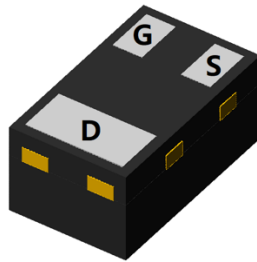




P-Channel Enhancement Mode Field Effect Transistor

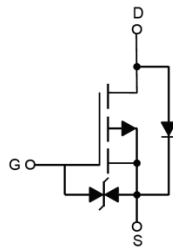


Top View



Bottom View

DFN1006-3L



Product Summary

- V_{DS} -20V
- I_D -0.65A
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) <850 mohm
- $R_{DS(ON)}$ (at $V_{GS}=-2.5V$) <1200 mohm
- $R_{DS(ON)}$ (at $V_{GS}=-1.8V$) <2000 mohm
- ESD Protected Up to 2.0KV (HBM)

General Description

- Trench Power LV MOSFET technology
- High Density Cell Design for Low $R_{DS(ON)}$
- High Speed switching
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Interfacing, Logic switch
- Load switch
- Power management

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

Parameter		Symbol	Maximum	Unit
Drain-source Voltage		V_{DS}	-20	V
Gate-source Voltage		V_{GS}	± 12	V
Drain Current	$T_A=25^\circ\text{C}$ Steady State	I_D	-0.65	A
	$T_A=70^\circ\text{C}$ Steady State		-0.52	
Pulsed Drain Current ^A		I_{DM}	-2.0	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$ Steady State		P_D	0.9	W
Thermal Resistance Junction-to-Ambient @ Steady State ^B		$R_{\theta JA}$	138	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ\text{C}$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJA3139KB	F1	9A	10000	100000	400000	7" reel



YJA3139KB

■ Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =-250μA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V, T _C =25°C			-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} =0V		±1.5	±10	μA
		V _{GS} = ±8V, V _{DS} =0V		±500	±2000	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =-250μA	-0.35	-0.62	-1.2	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D =-0.5A		580	850	mΩ
		V _{GS} = -2.5V, I _D =-0.3A		855	1200	
		V _{GS} = -1.8V, I _D =-0.2A		1350	2000	
Diode Forward Voltage	V _{SD}	I _S =-0.65A, V _{GS} =0V		-0.8	-1.2	V
Maximum Body-Diode Continuous Current	I _S				-0.65	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f=1MHZ		71		pF
Output Capacitance	C _{oss}			20		
Reverse Transfer Capacitance	C _{rss}			15		
Gate resistance	R _g	f=1MHz, Open Drain		85		Ω
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DD} =-10V, I _D =-0.5A		1.24		nC
Gate Source Charge	Q _{gs}			0.37		
Gate Drain Charge	Q _{gd}			0.27		
Reverse Recovery Chrage	Q _{rr}	I _F =-0.5A, di/dt=-20A/us		0.97		ns
Reverse Recovery Time	t _{rr}			26		
Turn-on Delay Time	t _{D(on)}	V _{GS} =-4.5V, V _{DD} =-10V, R _L =2.5Ω, R _{GEN} =3Ω		4		
Turn-on Rise Time	t _r			19		
Turn-off Delay Time	t _{D(off)}			16		
Turn-off Fall Time	t _f			25		

A. Pulse Test: Pulse Width≤300us, Duty cycle ≤2%.

B. The value of R_{θJA} is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The Power dissipation P_D is based on R_{θJA} and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design, and the maximum temperature of 150°C may be used if the PCB allows it to.



■ Typical Performance Characteristics

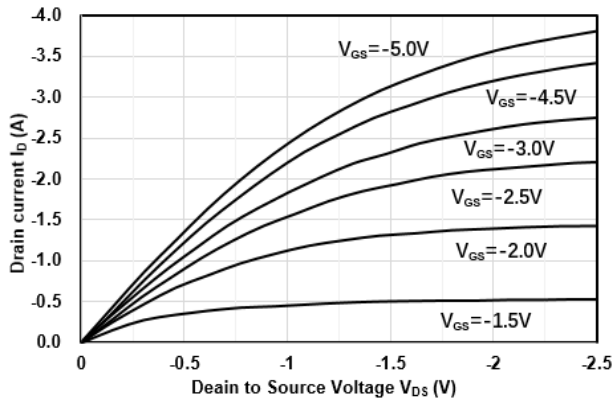


Figure1. Output Characteristics

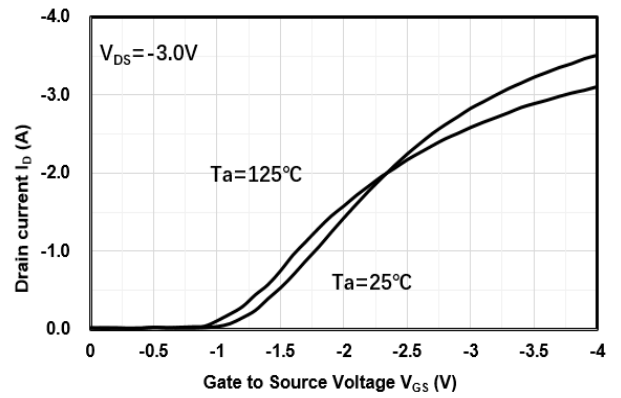


Figure2. Transfer Characteristics

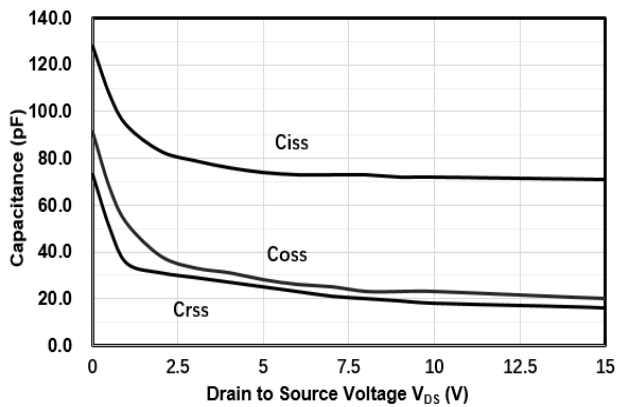


Figure3. Capacitance Characteristics

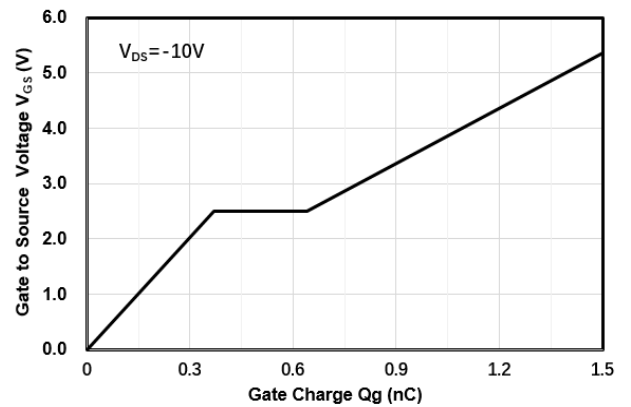


Figure4. Gate Charge

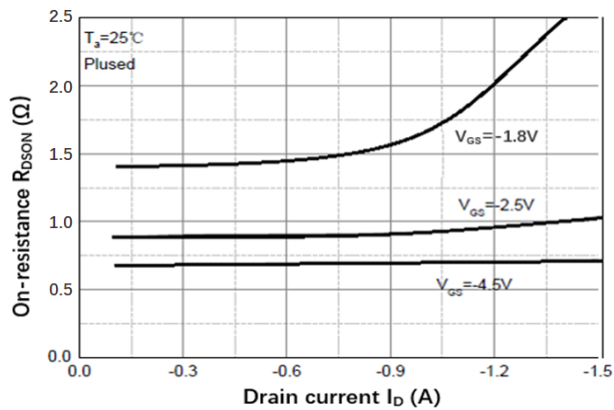


Figure5. Drain-Source on Resistance

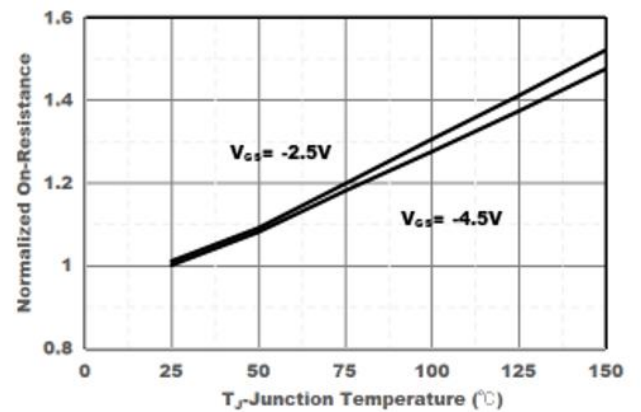


Figure6. Drain-Source on Resistance

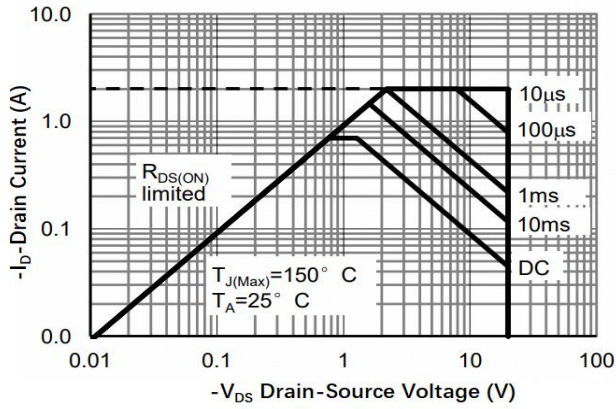


Figure7. Safe Operation Area

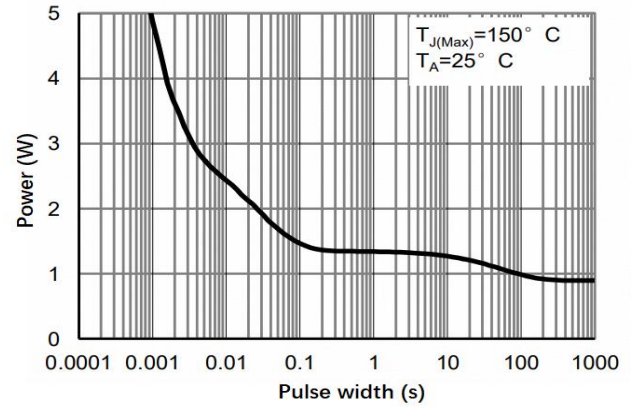


Figure8. Pulse Power Rating Junction-to Ambient

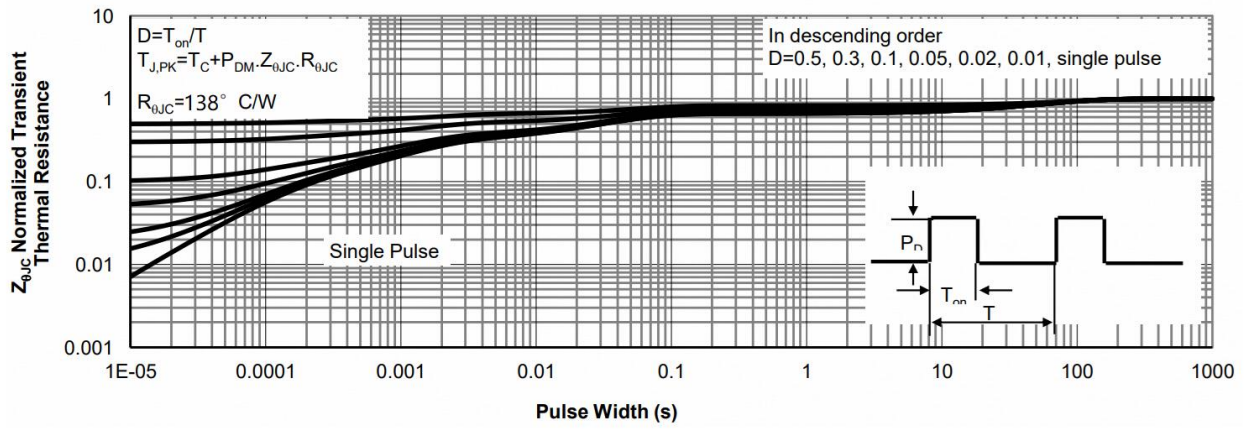
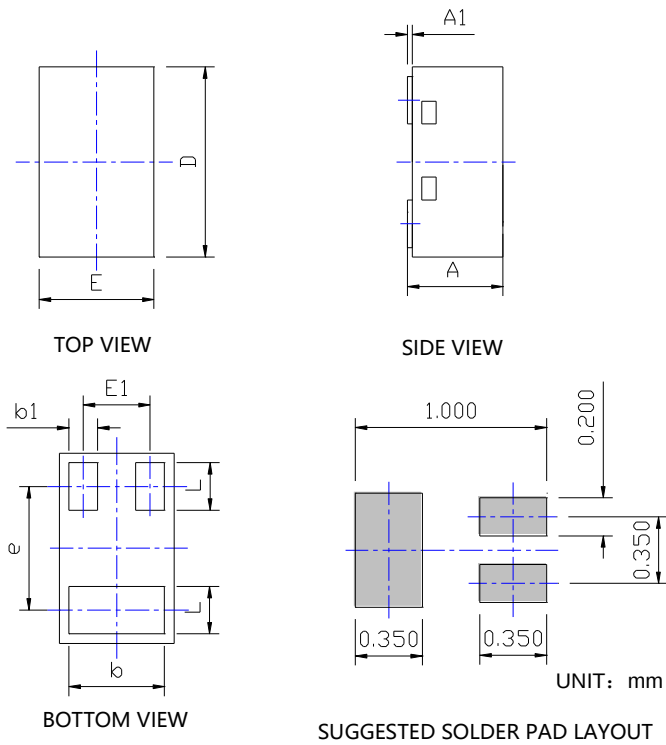


Figure9. Normalized Maximum Transient Thermal Impedance



YJA3139KB

■ DFN1006-3L Package information



SYMBOL	DIMENSIONS		
	Millimeter		
	MIN.	NOM.	MAX.
A	0.42	---	0.55
A1	0.025REF		
b	0.45	0.50	0.55
b1	0.10	0.15	0.20
D	0.95	1.00	1.05
E	0.55	0.60	0.65
E1	0.35BSC		
e	0.65BSC		
L	0.20	0.25	0.30

NOTE:

- 1.PACKAGE BODY SIZES EXCLUDE LEAD BURRS.
- 2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
- 3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



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.