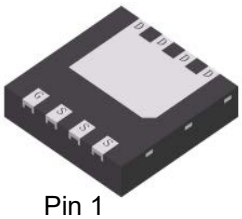
NB8859D

80V N-Channel Power MOSFET



Pin 1

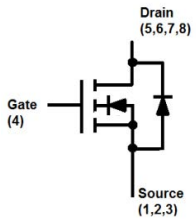
DFN3333-8A

1. FEATURES

- High Speed Power Switching
- Enhanced Avalanche Ruggedness
- 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
NB8859D	NM	2000/Tape&Reel

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

Parameter		Symbol	Limits	Unit
Drain−to−Source Voltage		VDSS	80	V
Gate−to−Source Voltage		VGS	±20	V
Continuous Drain Current	TC = 25°C	ID	54	A
	TC =100°C		33	
Pulsed Drain Current (Note 1)		IDM	216	
Avalanche Current		IAS	31	A
Avalanche energy(L=0.1mH)		EAS	48.05	mJ
Power Dissipation	TC =25°C	PD	21	W
	TC =100°C		13	
Operating Junction Temperature		TJ	−55 ~+150	℃
Storage Temperature Range		Tstg	−55 ~+150	

1.Pulse width limited by maximum junction temperature.

2.50°C/W when mounted on a 1 in² pad of 2 oz copper.

5. THERMAL CHARACTERISTICS

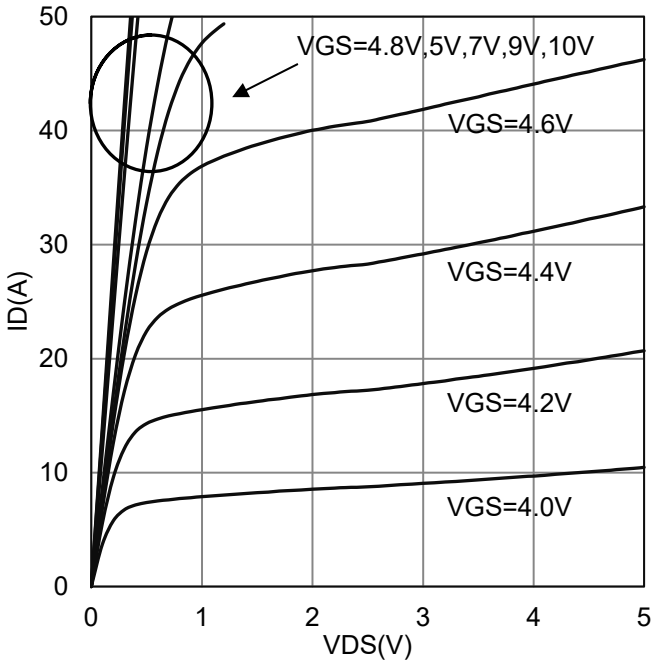
Parameter	Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 2)	RθJA	50	℃/W
Maximum Junction-to-Case	RθJC	6	

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

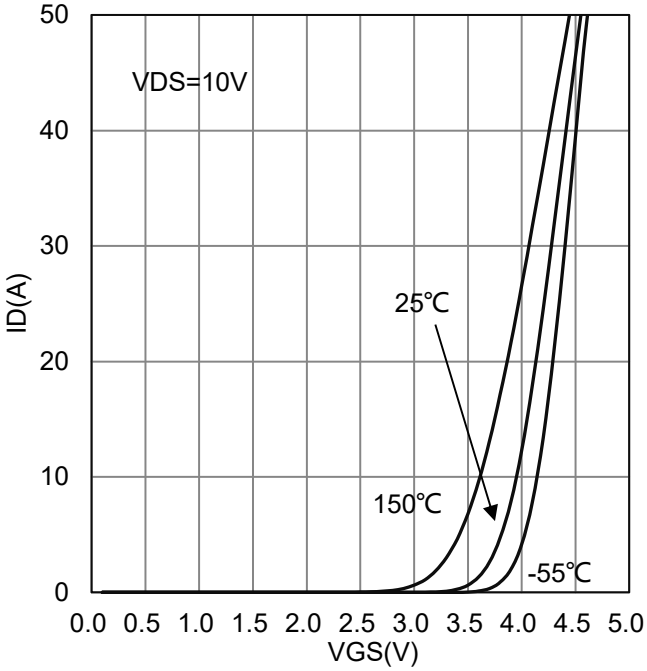
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage (VGS = 0V, ID = 250μA)		V(BR)DSS	80	-	-	V
Gate-Source Threshold Voltage (VDS = VGS , ID = 250 uA)		VGS(th)	2	3	4	V
Gate-Body Leakage (VDS = 0 V, VGS = ±20 V)		IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VGS=0V, VDS=80V)		IDSS	-	-	1	μA
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 20 A)		RDS(on)	-	4.9	6.6	mΩ
Diode Forward Voltage (Note 3) (VGS=0V, IF=20A)		VSD	-	0.9	1.2	V
Dynamic						
Input Capacitance	(VGS=0V, VDS=40V, f=1MHz)	Ciss	-	2449	-	pF
Output Capacitance		Coss	-	502	-	
Reverse Transfer Capacitance		Crss	-	19	-	
Total Gate Charge	(VDD=40V, ID=20A, VGS=10V)	Qg(10V)	-	42	-	nC
Gate-Source Charge		Qgs	-	8	-	
Gate to Drain (Miller) Charge		Qgd	-	12	-	
Turn-On Delay Time	(VDD=40V, ID=20A, VGS=10V, RG=10Ω)	td(on)	-	11	-	ns
Rise Time		tr	-	7	-	
Turn-Off Delay Time		td(off)	-	34	-	
Fall Time		tf	-	9	-	
Gate Resistance (VGS = 0V, VDS = 0V, f = 1MHz)		Rg	-	1.2	-	Ω

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

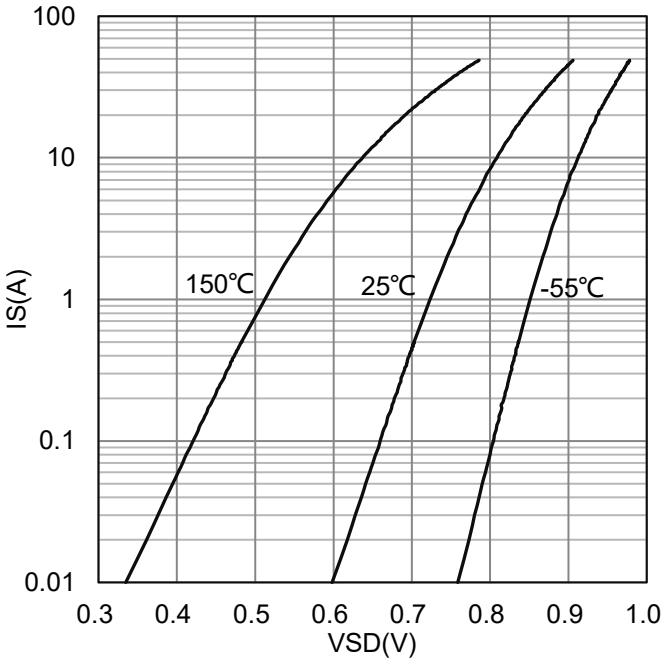
7. ELECTRICAL CHARACTERISTICS CURVES



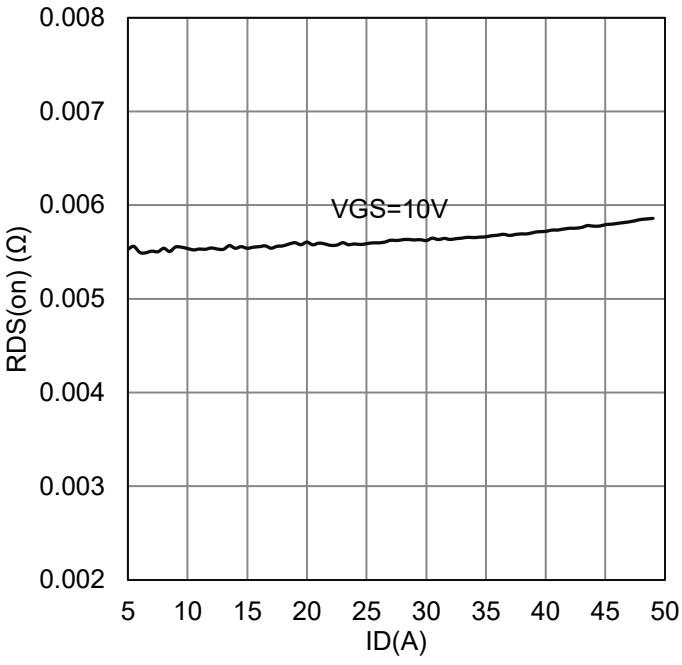
ID vs. VDS



ID vs. VGS

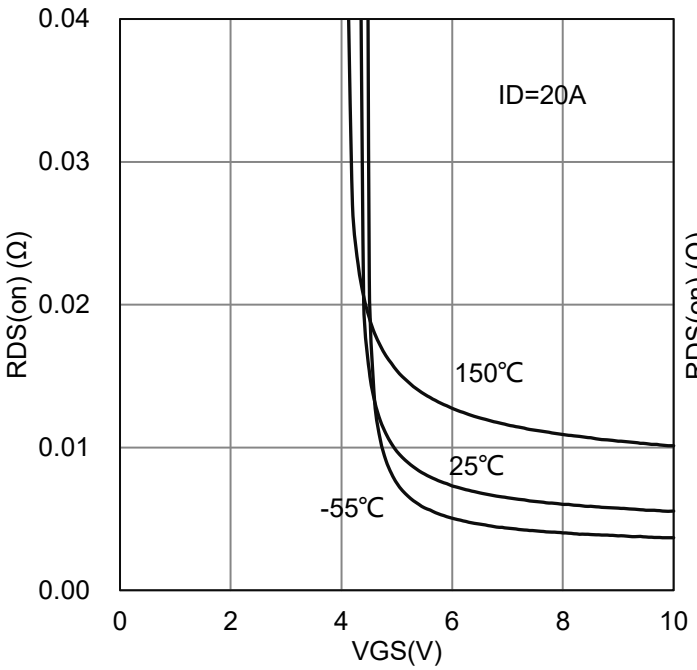


IS vs. VSD

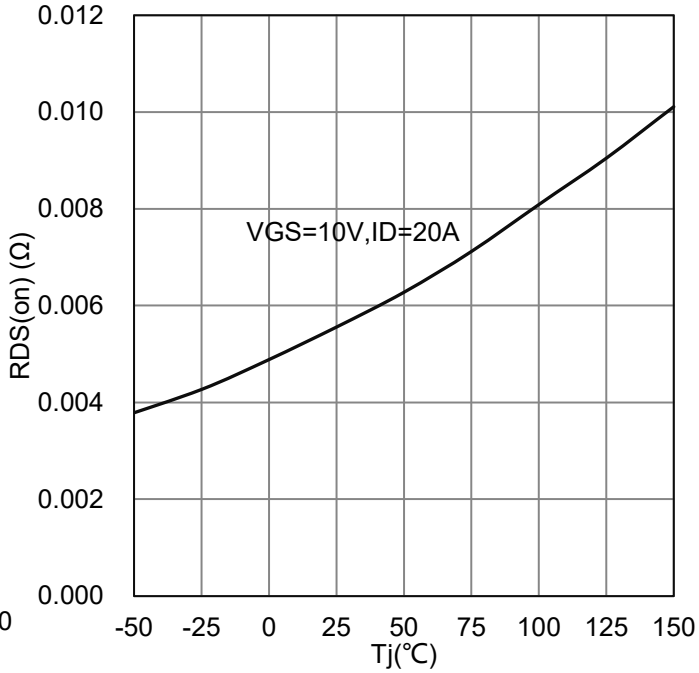


RDS(on) vs. ID

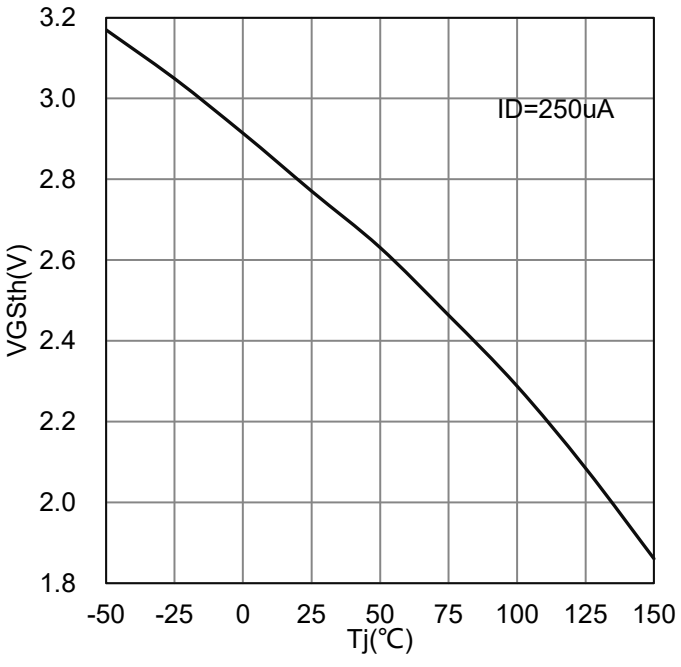
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



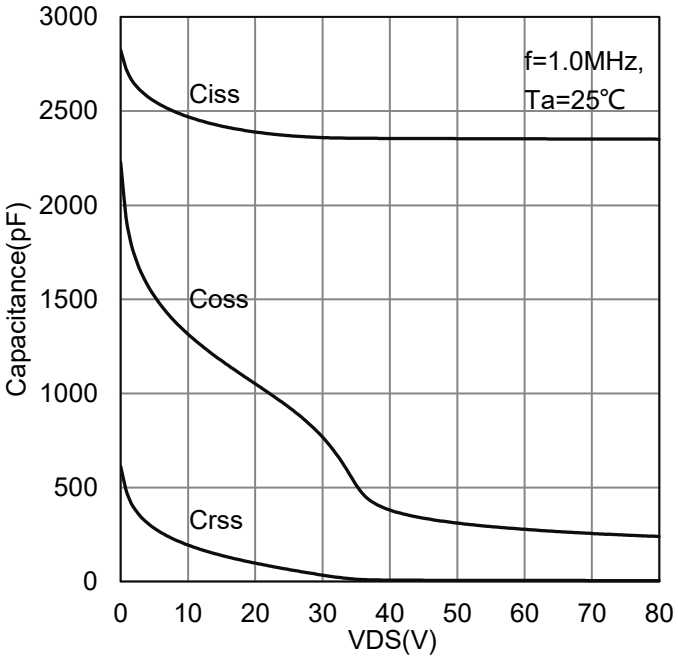
RDS(on) vs. VGS



RDS(on) vs. Tj



VGSth vs. Tj



Capacitance

8.OUTLINE AND DIMENSIONS

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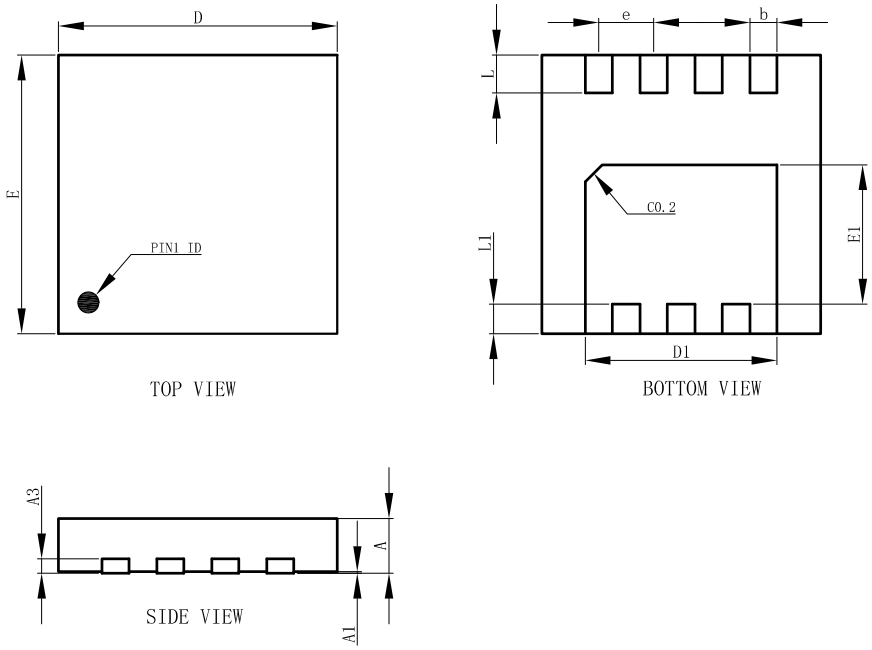

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DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.00	0.03	0.05
b	0.27	0.32	0.37
D	3.25	3.30	3.35
E	3.25	3.30	3.35
D1	2.22	2.27	2.32
E1	1.60	1.65	1.70
e	0.65BSC		
L	0.40	0.45	0.50
L1	0.30	0.35	0.40
A3	0.152REF.		
All Dimensions in mm			

9.SOLDERING FOOTPRINT

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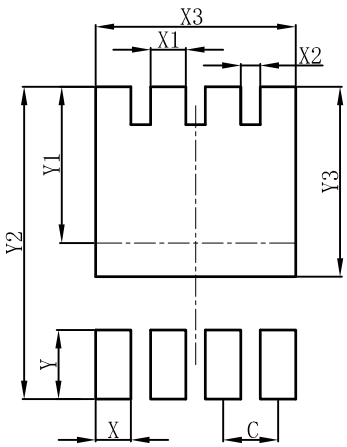

DFN3333-8A	
DIM	(mm)
C	0.65
X	0.42
X1	0.42
X2	0.23
X3	2.37
Y	0.70
Y1	1.85
Y2	3.70
Y3	2.25