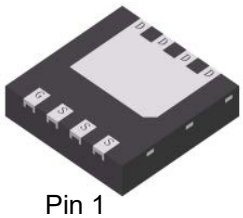
NB8308SD

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



Pin 1

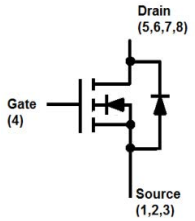
DFN3333-8A

1. FEATURES

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

2. APPLICATIONS

- Power Routing
- DC/DC Conversion
- Motor Drives



3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
NB8308SD	NSF	2000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	30	V
Gate–to–Source Voltage – Continuous	VGS	±20	V
Drain Current – Continuous TC =25℃ – Continuous TC =100℃ – Continuous TA =25℃ – Continuous TA =100℃	ID	 50 38 14 10.5	A
Pulsed Drain Current(Note 2)	IDM	56	
Avalanched Current	IAS	20	A
Avalanche Energy VDS=24V,L=0.1mH	EAS	20	mJ
Power Dissipation TC =25℃ TA =25℃	PD	 19 2	 W W
Operating Junction and Storage Temperature Range	Tj/Tstg	-50 to 150	℃

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 1)	RθJA	60	℃/W
Maximum Junction-to-Case	RθJC	6.5	℃/W

1.Surface mounted on "1.5 x 1.5" FR4 board using 1 sq in pad, 2 oz Cu.

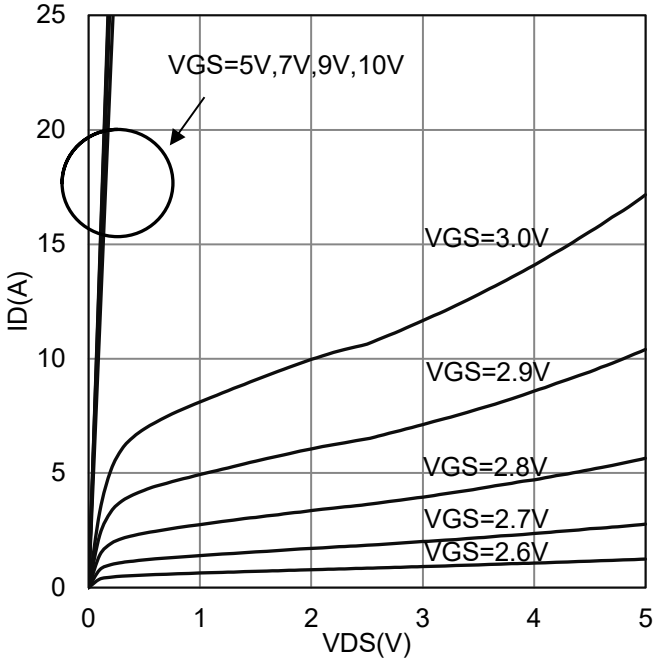
2.Pulse width limited by maximum junction temperature.

6. ELECTRICAL CHARACTERISTICS (Ta= 25℃)

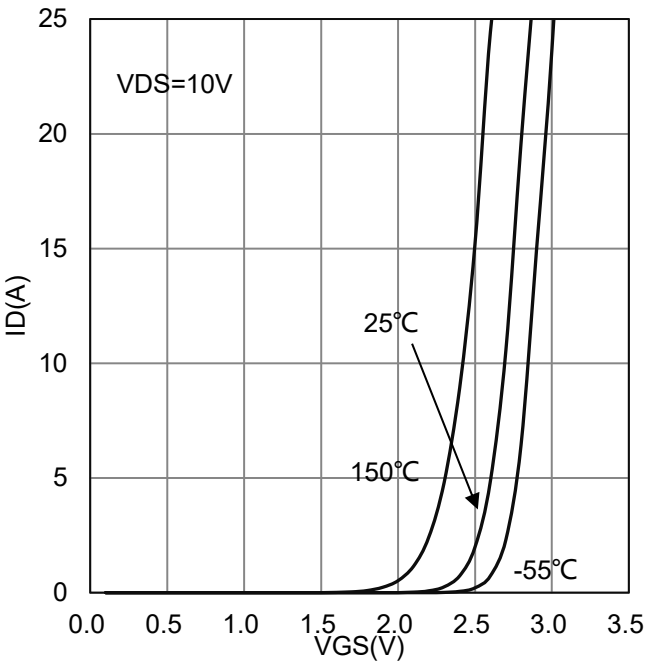
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA)		V(BR)DSS	30	-	-	V
Drain-Source Leakage Current (VDS = 30V, VGS = 0V)		IDSS	-	-	1	μA
Gate–Body Leakage Current (VGS =±20V , VDS =0V)		IGSS	-	-	±100	nA
Gate Threshold Voltage (VDS = VGS, ID = 250μA)		VGS(th)	1.2	-	2.2	V
Static Drain–Source On–State Resistance(Note 3) (VGS =10V, ID =12.8A) (VGS =4.5V, ID =10.3A)		RDS(on)	- -	- -	8 13	mΩ
Dynamic						
Input Capacitance (VGS = 0 V, f = 1.0MHz,VDS= 15 V)		Ciss	-	1150	-	pF
Output Capacitance (VGS = 0 V, f = 1.0MHz,VDS= 15 V)		Coss	-	160	-	
Reverse Transfer Capacitance (VGS = 0 V, f = 1.0MHz,VDS= 15 V)		Crss	-	121	-	
Total Gate Charge(VGS=10V)	(VDS = 15V, VGS = 10V,ID =12.8A)	Qg	-	20.6	-	nC
Total Gate Charge(VGS=4.5V)		Qg	-	10.3	-	
Gate-Source Charge		Qgs	-	3.5	-	
Gate-Drain Charge		Qgd	-	5	-	
Turn-On Delay Time	(VDS = 15V,ID = 12.8A, VGS = 10V, RGS = 2.7Ω)	td(on)	-	9.7	-	ns
Rise Time		tr	-	7.9	-	
Turn-Off Delay Time		td(off)	-	29.6	-	
Fall Time		tf	-	7	-	
Gate Resistance (VGS = 0V, VDS = 0V, f = 1MHz)		Rg	-	1.2	2.4	Ω
Forward Voltage (IS =1A, VGS = 0V)		VSD	-	0.7	1.2	V

3.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

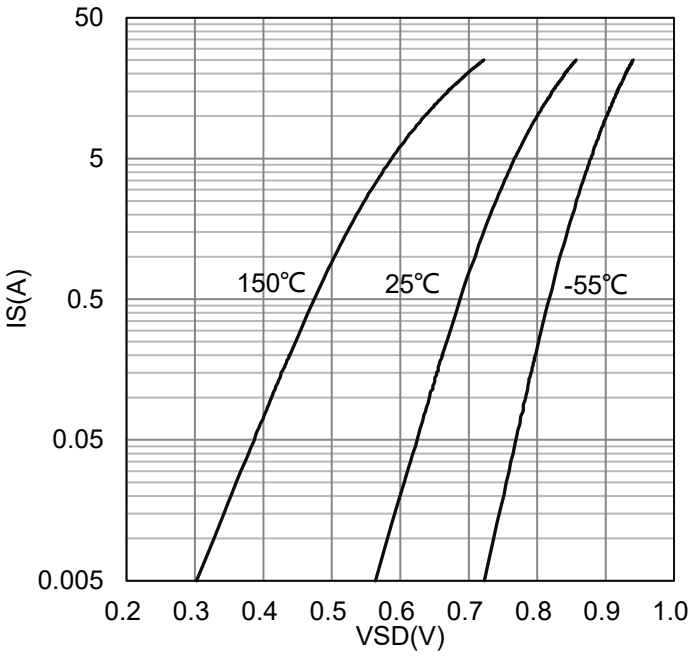
7. ELECTRICAL CHARACTERISTICS CURVES



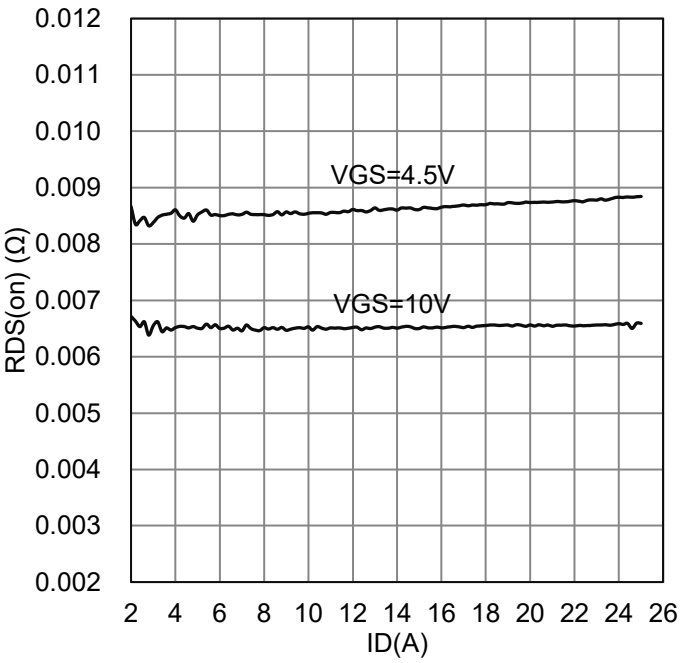
ID vs. VDS



ID vs. VGS

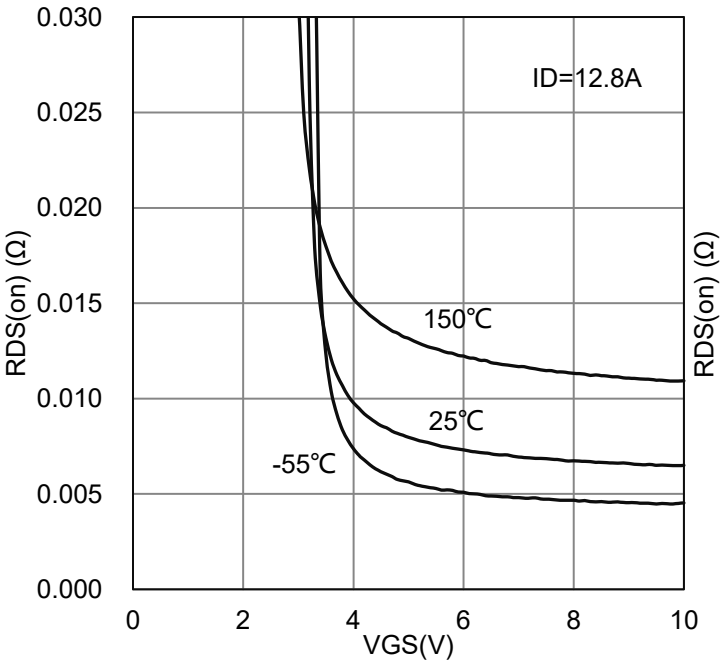


IS vs. VSD

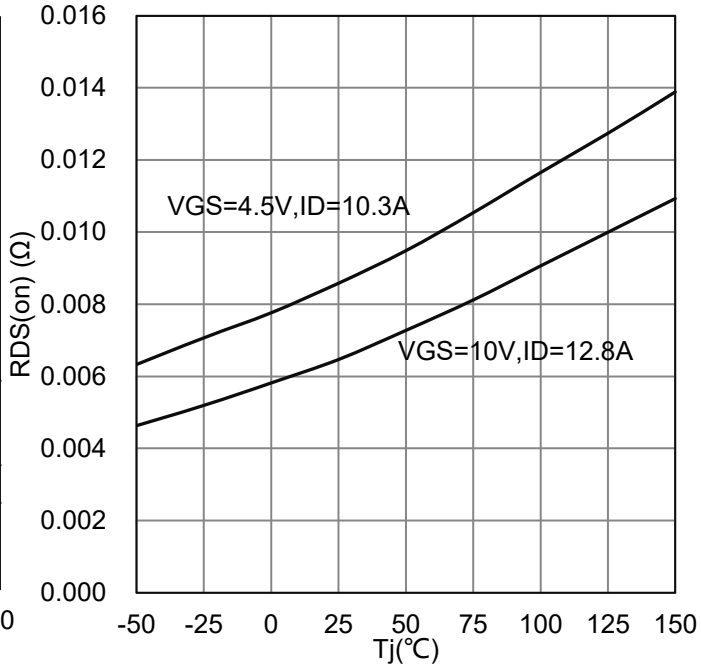


RDS(on) vs. ID

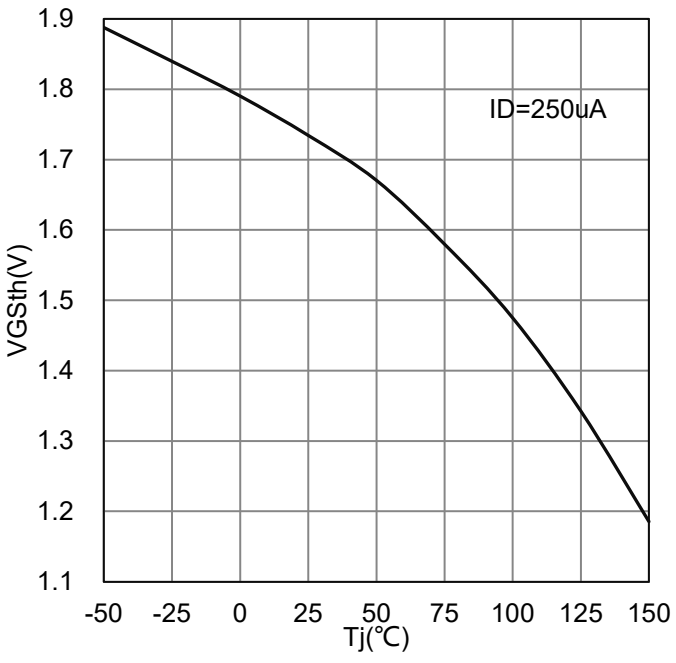
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



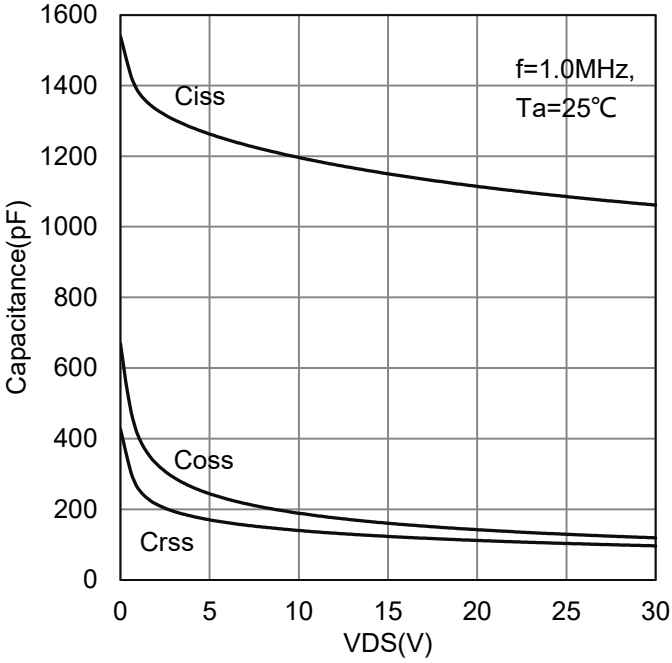
RDS(on) vs. VGS



RDS(on) vs. Tj

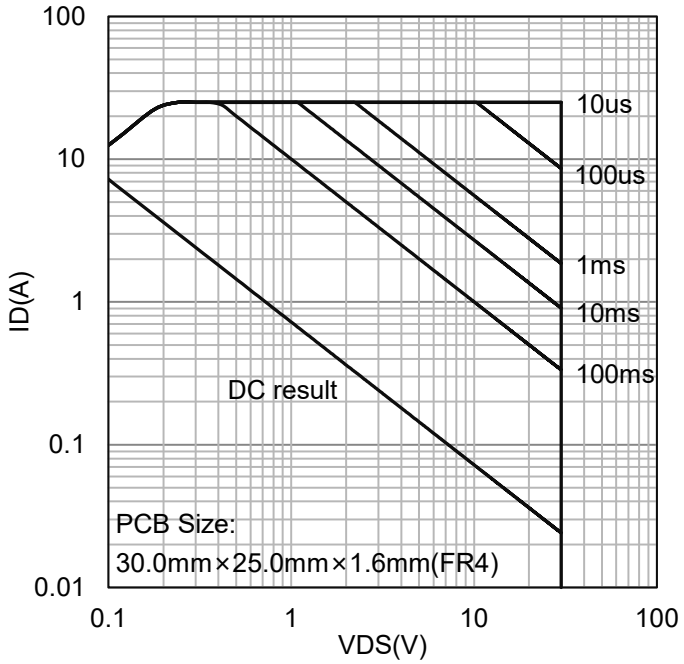


VGSth vs. Tj

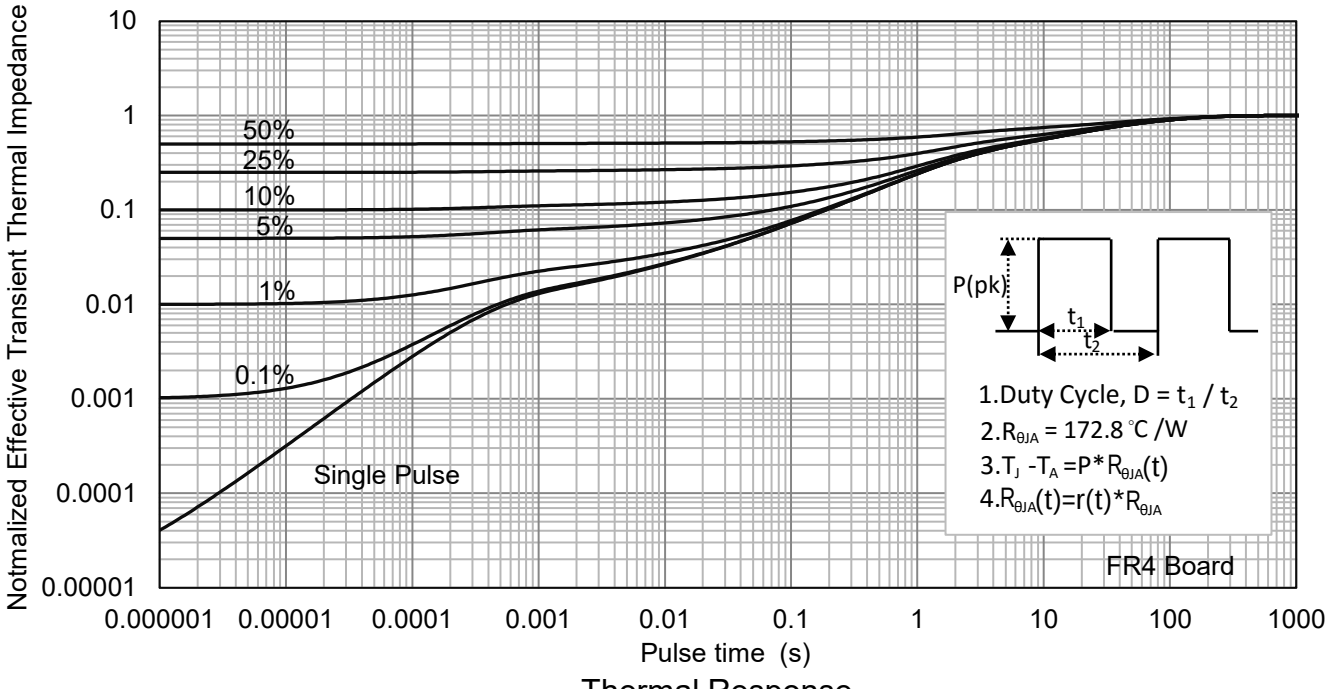


Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



Safe Operating Area



Thermal Response

8.OUTLINE AND DIMENSIONS

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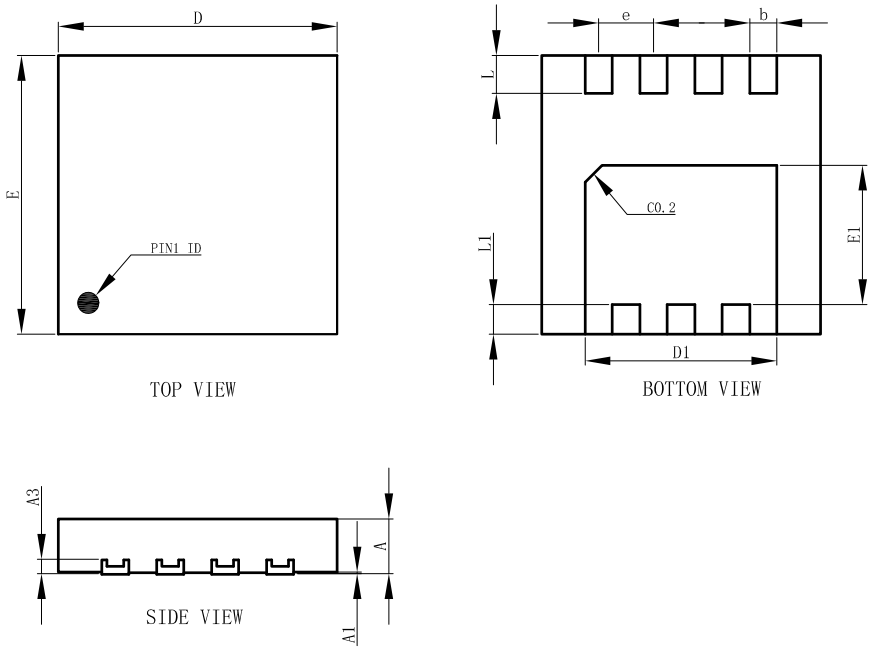

DFN3333-8A			
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.00	0.03	0.05
b	0.27	0.32	0.37
D	3.25	3.30	3.35
E	3.25	3.30	3.35
D1	2.22	2.27	2.32
E1	1.60	1.65	1.70
e	0.65BSC		
L	0.40	0.45	0.50
L1	0.30	0.35	0.40
A3	0.152REF.		
All Dimensions in mm			

9.SOLDERING FOOTPRINT

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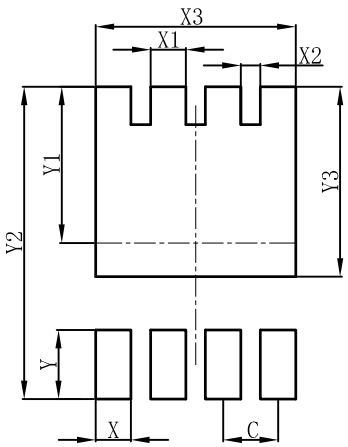

DFN3333-8A	
DIM	(mm)
C	0.65
X	0.42
X1	0.42
X2	0.23
X3	2.37
Y	0.70
Y1	1.85
Y2	3.70
Y3	2.25