

# NB8308D

## N-Channel 30-V (D-S) MOSFET

### 1. FEATURES

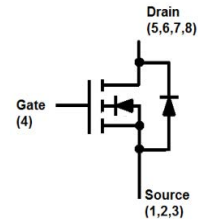
- Low RDS(on) trench technology.
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.



DFN3333-8A

### 2. APPLICATION

- Power Routing
- DC/DC Conversion
- Motor Drives



### 3. ORDERING INFORMATION

Device	Marking	Shipping
NB8308D	N3	2000/Tape&Reel

### 4. MAXIMUM RATINGS(Ta = 25°C)

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDSS	30	V
Gate-to-Source Voltage		VGS	±20	V
Continuous Drain Current(Note 1)	TC =25°C	ID	50	A
	TC =70°C		40	
Pulsed Drain Current (Note 2) TC =25°C		IDM	100	
Continuous Source Current (Diode Conduction)(Note 1) TC =25°C		IS	24	A
Diode Pulse Current (Diode Conduction)(Note 1) TC =25°C		ISM	96	A
Avalanche Current(L=0.1mH)		IAS	20	A
Avalanche energy(L=0.1mH)		EAS	20	mJ
Power Dissipation(Note 1)	TC =25°C	PD	19	W
	TC =70°C		12	
Operating Junction Temperature		TJ	-55 ~+150	°C
Storage Temperature Range		Tstg	-55 ~+150	

1.Surface Mounted on 1" x 1" FR4 Board.

2.Pulse width limited by maximum junction temperature.

### 5. THERMAL CHARACTERISTICS

Parameter		Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 1)	t ≤ 10s	RθJA	35	°C/W
	Steady State		81	
Maximum Junction-to-Case		RθJC	6.5	°C/W



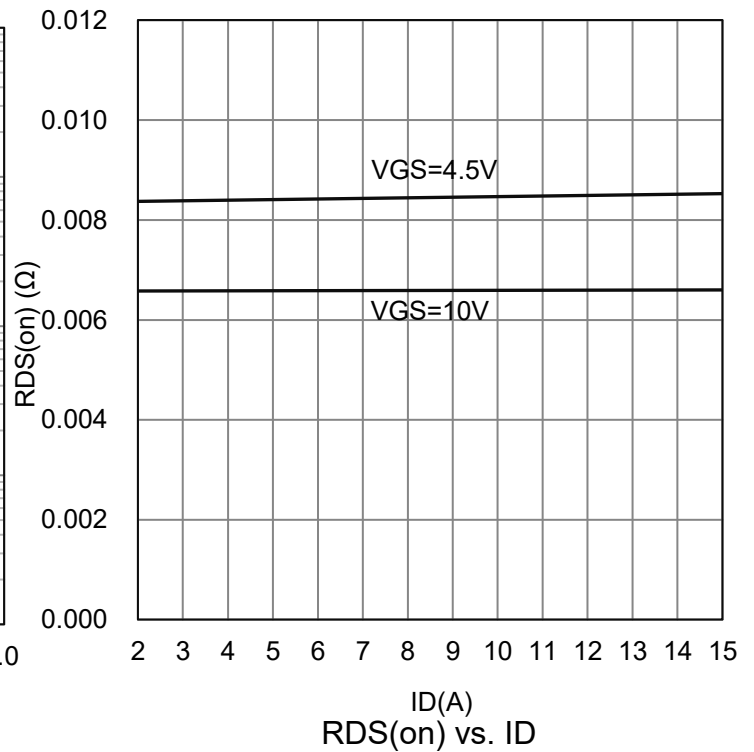
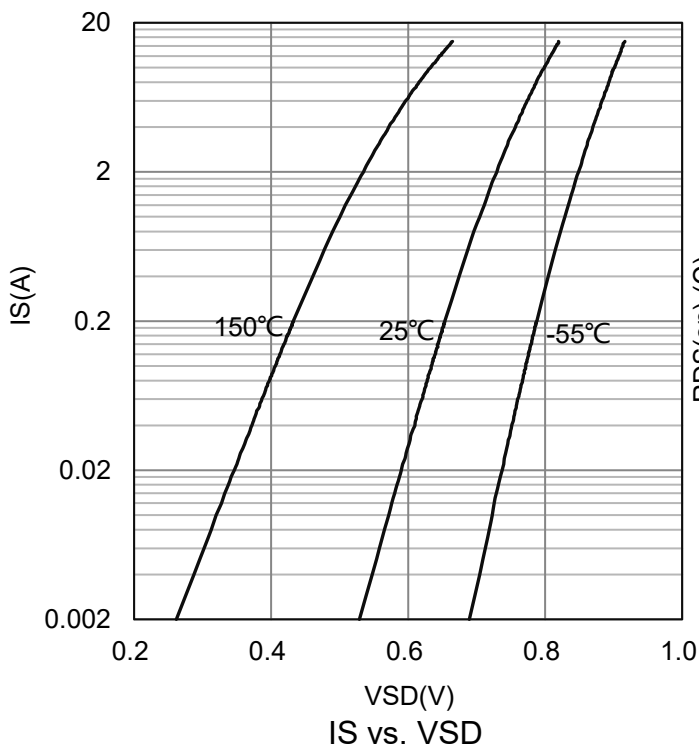
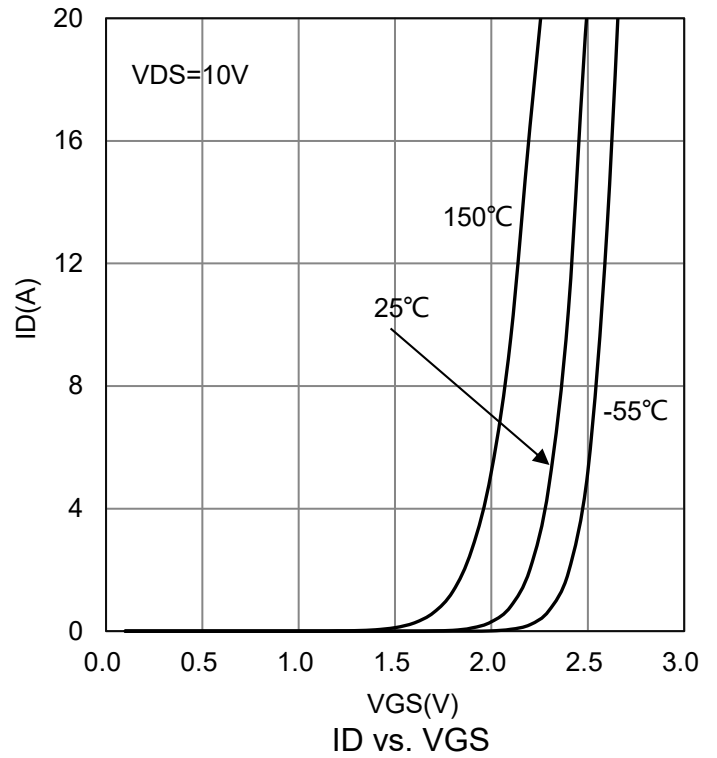
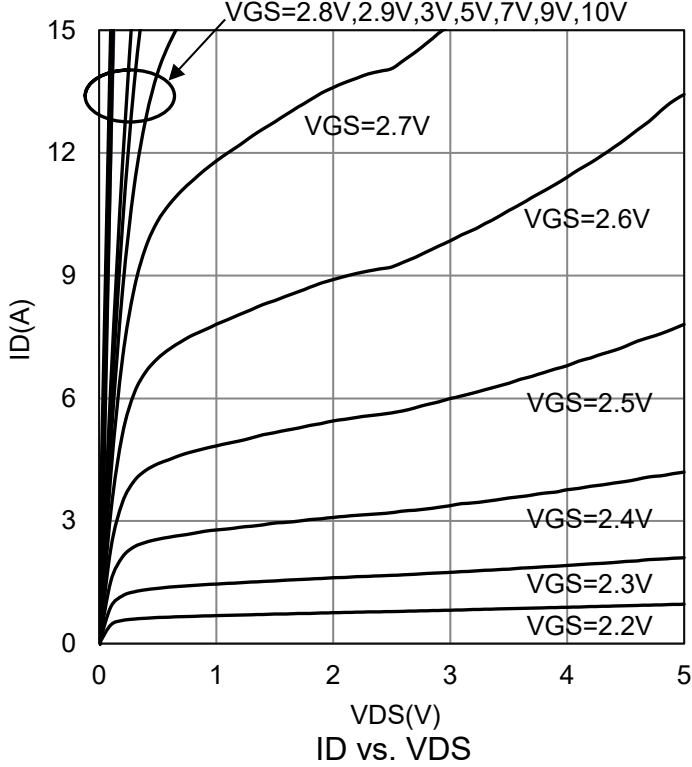
**6. ELECTRICAL CHARACTERISTICS(Ta = 25°C)**

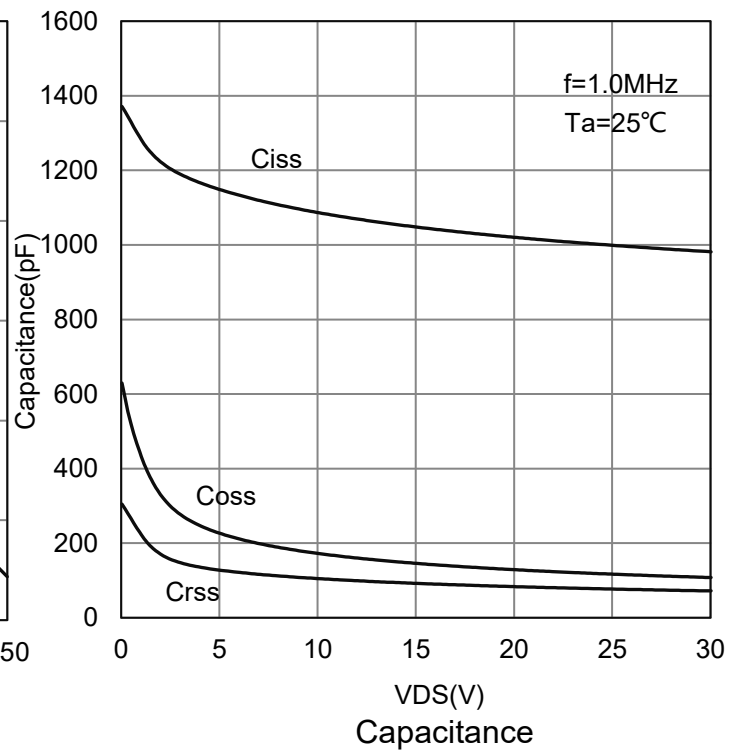
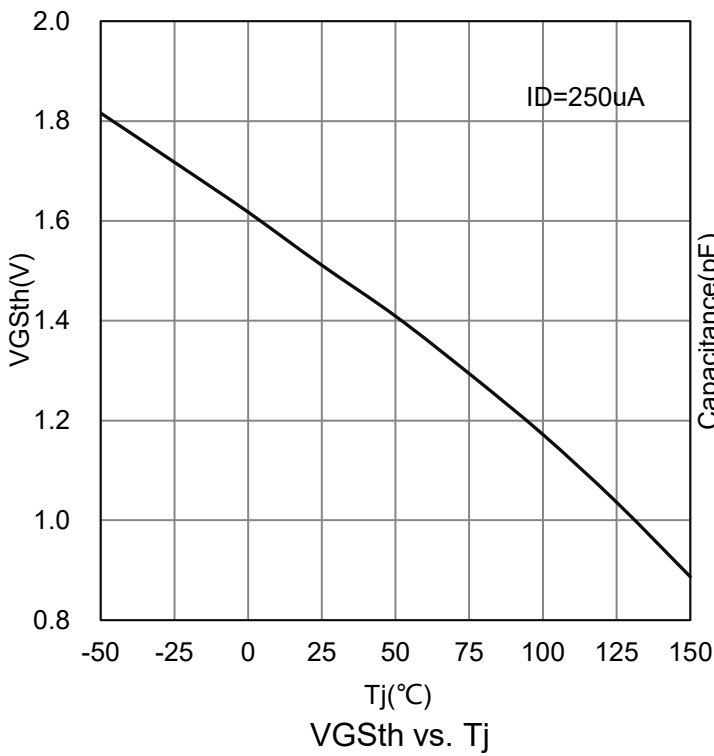
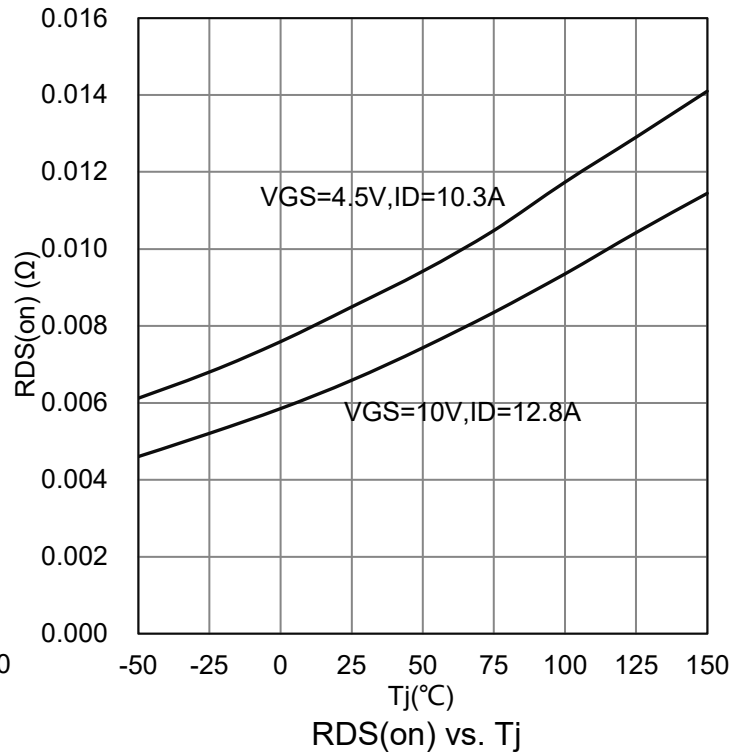
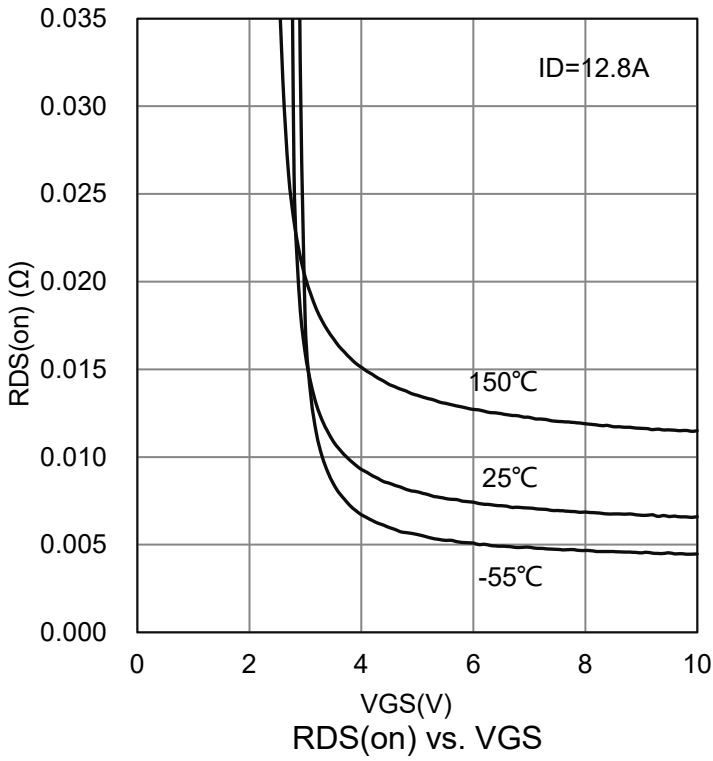
Characteristic	Symbol	Min.	Typ.	Max.	Unit
<b>Static</b>					
Drain-Source Breakdown Voltage (VGS = 0V , ID = 250 uA)	V(BR)DSS	30	-	-	V
Gate-Source Threshold Voltage (VDS = VGS , ID = 250 uA)	VGS(th)	1.2	1.5	3	V
Gate-Body Leakage (VDS = 0 V, VGS = ±20 V)	IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = 24 V, VGS = 0 V) (VDS = 24 V, VGS = 0 V, TJ = 55°C)	IDSS	-	-	1 25	μA
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 12.8 A) (VGS = 4.5 V, ID = 10.3 A)	RDS(on)	-	6 7	7.8 10	mΩ
Diode Forward Voltage(Note 3) (IS = 2.3 A, VGS = 0 V)	VSD	-	0.78	1.2	V
<b>Dynamic(Note 4)</b>					
Total Gate Charge(VGS=10V)	(VDS = 15 V, VGS = 10 V, ID = 12.8 A)	Qg	-	18.2	nC
Total Gate Charge(VGS=4.5V)		Qg	-	8.67	
Gate-Source Charge		Qgs	-	2.26	
Gate-Drain Charge		Qgd	-	3	
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1 Mhz)	Ciss	-	1047	pF
Output Capacitance		Coss	-	145.7	
Reverse Transfer Capacitance		Crss	-	92	
Turn-On Delay Time	(VDS = 15 V, RL = 1.2 Ω, ID = 12.8 A, VGEN = 10 V, RGEN = 6 Ω)	td(on)	-	10	ns
Rise Time		tr	-	10	
Turn-Off Delay Time		td(off)	-	20	
Fall Time		tf	-	15	
Gate-Resistance (VDS=0V, VGS=0V, f=1.0MHz)	Rg	-	2	-	Ω

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

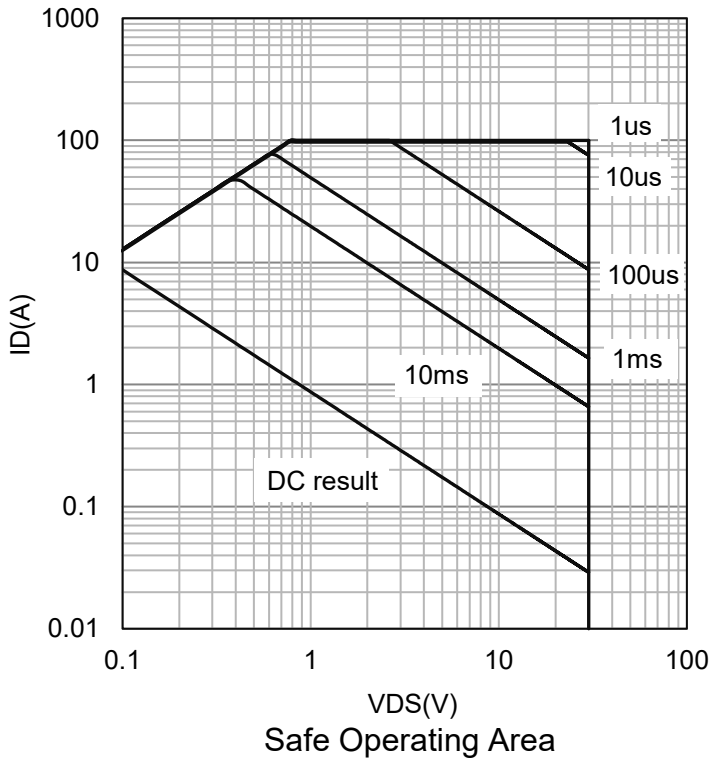
4.Guaranteed by design, not subject to production testing.

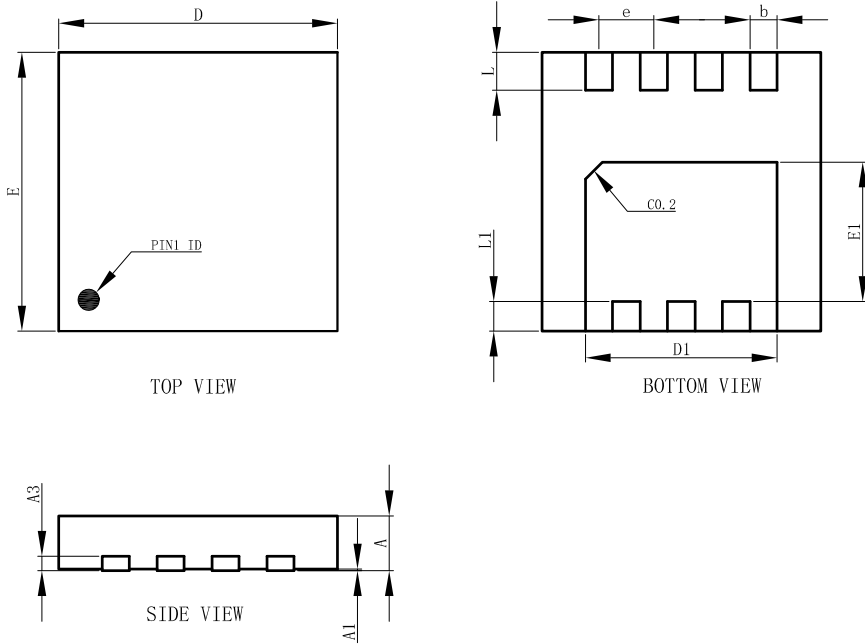


**7. ELECTRICAL CHARACTERISTICS CURVES**


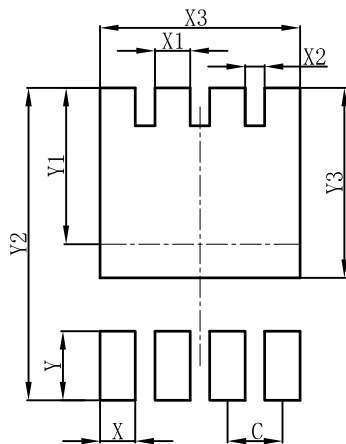
**7.ELECTRICAL CHARACTERISTICS CURVES(Con.)**


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


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**
**DFN3333-8A**


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

