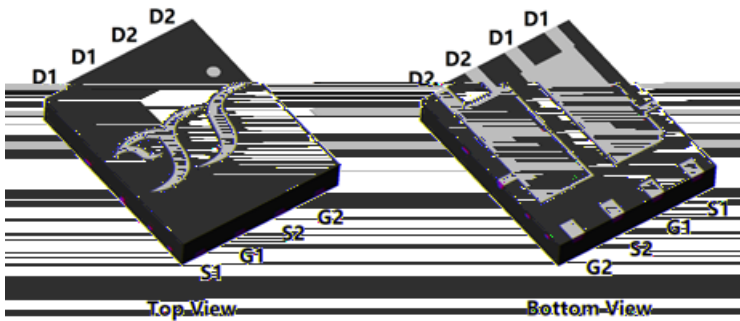
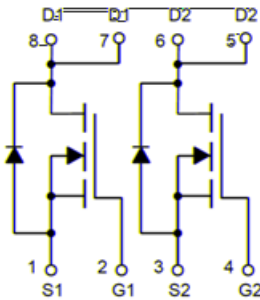


N-Channel Enhancement Mode Field Effect Transistor



DFN5060-8L



Product Summary

NMOS (Die1)

- V_{DS} 30V
- I_D 40A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <9.2mohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <14.5mohm

NMOS (Die2)

- V_{DS} 30V
- I_D 40A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <9.2mohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <14.5mohm

- 100% UIS Tested
- 100% ∇V_{DS} Tested

General Description

- Trench Power LV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- High current load applications
- Load switching
- Hard switched and high frequency circuits

■ Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	N-Die1	N-Die2	Unit
Drain-source Voltage	V_{DS}	30	30	V
Gate-source Voltage	V_{GS}	± 20	± 20	V
Drain Current	I_D	$T_C=25^\circ C$	40	A
		$T_C=100^\circ C$	25	
Pulsed Drain Current ^A	I_{DM}	140	140	A
Total Power Dissipation	P_D	$T_C=25^\circ C$	21	W
		$T_C=100^\circ C$	8.4	
Total Power Dissipation	P_D	5	5	W
Single Pulse Avalanche Energy ^B	E_{AS}	49	49	mJ
Thermal Resistance Junction-to-Case ^C	$R_{\theta JC}$	6	6	$^\circ C/W$
Thermal Resistance Junction-to-Ambient ^C	$R_{\theta JA}$	25	25	$^\circ C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	-55~+150	$^\circ C$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJGD40N03A	F1	YJGD40N03A	5000	10000	100000	13" reel



YJGD40N03A

■ NMOS (Die1/Die2) Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=15A$		7.2	9.2	m Ω
		$V_{GS}=4.5V, I_D=10A$		11	14.5	
Diode Forward Voltage	V_{SD}	$I_S=15A, V_{GS}=0V$		0.85	1.2	V
Maximum Body-Diode Continuous Current	I_S				40	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1\text{MHz}$		1015		pF
Output Capacitance	C_{oss}			201		
Reverse Transfer Capacitance	C_{rss}			164		
Gate resistance	R_g	$f=1\text{MHz}$		2.0		Ω
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=15V, I_D=15A$		23.6		nC
Gate-Source Charge	Q_{gs}			3.9		
Gate-Drain Charge	Q_{gd}			7		
Reverse Recovery Charge	Q_{rr}	$I_r=25A, di/dt=100A/\mu s$		0.2		
Reverse Recovery Time	t_{rr}			5		
Turn-on Delay Time	$t_{D(on)}$			7		

$V_{GS}=10V, V_{DD}=20V, I_D=2A, R_L=1\Omega$
 $R_{GEN}=3\Omega$

ns

Typical Performance Characteristics

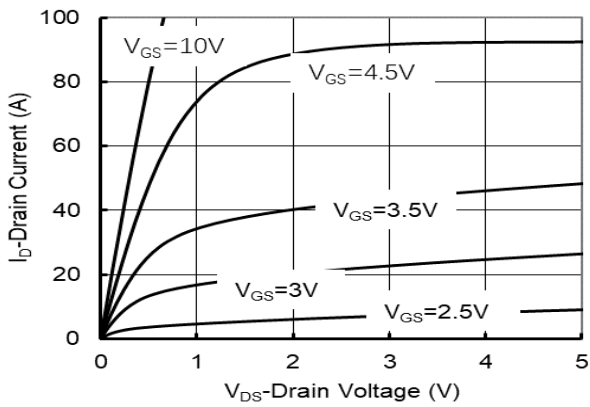


Figure1. Output Characteristics

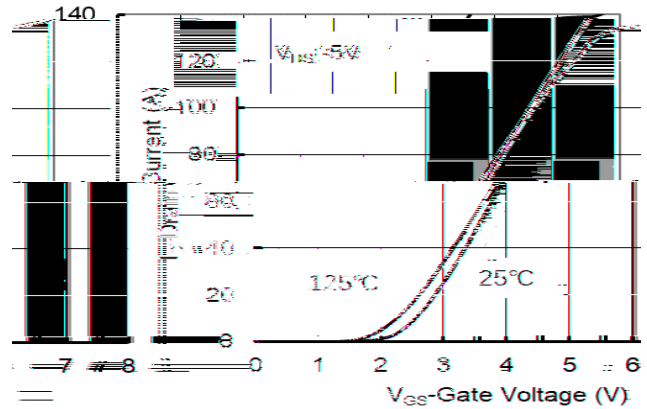


Figure2. Transfer Characteristics

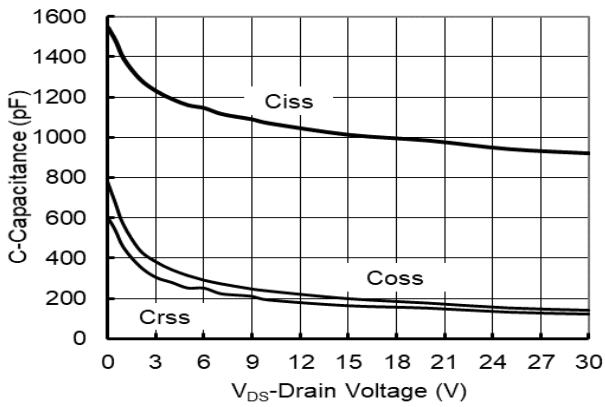


Figure3. Capacitance Characteristics

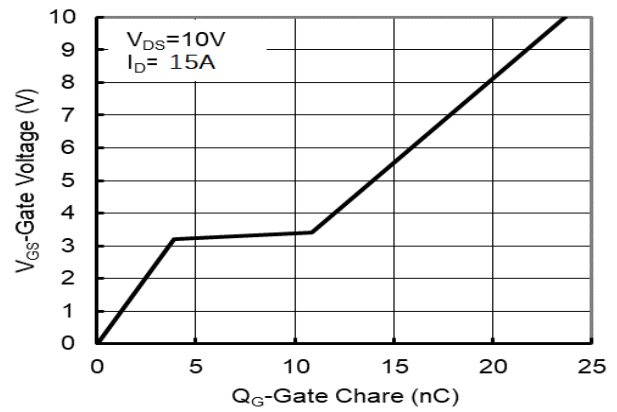


Figure4. Gate Charge

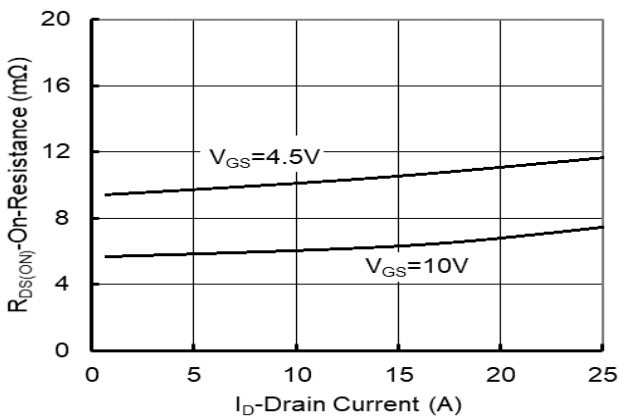


Figure5. Drain-Source on Resistance

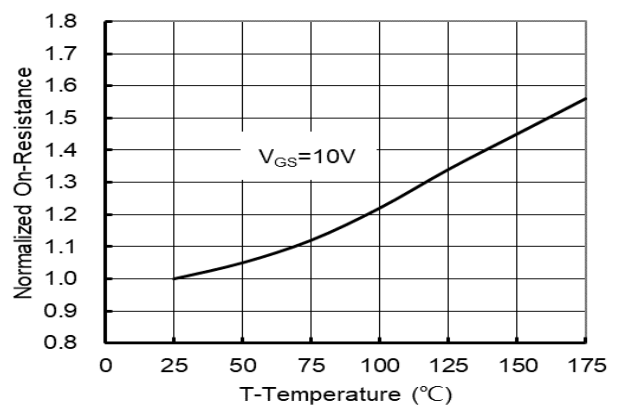


Figure6. Drain-Source on Resistance



YJGD40N03A

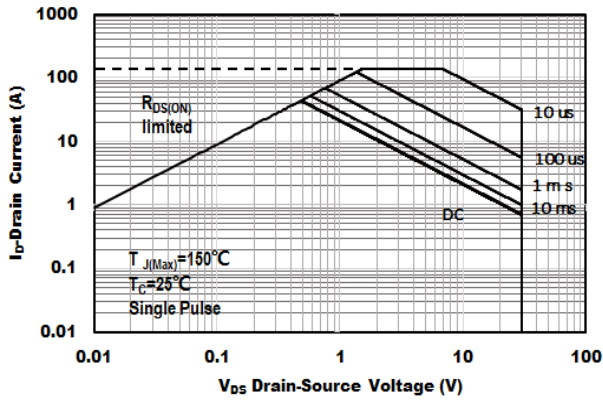


Figure7. Safe Operation Area

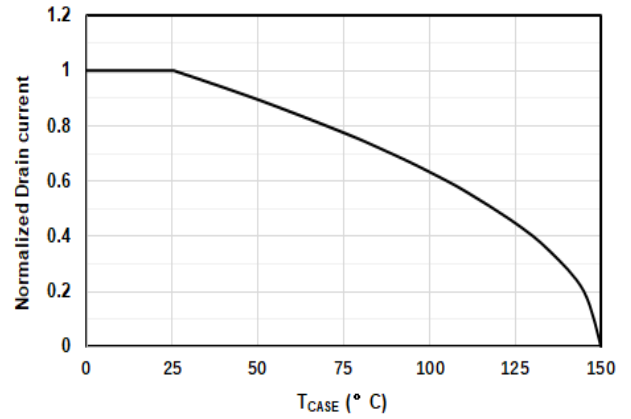


Figure8. Drain current vs. Case Temperature

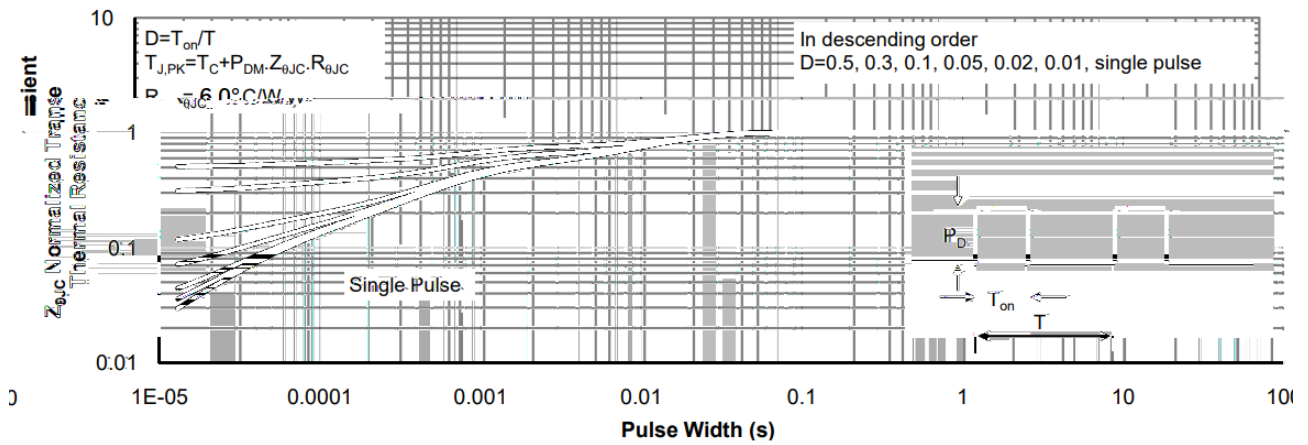


Figure 9. Normalized Maximum Transient Thermal Impedance



YJGD40N03A

■ DFN5060-8L Package Information



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	0.80 BSC		
b	0.30	0.40	0.50
e	1.27 BSC		



Note:

- 1. Controlling dimension: in millimeters.
- 2. General tolerance: $\pm 0.10\text{mm}$.
- 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 which 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](http://www.21yangjie.com) , or consult your nearest Yangjie's sales office for further assistance.