

N2212D

20V N-Channel Enhancement-Mode MOSFET

1. FEATURES

- VDS =20V
- Low RDS(ON) trench technology.
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- Power Routing
- Level Shifting and Driver Circuits

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
N2212D	A21	4000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25°C)

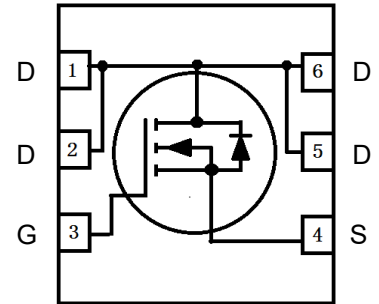
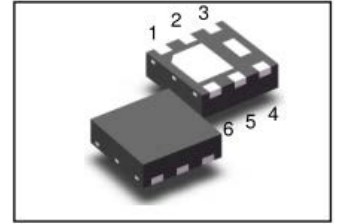
Parameter		Symbol	Limits	Unit
Drain-Source Voltage		VDS	20	V
Gate-Source Voltage		VGS	±10	
Continuous Drain Current(Note 1)	TA = 25°C	ID	8	A
	TA = 70°C		11	
Pulsed Drain Current(Note 2)		IDM	60	
Avalanche Current		IAS	18	A
Avalanche energy(L=0.1mH)		EAS	16.2	mJ
Power Dissipation(Note 1)	TA = 25°C	PD	2	W
	TA = 70°C		1.5	
Operating Junction and Storage Temperature Range		TJ , Tstg	-55~+150	°C

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Maximum Junction-to-Ambient (Note 1)	RθJA	60	°C/W

1. 1.15 x 1.5" FR4 board using 1 sq in pad, 2 oz Cu.

2. Pulse width limited by maximum junction temperature.



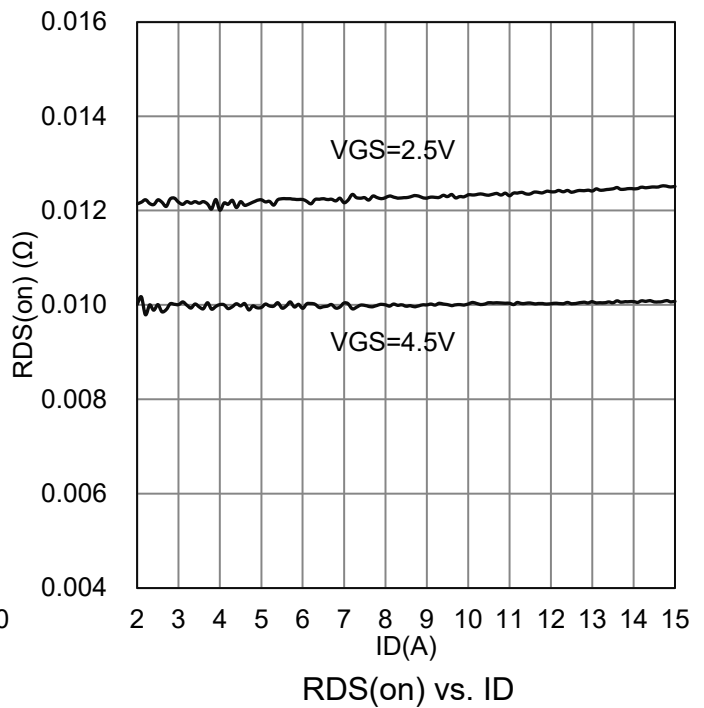
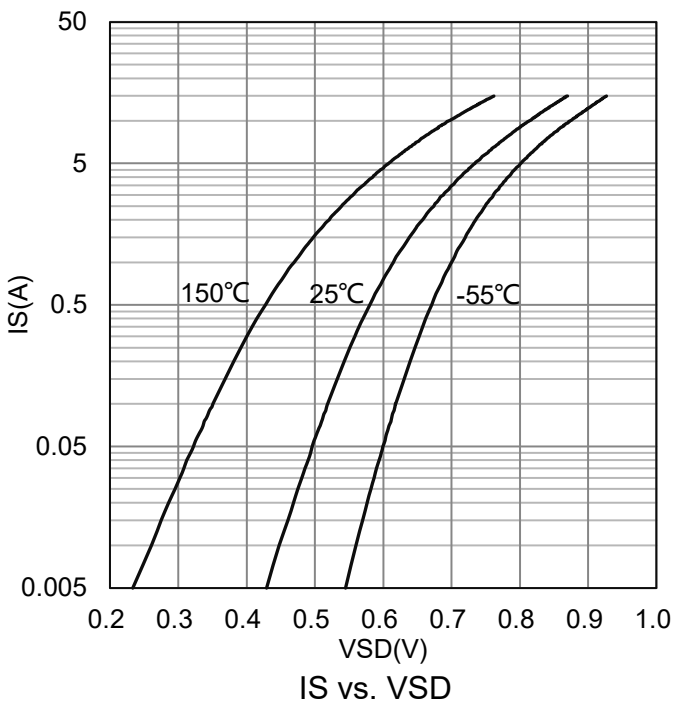
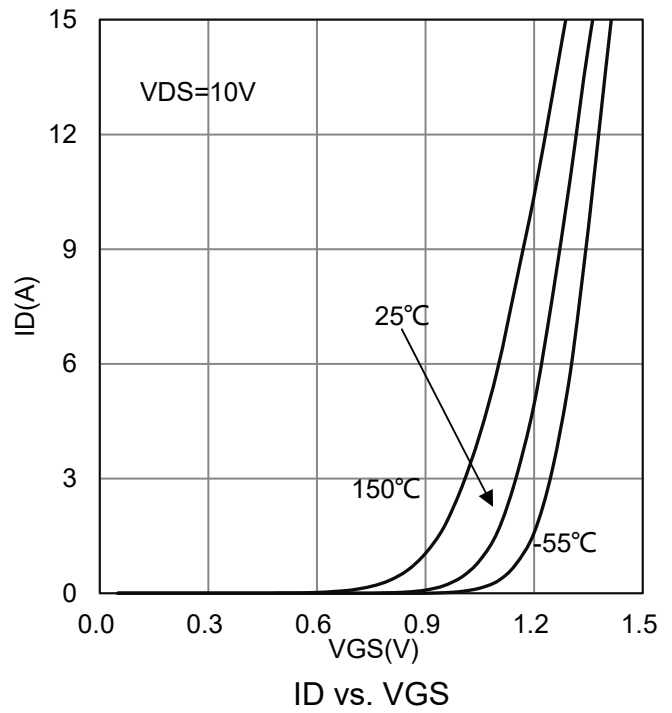
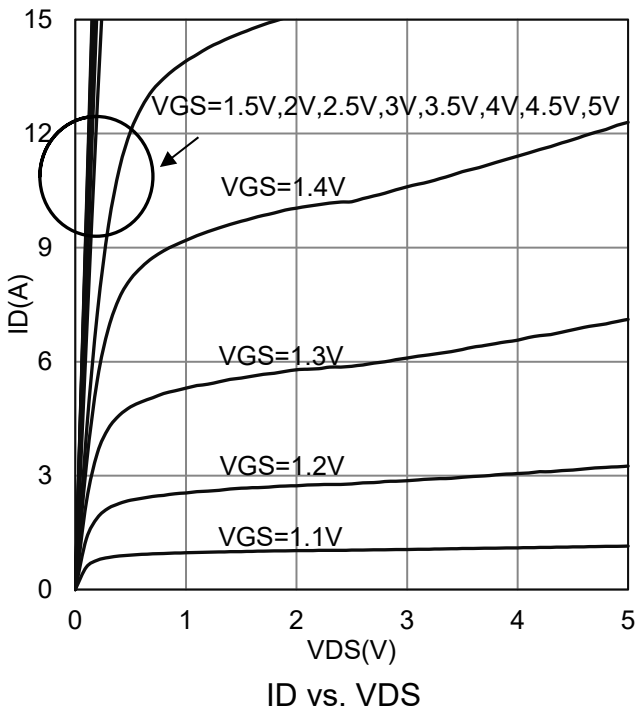
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

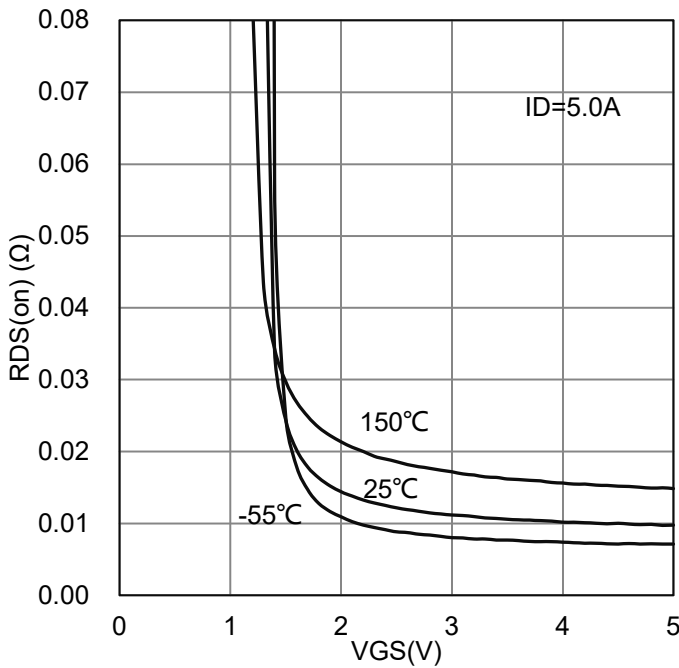
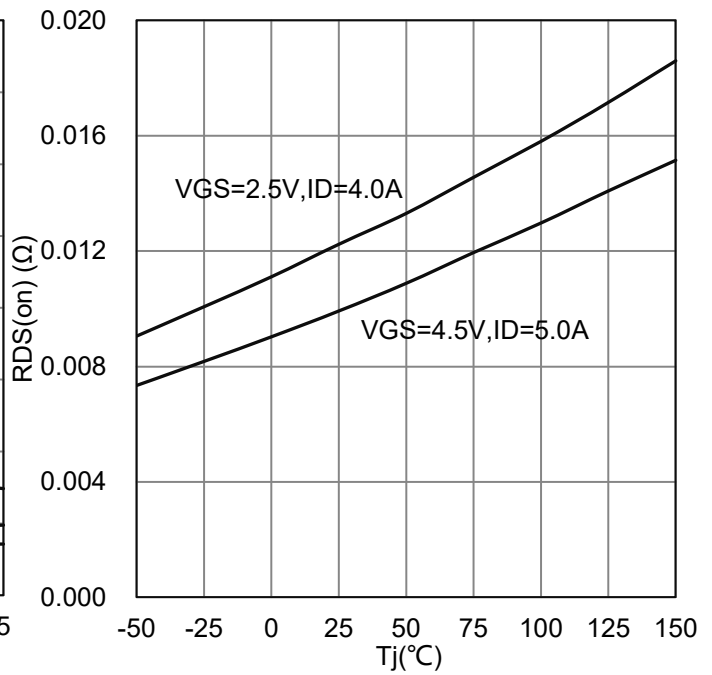
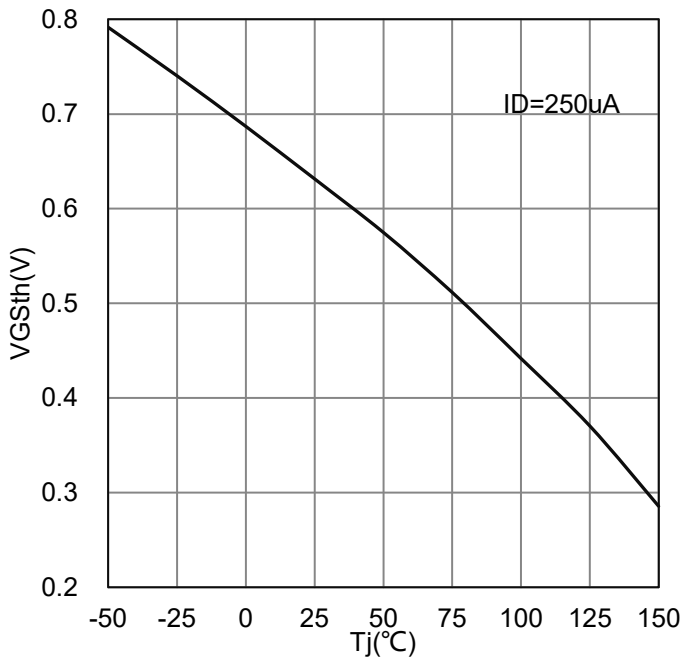
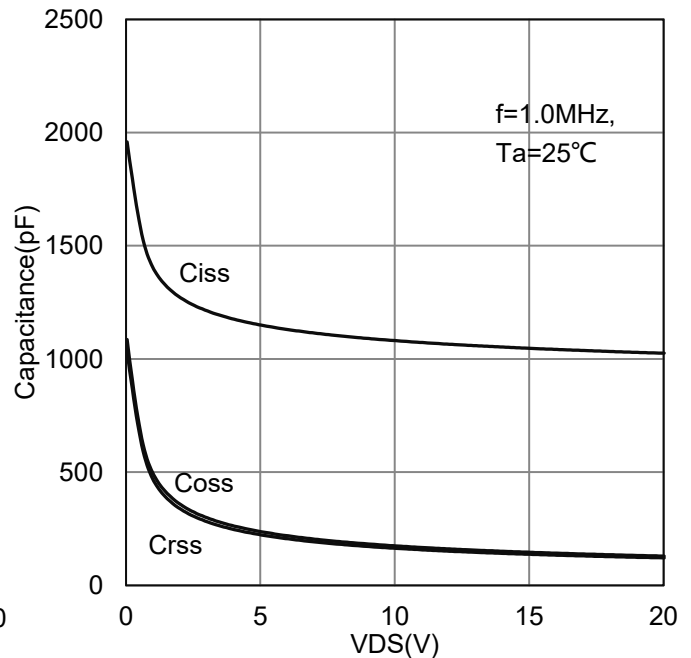
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain-Source Breakdown Voltage (VGS = 0V , ID = 250 uA)	V(BR)DSS	20	-	-	V
Gate-Source Threshold Voltage (VDS =VGS , ID =250μA)	VGS(th)	0.4	0.7	1	V
Gate-Body Leakage (VDS =0V, VGS =± 10V)	IGSS	-	-	±10	μA
Zero Gate Voltage Drain Current (VDS = 20 V, VGS = 0 V)	IDSS	-	-	1	μA
Drain-Source On-Resistance(Note 3) (VGS = 4.5 V, ID = 5 A) (VGS = 2.5 V, ID = 4 A)	RDS(ON)	- -	9.7 11.5	12 16	mΩ
Diode Forward Voltage(Note 3) (IS = 1.4 A, VGS = 0 V)	VSD	-	0.6	1.2	V
DYNAMIC					
Total Gate Charge	(VDS = 10 V, VGS = 4.5 V, ID = 10 A)	Qg	-	15	nC
Gate-Source Charge		Qgs	-	2.5	
Gate-Drain Charge		Qgd	-	3.9	
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	1047	pF
Output Capacitance		Coss	-	146	
Reverse Transfer Capacitance		Crss	-	137	
Turn-On Delay Time	(VDS = 10 V, RL = 1Ω ,ID = 10 A, VGEN = 4.5 V, RGEN = 6Ω)	td(on)	-	TBD	ns
Turn-On Rise Time		tr	-	TBD	
Turn-Off Delay Time		td(off)	-	TBD	
Turn-Off Fall Time		tf	-	TBD	
Gate Resistance (VDS=0V ,VGS=0V, f=1.0MHz)	Rg	-	100	-	Ω

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

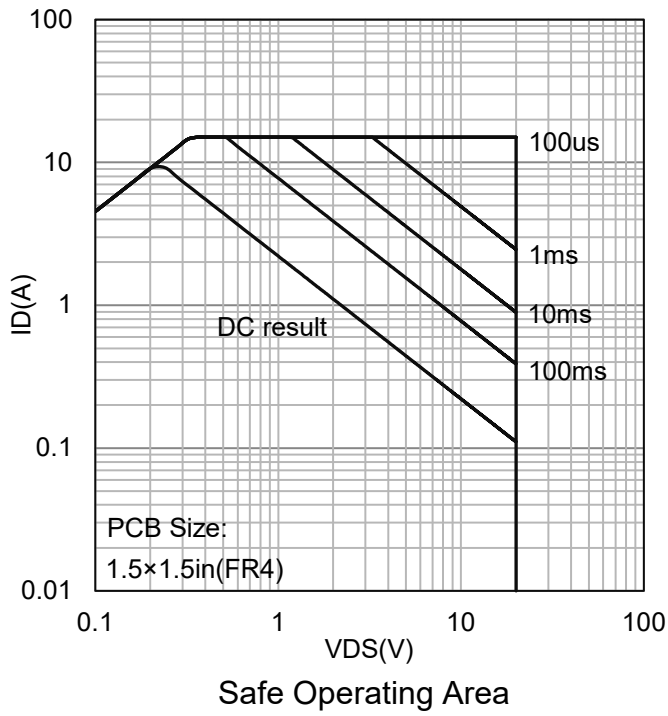


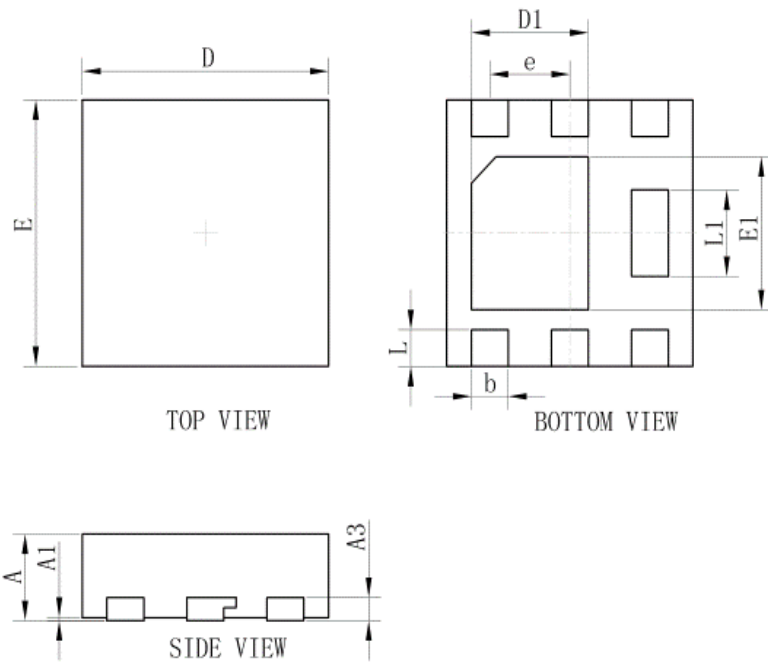
7. ELECTRICAL CHARACTERISTICS CURVES



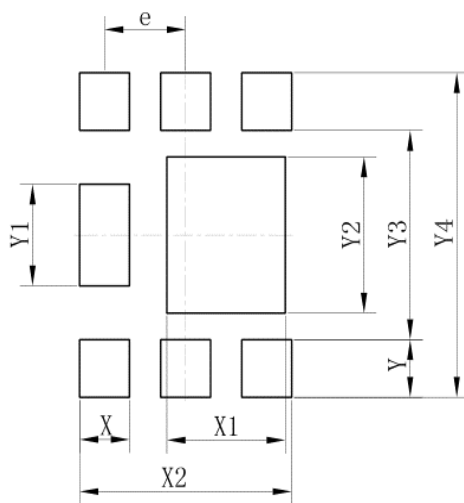
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

 $R_{DS(on)}$ vs. V_{GS}

 $R_{DS(on)}$ vs. T_j

 $V_{GS(th)}$ vs. T_j

Capacitance


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

