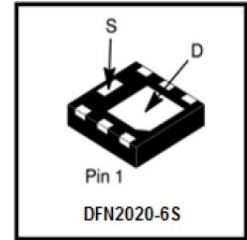


N3412D

30V 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.

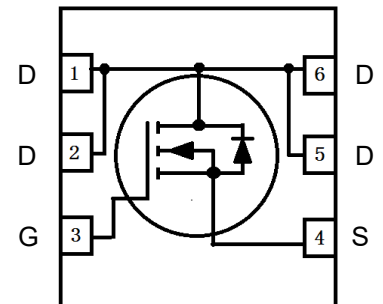


2. APPLICATION

- Power Routing
- DC/DC Conversion
- Motor Drives

3. ORDERING INFORMATION

Device	Marking	Shipping
N3412D	N2S	4000/Tape&Reel



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

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	30	V
Gate-to-Source Voltage		VGS	±20	V
Continuous Drain Current	TC =25°C	ID	40	A
	TC =100°C		22	
	TA =25°C		15	
Pulsed Drain Current (Note 1)		IDM	60	
Avalanche Current		IAS	17	
Avalanche Energy(L=0.1mH)		EAS	14.45	mJ
Power Dissipation TA =25°C		PD	3	W
Operating Junction Temperature		TJ	-55 ~+150	°C
Storage Temperature Range		Tstg	-55 ~+150	

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 2)	Rthja	40	°C/W
Maximum Junction-to-Case(Note 2)	Rthjc	5	°C/W

- 1.Pulse width limited by maximum junction temperature.
- 2.Surface Mounted on 1" x 1" FR4 Board.

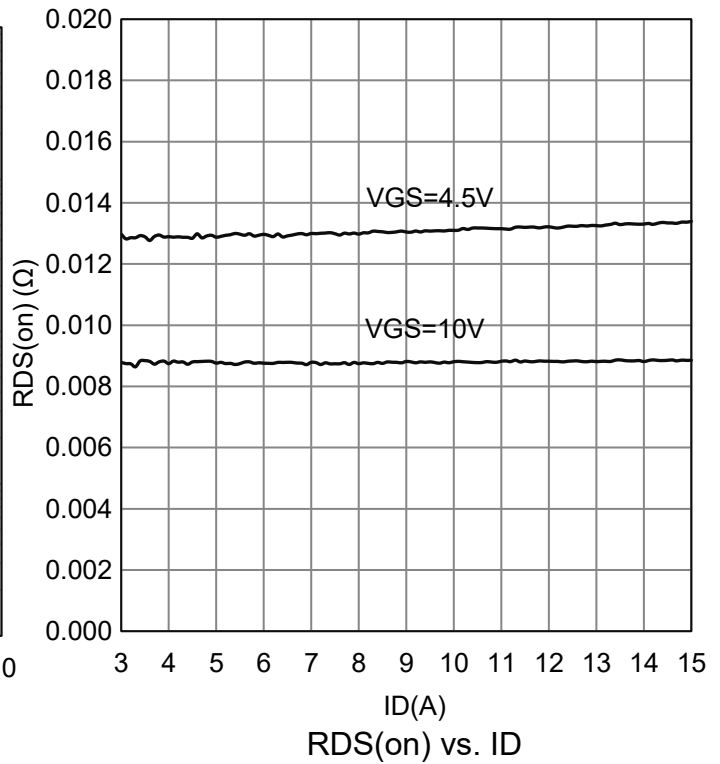
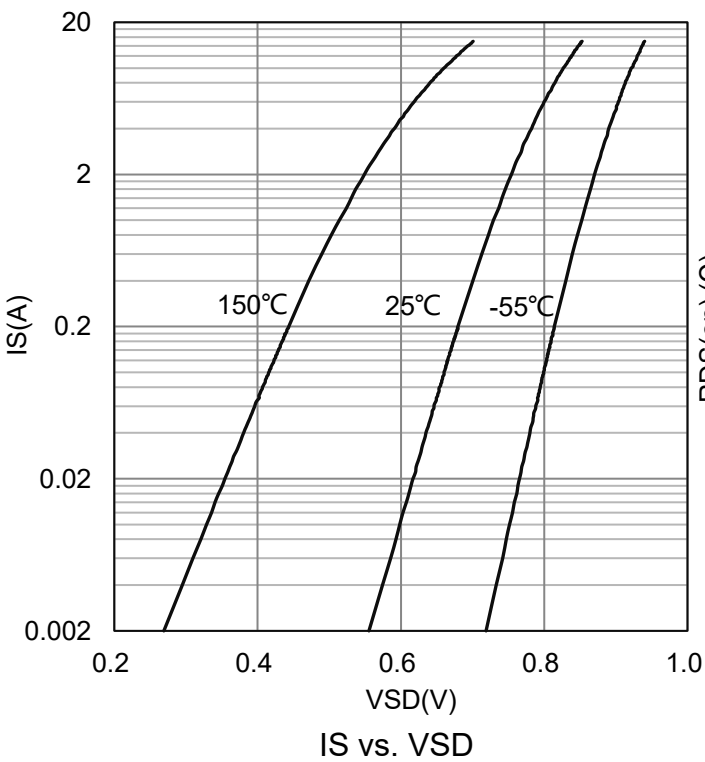
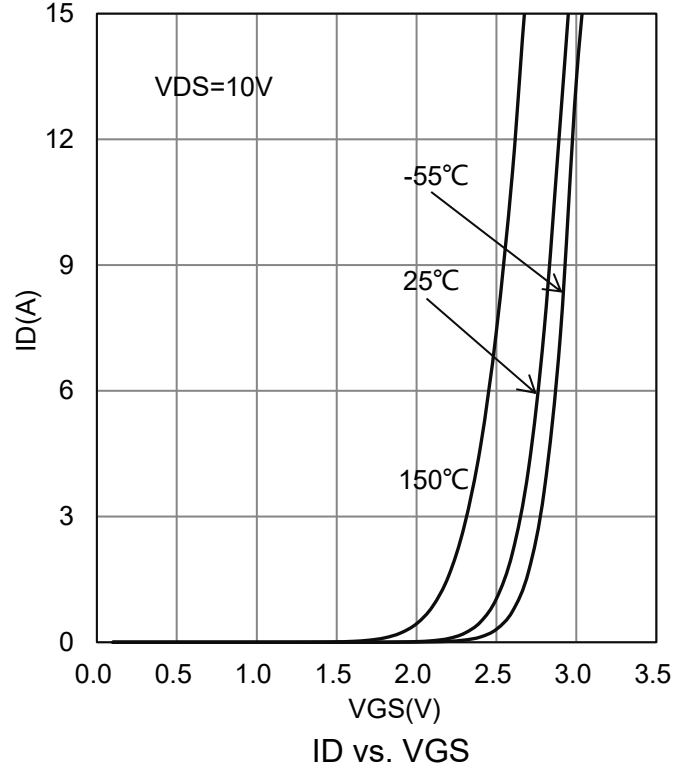
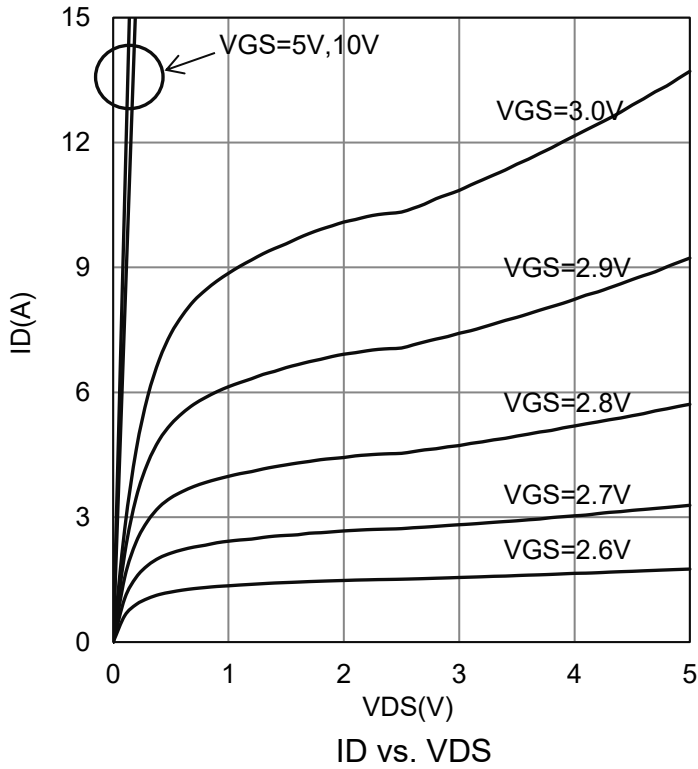


6. ELECTRICAL CHARACTERISTICS

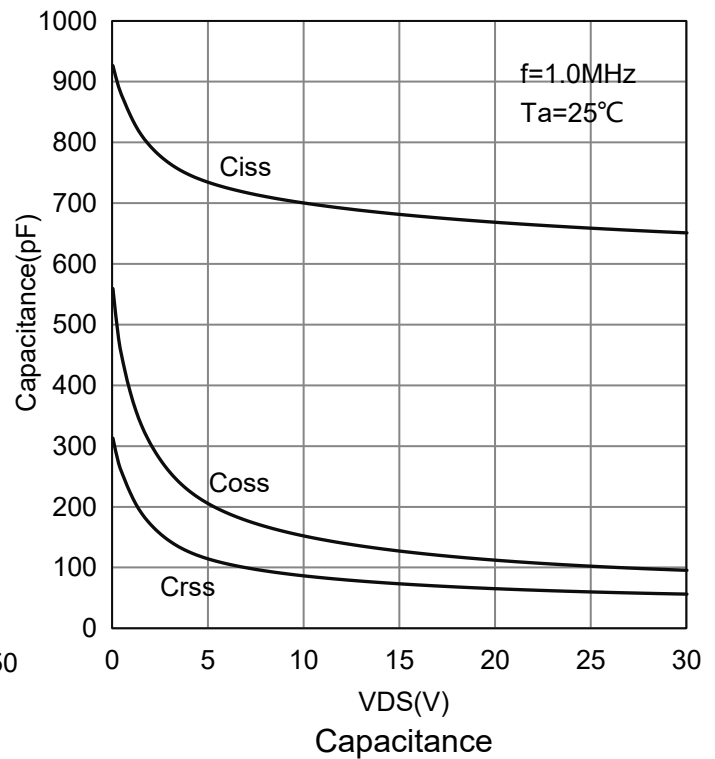
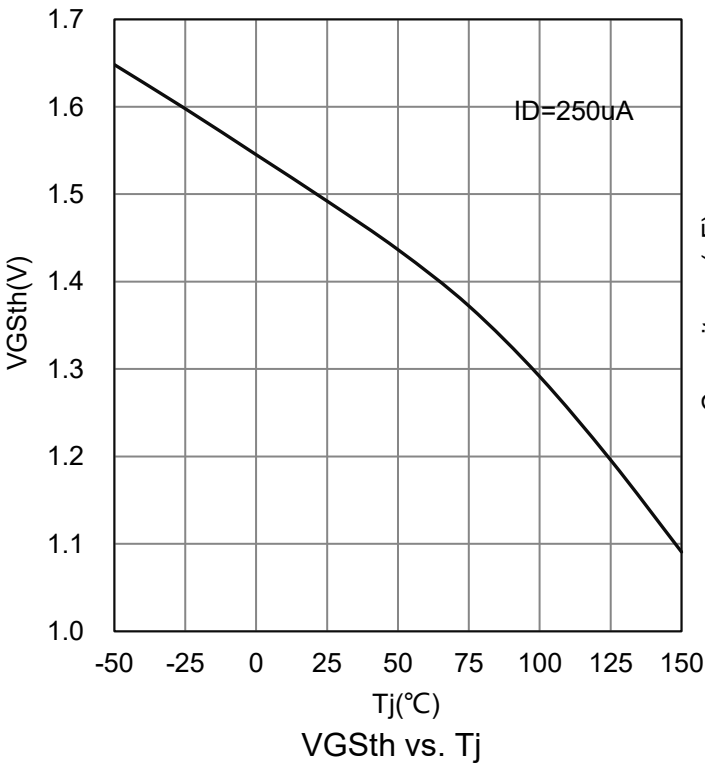
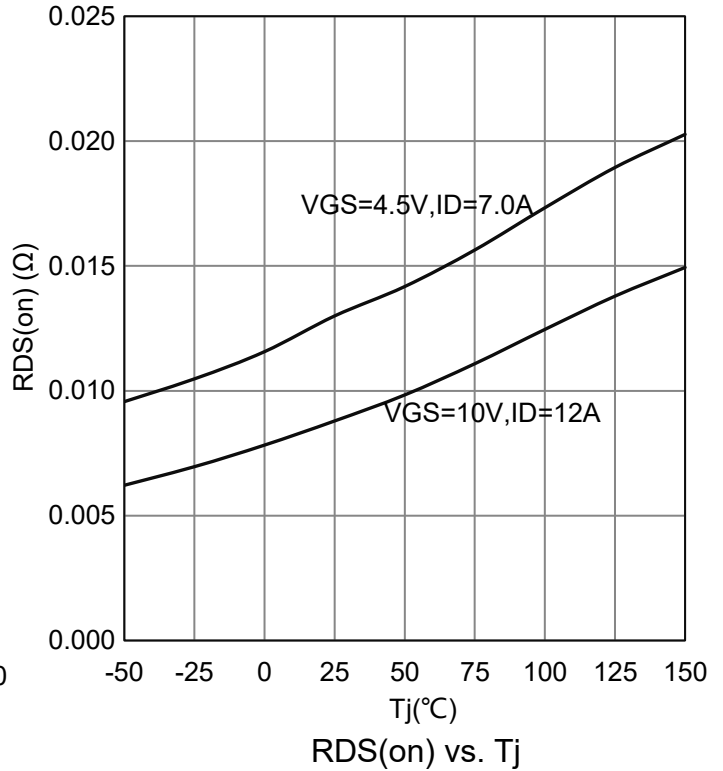
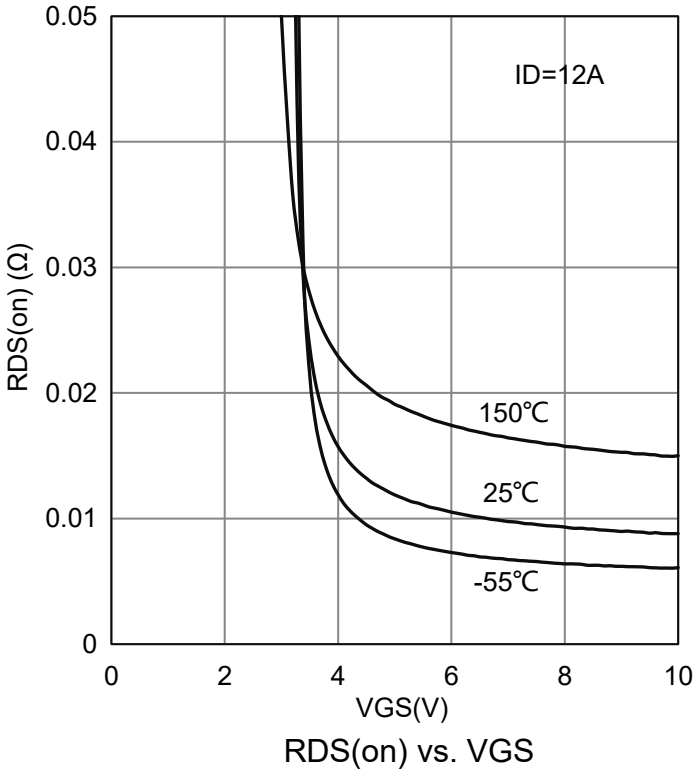
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain-Source Breakdown Voltage (VGS = 0V, ID = 250 μ A)	V(BR)DSS	30	-	-	V
Gate-Source Threshold Voltage (VDS = VGS, ID = 250 μ A)	VGS(th)	1	1.7	3	V
Gate-Body Leakage Current (VDS = 0 V, VGS = \pm 20 V)	IGSS	-	-	\pm 100	nA
Zero Gate Voltage Drain Current (VDS = 24 V, VGS = 0 V)	IDSS	-	-	1	μ A
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 12 A) (VGS = 4.5 V, ID = 7 A)	RDS(on)	- -	9.7 13	11.5 16	m Ω
Forward Transconductance(Note 3) (VDS = 5 V, ID = 12 A)	gfs	-	15	-	S
Diode Forward Voltage(Note 3) (IS = 12 A, VGS = 0 V)	VSD	-	-	1.2	V
Dynamic					
Total Gate Charge(VGS = 4.5V)	(VDS = 15V, VGS = 10V, ID = 12A)	Qg	-	6.6	nC
Total Gate Charge(VGS = 10V)		Qg	-	13.4	
Gate-Source Charge		Qgs	-	2	
Gate-Drain Charge		Qgd	-	2.8	
Input Capacitance	(VGS = 0V, VDS = 15V, f = 1MHz)	Ciss	-	681	pF
Output Capacitance		Coss	-	127	
Reverse Transfer Capacitance		Crss	-	73	
Turn-On Delay Time	(VDS = 15V, ID = 1A, VGS = 10V, RG = 2.7 Ω)	td(on)	-	8	ns
Rise Time		tr	-	8	
Turn-Off Delay Time		td(off)	-	15	
Fall Time		tf	-	10	
Gate Resistance (VGS = 15mV, VDS = 0V, f = 1MHz)	Rg	-	0.3	-	Ω

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

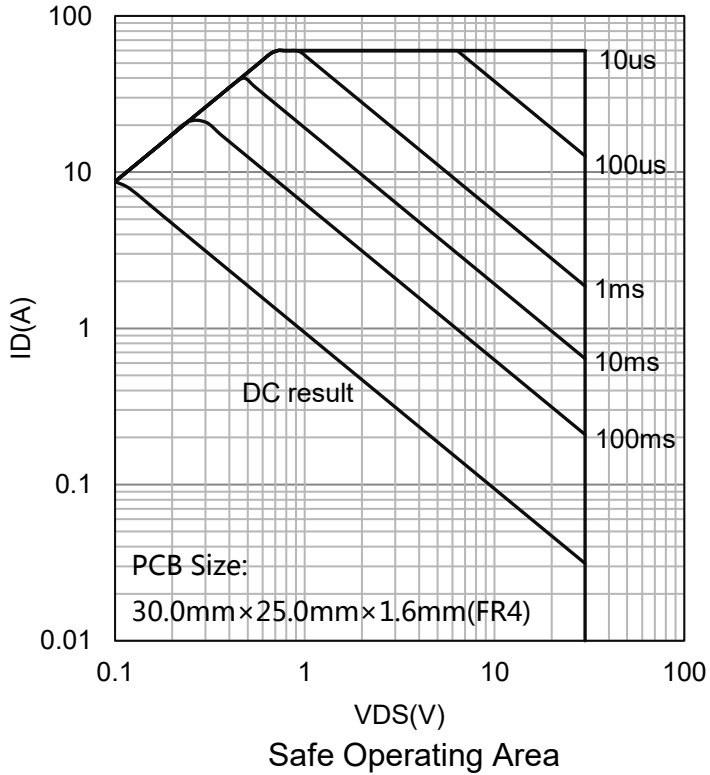

7. ELECTRICAL CHARACTERISTICS CURVES



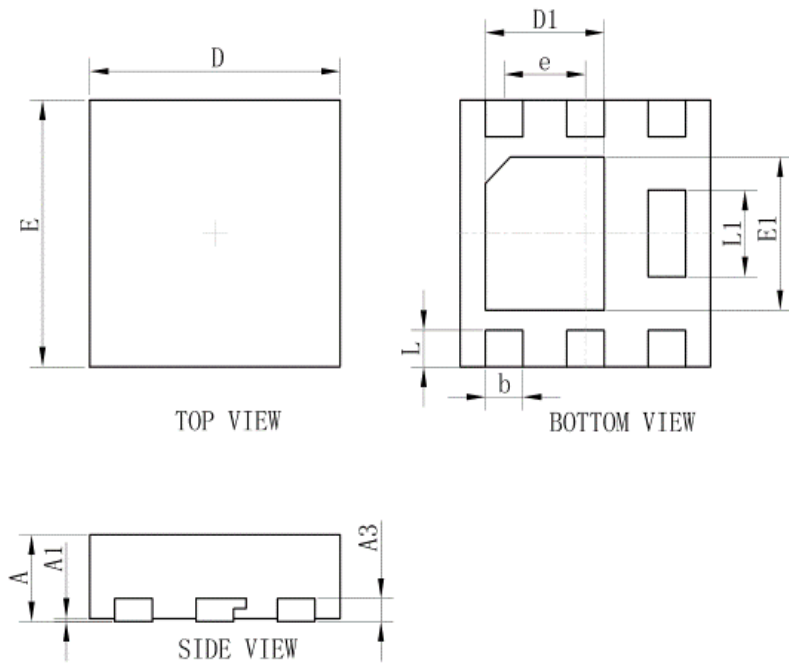
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



7.ELECTRICAL CHARACTERISTICS CURVES(Con.)

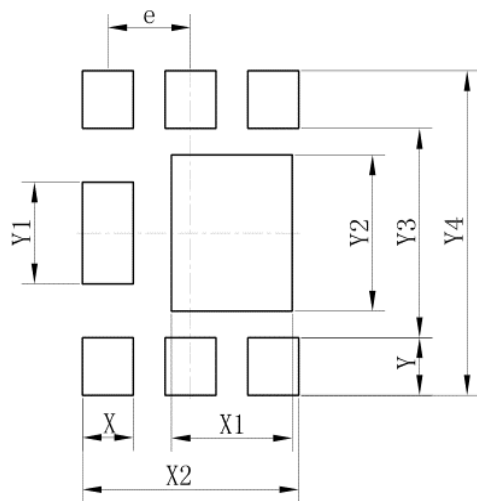


8. OUTLINE AND DIMENSIONS



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			

9. 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

