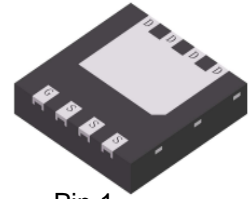


# NB8512D

## 60V N-Channel MOSFET



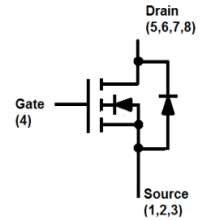
Pin 1  
DFN3333-8A

### 1. FEATURES

- Improved dv/dt capability
- Fast switching
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

### 2. APPLICATIONS

- Motor Drive
- Power Tools
- LED Lighting
- Quick Charger



### 3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
NB8512D	A6R	2000/Tape&Reel

### 4. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	60	V
Gate–to–Source Voltage – Continuous	VGS	±20	V
Drain Current	ID	17	A
– Continuous TA =25°C			
– Continuous TA =70°C			
Pulsed Drain Current	IDM	68	
Avalanche Current	IAS	30	A
Avalanche energy (L=0.1mH)	EAS	45	mJ
Power Dissipation TA=25°C	PD	3.5	W
Operating Junction and Storage Temperature Range	Tj/Tstg	-50 to 150	°C

### 5. THERMAL CHARACTERISTICS

Parameter		Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 1)	t ≤ 10s	RθJA	35	°C/W
	Steady State		81	

1.Surface Mounted on 1" x 1" FR4 Board.



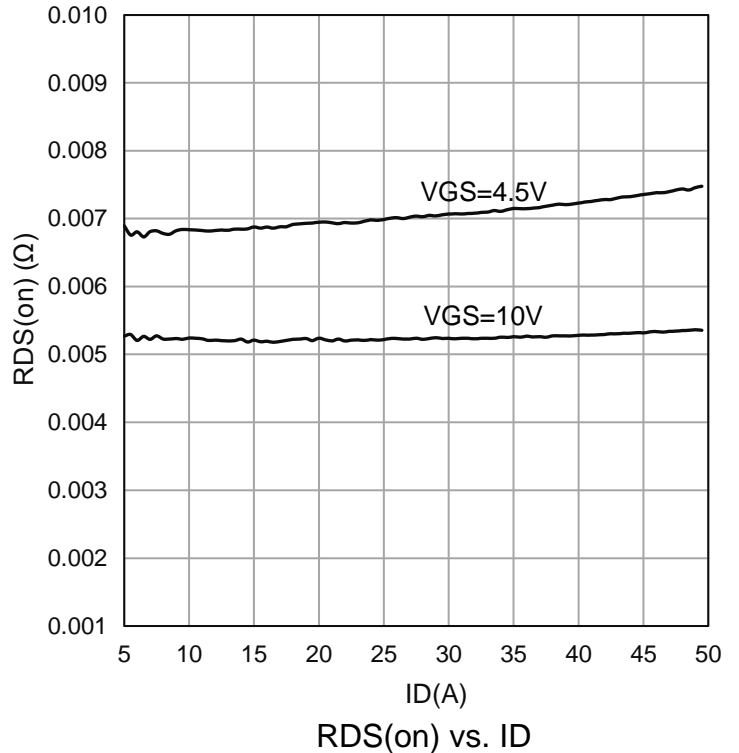
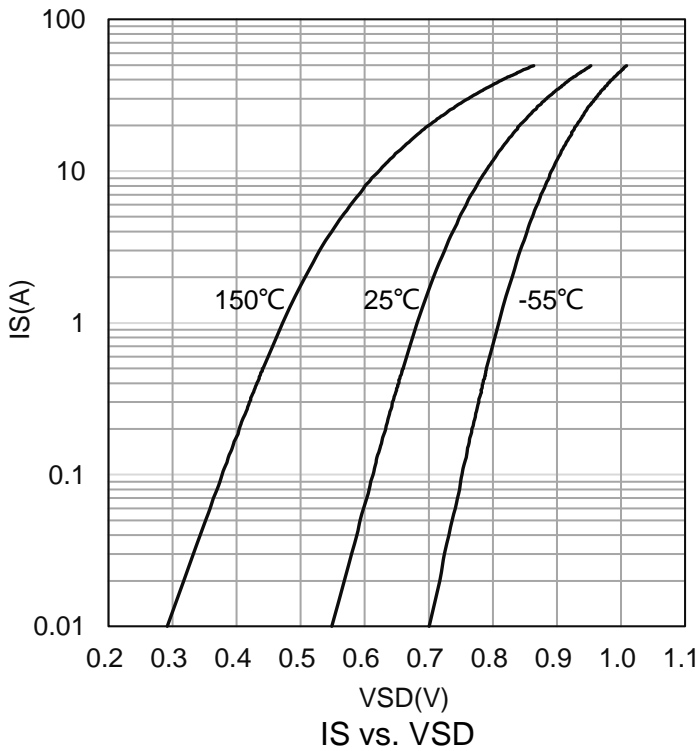
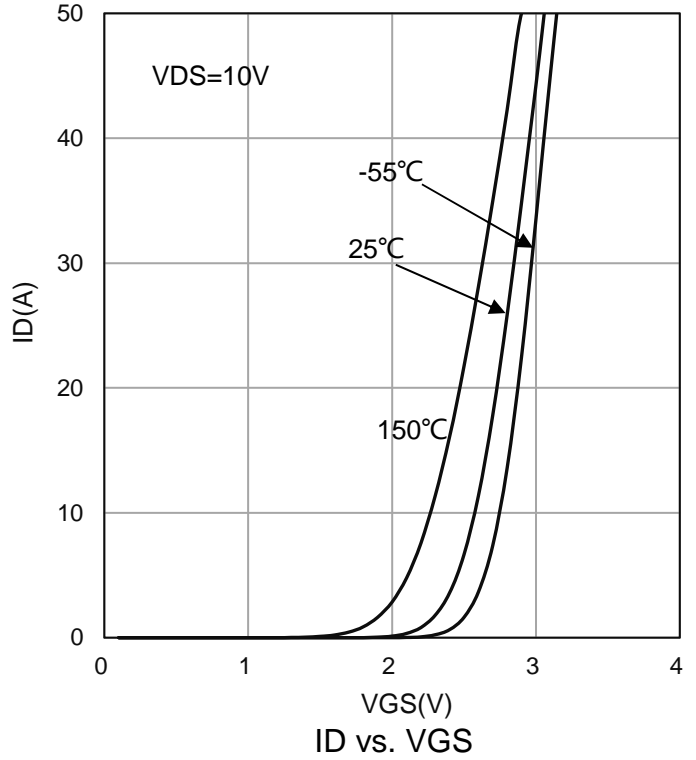
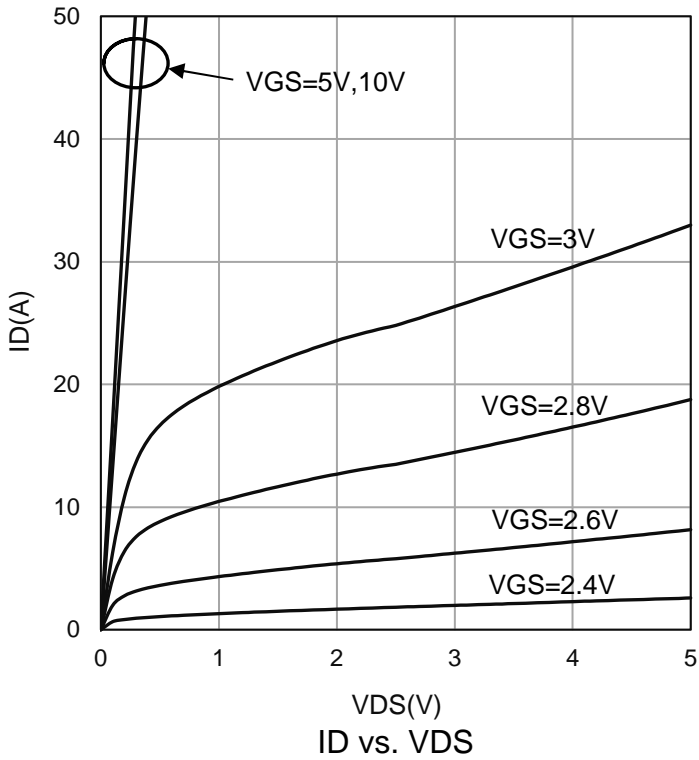
**6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)**

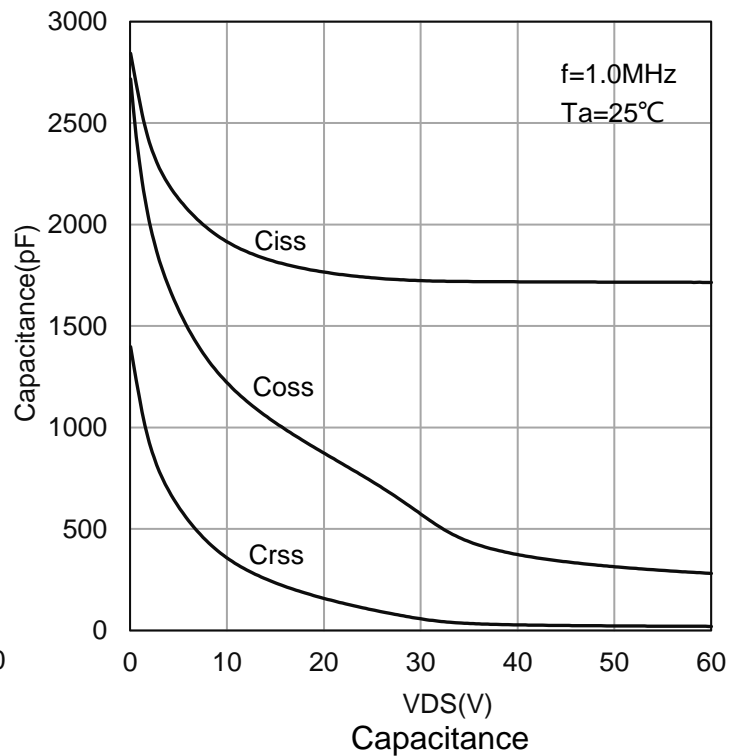
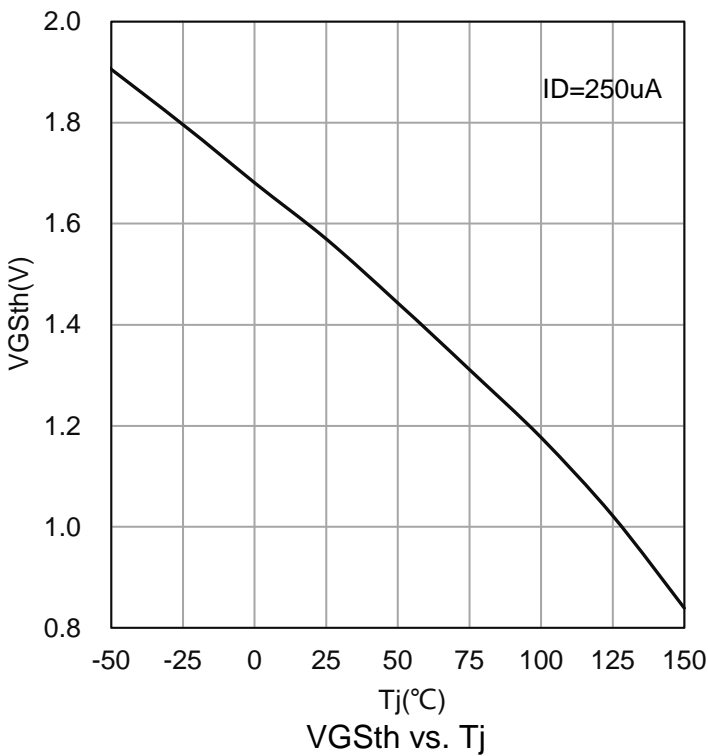
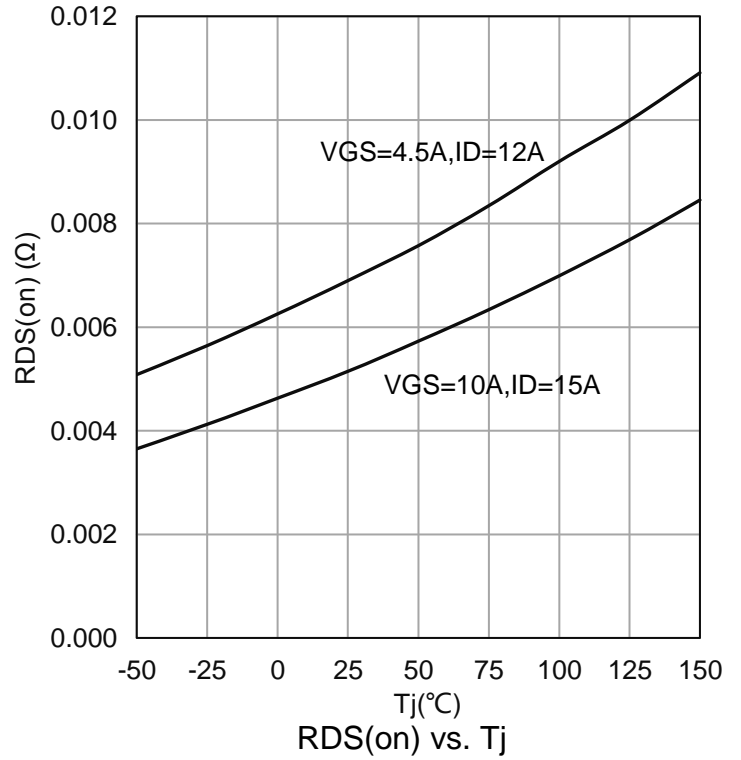
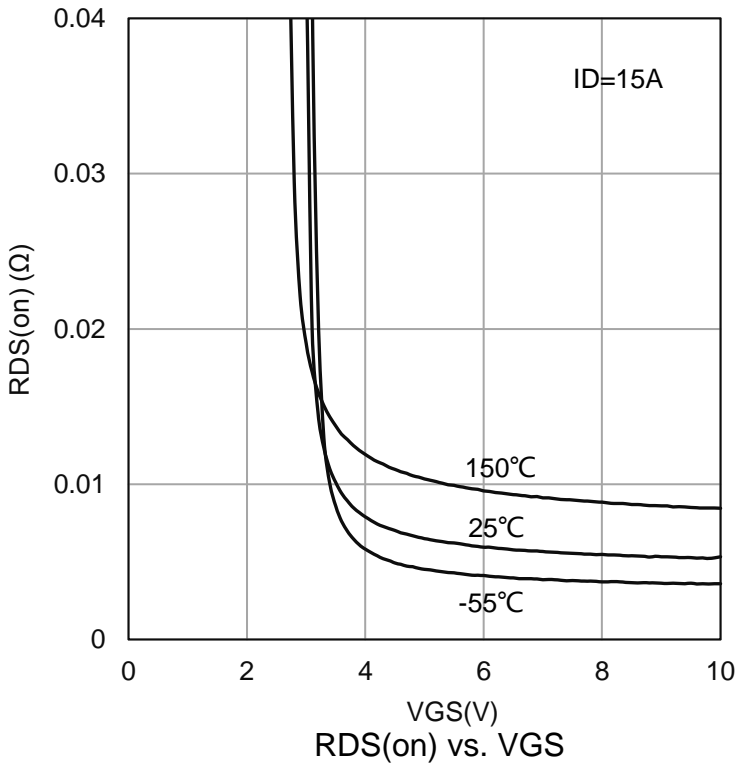
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain-Source Breakdown Voltage (VGS = 0, ID = 250μA)	V(BR)DSS	60	-	-	V
Drain-Source Leakage Current (VDS =60V, VGS =0V, TJ =25°C)	IDSS	-	-	1	μA
Gate-Body Leakage Current (VGS =±20V , VDS =0V)	IGSS	-	-	±100	nA
Gate Threshold Voltage (VDS = VGS, ID = 250μA)	VGS(th)	1.2	1.6	2.5	V
Static Drain-Source On-State Resistance (VGS =10V, ID =15A) (VGS =4.5V, ID =12A)	RDS(on)	- -	- -	6.5 10	mΩ
Dynamic					
Input Capacitance (VGS = 0 V, f = 1.0MHz, VDS= 48 V)	Ciss	-	1717	-	pF
Output Capacitance (VGS = 0 V, f = 1.0MHz, VDS= 48 V)	Coss	-	323	-	
Reverse Transfer Capacitance (VGS = 0 V, f = 1.0MHz, VDS= 48 V)	Crss	-	23	-	
Total Gate Charge	(VDS =48V , VGS =10V , ID =10A)	Qg	-	43	nC
Gate-Source Charge		Qgs	-	4	
Gate-Drain Charge		Qgd	-	15.5	
Turn-On Delay Time	(VDD =48V, VGS =10V, RG =6Ω, ID =1A)	td(on)	-	10	ns
Rise Time		tr	-	16	
Turn-Off Delay Time		td(off)	-	42	
Fall Time		tf	-	38	
Forward Voltage (VGS =0V, IS =1A, TJ =25°C)	VSD	-	-	1.2	V
Gate Resistance (VDS=0V, VGS=0V, f=1.0MHz)	Rg	-	1.2	-	Ω

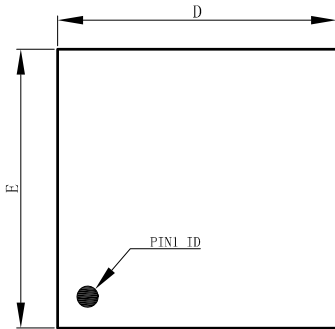
2.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.



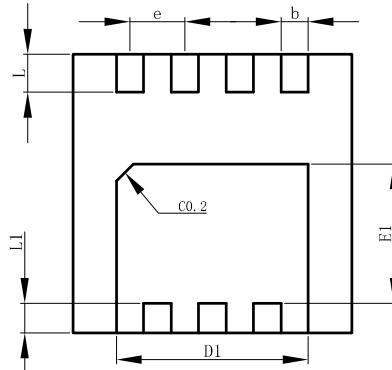
**7. ELECTRICAL CHARACTERISTICS CURVES**



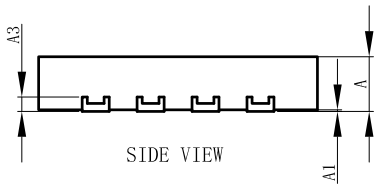
**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**


**8.OUTLINE AND DIMENSIONS**


TOP VIEW

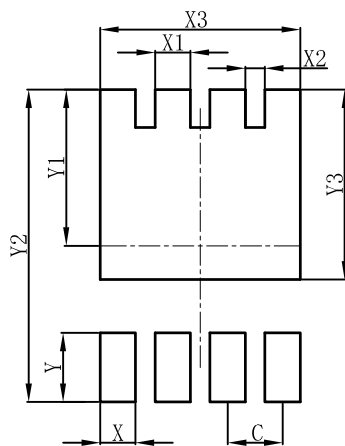


BOTTOM VIEW



SIDE VIEW

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**


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

