

N3424D

30V N-Channel Enhancement MOSFET

1. FEATURES

- $V_{DS} = 30\text{ V}$
 $R_{DS(ON)} \leq 10.5\text{ m}\Omega$, $V_{GS}@10\text{ V}$, $I_{DS}@6\text{ A}$
 $R_{DS(ON)} \leq 16.5\text{ m}\Omega$, $V_{GS}@4.5\text{ V}$, $I_{DS}@5\text{ A}$
- 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
N3424D	2B	4000/Tape&Reel

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

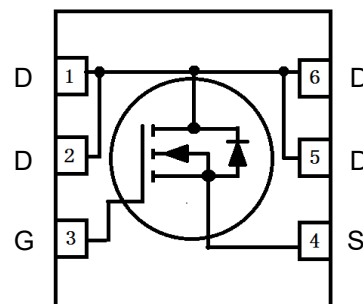
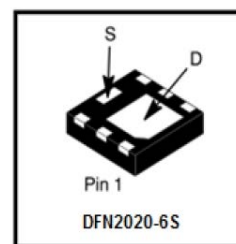
Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		V_{DSS}	30	V
Gate-to-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current(Note 1)	$T_a = 25^\circ\text{C}$	I_D	12	A
	$T_a = 70^\circ\text{C}$		7	
Pulsed Drain Current (Note 2)		I_{DM}	40	A
Continuous Source Current (Diode Conduction)(Note 1)		I_S	3.8	A
Power Dissipation(Note 1)	$T_a = 25^\circ\text{C}$	P_D	2.4	W
	$T_a = 70^\circ\text{C}$		1.4	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	$-55 \sim +150$	$^\circ\text{C}$

1.Surface Mounted on 1" x 1" FR4 Board.

2.Pulse width limited by maximum junction temperature.

5. THERMAL CHARACTERISTICS

Parameter		Symbol	Max	Unit
Maximum Junction-to-Ambient (Note 1)	$t \leq 10\text{ S}$	$R_{\theta JA}$	40	$^\circ\text{C/W}$
	Steady State		90	



6. ELECTRICAL CHARACTERISTICS

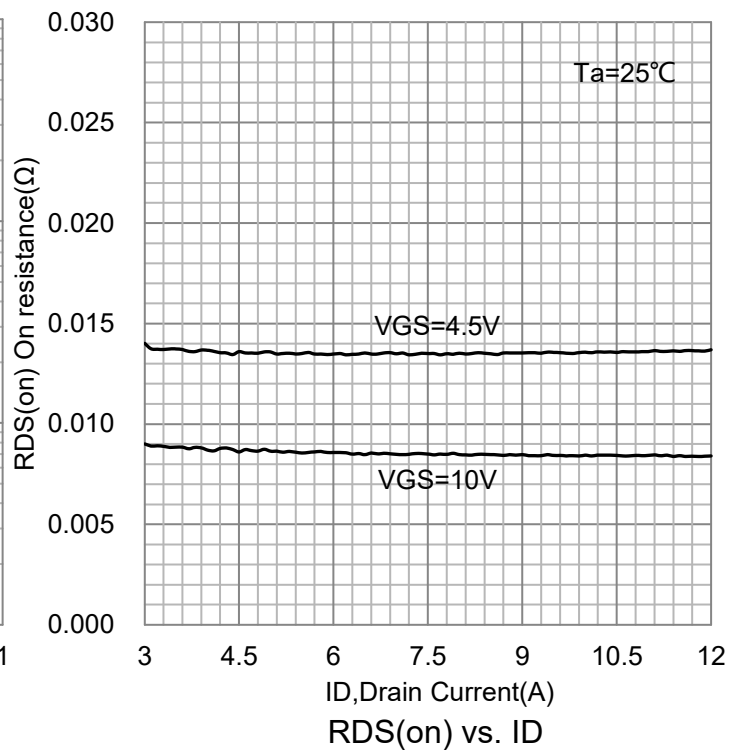
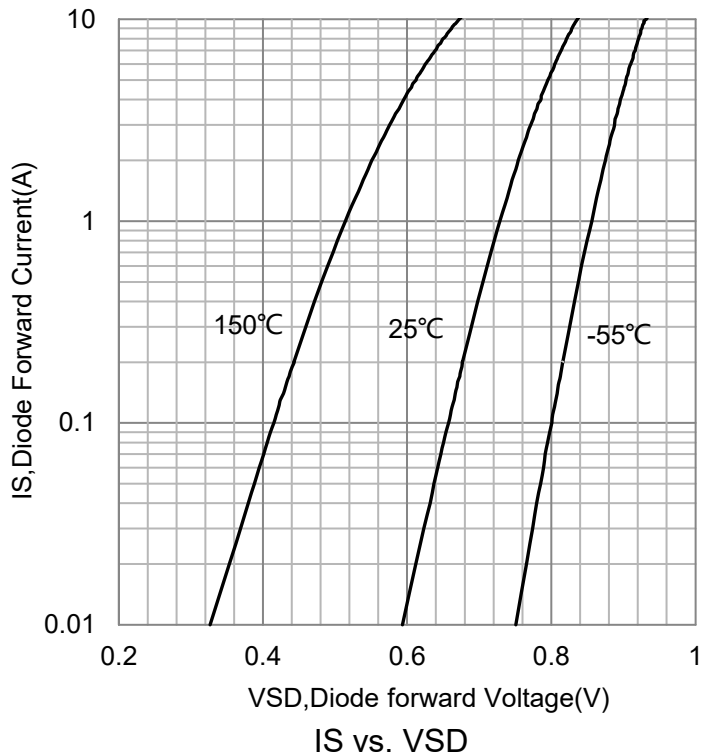
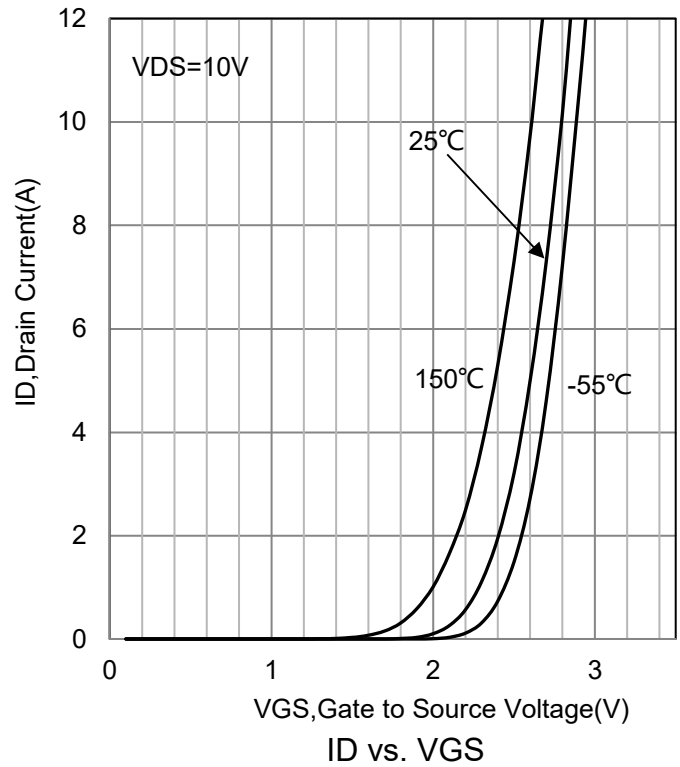
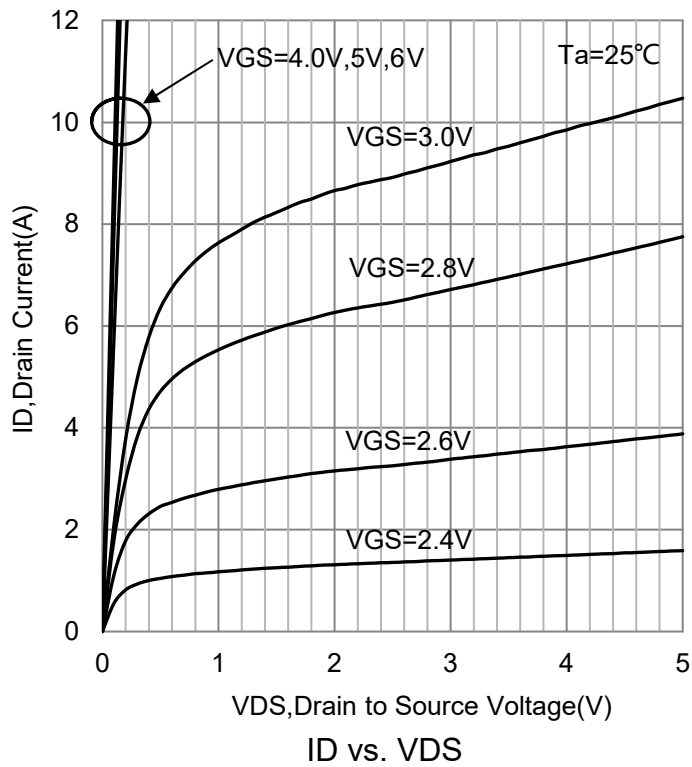
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain-Source Breakdown Voltage (VGS = 0V , ID = 250 uA)	V(BR)DSS	30	-	-	V
Gate-Source Threshold Voltage (VDS = VGS , ID = 250 uA)	VGS(th)	1	1.55	1.8	V
Gate-Body Leakage (VDS = 0 V, VGS = ±20 V)	IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = 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)	- -	8 12	10.5 16.5	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 = 15 V, VGS = 4.5 V, ID = 6 A)	Qg	-	11	nC
Gate-Source Charge		Qgs	-	3.2	
Gate-Drain Charge		Qgd	-	4.3	
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	-	1136	pF
Output Capacitance		Coss	-	133	
Reverse Transfer Capacitance		Crss	-	119	
Gate-Resistance (VGS = 0 V, VDS=0V,f=1MHz)	Rg	-	0.72	-	Ω

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

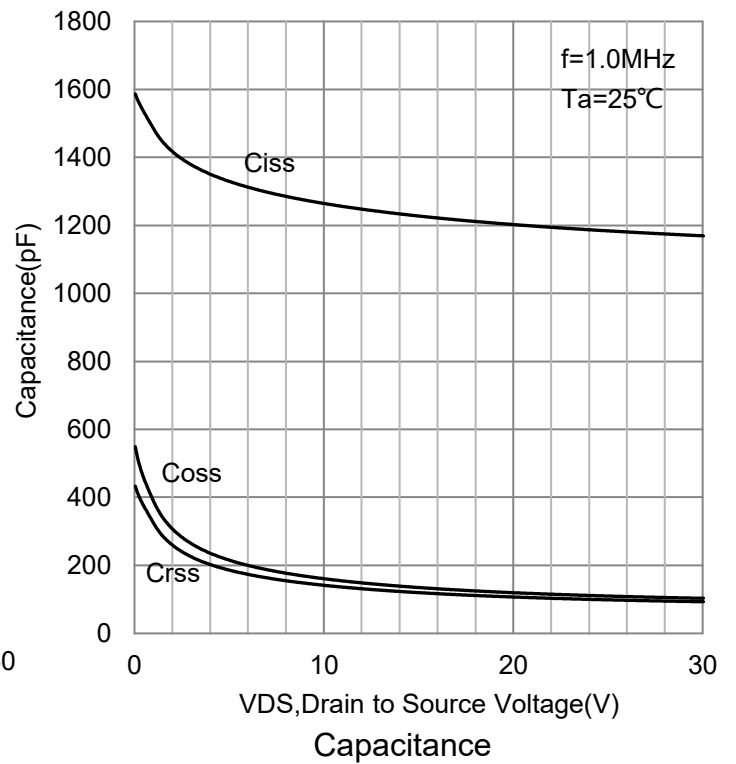
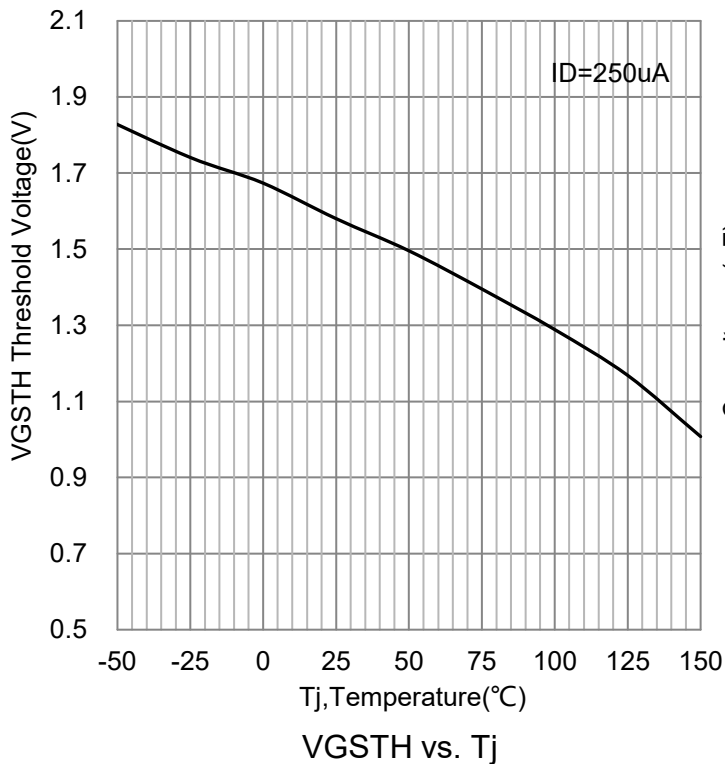
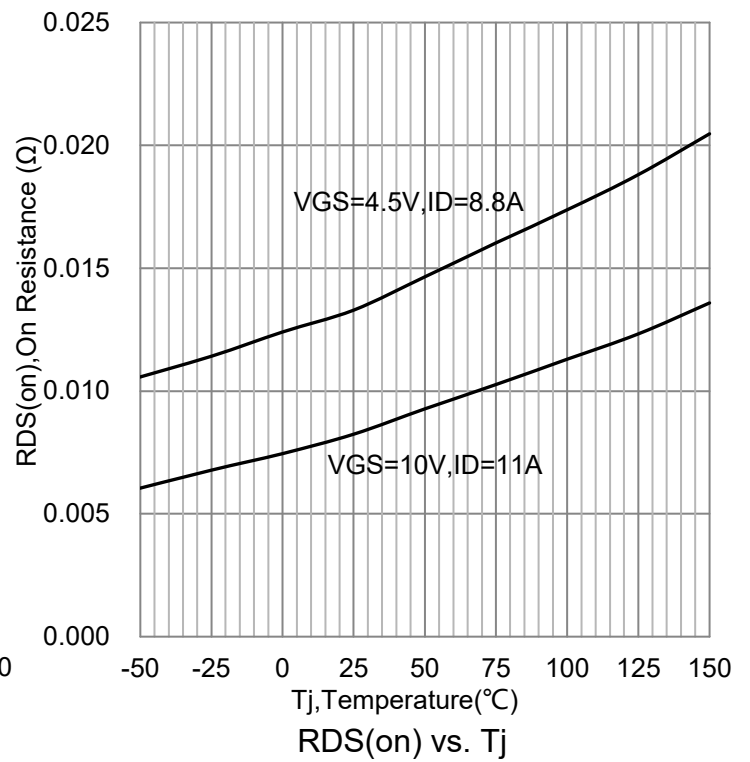
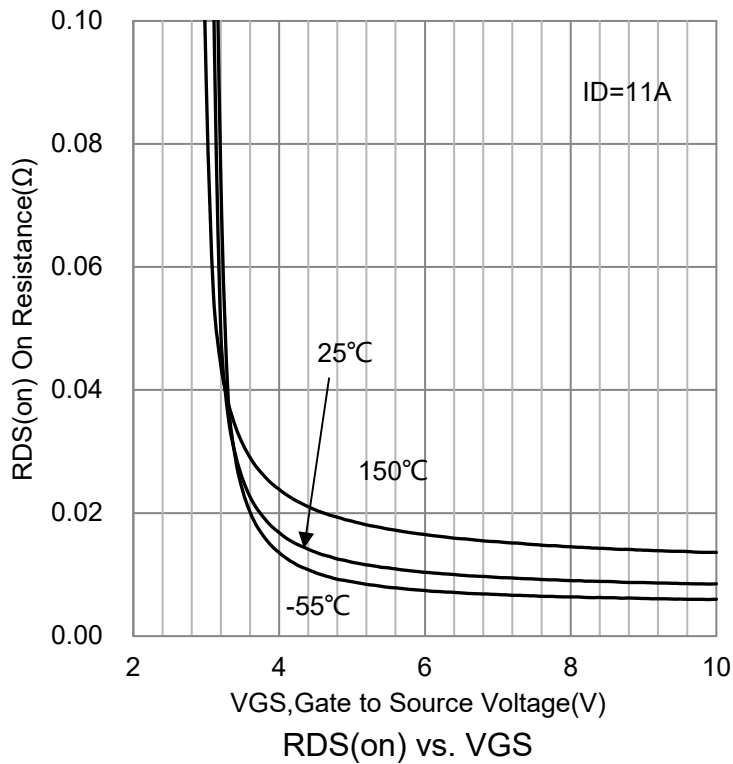
4.Guaranteed by design, not subject to production testing.



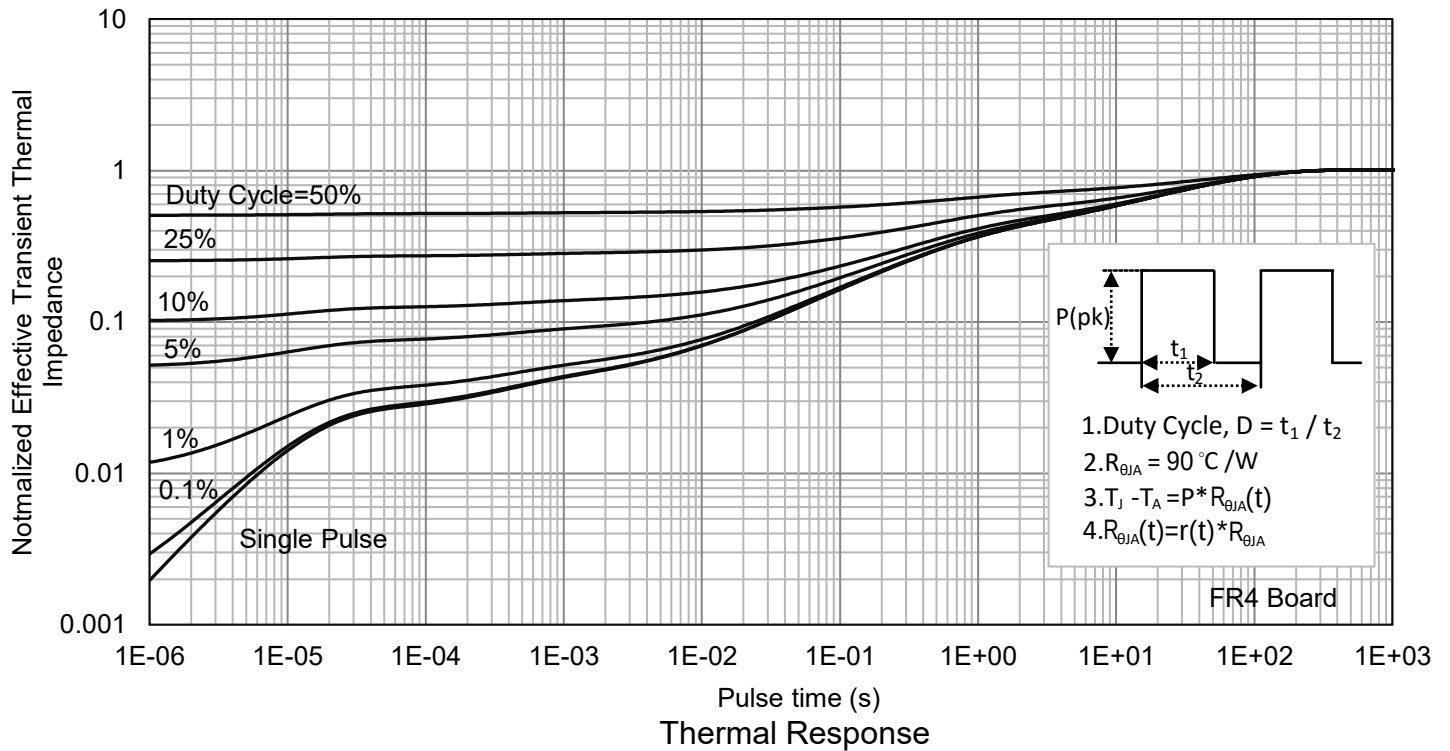
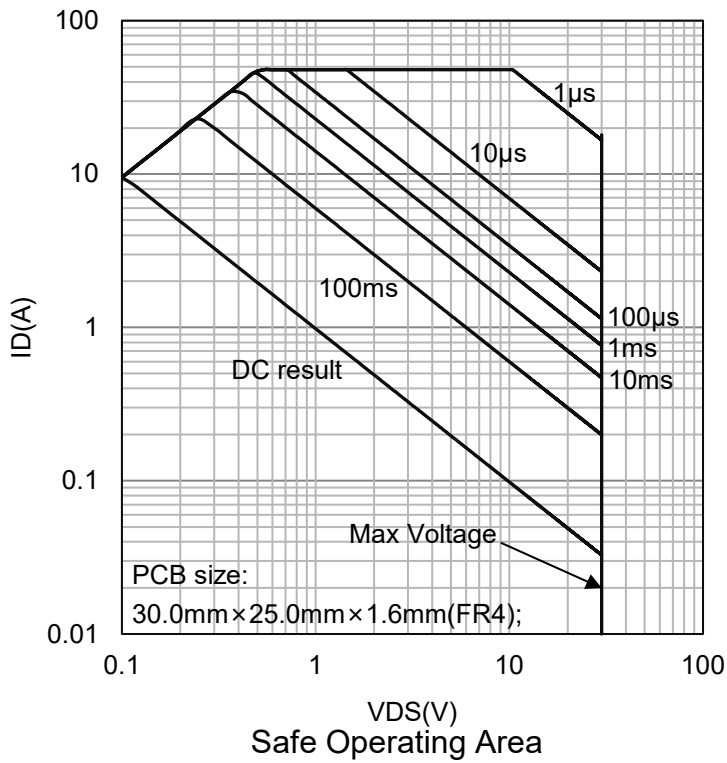
7. ELECTRICAL CHARACTERISTICS CURVES



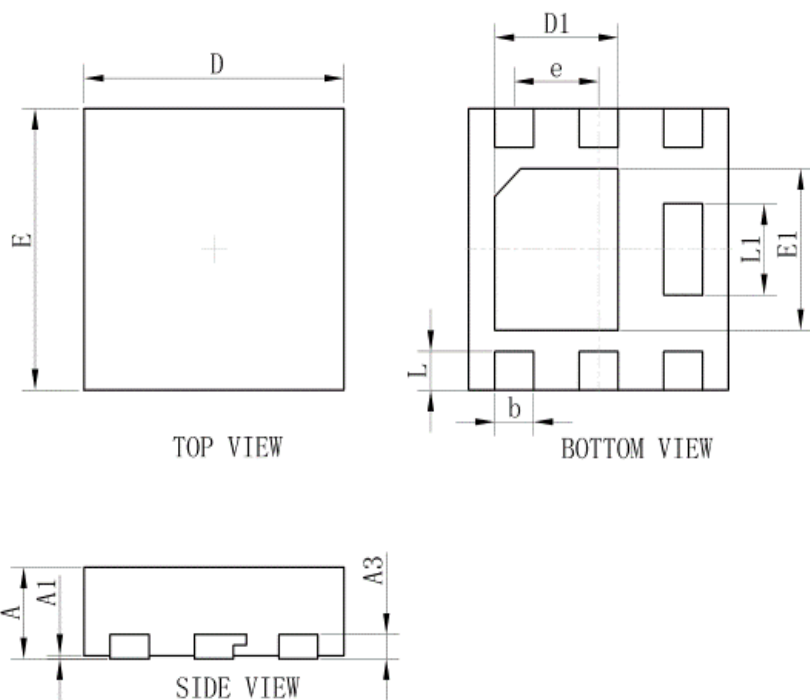
7. ELECTRICAL CHARACTERISTICS CURVES (Con.)



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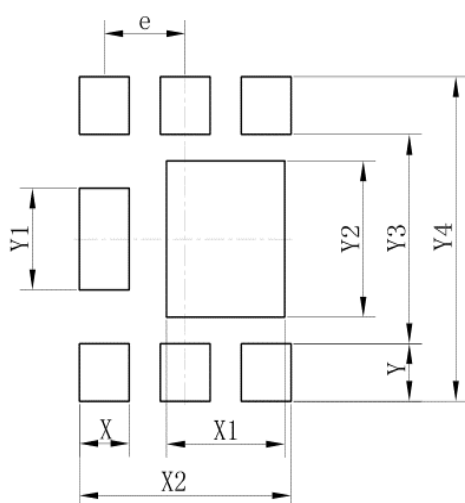


8.OUTLINE AND DIMENSIONS



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

