

N2322ED

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

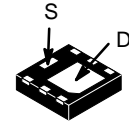
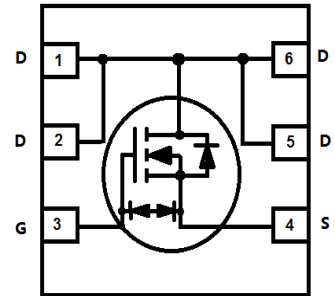
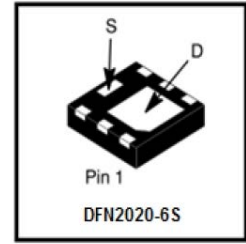
3. ORDERING INFORMATION

Device	Marking	Shipping
N2322ED	2ED	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	±12	V
Continuous Drain Current	ID	8	A
Pulsed Drain Current	IDM	26	A
Maximum Power Dissipation	PD	TA =25°C	1.8
		TA =70°C	1.1
Operating Junction Temperature	TJ	-55 ~+150	°C
Thermal Resistance-Junction to Ambient(Note1)	RθJA	90	°C/W

1. The device mounted on 1in² FR4 board with 2 oz copper



5. ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit	
Static						
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 =±12V)	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 = 2A)	RDS(ON)	-	15 22 26	22 36 35	mΩ	
Diode Forward Voltage (VGS = 0V, IS = 5A)	VSD	-	-	1.3	V	
DYNAMIC						
Total Gate Charge	(VDS =10V, VGS =4.5V, ID =6.5A)	Qg	-	12	-	nC
Gate-Source Charge		Qgs	-	1.9	-	
Gate-Drain Charge		Qgd	-	3	-	
Input Capacitance	(VDS =10V, VGS =0V, f=1MHz)	Ciss	-	850	-	pF
Output Capacitance		Coss	-	395	-	
Reverse Transfer Capacitance		Crss	-	125	-	
Turn-On Delay Time	(VDS =10V, RL = 1.5Ω, VGS =5V, RGEN =3Ω)	td(on)	-	250	-	ns
Turn-On Rise Time		tr	-	420	-	
Turn-Off Delay Time		td(off)	-	3950	-	
Turn-Off Fall Time		tf	-	3700	-	

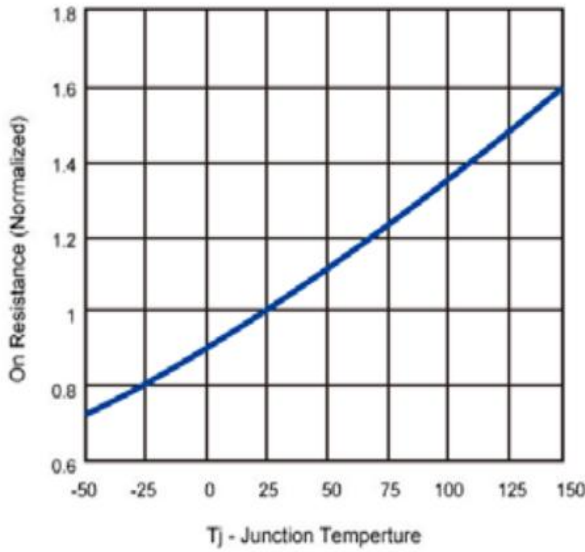
2. Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%

3. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.

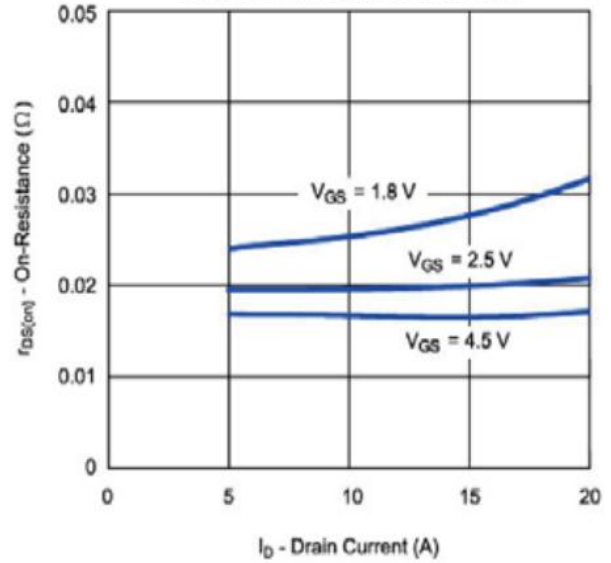


6.ELECTRICAL CHARACTERISTICS CURVES

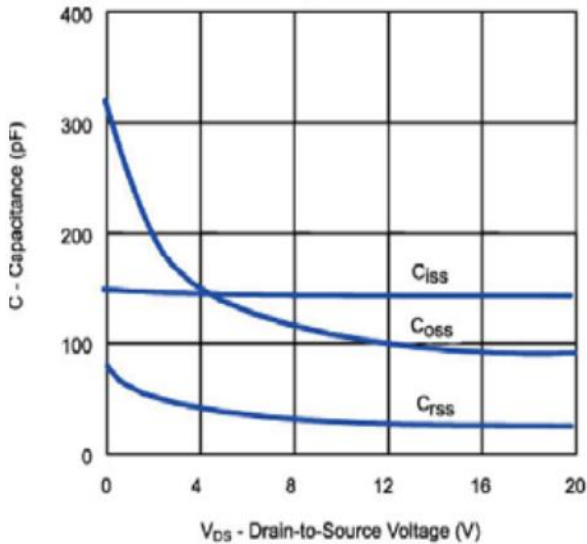
On Resistance vs. Junction Temperature



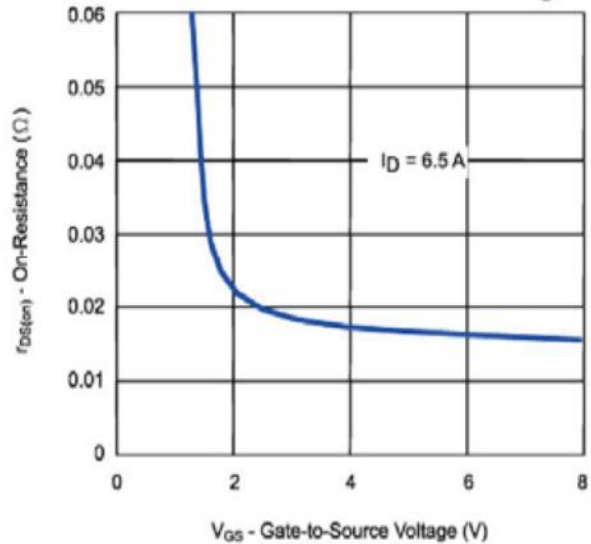
On-Resistance vs. Drain Current



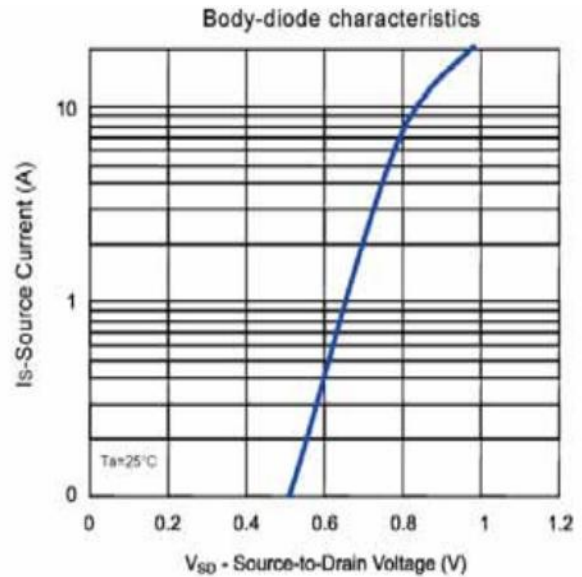
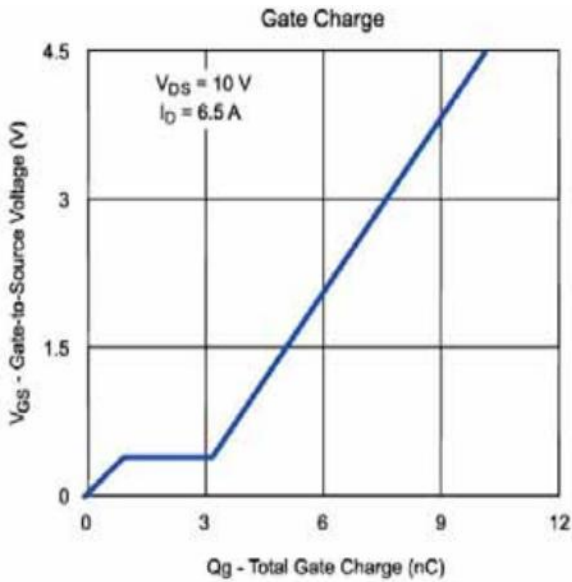
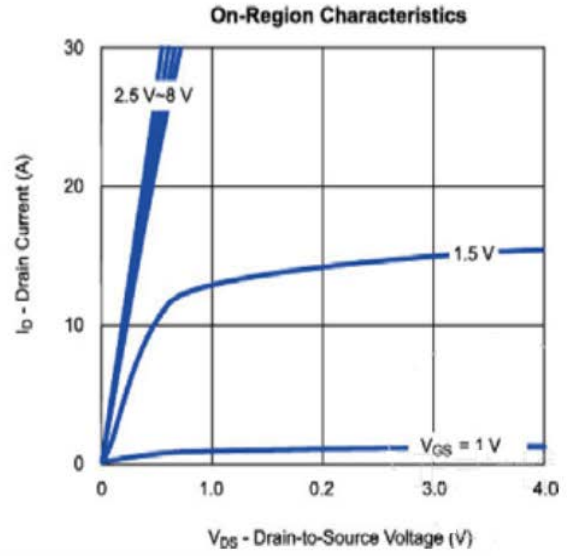
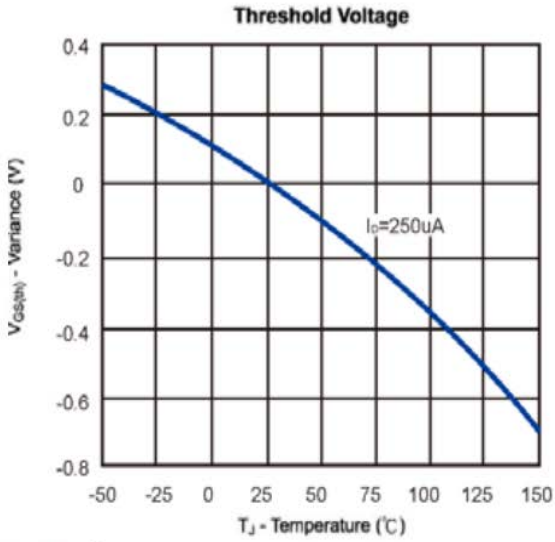
Capacitance



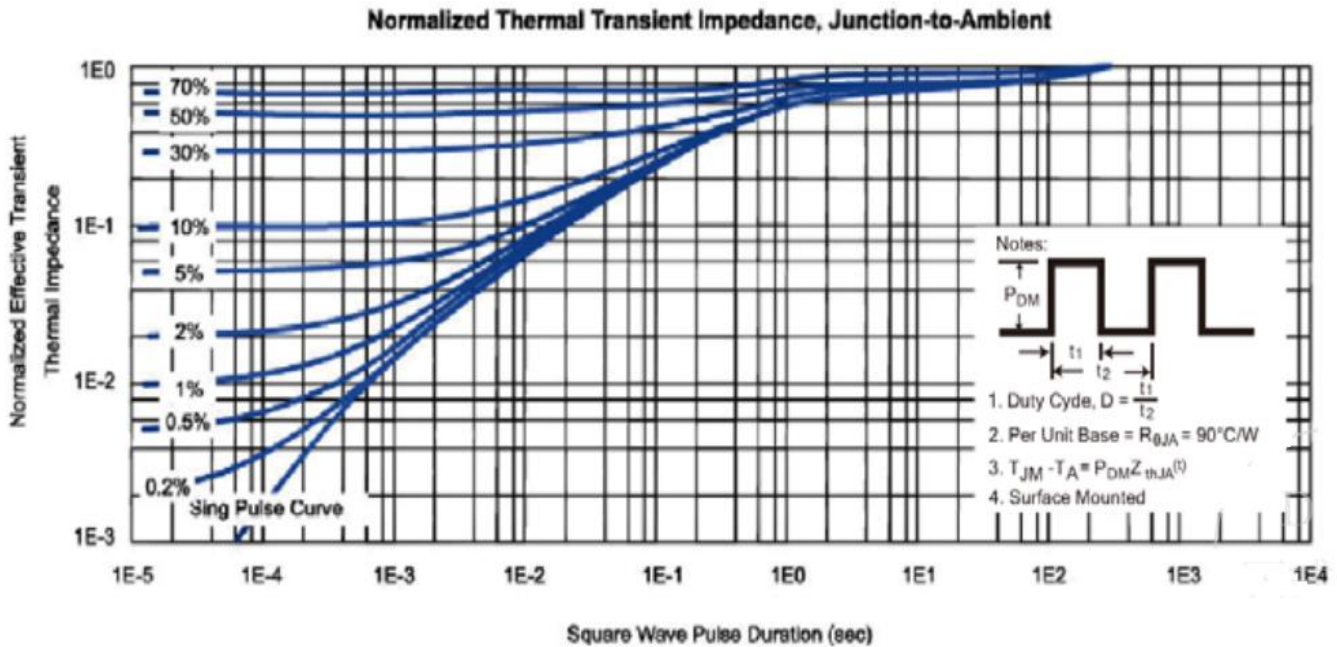
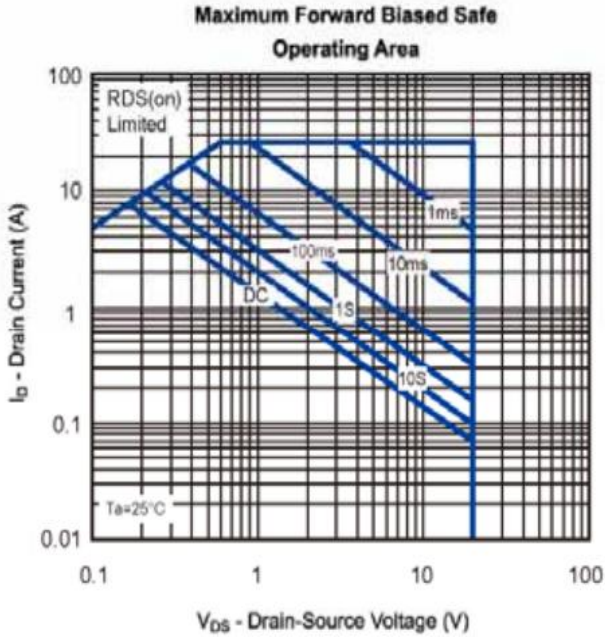
On-Resistance vs. Gate-to-Source Voltage

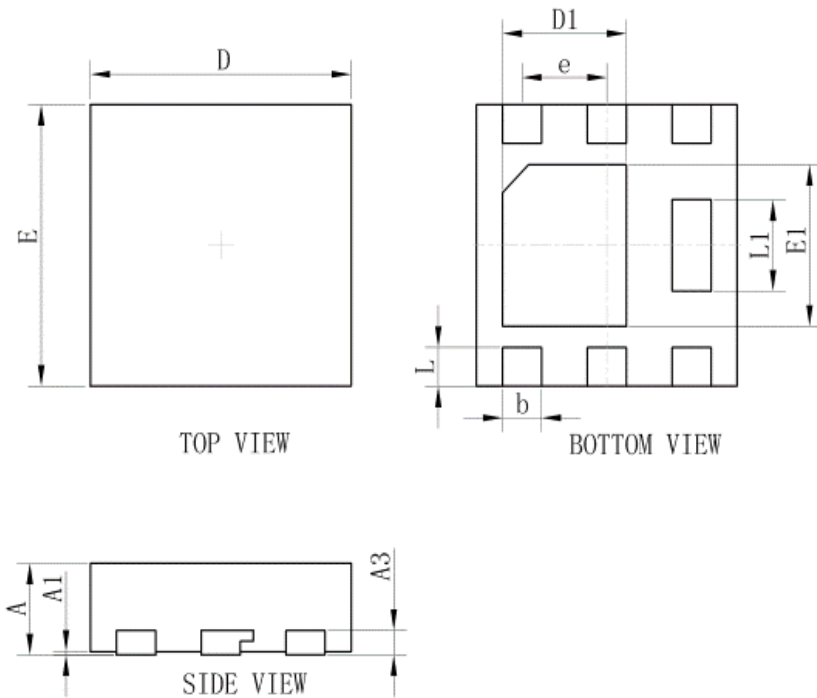


6.ELECTRICAL CHARACTERISTICS CURVES(Con.)

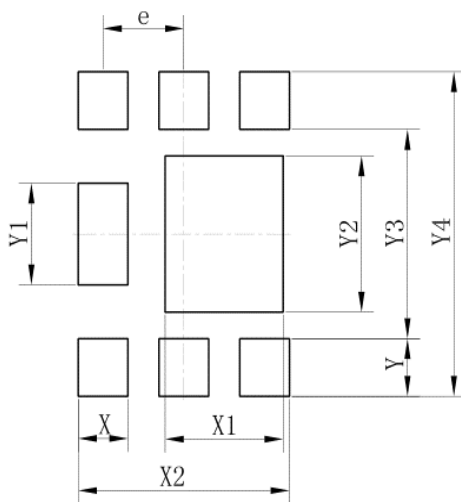


6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



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

