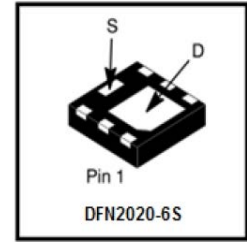


# N2320ED

N-Channel 20V (D-S) MOSFET , ESD Protection

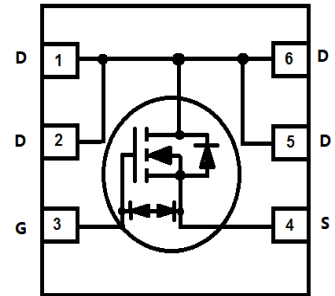
## 1. FEATURES

- Low Gate Threshold Voltage
- Fast Switching Speed
- ESD Protected Gate
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.



## 2. APPLICATIONS

- Battery Management Application
- Power Management Functions
- DC-DC Converters



## 3. ORDERING INFORMATION

Device	Marking	Shipping
N2320ED	ED	4000/Tape&Reel

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

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	VDSS	20	V
Gate-to-Source Voltage	VGS	±8	V
Avalanche Current	IAS	11	A
Avalanche energy L=0.1mH	EAS	6	mJ
Continuous Drain Current	ID	8	A
Pulsed Drain Current	IDM	26	A
Maximum Power Dissipation	PD	TA =25°C	1.4
		TA =70°C	0.9
Operating Junction Temperature	TJ	-55 ~+150	°C
Thermal Resistance-Junction to Ambient(Note1)	RθJA	90	°C/W
Thermal Resistance-Junction to Case	RθJC	75	°C/W

1. The device mounted on 1in<sup>2</sup> FR4 board with 2 oz copper

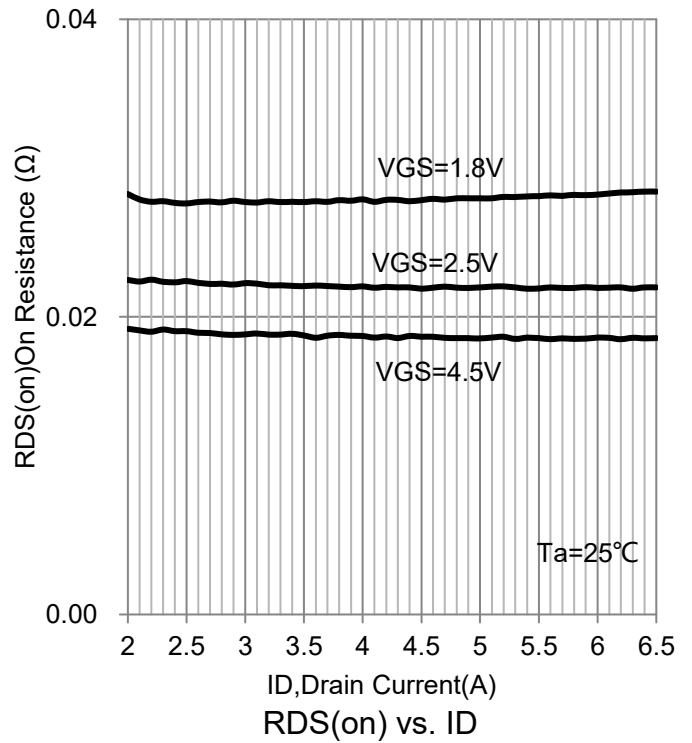
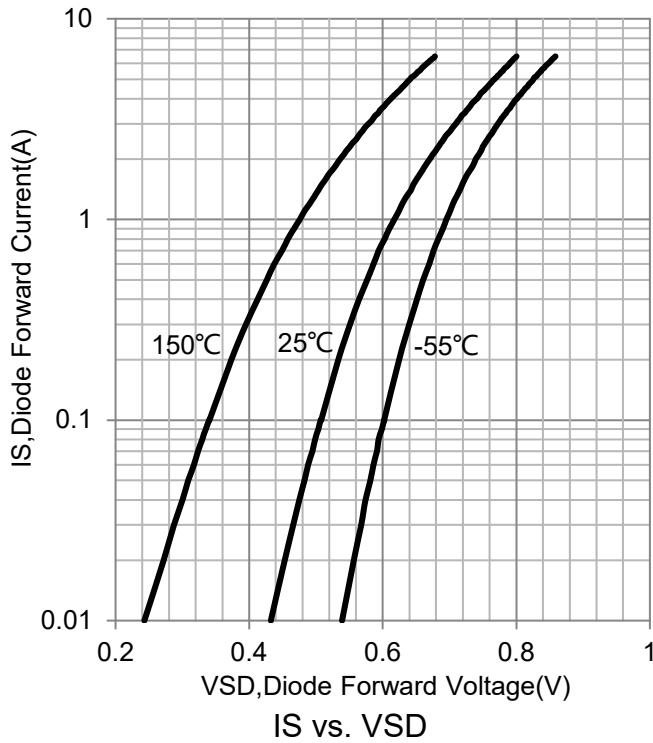
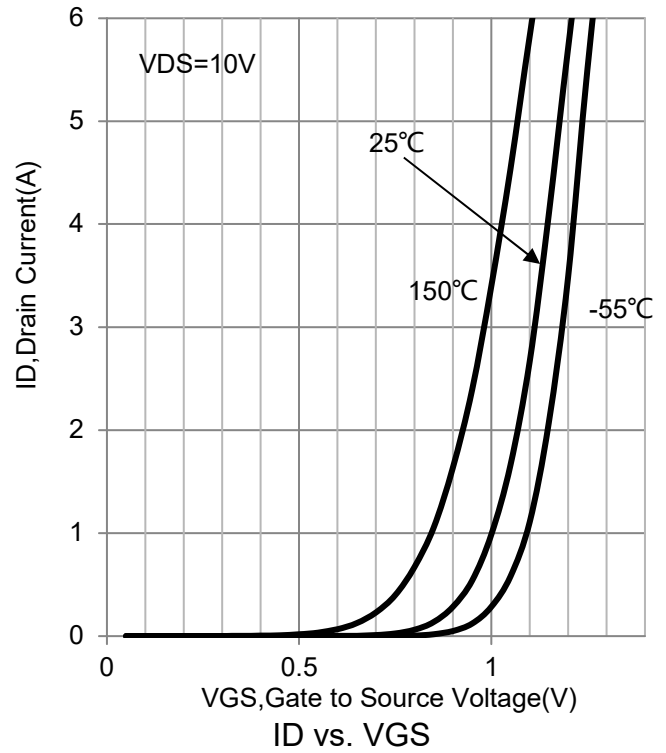
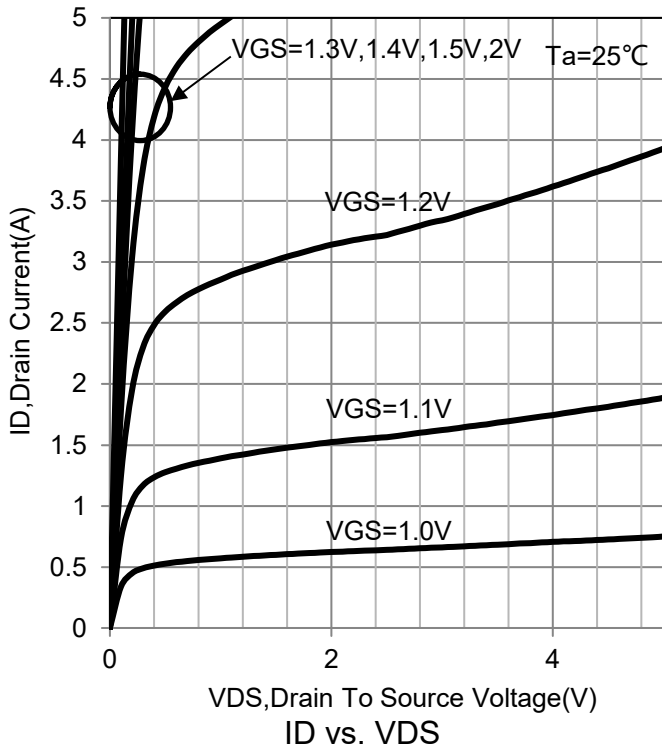


**5. ELECTRICAL CHARACTERISTICS**

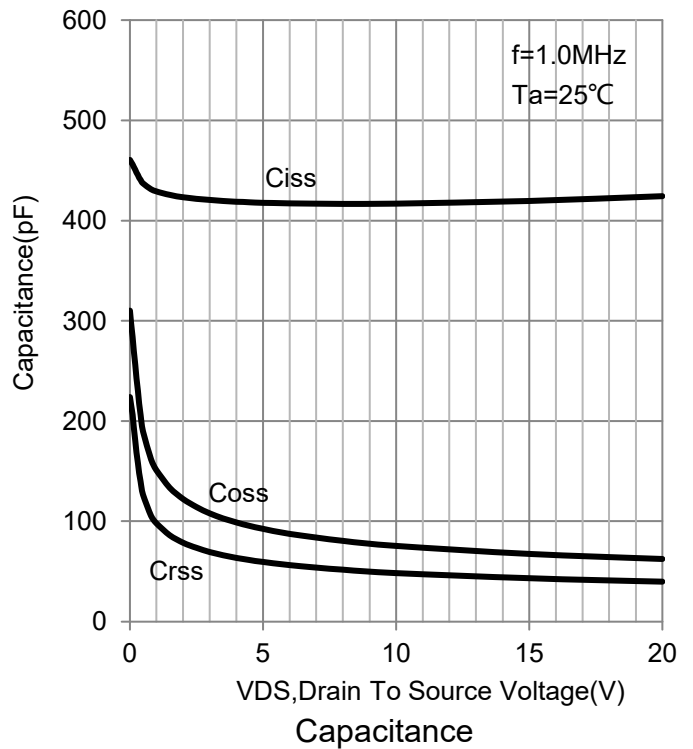
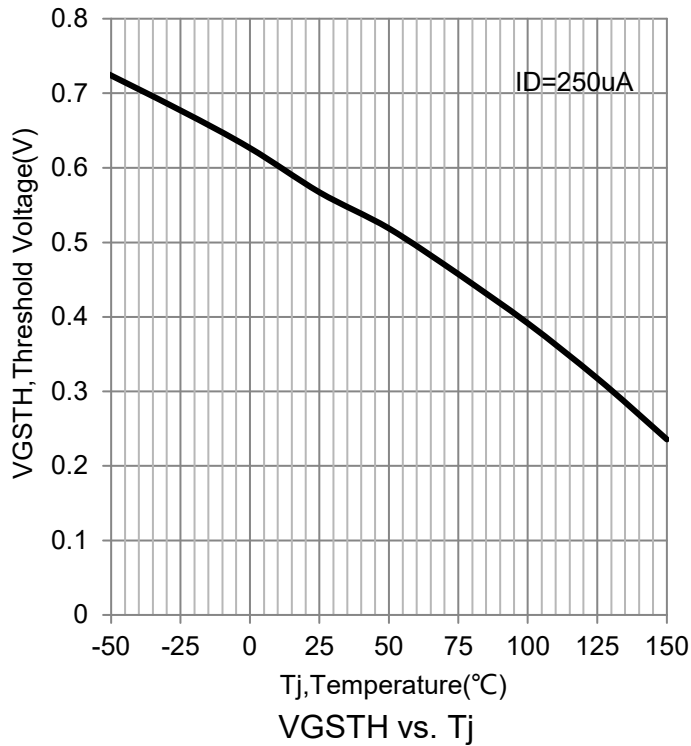
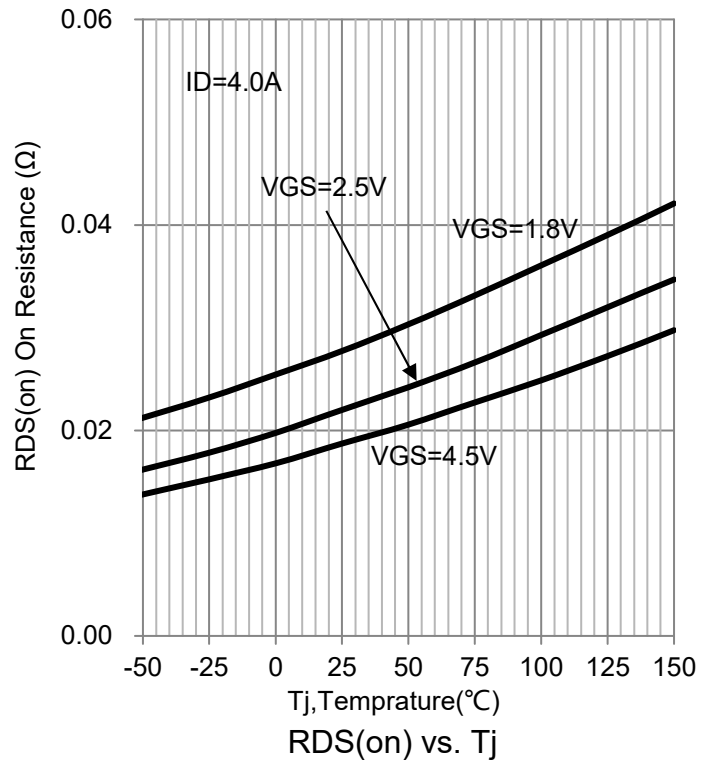
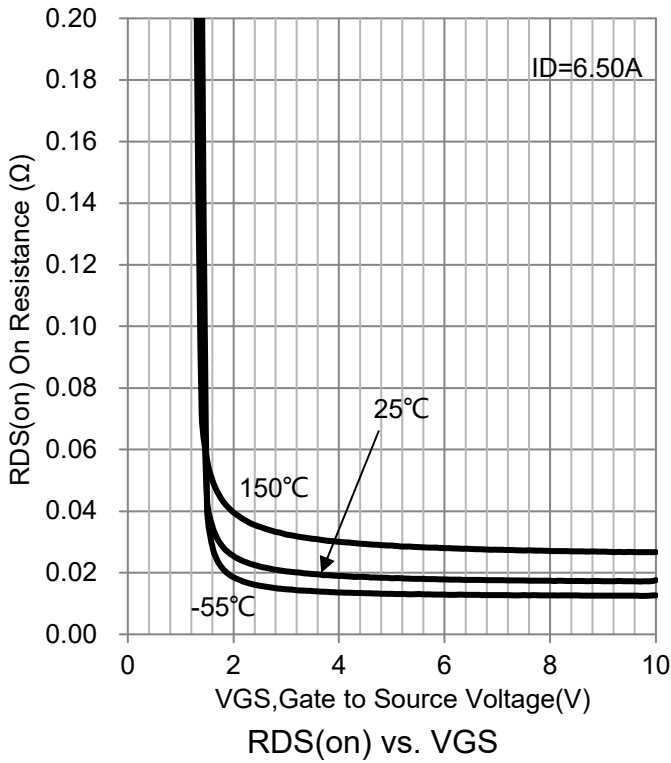
Characteristic	Symbol	Min.	Typ.	Max.	Unit
<b>Static</b>					
Drain-Source Breakdown Voltage (VGS =0V, ID =250μA)	V(BR)DSS	20	-	-	V
Gate Threshold Voltage (VDS =VGS , ID =250μA)	VGS(th)	0.4	-	1	V
Gate Leakage Current (VDS =0V, VGS =±8V)	IGSS	-	-	±10	μA
Zero Gate Voltage Drain Current (VDS =20V, VGS =0V )	IDSS	-	-	1	μA
Drain-Source On-Resistance(Note 2) (VGS =4.5V, ID = 4A) (VGS =2.5V, ID = 4A) (VGS =1.8V, ID = 4A)	RDS(ON)	-	15 18 24	22 28 40	mΩ
Diode Forward Voltage (VGS = 0V, IS = 5A)	VSD	-	-	1	V
<b>DYNAMIC</b>					
Total Gate Charge	Qg	-	8	-	nC
Gate-Source Charge	Qgs	-	1.4	-	
Gate-Drain Charge	Qgd	-	1.5	-	
Input Capacitance	Ciss	-	425	-	pF
Output Capacitance	Coss	-	73	-	
Reverse Transfer Capacitance	Crss	-	48	-	
Turn-On Delay Time	td(on)	-	250	-	ns
Turn-On Rise Time	tr	-	420	-	
Turn-Off Delay Time	td(off)	-	3950	-	
Turn-Off Fall Time	tf	-	3700	-	

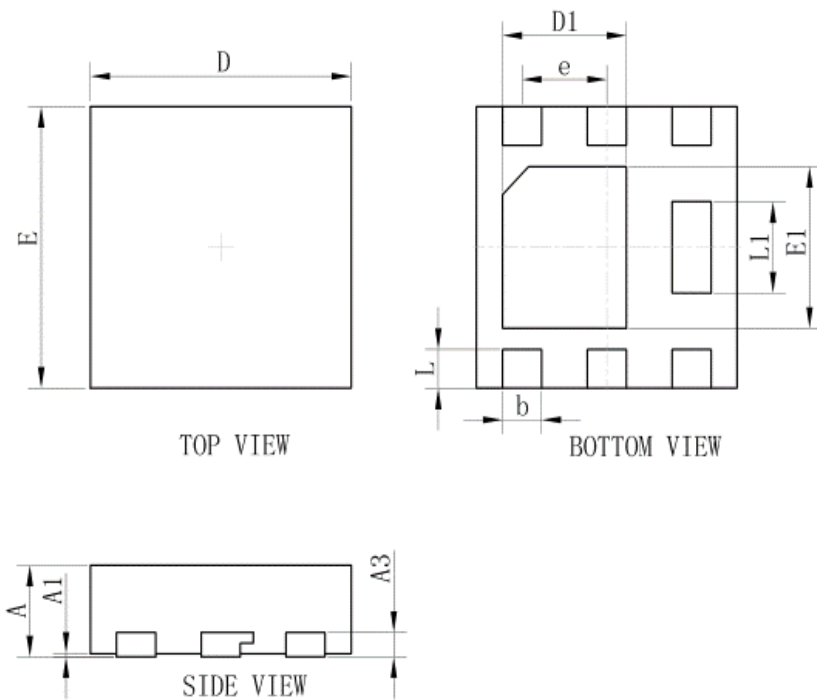
2. Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%



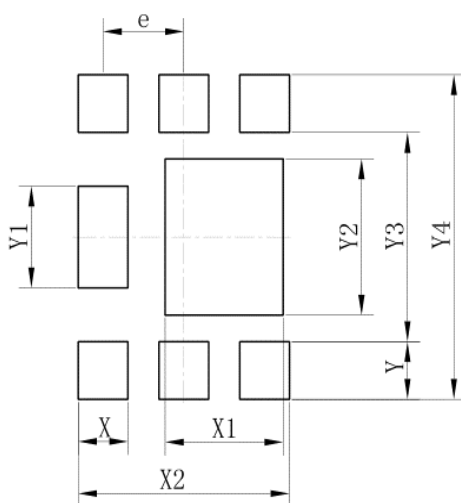
**6.ELECTRICAL CHARACTERISTICS CURVES**


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



**7.OUTLINE AND DIMENSIONS**


DFN2020-6S			
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.01	0.03	0.05
b	0.25	0.30	0.35
D	1.95	2.00	2.05
E	1.95	2.00	2.05
e	0.65TYP.		
L	0.23	0.28	0.33
L1	0.60	0.65	0.65
D1	0.90	0.95	1.00
E1	1.10	1.15	1.20
A3	0.152REF		
All Dimensions in mm			

**8.SOLDERING FOOTPRINT**


DFN2020-6S	
Dim	(mm)
X	0.40
X1	0.95
X2	1.70
e	0.65
Y	0.43
Y1	0.75
Y2	1.15
Y3	1.54
Y4	2.39

