NB8960D

N-Channel 150-V (D-S) MOSFET

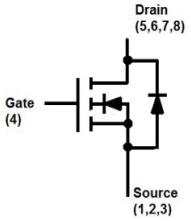
Pin 1
DFN3333-8A

1. FEATURES

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

2. APPLICATION

- Load Switches
- DC/DC Conversion
- Motor Drives



3. ORDERING INFORMATION

Device	Marking	Shipping
NB8960D	A22	2000/Tape&Reel

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

Parameter		Symbol	Limits	Unit
Drain−to−Source Voltage		VDSS	150	V
Gate−to−Source Voltage		VGS	±20	V
Continuous Drain Current(Note 1)	TA =25°C	ID	5	A
Pulsed Drain Current (Note 2)		IDM	20	
Power Dissipation(Note 1)	TA =25°C	PD	1.9	W
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	50	℃/W
Maximum Junction-to-Case	RθJC	5	

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

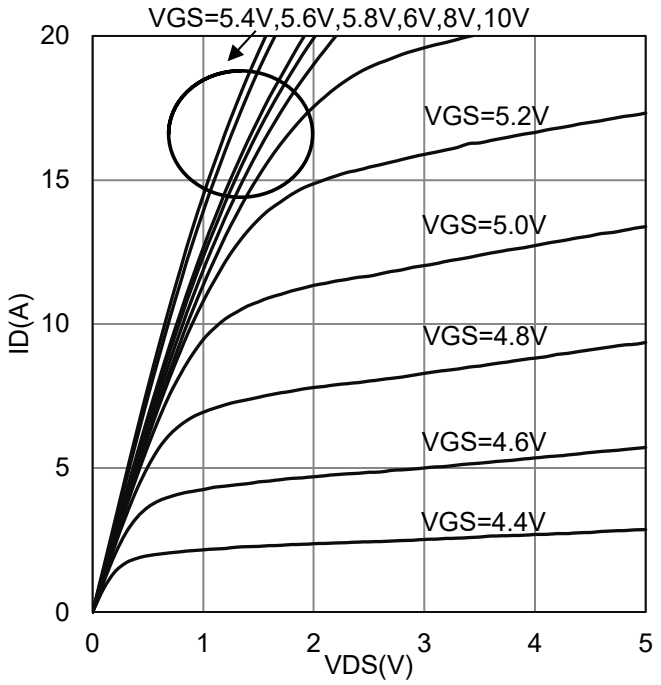
2.Pulse width limited by maximum junction temperature

6. ELECTRICAL CHARACTERISTICS

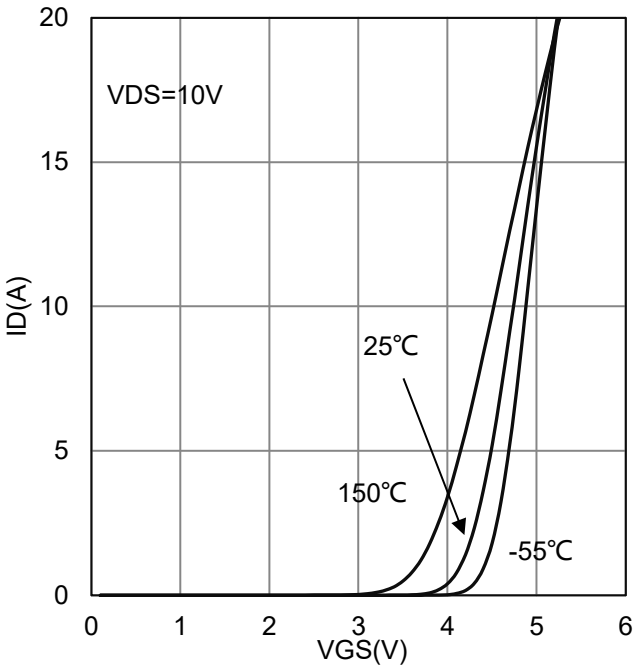
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA)		VBRDSS	150	-	-	V
Gate-Source Threshold Voltage (VDS = VGS , ID = 250 uA)		VGS(th)	2	3	4	V
Gate-Body Leakage (VDS = 0 V, VGS = ±20 V)		IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = 150 V, VGS = 0 V)		IDSS	-	-	1	μA
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 3 A)		RDS(on)	-	60	75	mΩ
Diode Forward Voltage(Note 3) (IS = 1 A, VGS = 0 V)		VSD	-	0.9	1.2	V
Dynamic						
Total Gate Charge	(VDS = 75 V, VGS = 10 V,ID = 10 A)	Qg	-	7.6	-	nC
Gate-Source Charge		Qgs	-	2.8	-	
Gate-Drain Charge		Qgd	-	1.9	-	
Turn-On Delay Time	(VDS = 75 V, VGS = 10 V,ID = 10 A,RG=10 Ω)	td(on)	-	9	-	ns
Rise Time		tr	-	4	-	
Turn-Off Delay Time		td(off)	-	11	-	
Fall Time		tf	-	3	-	
Input Capacitance	(VDS = 75 V, VGS = 0 V, f = 1 MHz)	Ciss	-	578	-	pF
Output Capacitance		Coss	-	46	-	
Reverse Transfer Capacitance		Crss	-	1.6	-	

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

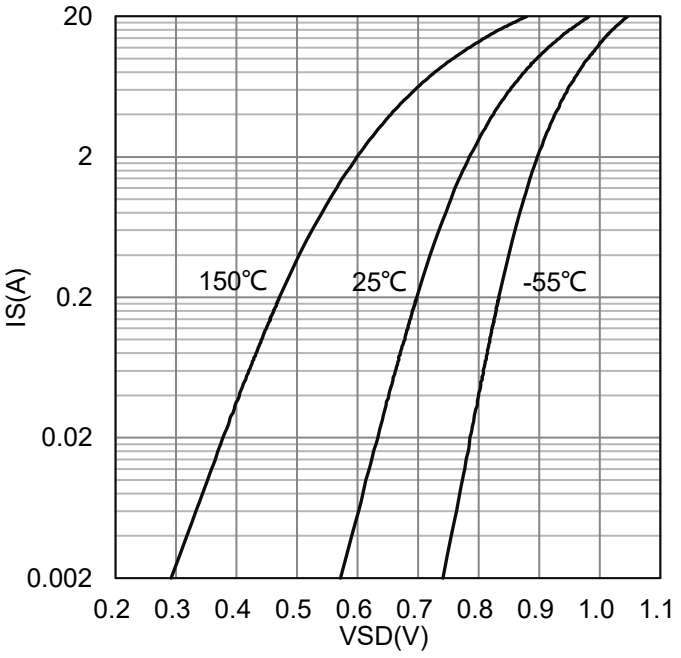
7. ELECTRICAL CHARACTERISTICS CURVES



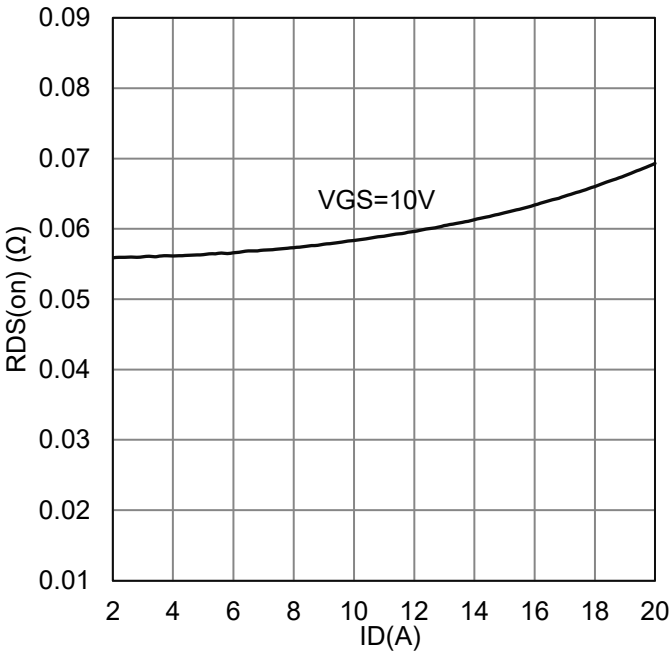
ID vs. VDS



ID vs. VGS

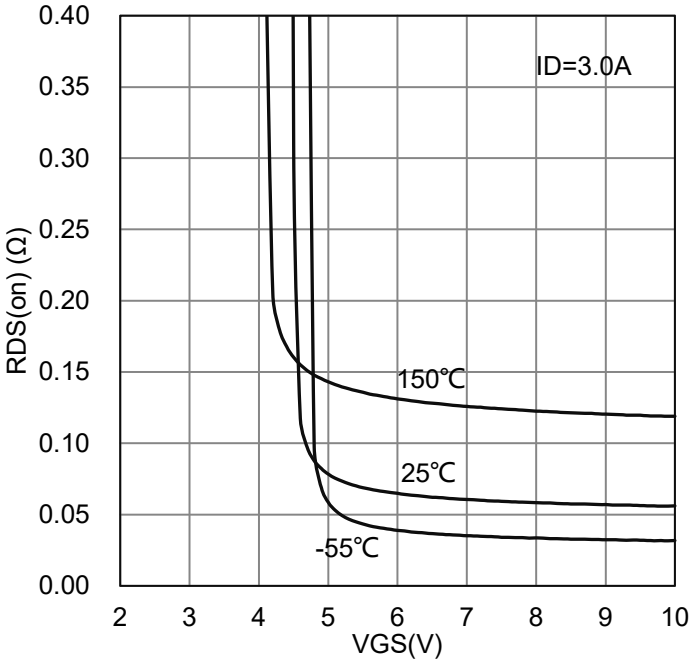


IS vs. VSD

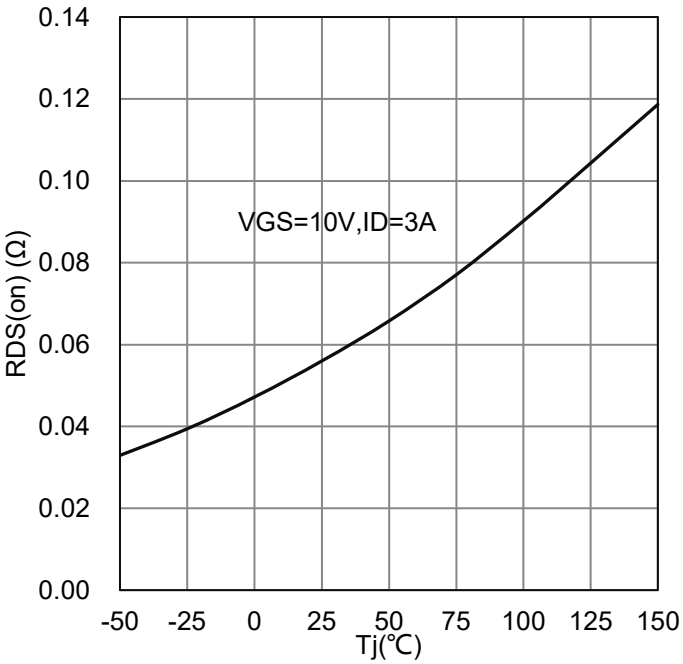


RDS(on) vs. ID

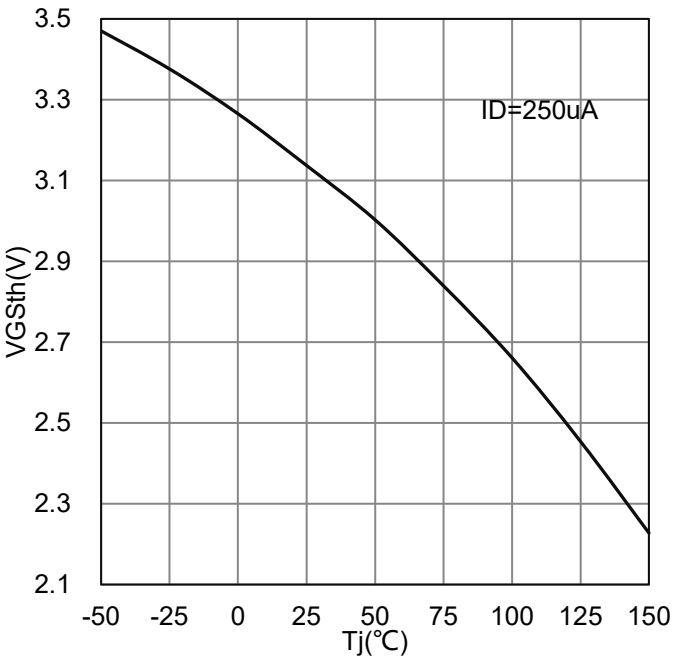
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



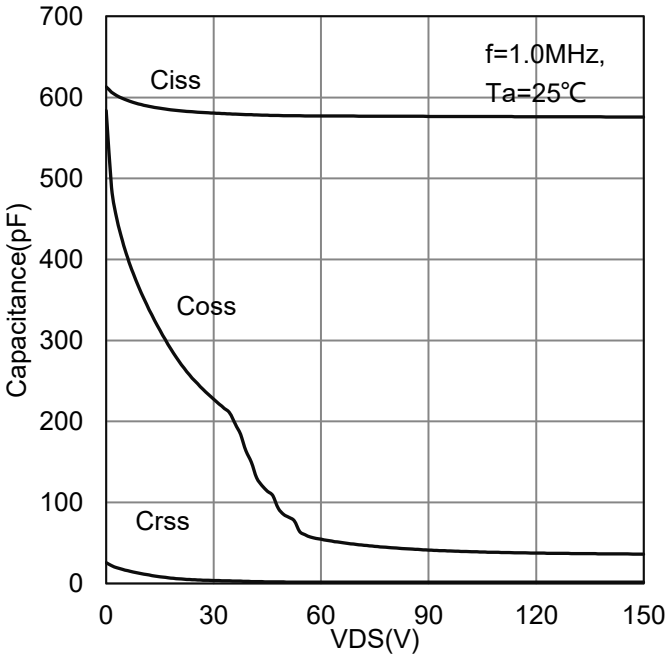
RDS(on) vs. VGS



RDS(on) vs. Tj

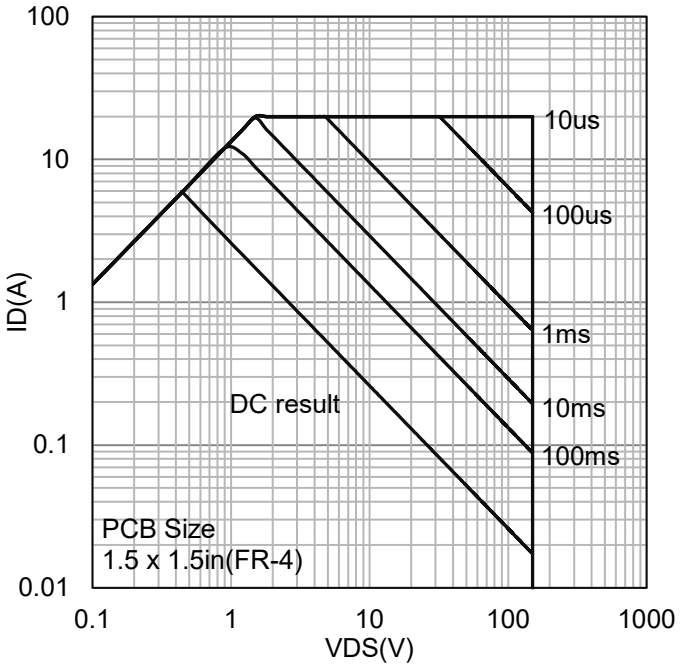


VGSth vs. Tj



Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



Safe Operating Area

8.OUTLINE AND DIMENSIONS

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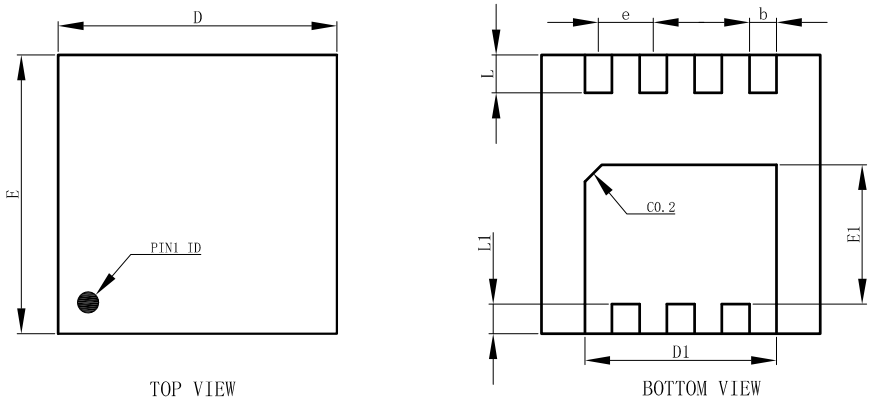

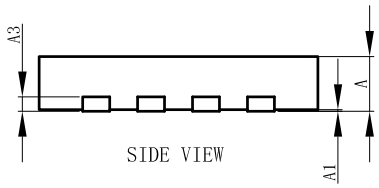

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DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.00	0.03	0.05
b	0.27	0.32	0.37
D	3.25	3.30	3.35
E	3.25	3.30	3.35
D1	2.22	2.27	2.32
E1	1.60	1.65	1.70
e	0.65BSC		
L	0.40	0.45	0.50
L1	0.30	0.35	0.40
A3	0.152REF.		
All Dimensions in mm			

9.SOLDERING FOOTPRINT

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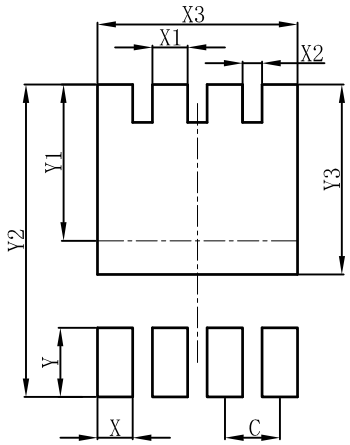

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DIM	(mm)
C	0.65
X	0.42
X1	0.42
X2	0.23
X3	2.37
Y	0.70
Y1	1.85
Y2	3.70
Y3	2.25