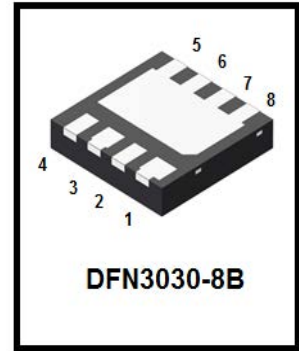


# N8330AD

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

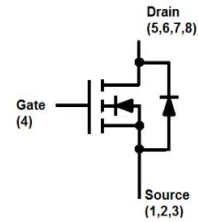
### 1. FEATURES

- 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.



### 2. APPLICATION

- Power Routing
- DC/DC Conversion
- Motor Drives



### 3. ORDERING INFORMATION

Device	Marking	Shipping
N8330AD	A30	3000/Tape&Reel

### 4. MAXIMUM RATINGS(Ta = 25°C unless otherwise stated)

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDSS	30	V
Gate-to-Source Voltage		VGS	±20	V
Continuous Drain Current	TC =25°C	ID	19	A
	TC =70°C		12	
	TA =25°C (Note 1)		12	
	TA =70°C (Note 1)		8	
Pulsed Drain Current (Note 2)		IDM	40	
Continuous Source Current (Diode Conduction)(Note 1)		IS	4.5	A
Power Dissipation	TC =25°C	PD	11	W
	TC =70°C		7	
	TA =25°C (Note 1)		3.5	
	TA =70°C (Note 1)		2	
Operating Junction Temperature		TJ	-55 ~+175	°C
Storage Temperature Range		Tstg	-55 ~+175	

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	Steady State	RθJC	11	



**6. ELECTRICAL CHARACTERISTICS**

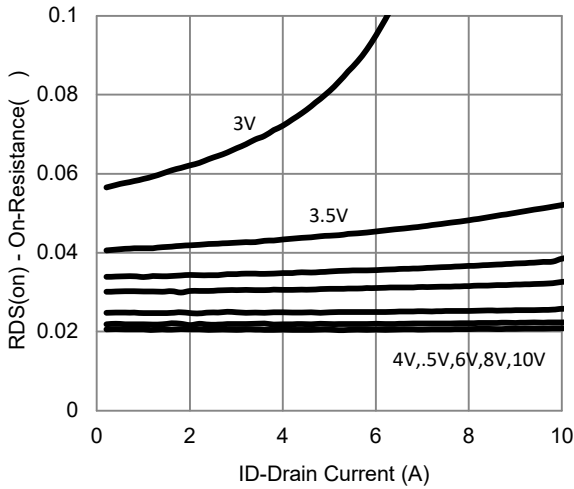
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
Static						
Gate-Source Threshold Voltage (VDS = VGS , ID = 250 $\mu$ A)	VGS(th)	1	-	-	V	
Gate-Body Leakage (VDS = 0 V, VGS = $\pm$ 20 V)	IGSS	-	-	$\pm$ 1	$\mu$ A	
Zero Gate Voltage Drain Current (VDS = 24 V, VGS = 0 V) (VDS = 24 V, VGS = 0 V, TJ = 55°C)	IDSS	-	-	1 25	$\mu$ A	
On-State Drain Current(Note 3) (VDS = 5 V, VGS = 10 V)	ID(on)	20	-	-	A	
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 0.5 A) (VGS = 4.5 V, ID = 0.5 A)	RDS(on)	-	18 26	22 30	m	
Forward Transconductance(Note 3) (VDS = 15 V, ID = 8.2 A)	gfs	-	12	-	S	
Diode Forward Voltage(Note 3) (IS = 1A, VGS = 0 V)	VSD	-	-	1	V	
Dynamic(Note 4)						
Total Gate Charge	(VDS = 15 V, VGS = 4.5 V, ID = 8.2 A)	Qg	-	4.1	-	nC
Gate-Source Charge		Qgs	-	1.1	-	
Gate-Drain Charge		Qgd	-	2	-	
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1 Mhz)	Ciss	-	360	-	pF
Output Capacitance		Coss	-	55	-	
Reverse Transfer Capacitance		Crss	-	46	-	
Turn-On Delay Time	(VDS = 15 V, RL = 1.9 $\Omega$ , ID = 8.2 A, VGEN = 10 V, RGEN = 6 $\Omega$ )	td(on)	-	2	-	ns
Rise Time		tr	-	4	-	
Turn-Off Delay Time		td(off)	-	16	-	
Fall Time		tf	-	4	-	

3. Pulse test: PW  $\leq$  300 $\mu$ s duty cycle  $\leq$  2%.

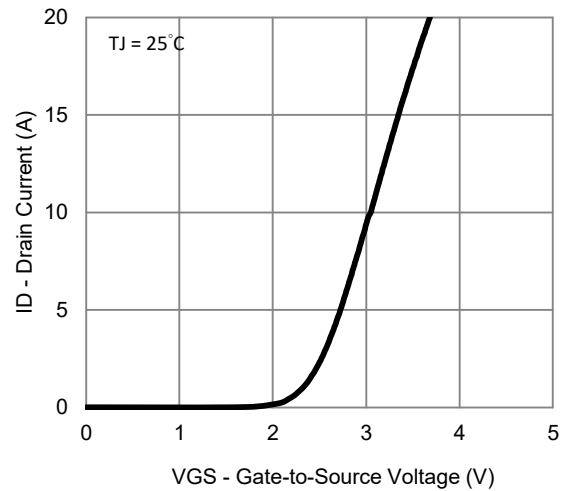
4. Guaranteed by design, not subject to production testing.



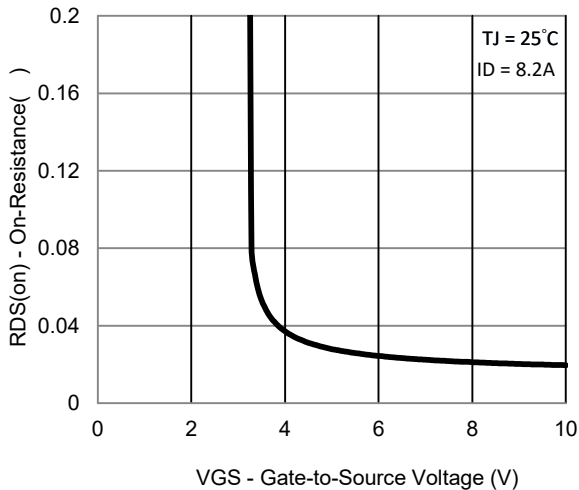
7. ELECTRICAL CHARACTERISTICS CURVES



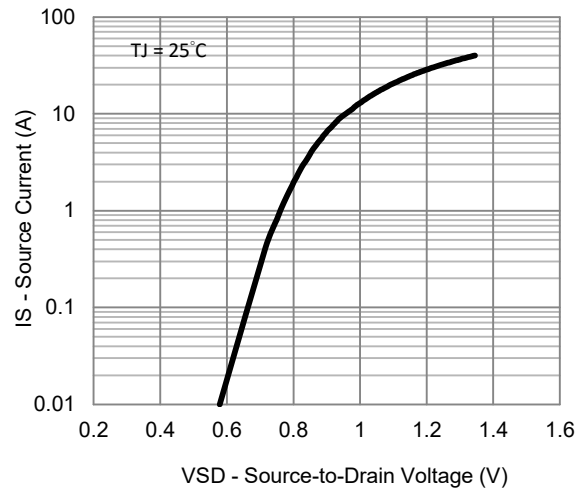
On-Resistance vs. Drain Current



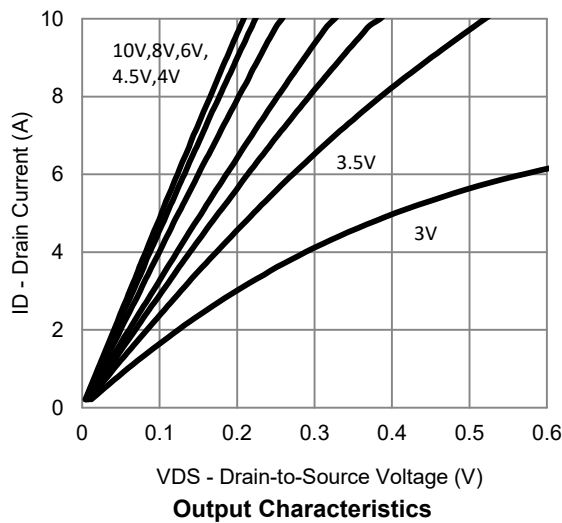
Transfer Characteristics



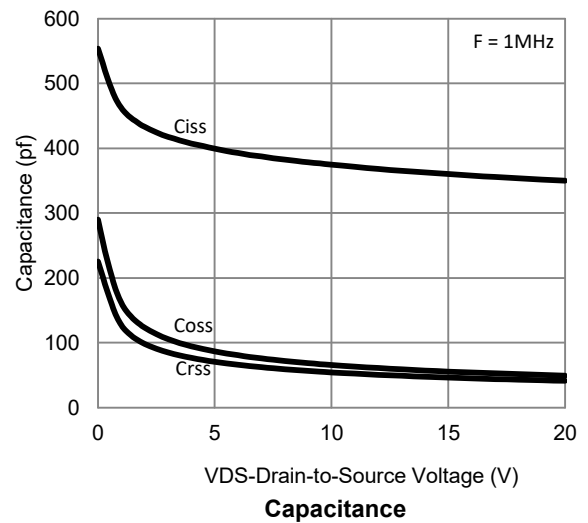
On-Resistance vs. Gate-to-Source Voltage



Drain-to-Source Forward Voltage



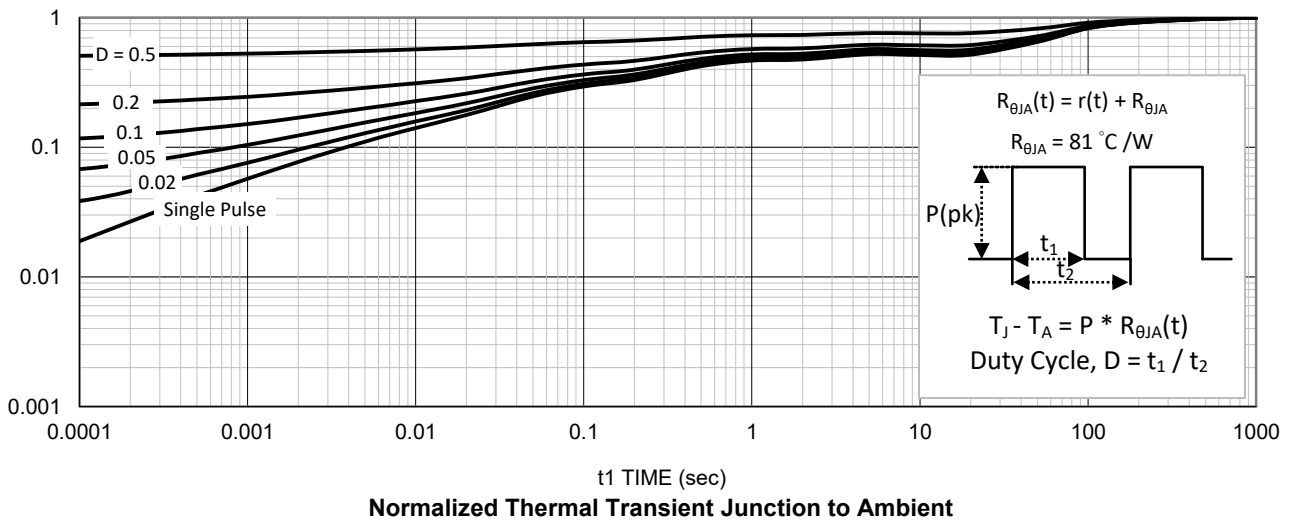
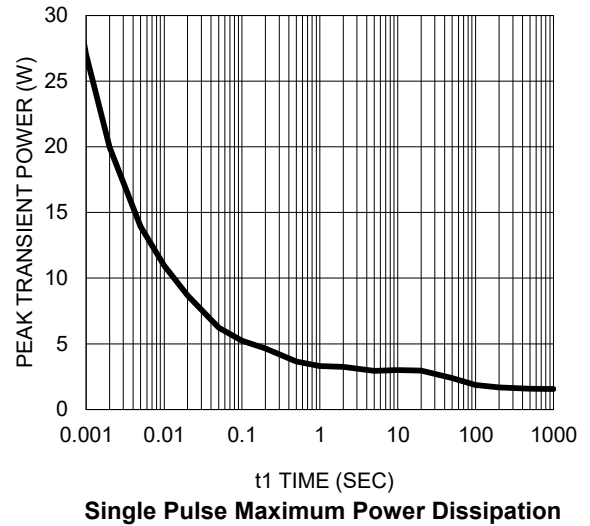
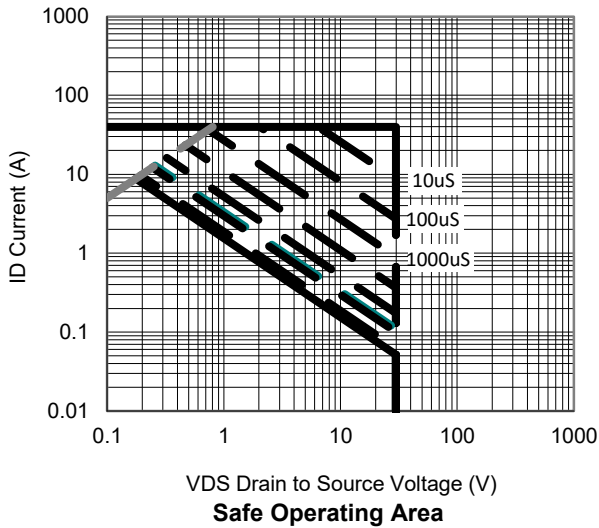
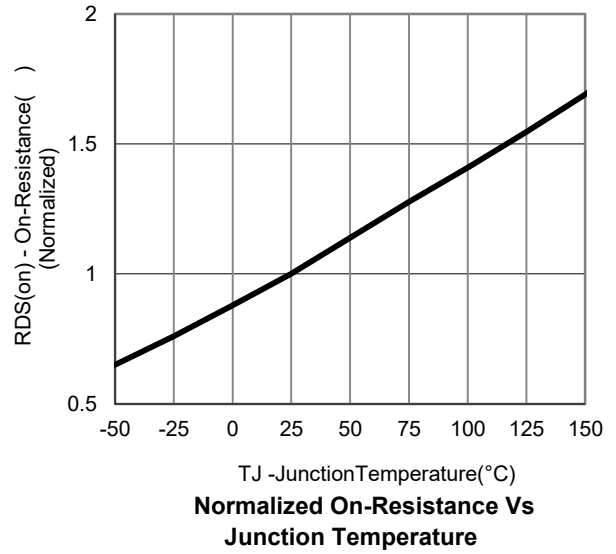
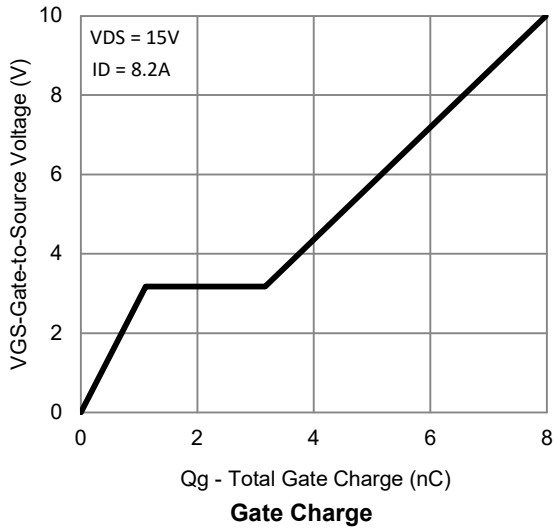
Output Characteristics

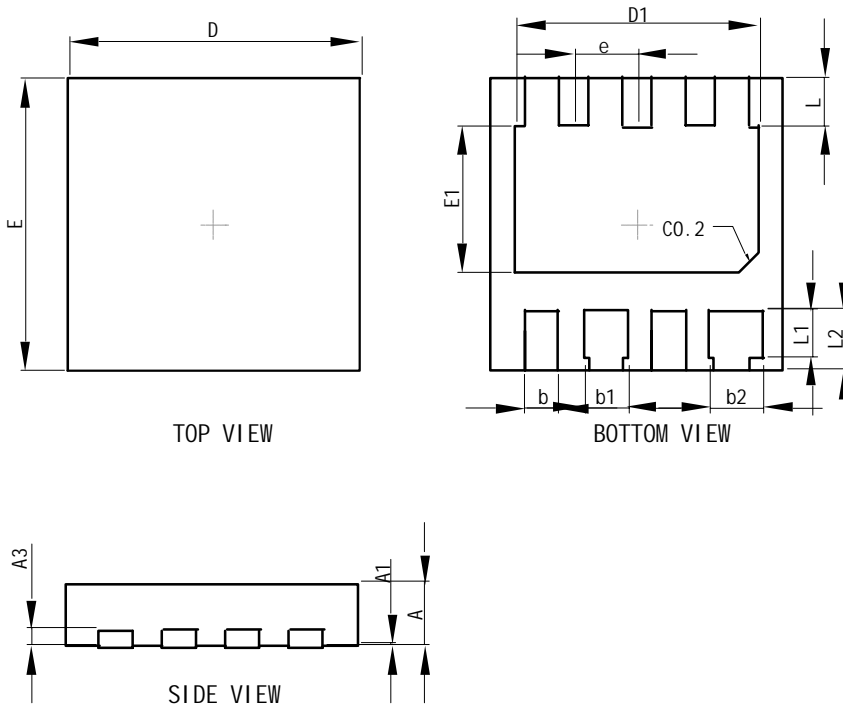


Capacitance

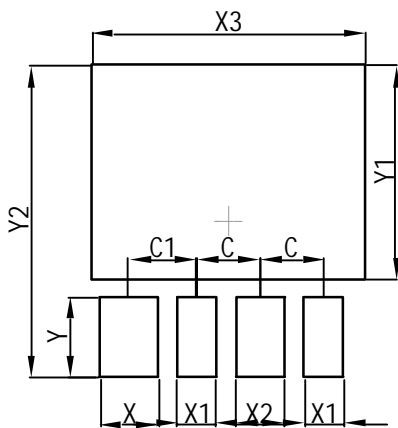


7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



**8. OUTLINE AND DIMENSIONS**


DFN3030-8B			
Dim	Min	Nor	Max
A	0.60	0.65	0.70
A1	0.00	0.03	0.05
b	0.30	0.35	0.40
b1	0.40	0.45	0.50
b2	0.50	0.55	0.60
D	2.95	3.00	3.05
E	2.95	3.00	3.05
D1	2.45	2.50	2.55
E1	1.45	1.50	1.55
e	0.65BSC		
L	0.45	0.50	0.55
L1	0.44	0.49	0.54
L2	0.57	0.62	0.67
A3	0.152REF.		
All Dimensions in mm			

**9. SOLDERING FOOTPRINT**


DFN3030-8B	
Dim	(mm)
C	0.65
C1	0.70
X	0.60
X1	0.40
X2	0.50
X3	2.80
Y1	2.20
Y2	3.20
Y	0.82

