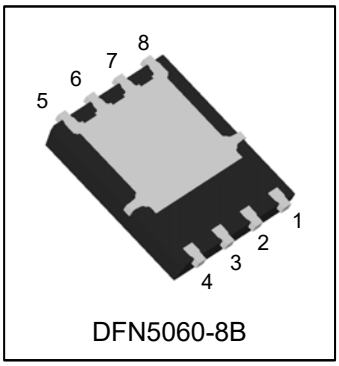
N7920D

N-Channel Power Trench MOSFET



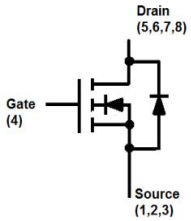
DFN5060-8B

1. FEATURES

- Optimized for high speed smooth switching.
- Enhanced Body diode dv/dt capability.
- Enhanced Avalanche Ruggedness.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- DC-DC Conversion
- Hard Switching and High Speed Circuit
- Power Tools
- UPS
- SSR



3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
N7920D	LN7920	3000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	150	V
Gate-to-Source Voltage		VGS	±20	V
Continuous Drain Current	TC=25℃	ID	60	A
	TC=100℃		38	A
Pulsed Drain Current		IDM	120	A
Avalanche Current		IAS	18	A
Avalanche energy(L=0.1mH)		EAS	16.2	mJ
Power Dissipation(TC =25℃)		PD	125	W
Operating Junction and Storage Temperature Range		Tj/Tstg	-55~+150	℃

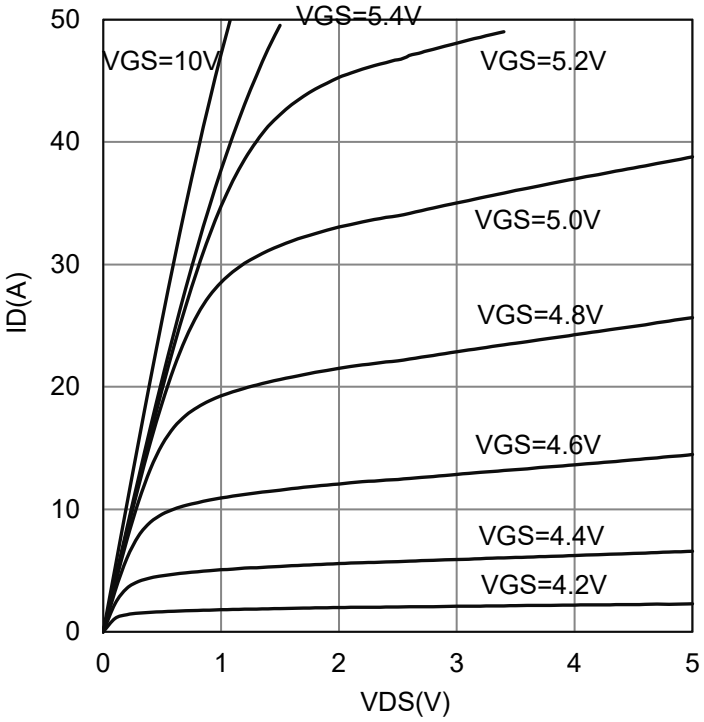
5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Junction-to-Ambient	Rthja	50	℃/W
Junction-to-Case	Rthjc	1	

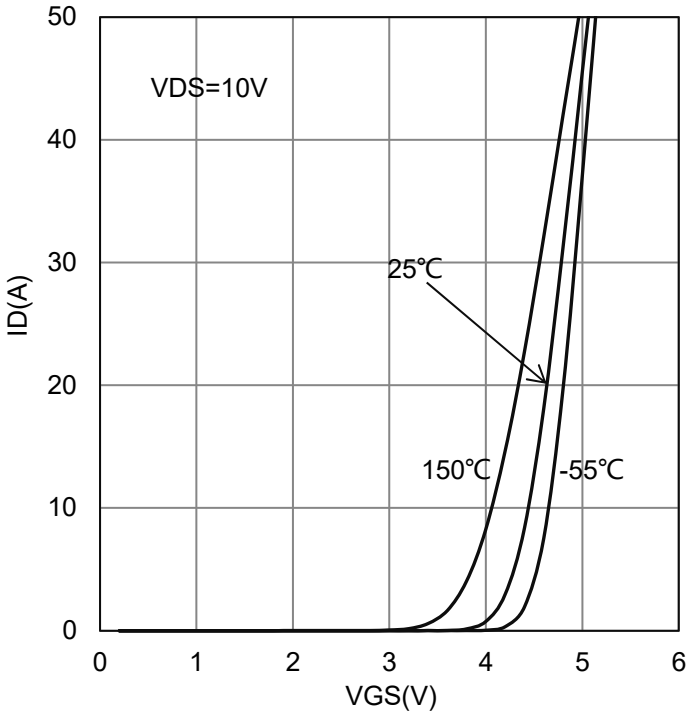
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain to Source Breakdown Voltage (VGS =0V, ID =250μA)		VDSS	150	-	-	V
Drain-to-Source Leakage Current (VDS =150V, VGS =0V,Tj =25℃)		IDSS	-	-	1	uA
Gate-Body leakage current (VDS =0V, VGS = ±20V)		IGSS	-	-	±100	nA
Gate Threshold Voltage (VDS = VGS , ID = 250μA)		VGS(th)	2	3	4	V
Drain-to-Source On-Resistance (VGS = 10 V, ID = 20 A)		RDS(ON)	-	15	21	mΩ
Gate Resistance (VDS=0V,VGS=0V,f=1.0MHz)		Rg	-	2.5	-	Ω
Dynamic						
Total Gate Charge	(VDS=75V,VGS 10V,ID=20A)	Qg	-	26	-	nC
Gate to Source Charge		Qgs	-	7.8	-	
Gate to Drain Charge		Qgd	-	8	-	
Turn-on Delay Time	(VDD = 75V, ID = 20A, RG = 10 Ω,VGS = 10V)	td(on)	-	9	-	nS
Rise Time		tr	-	8	-	
Turn-Off Delay Time		td(off)	-	15	-	
Fall Time		tf	-	9	-	
Input Capacitance	(VGS = 0V ,VDS = 75V, f = 1MHz)	Ciss	-	1980	-	pF
Output Capacitance		Coss	-	143	-	
Reverse Transfer Capacitance		Crss	-	7	-	
Diode Forward Voltage (VGS = 0 V, IS = 20 A)		VSD	-	0.9	1.2	V
Reverse Recovery Time (VR= 75V,IF =20A, di/dt = 100 A/μs)		trr	-	60	-	nS
Reverse Recovery Charge (VR= 75V,IF =20A, di/dt = 100 A/μs)		Qrr	-	120	-	nC

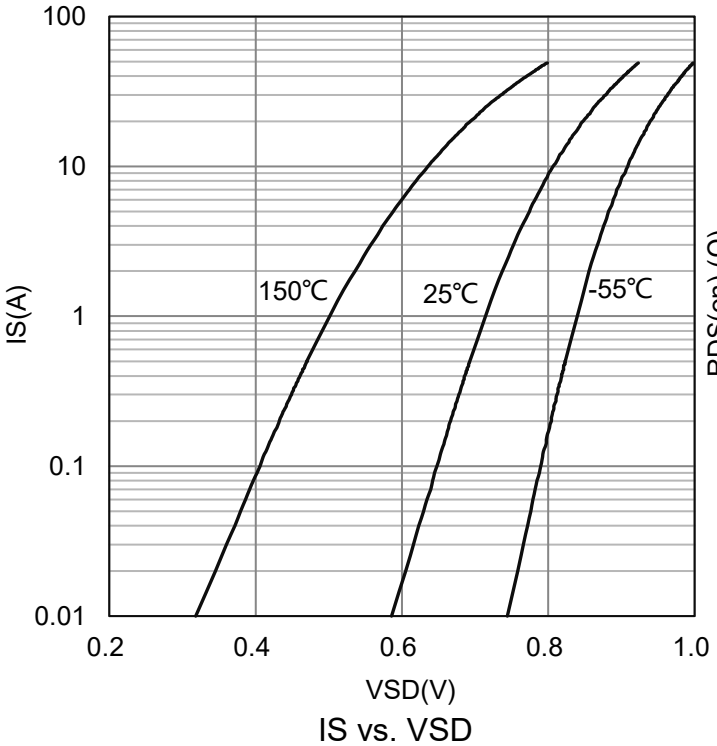
7.ELECTRICAL CHARACTERISTICS CURVES



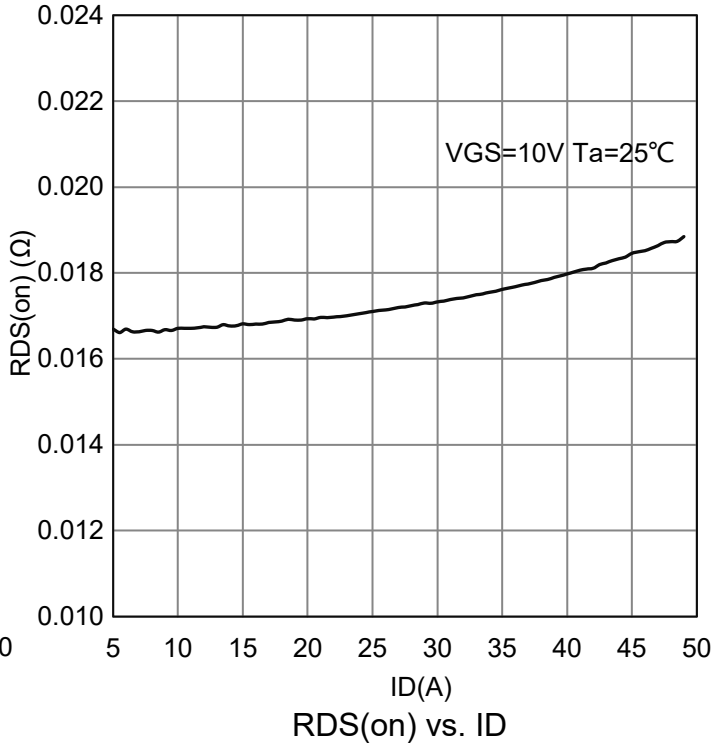
ID vs. VDS



ID vs. VGS

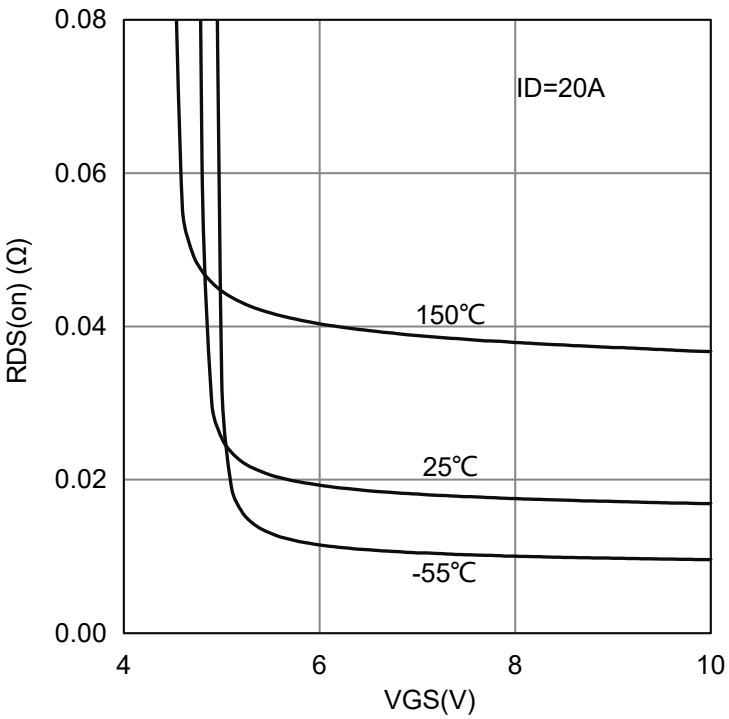


IS vs. VSD

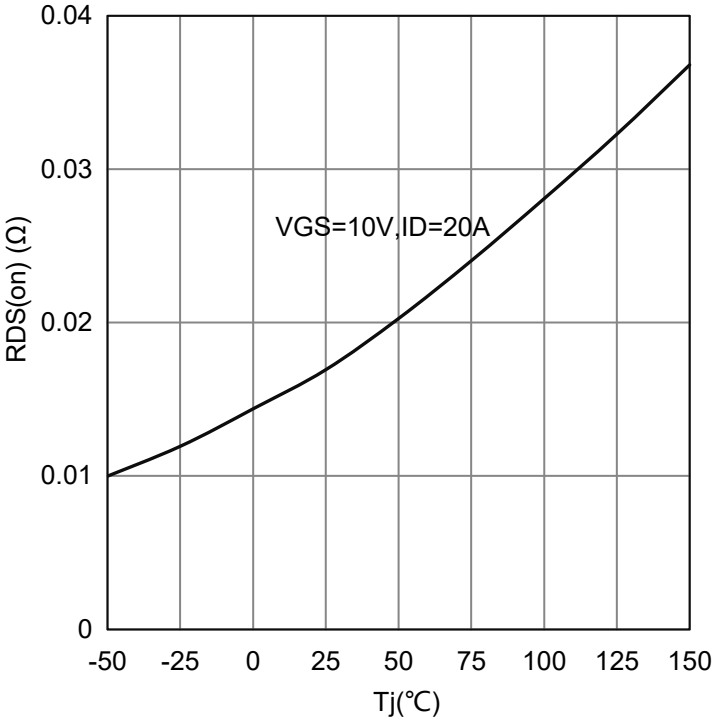


RDS(on) vs. ID

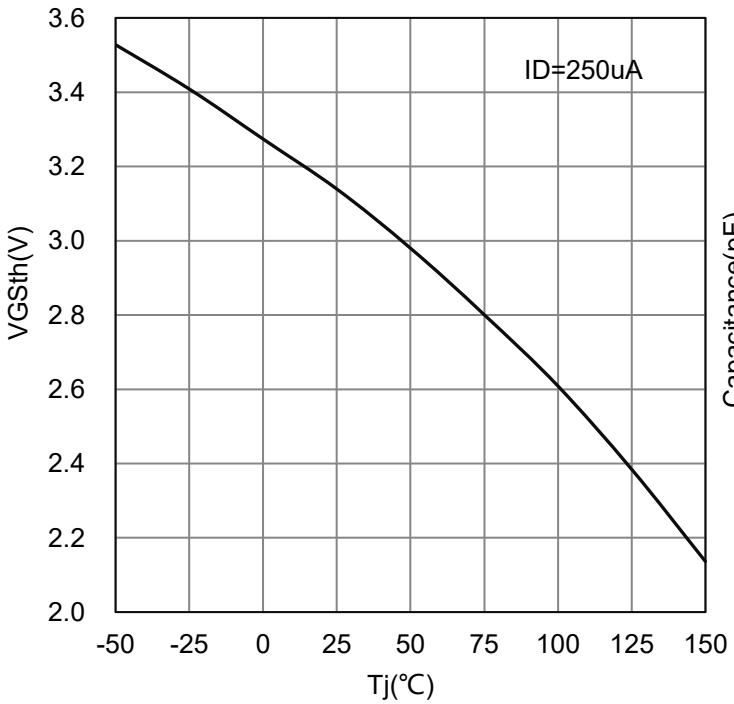
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



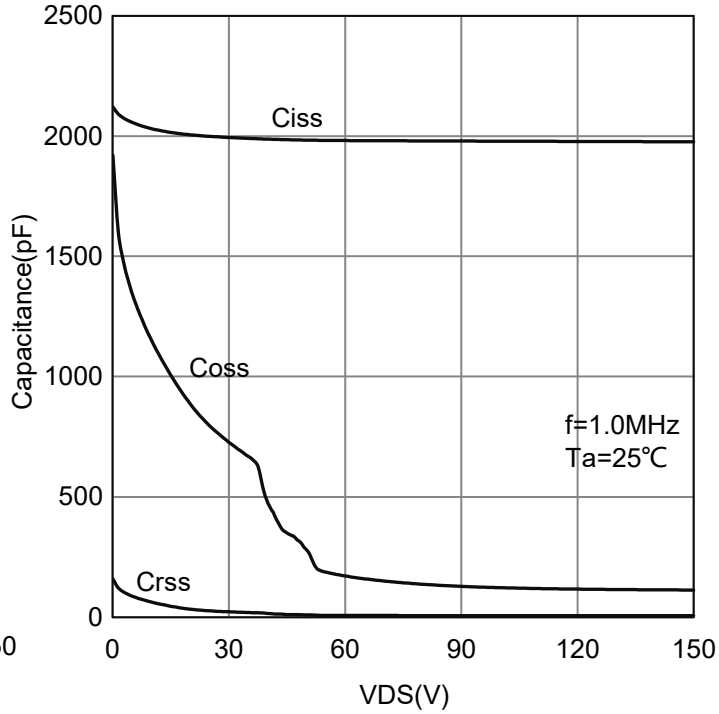
RDS(on) vs. VGS



RDS(on) vs. Tj

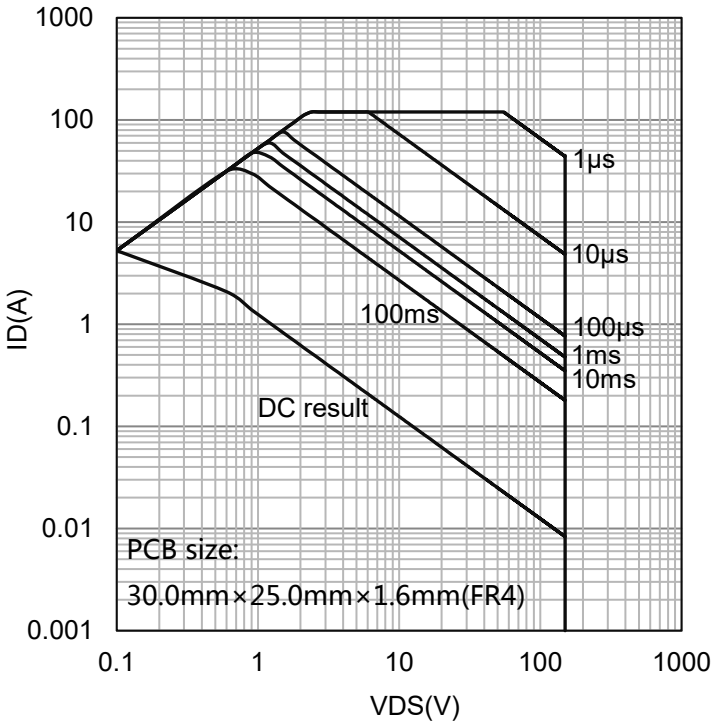


VGSth vs. Tj



Capacitance

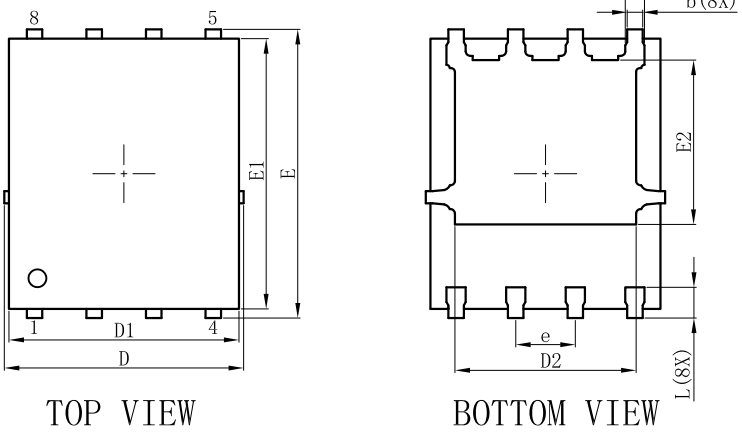
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



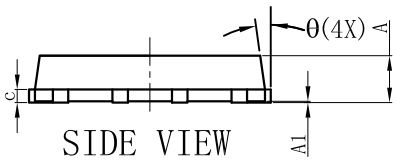
Safe Operating Area

8.OUTLINE AND DIMENSIONS

DFN5060-8B



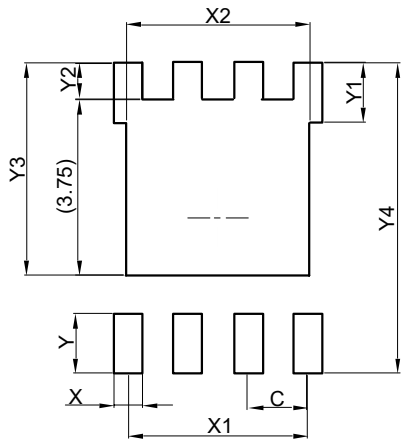
DFN5060-8B			
DIM	MIN	NOR	MAX
A	0.90	1.00	1.10
A1	0.00	0.02	0.05
E	6.00	6.15	6.30
E1	5.66	5.76	5.86
E2	3.40	3.50	3.60
D	4.95	5.10	5.25
D1	4.80	4.90	5.00
D2	3.76	3.86	3.96
b	0.30	0.35	0.40
B	0.36	0.41	0.46
L	0.56	0.66	0.76
e	1.27BSC		
c	0.254REF.		
θ	0°	-	12°
All Dimensions in mm			



GENERAL NOTES

1. Top package surface finish Ra0.4±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