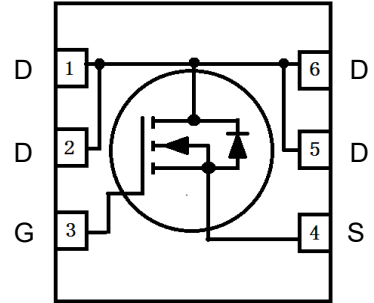
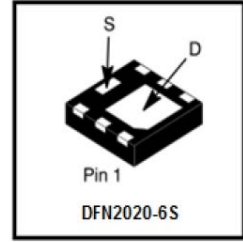


N3420D

30V N-Channel Enhancement MOSFET



1. FEATURES

- $V_{DS} = 30\text{ V}$
 $R_{DS(ON)} \leq 8\text{ m}\Omega$, $V_{GS@10V}$, $I_{DS@6A}$
 $R_{DS(ON)} \leq 10\text{ m}\Omega$, $V_{GS@4.5V}$, $I_{DS@5A}$
- Low $R_{DS(ON)}$ trench technology
- Low thermal impedance
- Fast switching speed
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.

2. APPLICATIONS

- DC/DC Conversion
- Power Routing
- Motor Drives

3. ORDERING INFORMATION

Device	Marking	Shipping
N3420D	N20	4000/Tape&Reel

4. MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	V_{DSS}	30	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (Note 1)	ID	$T_A = 25^\circ\text{C}$	12
		$T_A = 70^\circ\text{C}$	7
Pulsed Drain Current (Note 2)	IDM	40	A
Continuous Source Current (Diode Conduction) (Note 1)	IS	3.8	A
Power Dissipation (Note 1)	PD	$T_A = 25^\circ\text{C}$	2.4
		$T_A = 70^\circ\text{C}$	1.4
Avalanche Current ($L=0.1\text{mH}$)	IAS	21	A
Avalanche energy ($L=0.1\text{mH}$)	EAS	22.05	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	$-55 \sim +150$	$^\circ\text{C}$

1. Surface mounted on "1.5 x 1.5" FR4 board using 1 sq in pad, 2 oz Cu.

2. Pulse width limited by maximum junction temperature

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Maximum Junction-to-Ambient (Note 1)	R θ JA	$t \leq 10\text{S}$	40
		Steady State	90



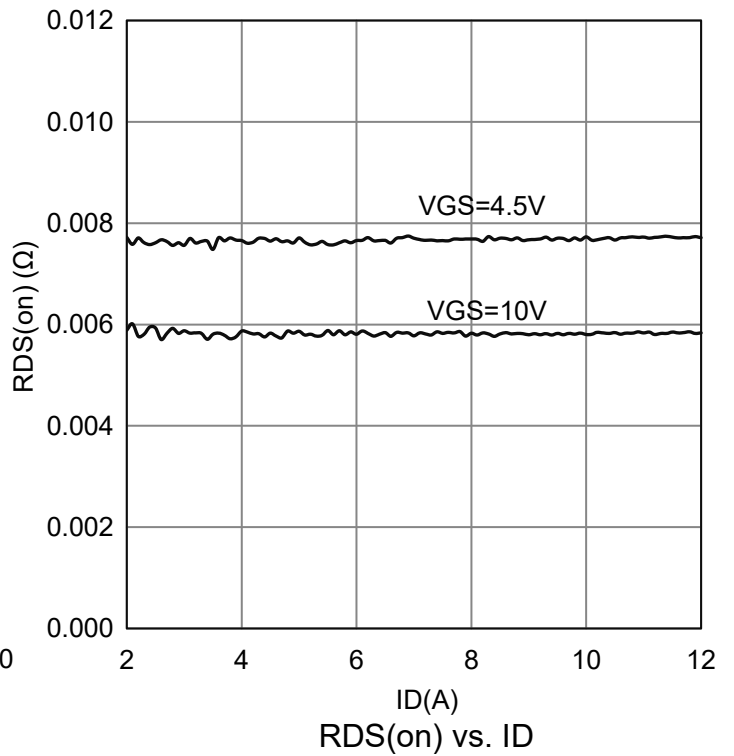
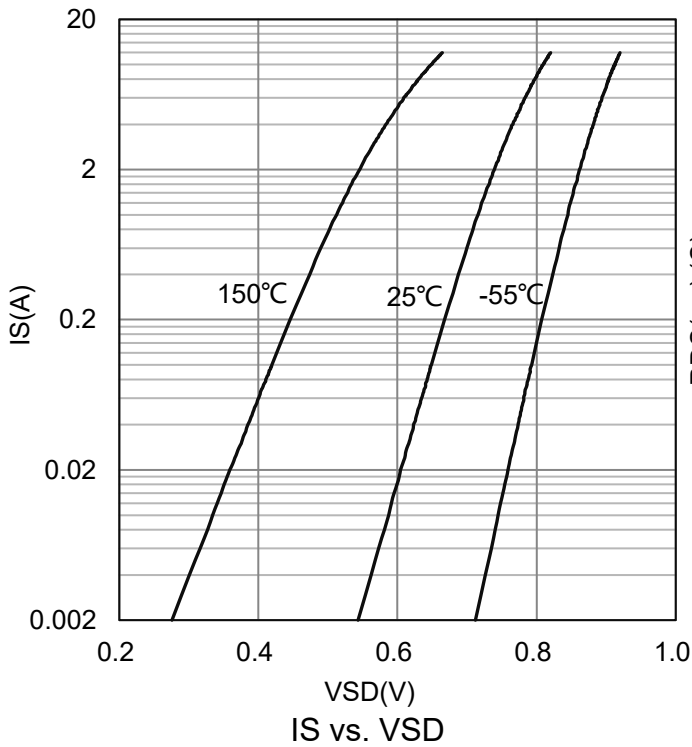
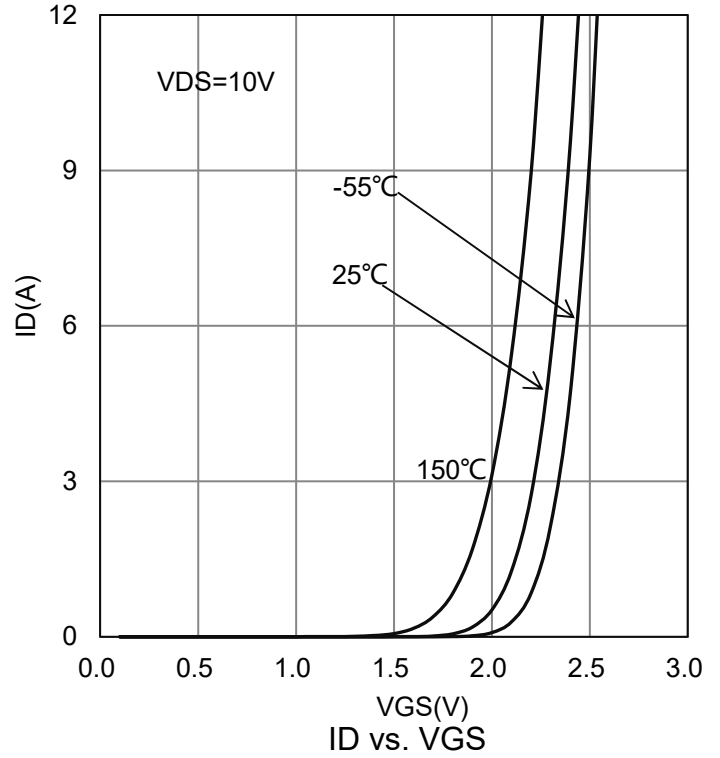
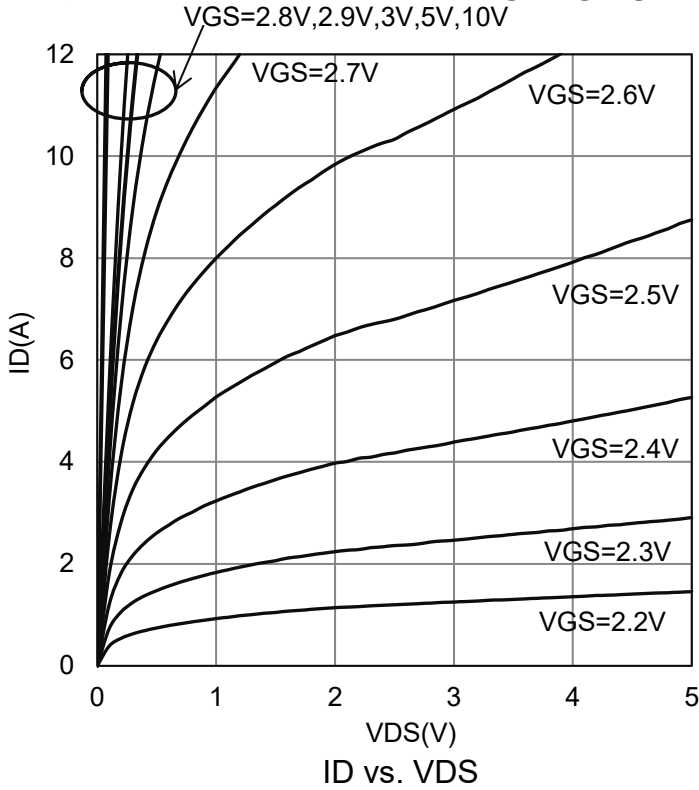
6. ELECTRICAL CHARACTERISTICS (Ta = 25°C unless otherwise stated)

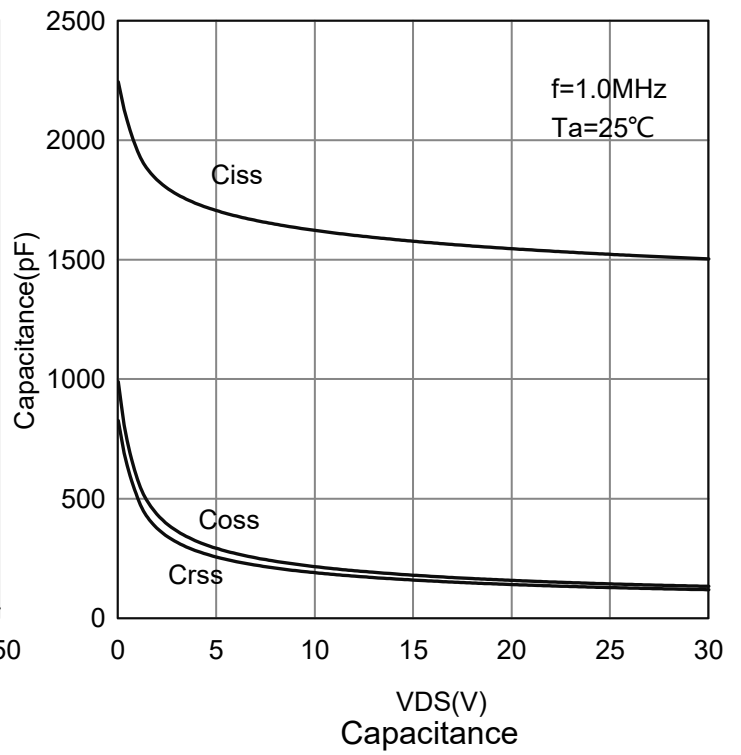
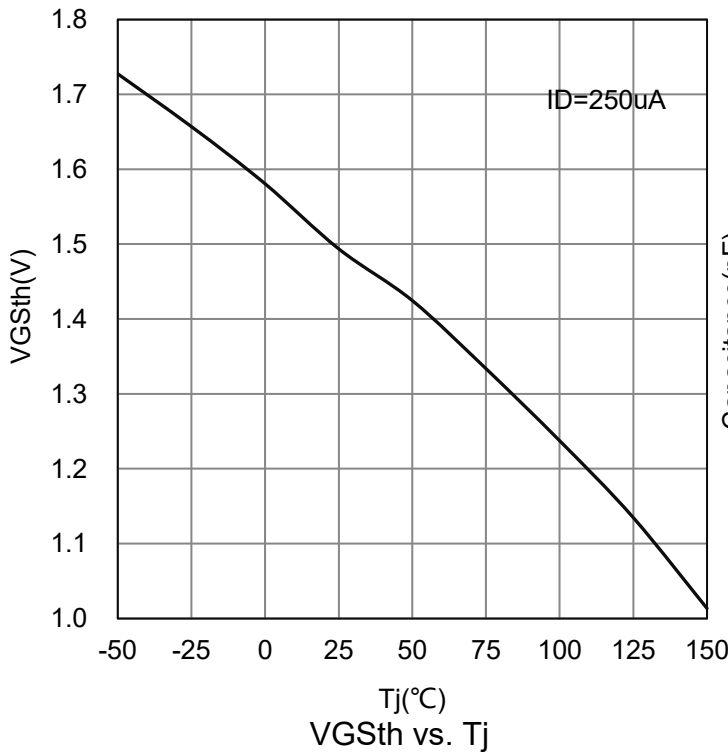
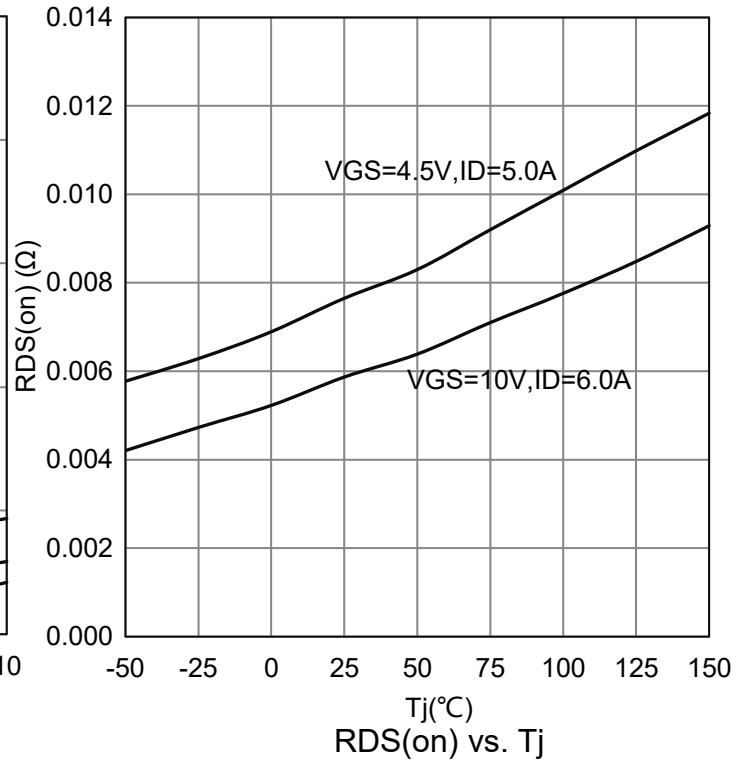
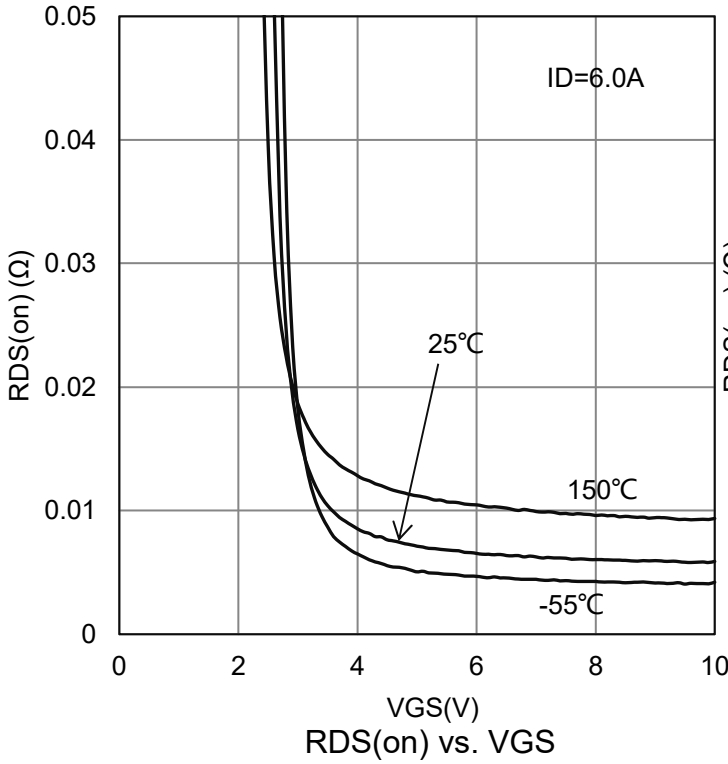
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
Static						
Drain-Source Breakdown Voltage (VGS = 0V , ID = 250 uA)	V(BR)DSS	30	-	-	V	
Gate-Source Threshold Voltage (VDS = VGS , ID = 250 uA)	VGS(th)	1	1.55	3	V	
Gate-Body Leakage (VDS = 0 V, VGS = ±20 V)	IGSS	-	-	±100	nA	
Zero Gate Voltage Drain Current (VDS = 24 V, VGS = 0 V) (VDS = 24 V, VGS = 0 V, TJ = 55°C)	IDSS	-	-	1 25	μA	
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 6 A) (VGS = 4.5 V, ID = 5 A)	RDS(on)	-	6 7	8 10	mΩ	
Diode Forward Voltage(Note 3) (IS = 1.9 A, VGS = 0 V)	VSD	-	0.9	1.5	V	
Dynamic(Note 4)						
Total Gate Charge	(VDS=15V,VGS=4.5V,ID=6A)	Qg	-	15.4	-	nC
Gate-Source Charge		Qgs	-	3	-	
Gate-Drain Charge		Qgd	-	6.9	-	
Turn-On Delay Time	(VDS = 15 V, RL=1.4 Ω,ID =6 A,VGEN = 10 V, RGEN = 6 Ω)	td(on)	-	6	-	ns
Rise Time		tr	-	6	-	
Turn-Off Delay Time		td(off)	-	29	-	
Fall Time		tf	-	8	-	
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	1577	-	pF
Output Capacitance		Coss	-	180	-	
Reverse Transfer Capacitance		Crss	-	160	-	
Gate Resistance (VDS=0V,VGS=0V,f=1.0MHz)	Rg	-	1	-	Ω	

Note: 3.Pulse test: PW ≤ 300us duty cycle ≤ 2%.

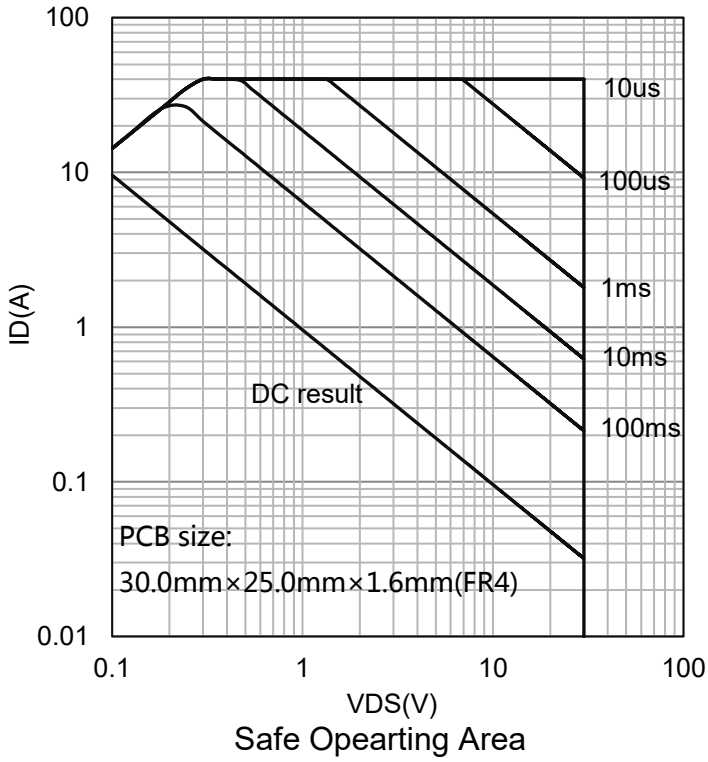


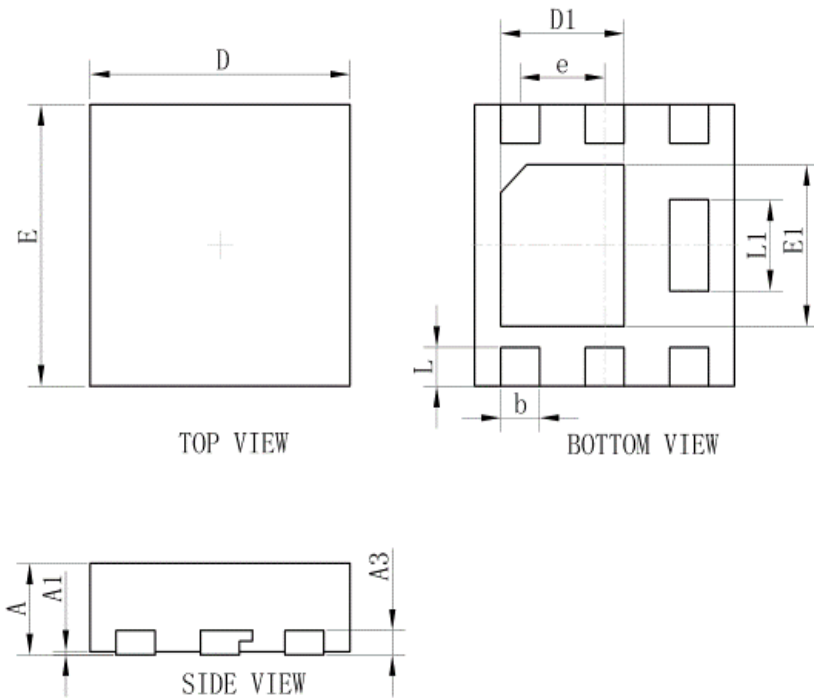
7. ELECTRICAL CHARACTERISTICS CURVES



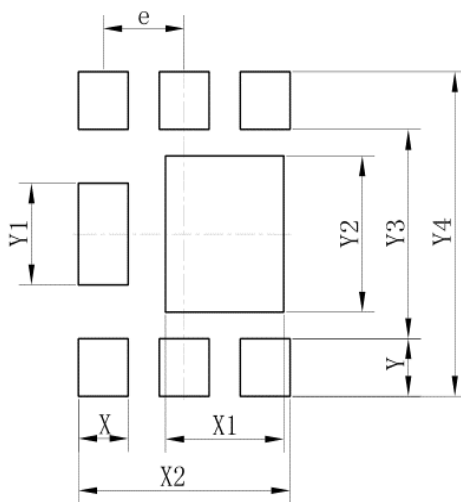
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)


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

