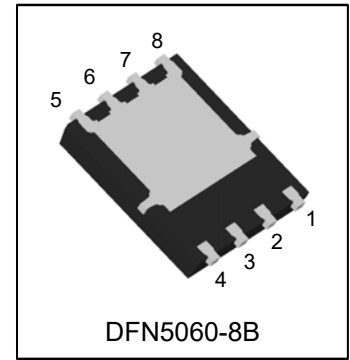


# N7406D

## N-Channel 40-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.

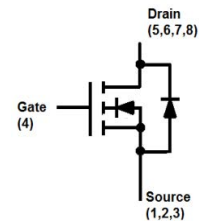


### 2. APPLICATION

- White LED boost converters
- DC/DC Conversion Circuits
- Motor Drives

### 3. ORDERING INFORMATION

Device	Marking	Shipping
N7406D	LN7406	3000/Tape&Reel



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

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	VDSS	40	V
Gate-to-Source Voltage	VGS	±20	V
Continuous Drain Current(Note 1)	ID	TA =25°C	18
		TA =70°C	16
Pulsed Drain Current (Note 2)	IDM	72	A
Continuous Source Current (Diode Conduction)(Note 1)	IS	18	A
Avalanche Current (L = 0.1mH)	IAS	34	A
Avalanche Energy (L = 0.1mH)	EAS	57.8	mJ
Power Dissipation(Note 1)	PD	TA =25°C	2.5
		TA =70°C	1.9
Operating Junction Temperature	TJ	-55 ~+150	°C
Storage Temperature Range	Tstg	-55 ~+150	

### 5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient (Note 1)	RθJA	50	°C/W

- 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



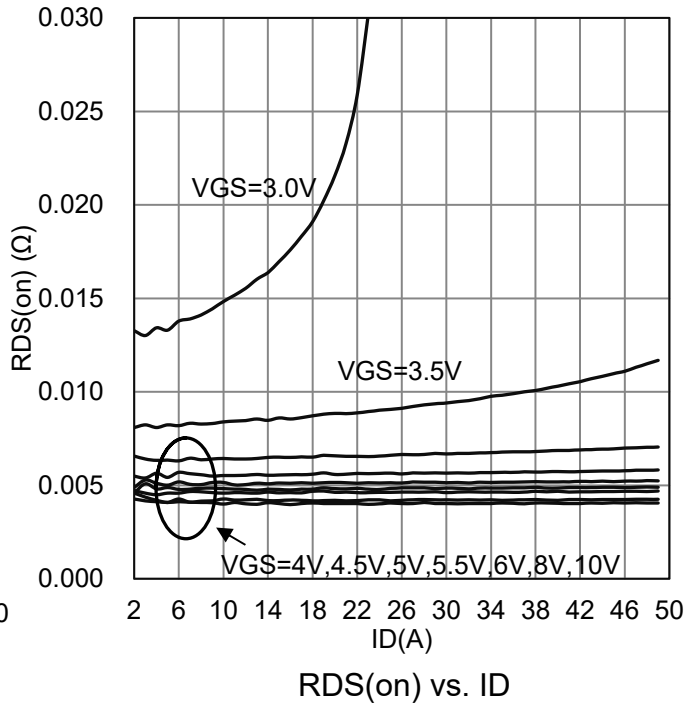
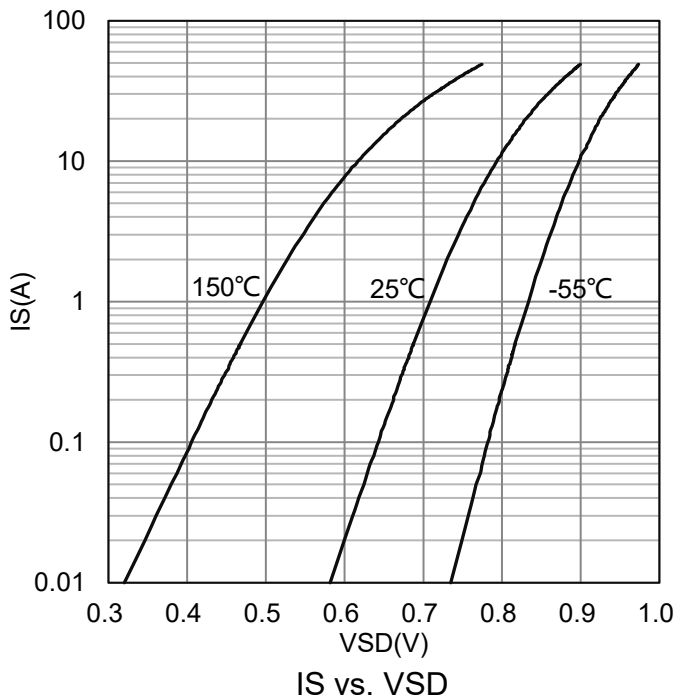
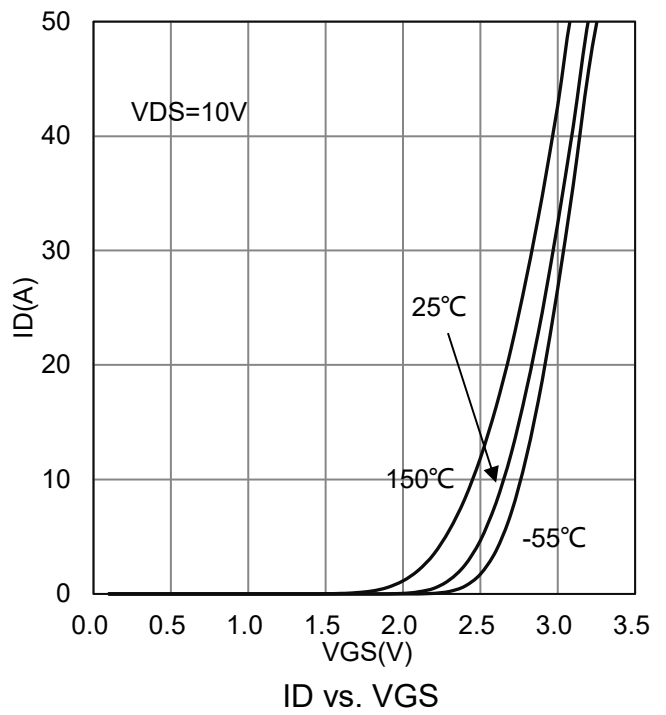
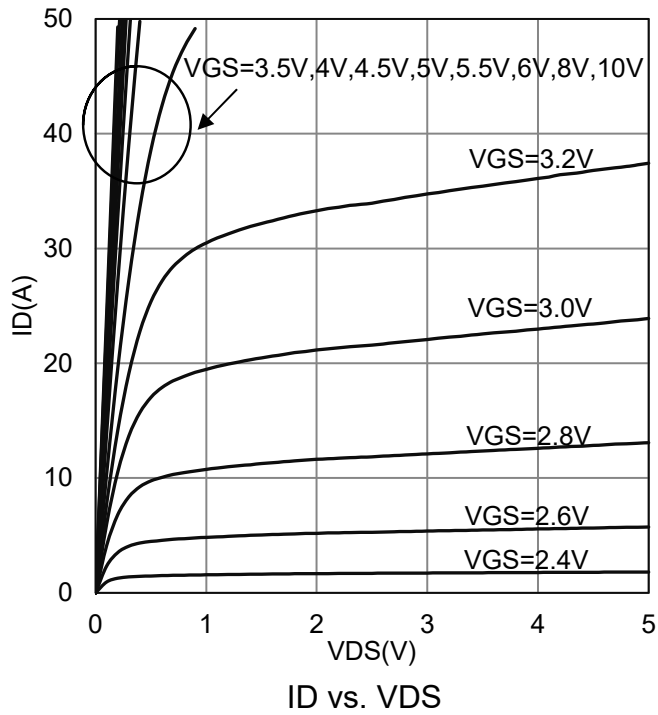
**6. ELECTRICAL CHARACTERISTICS**

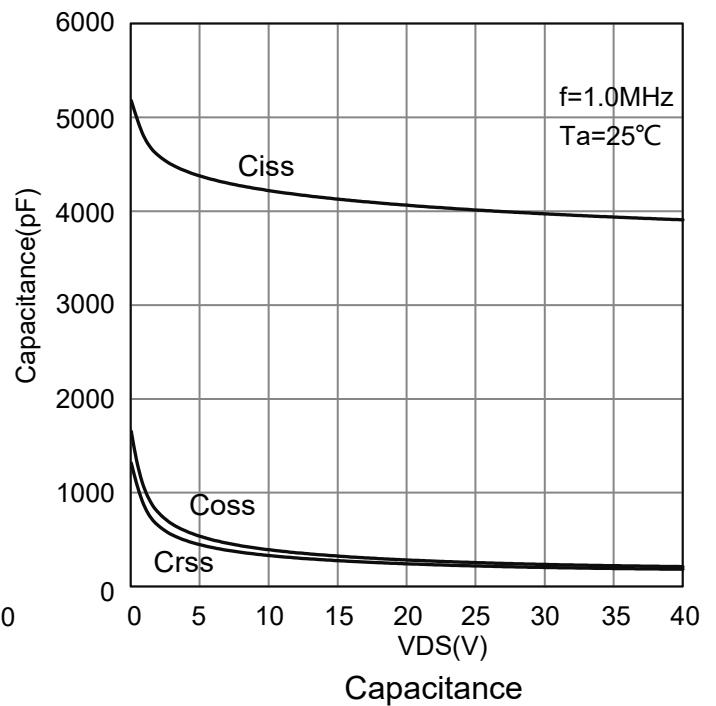
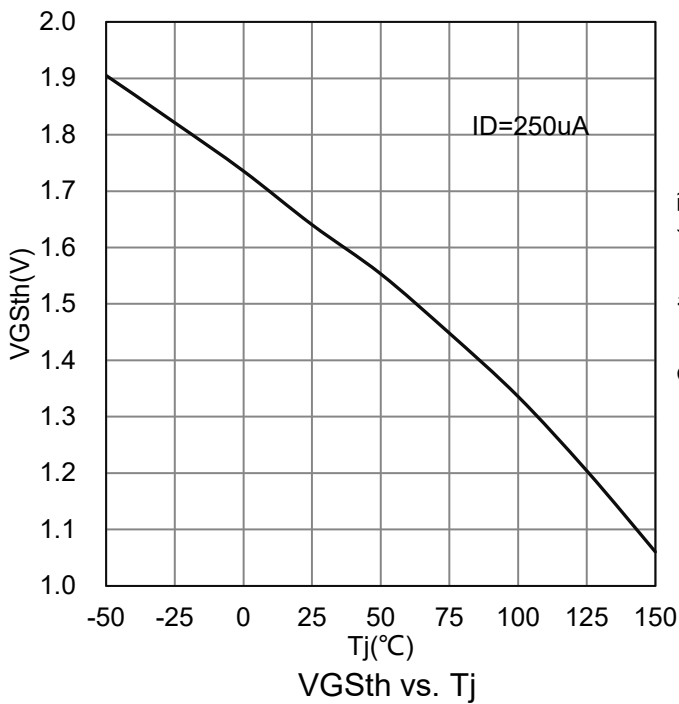
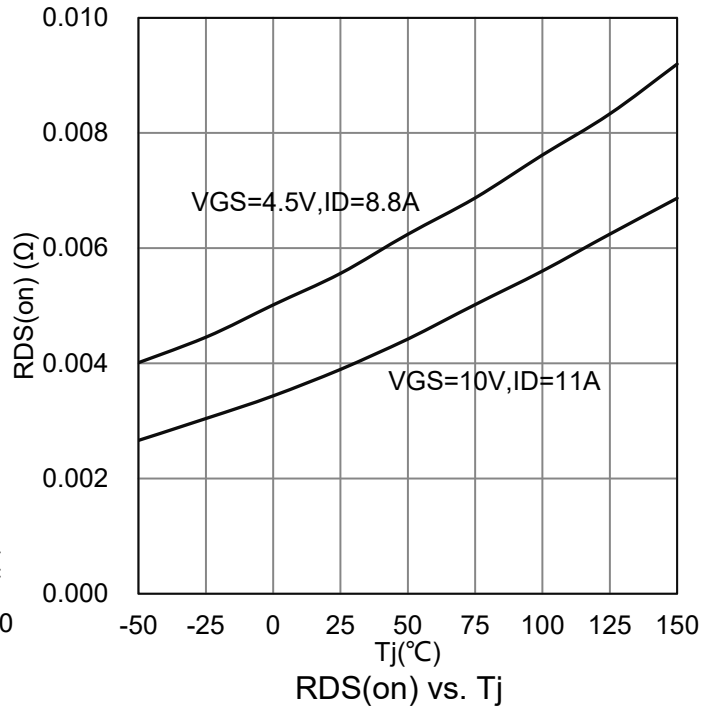
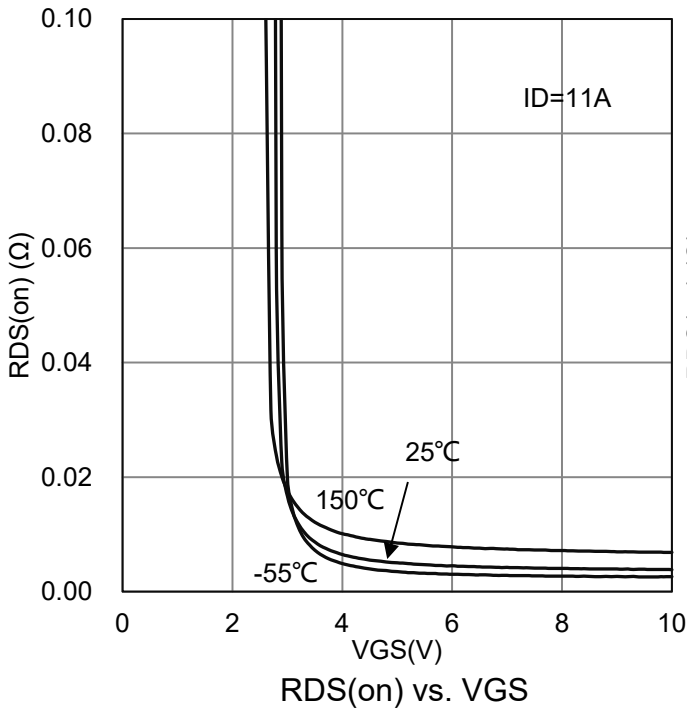
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
<b>Static</b>						
Gate-Source Threshold Voltage (VDS = VGS, ID = 250 $\mu$ A)	VGS(th)	1	-	2.5	V	
Gate-Body Leakage (VDS = 0 V, VGS = $\pm$ 20 V)	IGSS	-	-	$\pm$ 10	$\mu$ A	
Zero Gate Voltage Drain Current (VDS = 32 V, VGS = 0 V) (VDS = 32 V, VGS = 0 V, TJ = 55°C)	IDSS	-	-	1 25	$\mu$ A	
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 11 A) (VGS = 4.5 V, ID = 8.8 A)	RDS(on)	-	-	6.5 9	m $\Omega$	
Diode Forward Voltage(Note 3) (IS = 2.3 A, VGS = 0 V)	VSD	-	0.74	1.2	V	
<b>Dynamic(Note 4)</b>						
Total Gate Charge	(VDS = 20 V, VGS = 4.5 V, ID = 11 A)	Qg	-	33.8	-	nC
Gate-Source Charge		Qgs	-	11	-	
Gate-Drain Charge		Qgd	-	11.2	-	
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	4146	-	pF
Output Capacitance		Coss	-	322	-	
Reverse Transfer Capacitance		Crss	-	272	-	
Turn-On Delay Time	(VDS = 20 V, RL = 1.9 $\Omega$ , ID = 11 A, VGEN = 10 V, RGEN = 6 $\Omega$ )	td(on)	-	22	-	ns
Rise Time		tr	-	36	-	
Turn-Off Delay Time		td(off)	-	210	-	
Fall Time		tf	-	86	-	

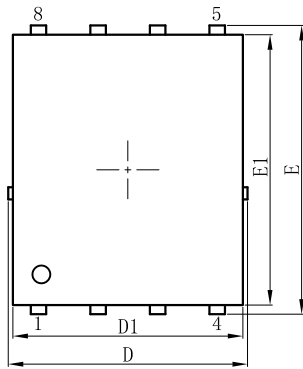
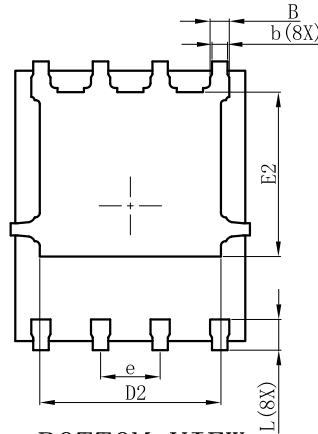
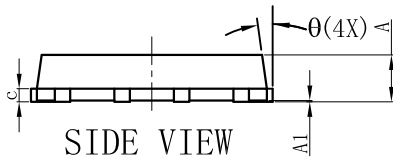
3. Pulse test: PW  $\leq$  300 $\mu$ s duty cycle  $\leq$  2%.

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



**7. ELECTRICAL CHARACTERISTICS CURVES**


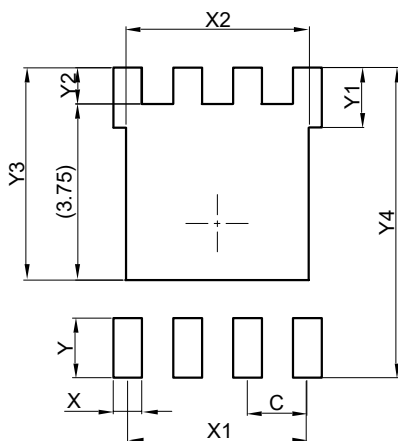
**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**


**8.OUTLINE AND DIMENSIONS**
**DFN5060-8B**

**TOP VIEW**

**BOTTOM VIEW**

**SIDE VIEW**

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±0.2um
2. Bottom package surface finish Ra0.7±0.2um
3. Side package surface finish Ra0.4±0.2um
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

