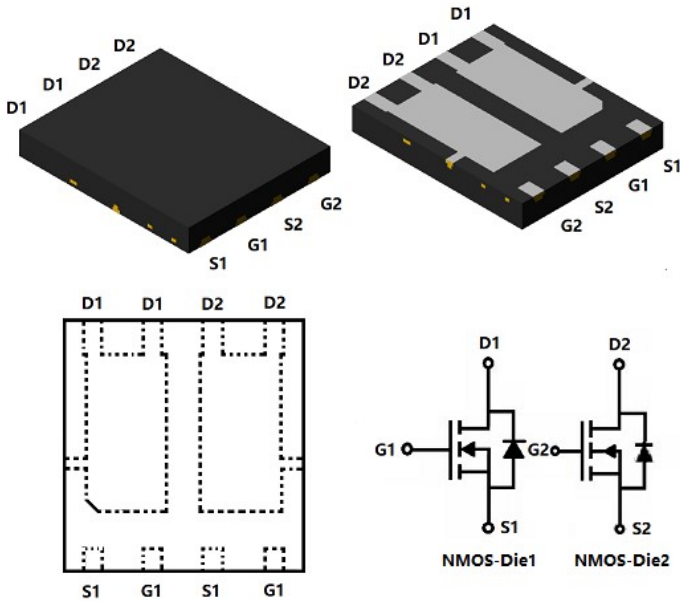# YJGD20G10A

N-Channel Enhancement Mode Field Effect Transistor

DFN5060-8L

Product Summary

NMOS(Die1)
- V_{DS} 100V
- I_D 20A
- $R_{DS(ON)}$(at V_{GS}=10V) $<$22 mohm
- $R_{DS(ON)}$(at V_{GS}=4.5V) $<$27 mohm

NMOS(Die2)
- V_{DS} 100V
- I_D 20A
- $R_{DS(ON)}$(at V_{GS}=10V) $<$22 mohm
- $R_{DS(ON)}$(at V_{GS}=4.5V) $<$27 mohm

General Description
- Split gate trench MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- High Speed switching

Applications
- DC-DC Converters
- Power management functions
- Industrial and Motor Drive application

■ Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Parameter		Symbol	N-Die1	N-Die2	Unit
Drain-source Voltage		V_{DS}	100	100	V
Gate-source Voltage		V_{GS}	$\pm$20	$\pm$20	V
Drain Current	T_C=25℃	I_D	20	20	A
	T_C=70℃		12.5	12.5	
Pulsed Drain Current ^{A}		I_{DM}	80	80	A
Avalanche energy ^{B}		E_{AS}	64	64	mJ
Total Power Dissipation	T_C=25℃	P_D	17	17	W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55~+150	-55~+150	℃

■ Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^{D}	t≤10S	$R_{\theta JA}$	30	40	℃/W
Thermal Resistance Junction-to-Ambient ^{D}	Steady-State		60	75	
Thermal Resistance Junction-to-Case	Steady-State	$R_{\theta JC}$	6.2	7.5	

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJGD20G10A	F1	YJGD20G10A	5000	10000	100000	13" reel

YJGD20G10A

■ **NMOS(Die1/Die2) Electrical Characteristics** (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=250μA	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V,V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=15A		17	22	mΩ
		V_{GS}= 4.5V, I_D=7A		21	27	
Diode Forward Voltage	V_{SD}	I_S=20A,V_{GS}=0V		0.96	1.3	V
Maximum Body-Diode Continuous Current	I_S				20	A
Gate Resistance	R_g	f=1MHz		1.2		Ω
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V,f=1MHZ		1051		pF
Output Capacitance	C_{oss}			399		
Reverse Transfer Capacitance	C_{rss}			18		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=50V,I_D=25A		16		nC
Gate-Source Charge	Q_{gs}			5.6		
Gate-Drain Charge	Q_{gd}			2.4		
Reverse Recovery Chrage	Q_{rr}	I_F=20A, di/dt=100A/us		42		
Reverse Recovery Time	t_{rr}			39.8		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V,V_{DD}=50V,I_D=4.0A R_{GEN}=3.0Ω		39.2		
Turn-on Rise Time	t_r			11		
Turn-off Delay Time	$t_{D(off)}$			53.2		
Turn-off fall Time	t_f			15.8		
Peak reverse recovery corrent	I_{rrm}	I_F=4A, di/dt=100A/us		3		A

A. Repetitive rating; pulse width limited by max. junction temperature.
B. V_{DD}=50V, R_G=25Ω, L=0.5mH, I_D=16A.
C. Pd is based on max. junction temperature, using junction-case thermal resistance.
D. The value of RθJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C. The Power dissipation PDSM is based on RθJA t≤ 10s and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.

YJGD20G10A

■ NMOS(Die1/Die2) Typical Performance Characteristics
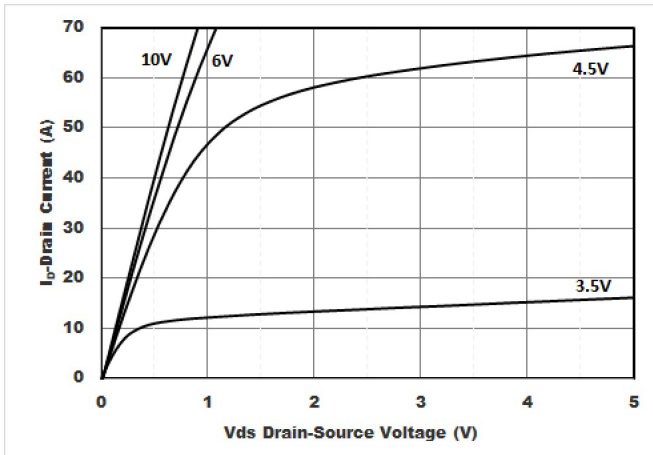
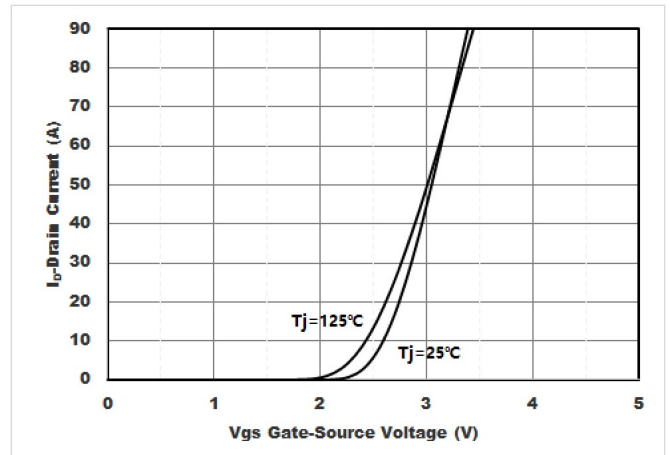Figure1. Output Characteristics
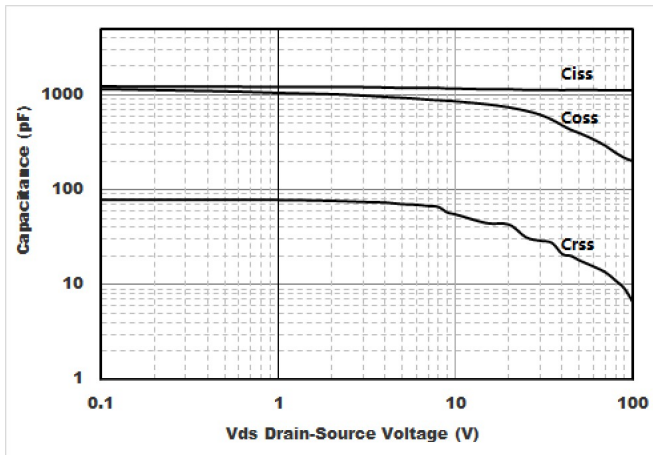
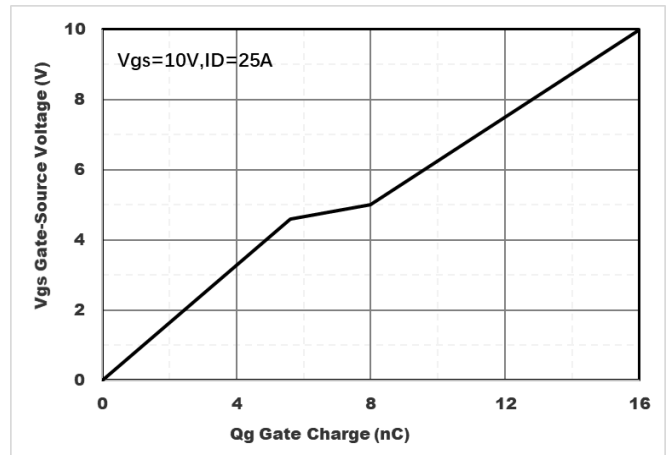Figure2. Transfer Characteristics

Figure3. Capacitance Characteristics

Figure4. Gate Charge
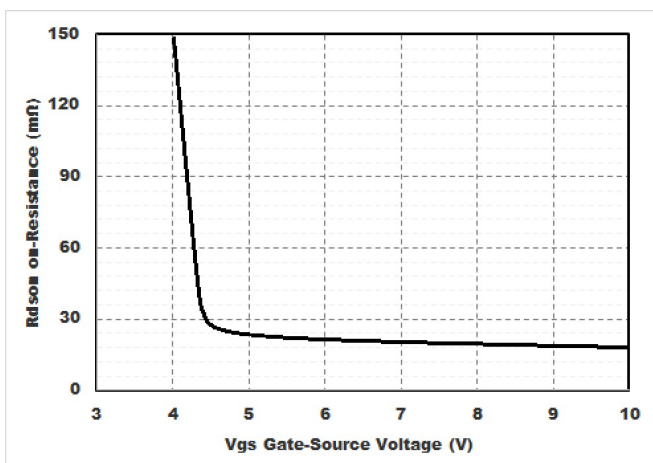
Figure5. : On-Resistance vs. Gate to Source Voltage
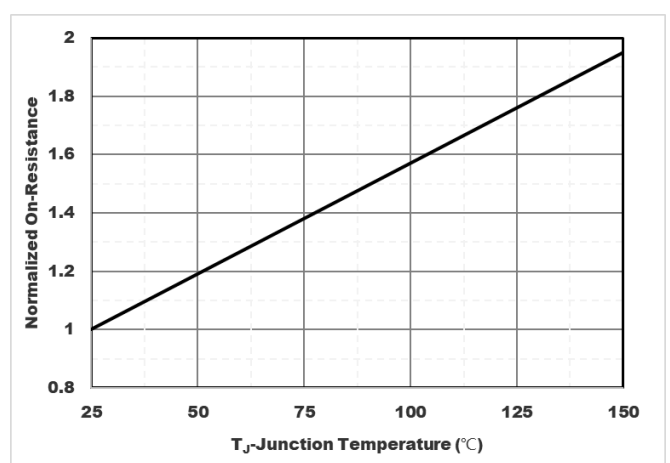
Figure6.Normalized On-Resistance

S-E420
Rev.3.0,10-Mar-20

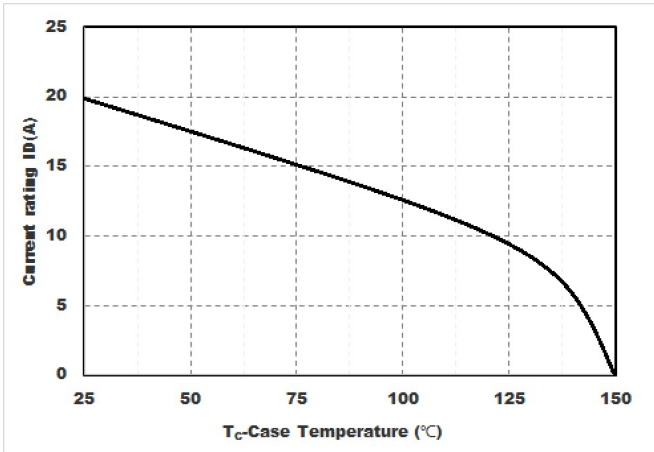Yangzhou Yangjie Electronic Technology Co., Ltd.

www.21yangjie.com
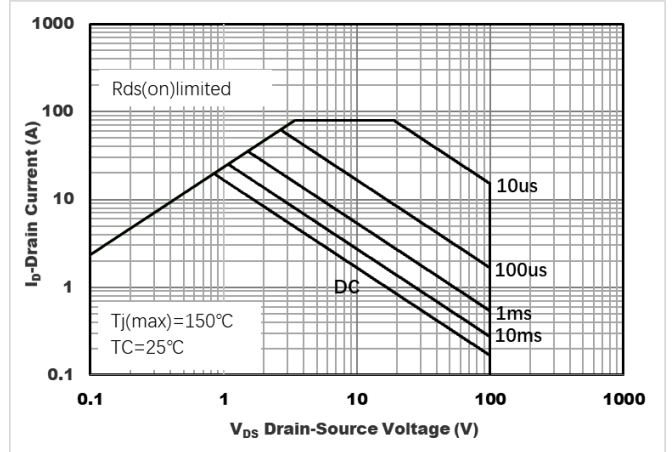
Figure7. Drain current

Figure8.Safe Operation Area
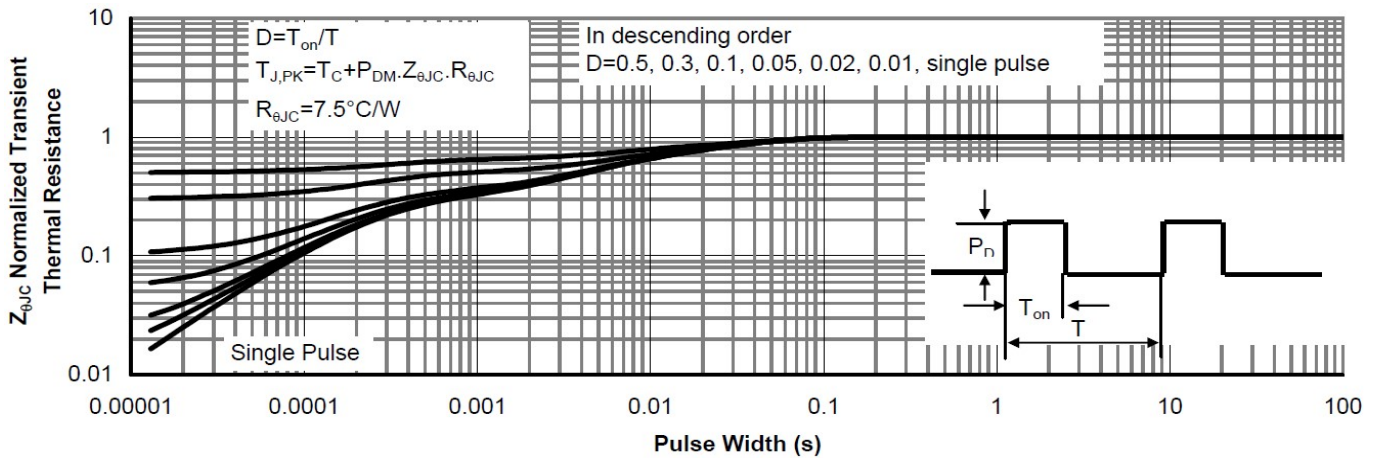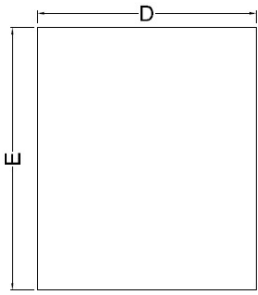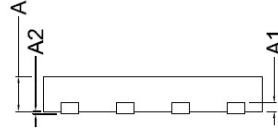

Figure9.Normalized Maximum Transient thermal impedance

■ DFN5060-8L Package information

Top View
正面视图
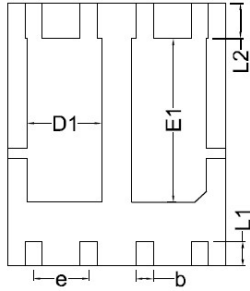
Bottom View
背面视图

Side View
侧面视图

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	4.90	5.00	5.10
E	5.90	6.00	6.10
A	0.70	0.80	0.90
A1	0.20 BSC		
A2			0.10
D1	1.60	1.70	1.80
E1	3.65	3.75	3.85
L1	0.45	0.55	0.65
L2	080 BSC		
b	0.30	0.40	0.50
e	1.27 BSC		
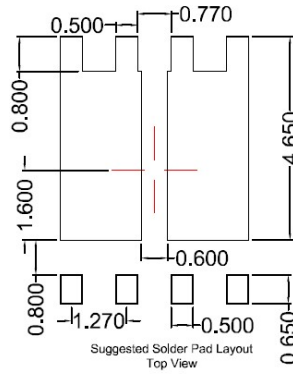
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.10mm.
3.The pad layout is for reference purposes only.

Suggested Solder Pad Layout
Top View

Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.21yangjie.com , or consult your nearest Yangjie's sales office for further assistance.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET *category:*

Click to view products by Yangjie *manufacturer:*

Other Similar products are found below :

614233C 648584F MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ NTNS3A92PZT5G IRFD120 IRFF430 JANTX2N5237 2N7000 AOD464 2SK2267(Q) 2SK2545(Q,T) 405094E 423220D MIC4420CM-TR VN1206L 614234A 715780A SSM6J414TU,LF(T 751625C IPS70R2K0CEAKMA1 BSF024N03LT3 G PSMN4R2-30MLD TK31J60W5,S1VQ(O 2SK2614(TE16L1,Q) DMN1017UCP3-7 EFC2J004NUZTDG FCAB21350L1 P85W28HP2F-7071 DMN1053UCP4-7 NTE2384 NTE2969 NTE6400A DMC2700UDMQ-7 DMN2080UCB4-7 DMN61D9UWQ-13 US6M2GTR DMN31D5UDJ-7 SSM6P54TU,LF DMP22D4UFO-7B IPS60R3K4CEAKMA1 DMN1006UCA6-7 DMN16M9UCA6-7 STF5N65M6 IRF40H233XTMA1 IPSA70R950CEAKMA1 IPSA70R2K0CEAKMA1 STU5N65M6 C3M0021120D