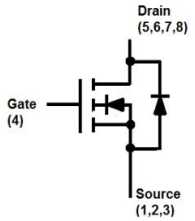
NB8330D

N-Channel 30-V (D-S) 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
NB8330D	N33	2000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC unless otherwise stated)

Parameter		Symbol	Limits	Unit
Drain−to−Source Voltage		VDSS	30	V
Gate−to−Source Voltage		VGS	±20	V
Continuous Drain Current	TA =25°C	ID	8	A
	TA =70°C		6	
Pulsed Drain Current (Note 2)		IDM	32	
Avalanche Current		IAS	15	
Avalanche energy(L=0.1mH)		EAS	11.25	mJ
Power Dissipation	TA =25°C	PD	1.5	W
	TA =70°C		1.2	
Operating Junction Temperature		TJ	−55 ~+150	℃
Storage Temperature Range		Tstg	−55 ~+150	

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 1)	RθJA	75	℃/W
Maximum Junction-to-Case	RθJC	10	

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

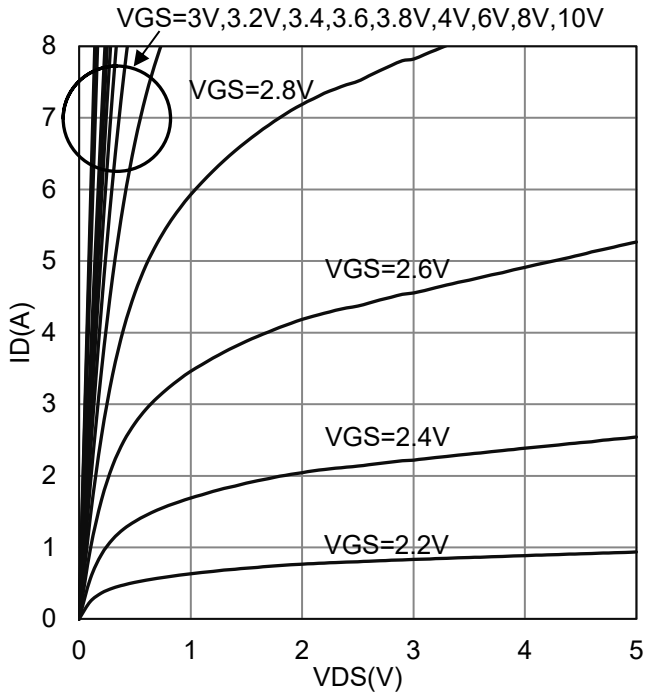
2.Pulse width limited by maximum junction temperature.

6. ELECTRICAL CHARACTERISTICS

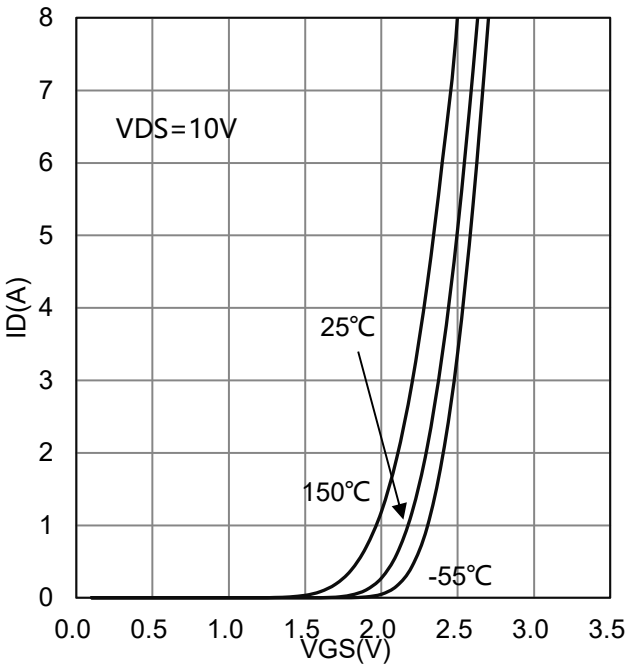
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain–Source Breakdown Voltage (VGS = 0V, ID = 250μA)		V(BR)DSS	30	-	-	V
Gate-Source Threshold Voltage (VDS = VGS , ID = 250 uA)		VGS(th)	1	-	3	V
Gate-Body Leakage (VDS = 0 V, VGS = ±20 V)		IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = 24 V, VGS = 0 V)		IDSS	-	-	1	μA
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID =3 A) (VGS = 4.5 V, ID = 3 A)		RDS(on)	- -	18 25	23 29	mΩ
Diode Forward Voltage(Note 3) (IS = 1 A, VGS = 0 V)		VSD	-	0.7	1.5	V
Dynamic						
Total Gate Charge	(VDS = 15 V, VGS = 4.5 V,ID = 3A)	Qg	-	4.7	-	nC
Gate-Source Charge		Qgs	-	1.1	-	
Gate-Drain Charge		Qgd	-	2	-	
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1MHz)	Ciss	-	430	-	pF
Output Capacitance		Coss	-	54	-	
Reverse Transfer Capacitance		Crss	-	49	-	
Turn-On Delay Time	(VDD=15 V, RL=2.7 Ω,ID=1 A,VGEN=10 V,RGEN=3 Ω)	td(on)	-	4.9	-	ns
Rise Time		tr	-	6.8	-	
Turn-Off Delay Time		td(off)	-	19.4	-	
Fall Time		tf	-	4.3	-	
Gate-Resistance (VGS = 0 V, VDS=0V,f=1MHz)		Rg	-	2	-	Ω

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

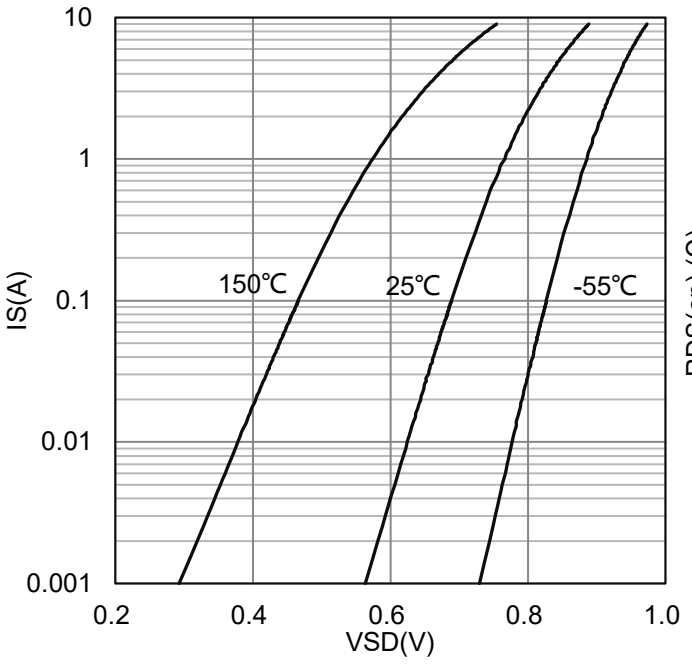
7. ELECTRICAL CHARACTERISTICS CURVES



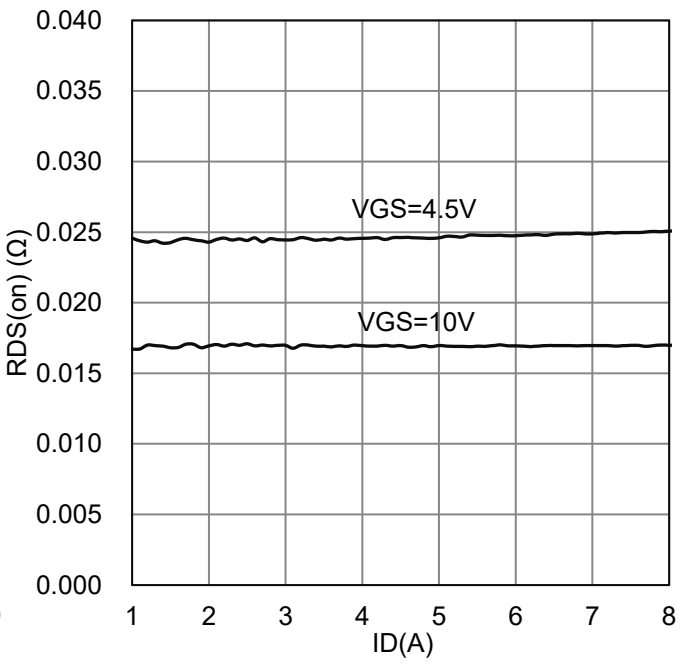
ID vs. VDS



ID vs. VGS

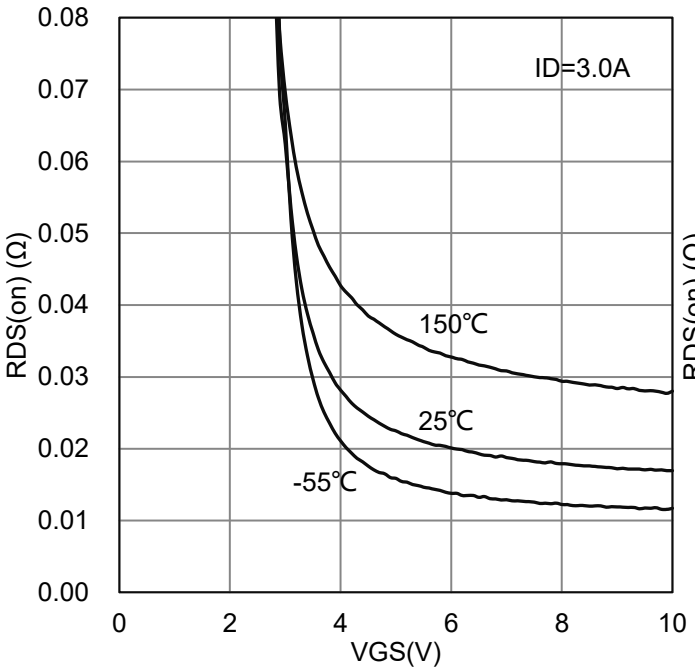


IS vs. VSD

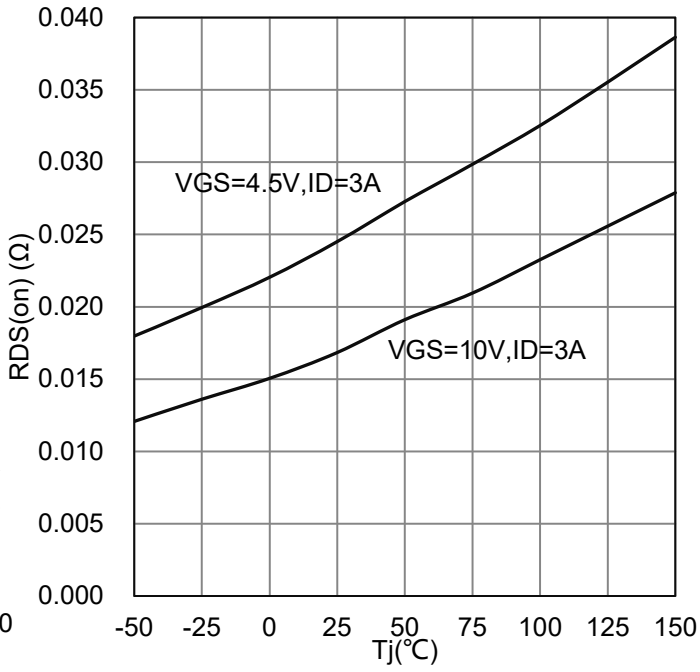


RDS(on) vs. ID

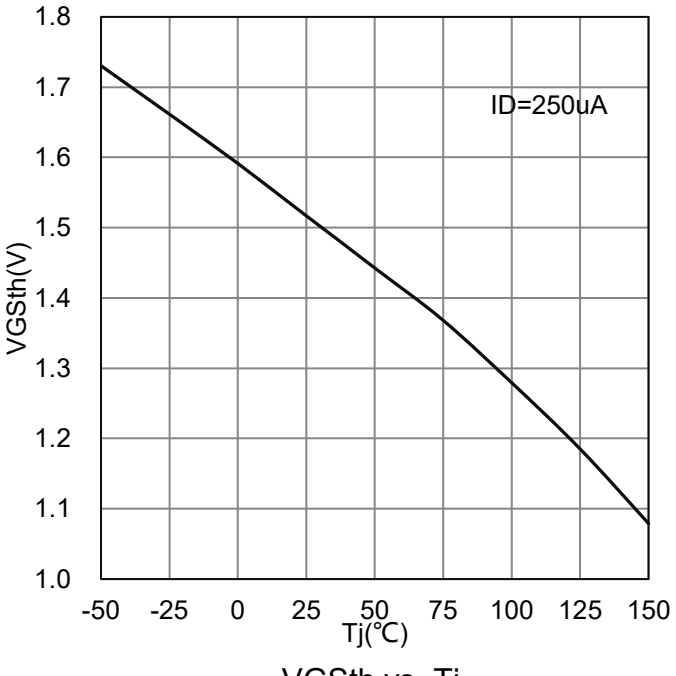
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



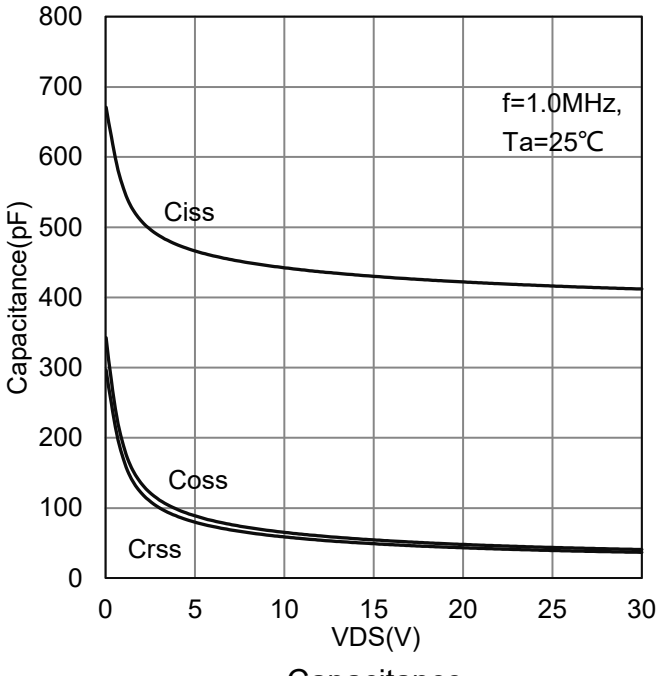
RDS(on) vs. VGS



RDS(on) vs. Tj



VGSth vs. Tj



Capacitance

8.OUTLINE AND DIMENSIONS

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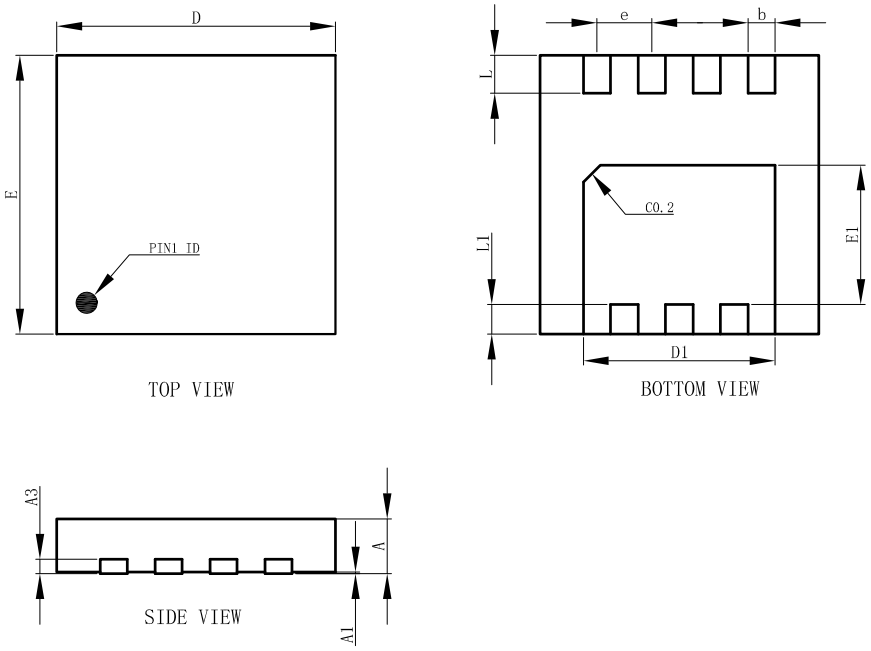

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DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.00	0.03	0.05
b	0.27	0.32	0.37
D	3.25	3.30	3.35
E	3.25	3.30	3.35
D1	2.22	2.27	2.32
E1	1.60	1.65	1.70
e	0.65BSC		
L	0.40	0.45	0.50
L1	0.30	0.35	0.40
A3	0.152REF.		
All Dimensions in mm			

9.SOLDERING FOOTPRINT

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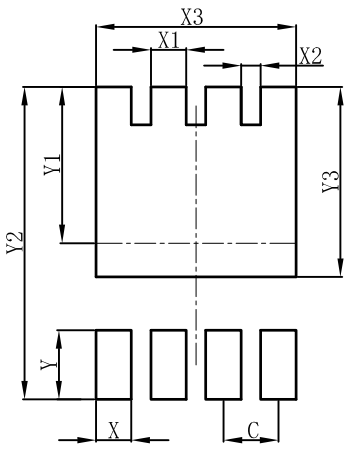

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DIM	(mm)
C	0.65
X	0.42
X1	0.42
X2	0.23
X3	2.37
Y	0.70
Y1	1.85
Y2	3.70
Y3	2.25