test: PW ≤ 300μs duty cycle ≤ 2%.

4.Pulse width limited by maximum junction temperature.

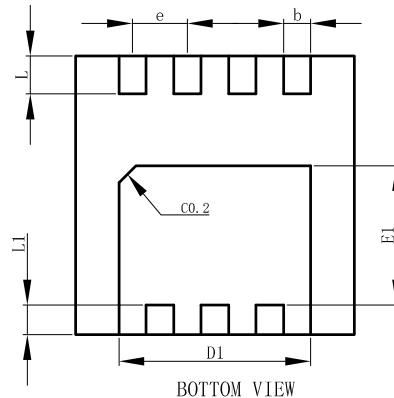


**7. ELECTRICAL CHARACTERISTICS CURVES**


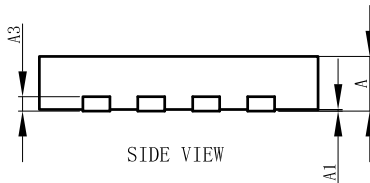
**7.ELECTRICAL CHARACTERISTICS CURVES(Con.)**


**8.OUTLINE AND DIMENSIONS**
**DFN3333-8A**


TOP VIEW

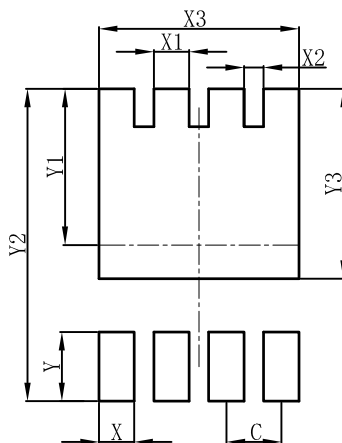


BOTTOM VIEW



SIDE VIEW

DFN3333-8A			
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.00	0.03	0.05
b	0.27	0.32	0.37
D	3.25	3.30	3.35
E	3.25	3.30	3.35
D1	2.22	2.27	2.32
E1	1.60	1.65	1.70
e	0.65BSC		
L	0.40	0.45	0.50
L1	0.30	0.35	0.40
A3	0.152REF.		
All Dimensions in mm			

**9.SOLDERING FOOTPRINT**
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DFN3333-8A	
DIM	(mm)
C	0.65
X	0.42
X1	0.42
X2	0.23
X3	2.37
Y	0.70
Y1	1.85
Y2	3.70
Y3	2.25

