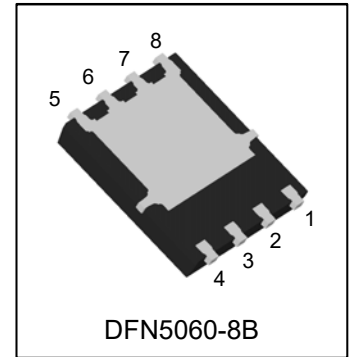


N7304D

N-Channel Logic Level Enhancement Mode 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.

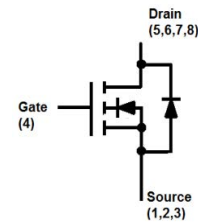


2. APPLICATION

- Power Routing
- DC/DC Conversion
- Motor Drives

3. ORDERING INFORMATION

Device	Marking	Shipping
N7304D	LN7304	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	ID	TA = 25°C	21	A
		TC = 25°C	115	
Pulsed Drain Current (Note 1)	IDM	84		
Power Dissipation	PD	TC = 25°C	62.5	W
		TC = 100°C	25	
Avalanche Current(L=0.1mH)	IAS	36	A	
Avalanche energy(L=0.1mH)	EAS	64.8	mJ	
Operating Junction Temperature	TJ	-55 ~+150	°C	
Storage Temperature Range	Tstg	-55 ~+150		

- 1.Pulse width limited by maximum junction temperature.
- 2.Duty cycle ≤ 1%
- 3.50°C/W when mounted on a 1 in² pad of 2 oz copper.

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Junction-to-Ambient	RθJA	62	°C/W
Maximum Junction-to-Case	RθJC	2	



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	1.5	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 4) (VGS = 10 V, ID = 20 A) (VGS = 4.5 V, ID = 15 A)	RDS(on)	- -	3.2 4.2	4.2 5.5	mΩ
Dynamic					
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1MHz)	Ciss	-	2443	pF
Output Capacitance		Coss	-	325	
Reverse Transfer Capacitance		Crss	-	247	
Total Gate Charge(VGS=4.5V)	(VDS = 15 V, VGS = 10 V, ID = 16A)	Qg	-	25	nC
Total Gate Charge(VGS=10V)		Qg	-	51	
Gate-Source Charge		Qgs	-	7.8	
Gate-Drain Charge		Qgd	-	9.7	
Turn-On Delay Time	(VDS=15 V, ID=1A, VGS=10V, RGS = 2.7 Ω)	td(on)	-	18	ns
Rise Time		tr	-	15	
Turn-Off Delay Time		td(off)	-	55	
Fall Time		tf	-	20	
Gate Resistance (VGS = 0V, VDS = 0V, f = 1MHz)	Rg	-	1	-	Ω
Forward Voltage (IF= 16A, VGS = 0V)	VSD	-	-	1.3	V

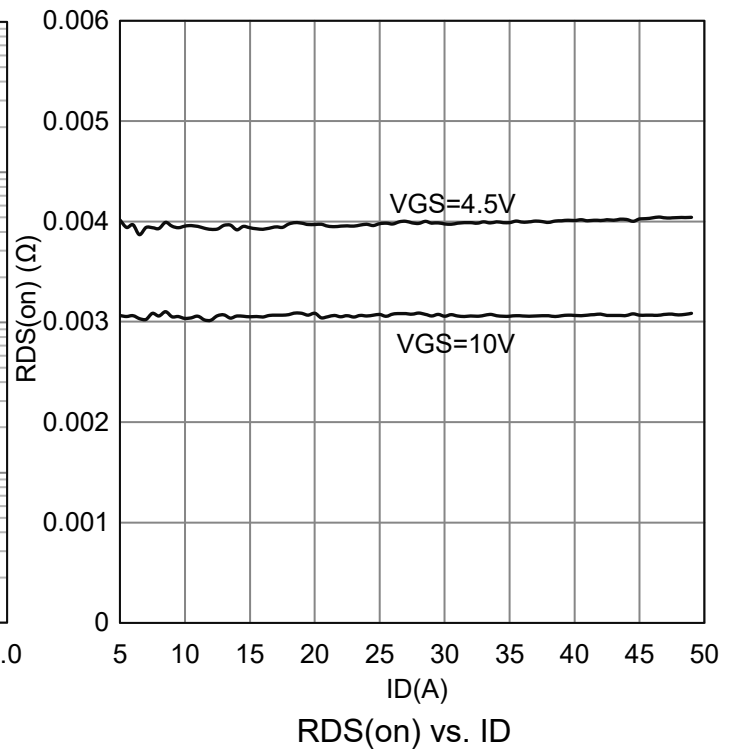
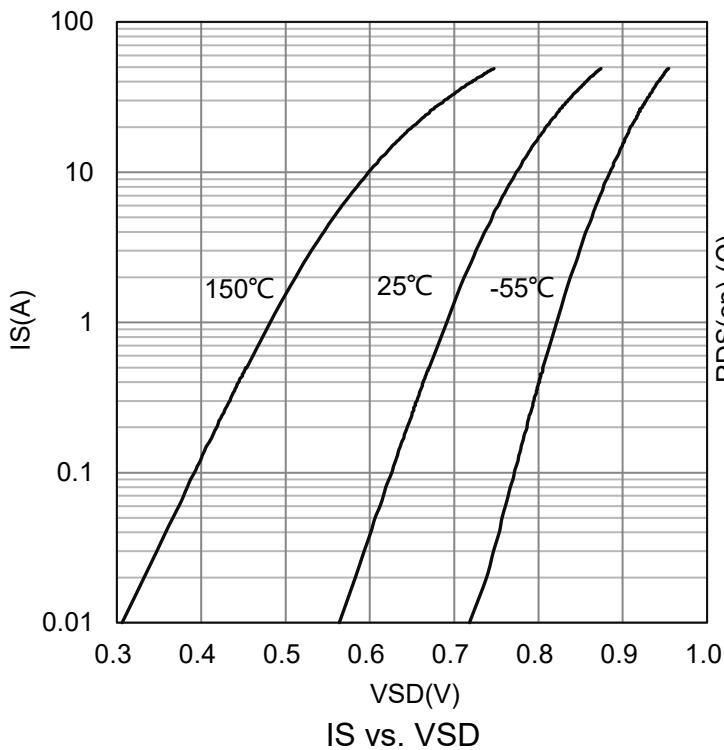
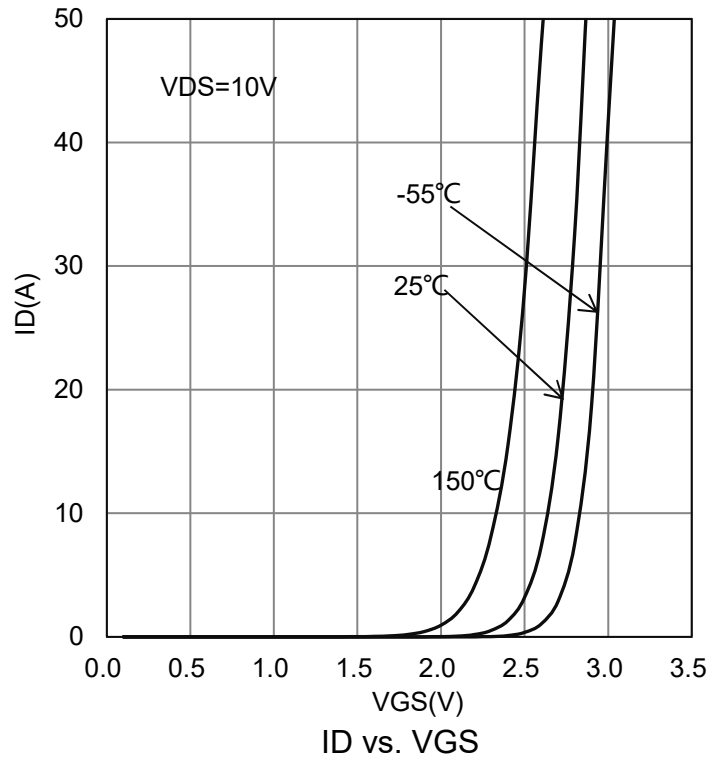
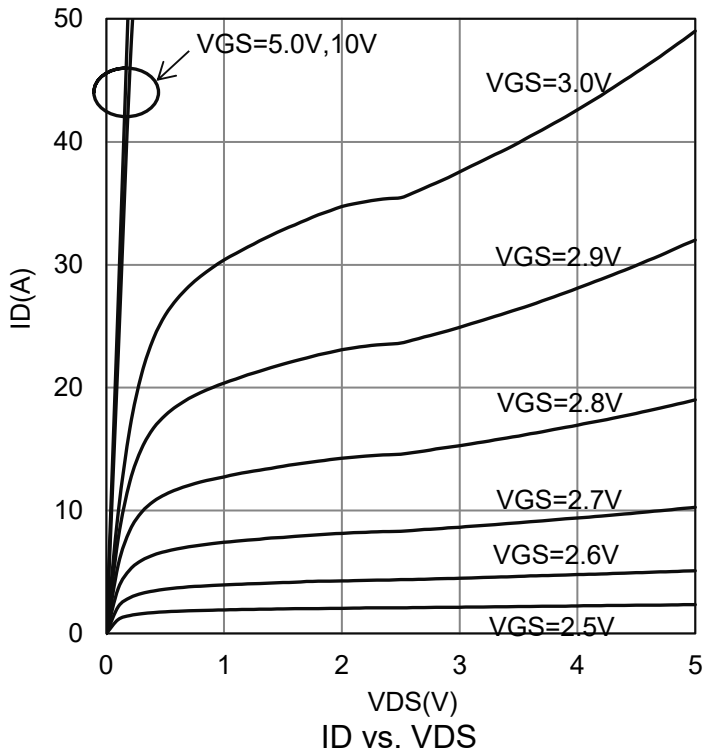
4. Pulse test: $PW \leq 300\mu s$ duty cycle $\leq 2\%$.

5. Independent of operating temperature.

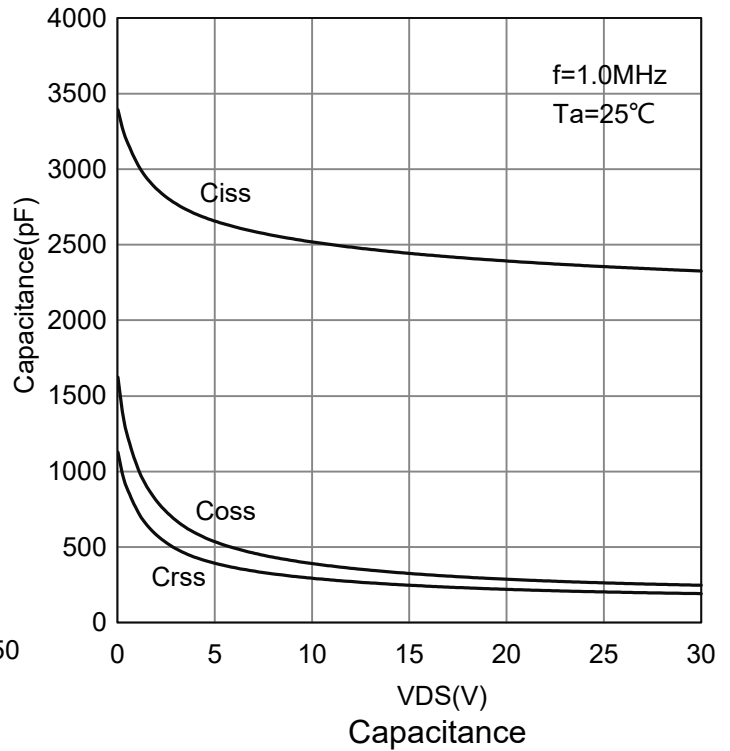
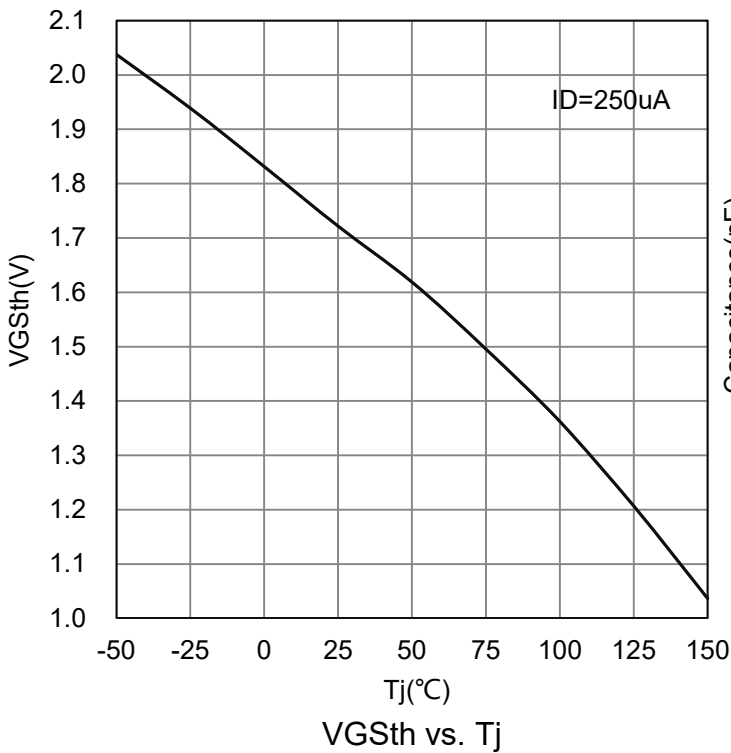
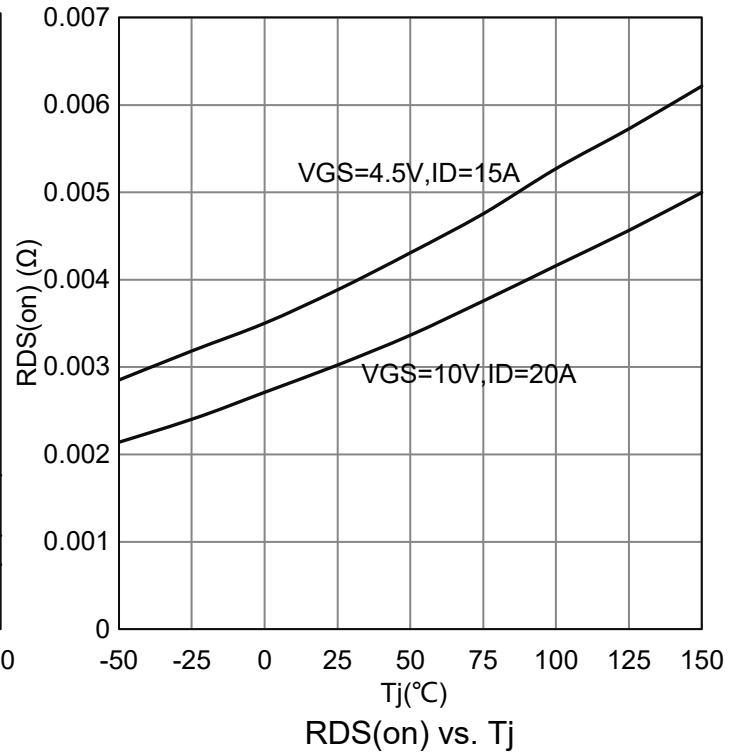
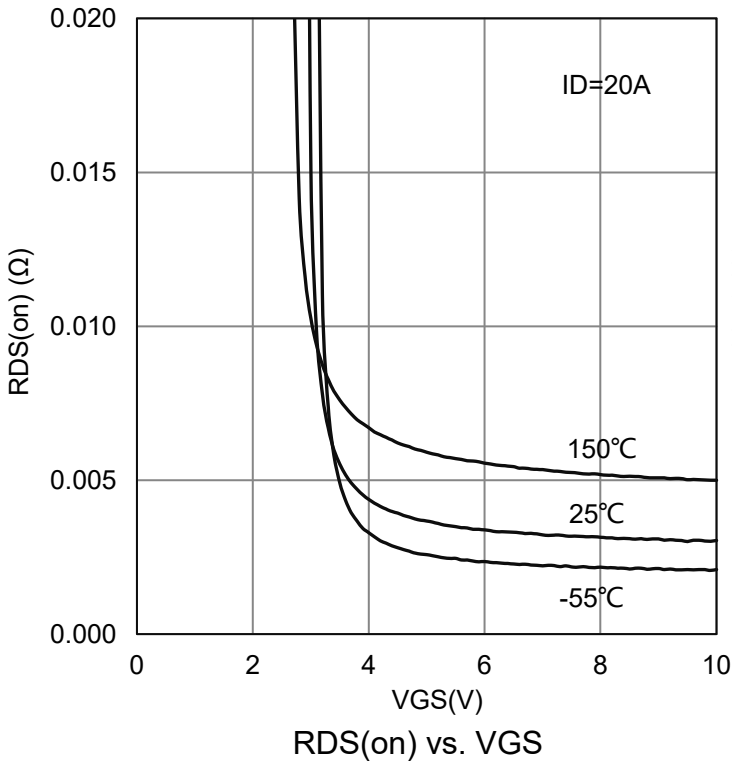
6. Pulse width limited by maximum junction temperature.

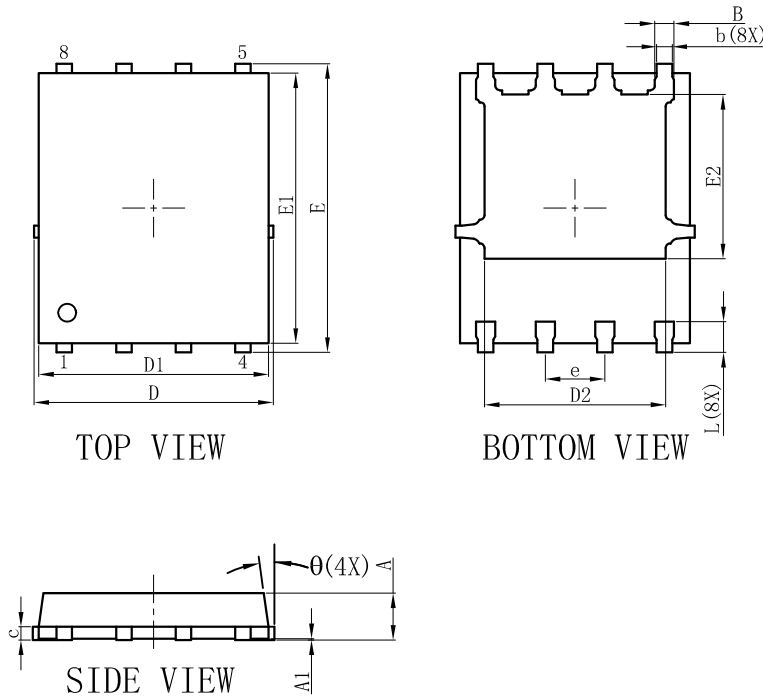


7.ELECTRICAL CHARACTERISTICS CURVES



7.ELECTRICAL CHARACTERISTICS CURVES(Con.)

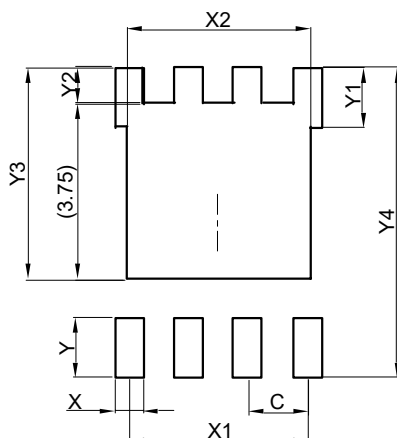


8.OUTLINE AND DIMENSIONS
DFN5060-8B


DFN5060-8B			
DIM	MIN	NOR	MAX
A	0.90	1.00	1.10
A1	0.00	0.02	0.05
E	6.00	6.15	6.30
E1	5.66	5.76	5.86
E2	3.40	3.50	3.60
D	4.95	5.10	5.25
D1	4.80	4.90	5.00
D2	3.76	3.86	3.96
b	0.30	0.35	0.40
B	0.36	0.41	0.46
L	0.56	0.66	0.76
e	1.27BSC		
c	0.254REF.		
θ	0°	-	12°
All Dimensions in mm			

GENERAL NOTES

1. Top package surface finish $Ra0.4 \pm 0.2\mu m$
2. Bottom package surface finish $Ra0.7 \pm 0.2\mu m$
3. Side package surface finish $Ra0.4 \pm 0.2\mu m$
4. Protrusion or Gate Burrs shall not exceed 0.05mm per side.
5. Offcenter Max0.038mm; Mismatch Max 0.038mm.

9.SOLDERING FOOTPRINT


DFN5060-8B	
DIM	(mm)
C	1.27
X	0.61
X1	3.81
X2	3.91
Y	1.27
Y1	1.27
Y2	0.77
Y3	4.52
Y4	6.61

