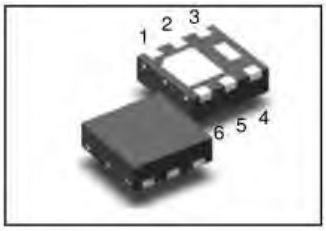
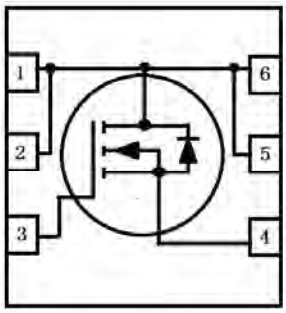
30V N-Channel Enhancement MOSFET

1. FEATURES





- VDS = 30 V
  RDS(ON)≤10.5mΩ, VGS@10V, IDS@6A
  RDS(ON)≤16.5mΩ, VGS@4.5V, IDS@5A
- 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.APPLICATIONS

- DC/DC Conversion
- Power Routing
- Motor Drives

3. ORDERING INFORMATION

Device	Marking	Shipping
FTK3424DFN22	2B	4000/Tape&Reel

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

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDSS	30	V
Gate-to-Source Voltage		VGS	±20	V
Continuous Drain Current(Note 1)	TA =25℃	ID	12	A
	TA =70℃		7	
Pulsed Drain Current (Note 2)		IDM	40	A
Continuous Source Current (Diode Conduction)(Note 1)		IS	3.8	A
Power Dissipation(Note 1)	TA =25℃	PD	2.4	W
	TA =70℃		1.4	
Operating Junction and Storage Temperature Range		TJ , TSTG	−55 ~+150	℃

Note: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≤10S	RθJA	40	℃/W
	Steady State		90	

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6. ELECTRICAL CHARACTERISTICS

Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
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
On-State Drain Current(Note 3) (VDS = 5 V, VGS = 10 V)		ID(on)	20	-	-	A
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
Forward Transconductance(Note 3) (VDS = 15 V, ID = 7 A)		gfs	-	13	-	S
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	-	16	-	nC
Gate-Source Charge		Qgs	–	4.9	-	
Gate-Drain Charge		Qgd	–	3.5	-	
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	-	1379	-	pF
Output Capacitance		Coss	-	156	-	
Reverse Transfer Capacitance		Crss	-	115	-	

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

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

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7.ELECTRICAL CHARACTERISTICS CURVES

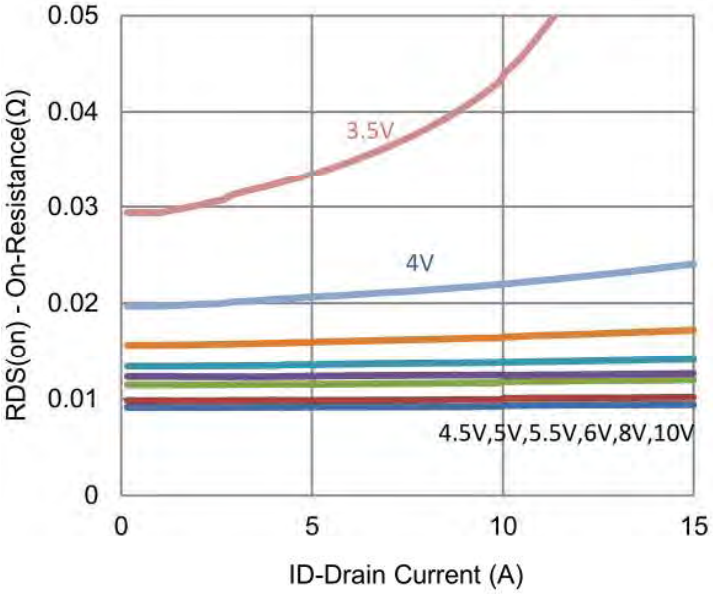

Fig.1 On-Resistance vs. Drain Current

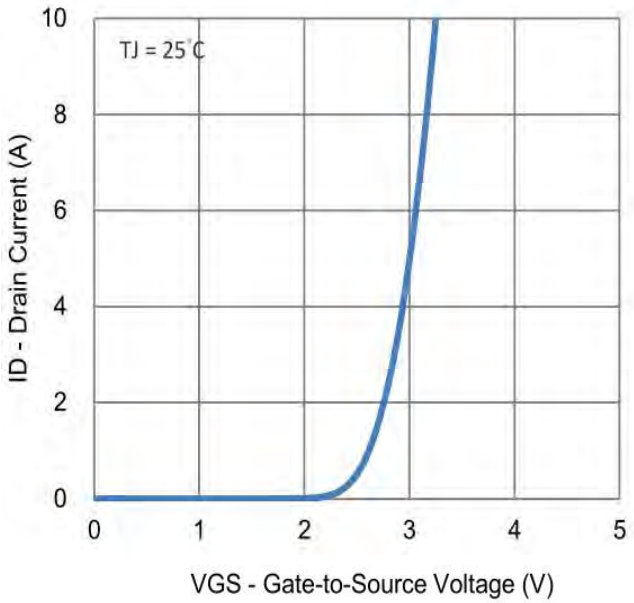

Fig.2 Transfer Characteristics

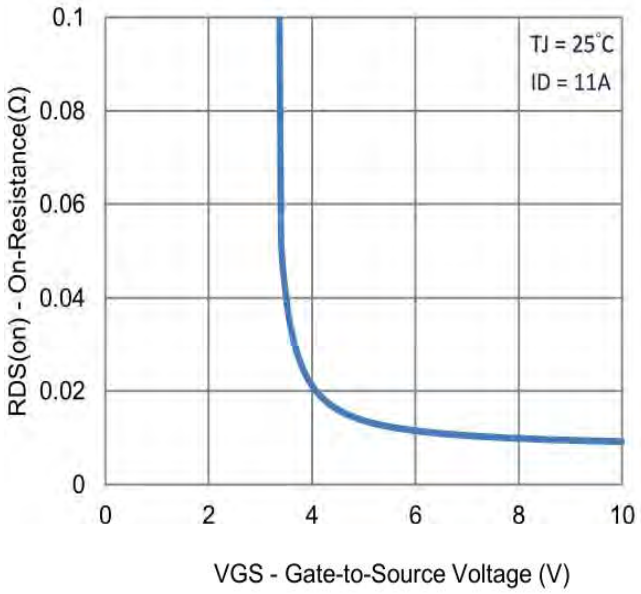

Fig.3 On-Resistance vs. Gate-to-Source Voltage

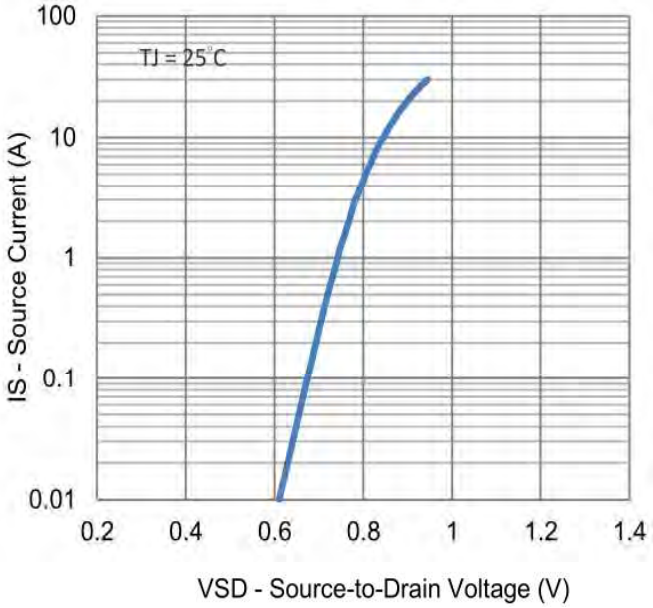

Fig.4 Drain-to-Source Forward Voltage

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7.ELECTRICAL CHARACTERISTICS CURVES(Con.)

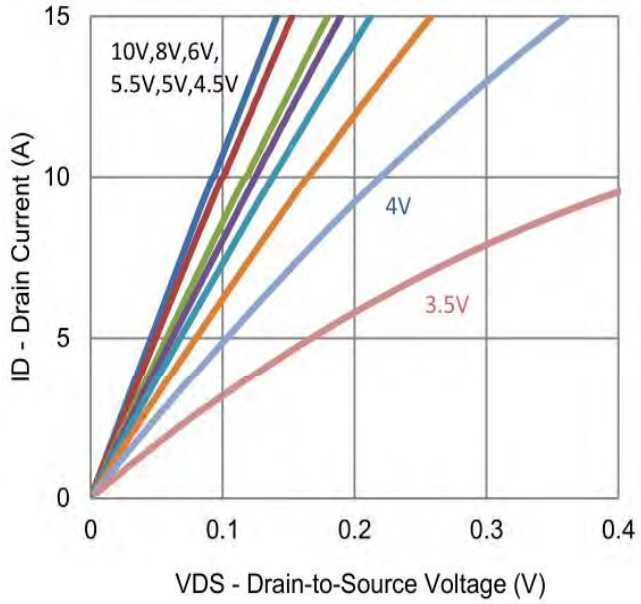

Fig.5 Output Characteristics

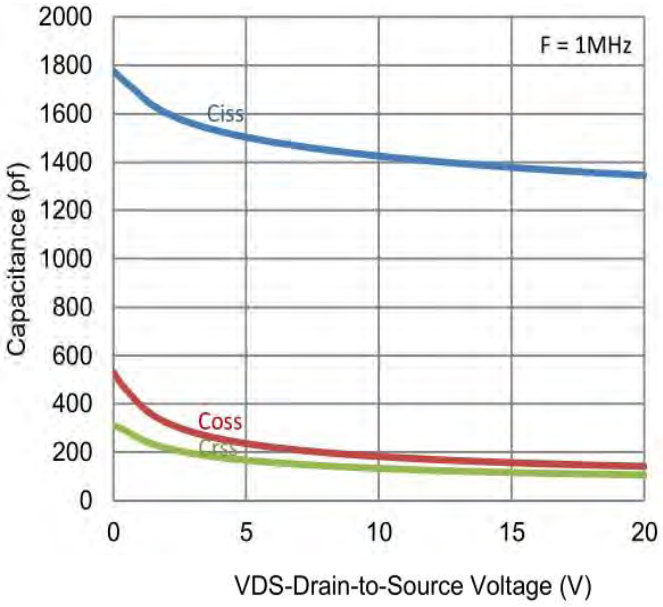

Fig.6 Capacitance

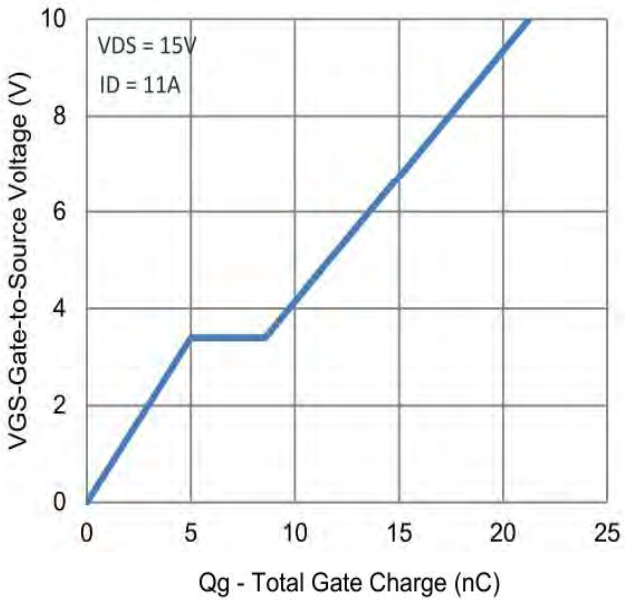

Fig.7 Gate Charge

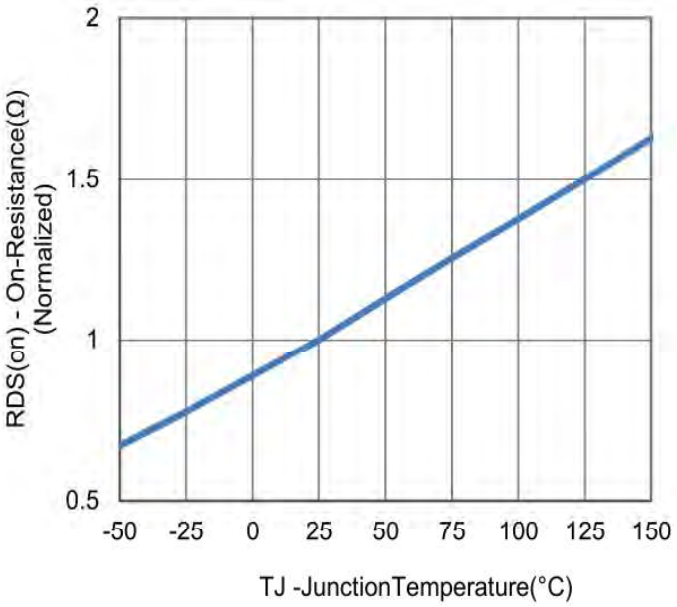

Fig.8 Normalized On-Resistance Vs Junction Temperature

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7.ELECTRICAL CHARACTERISTICS CURVES(Con.)

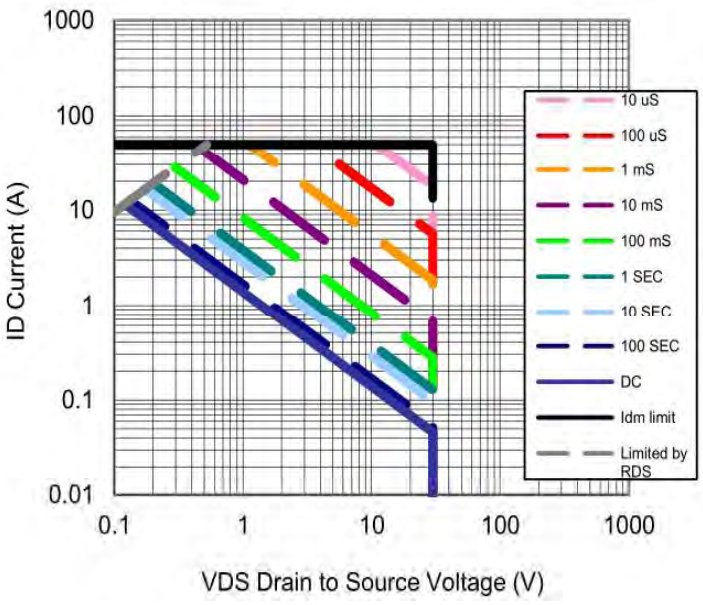

Fig.9 Safe Operating Area

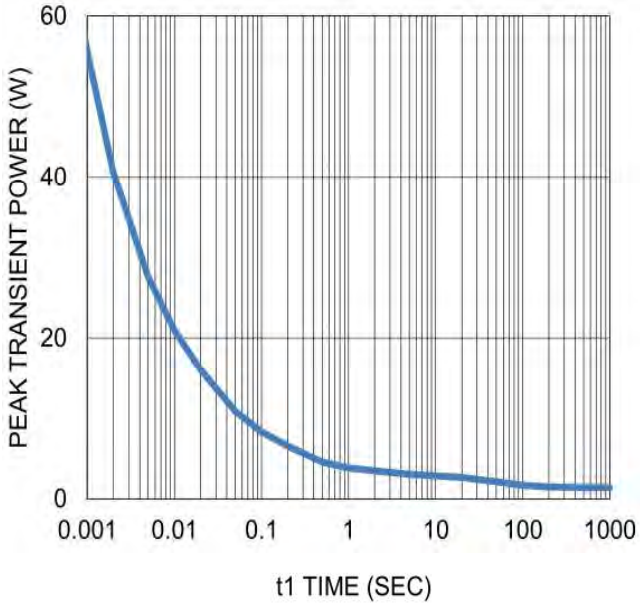

Fig.10 Single Pulse Maximum Power Dissipation

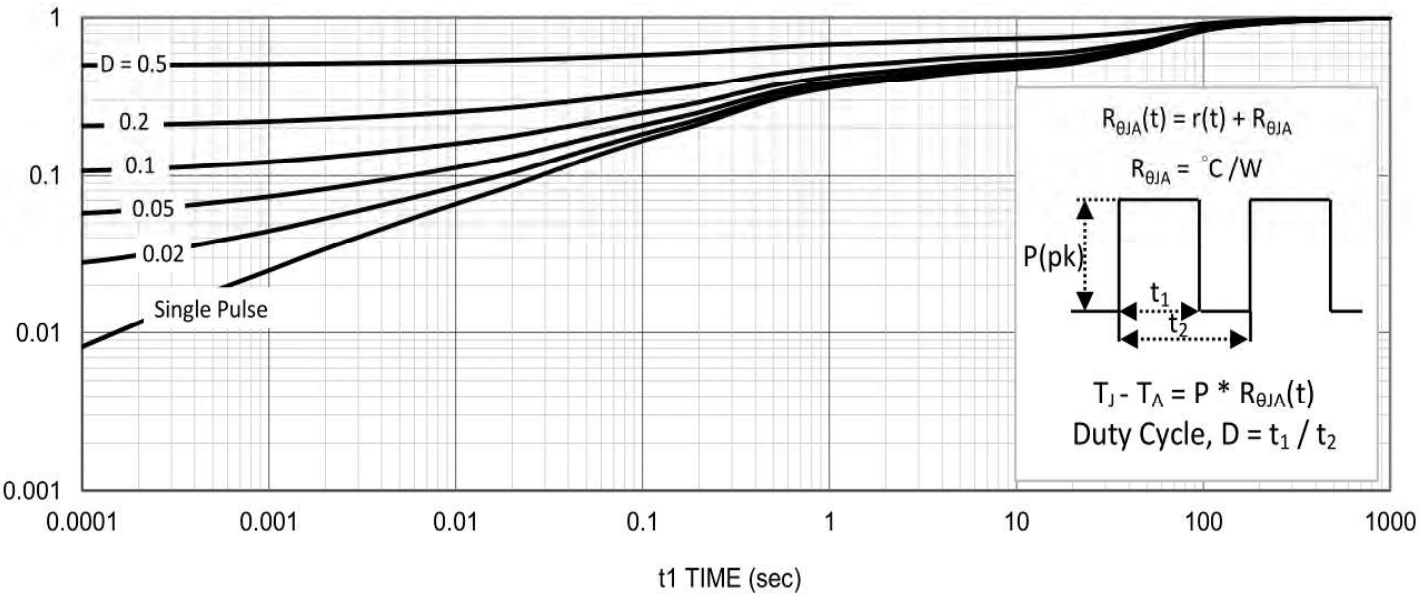

Fig.11 Normalized Thermal Transient Junction to Ambient

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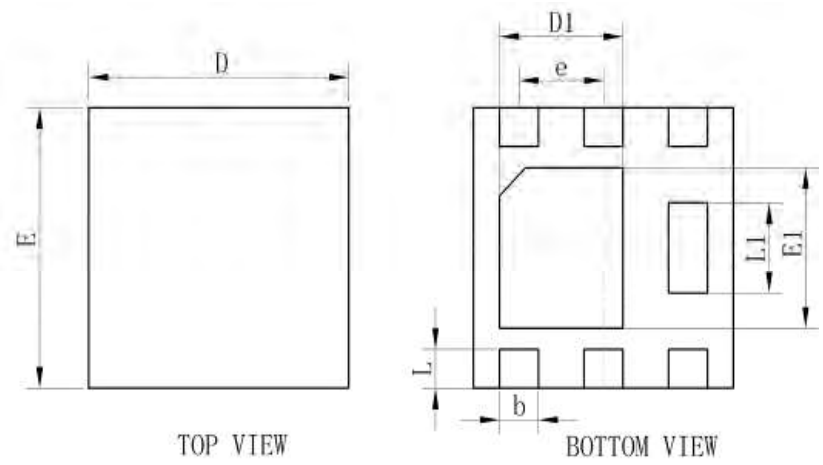
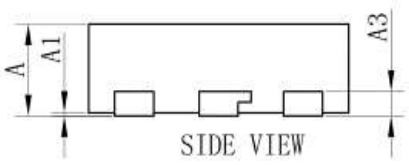
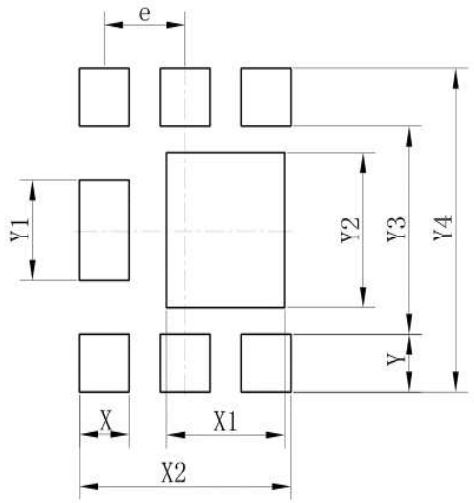
8.OUTLINE AND DIMENSIONS





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