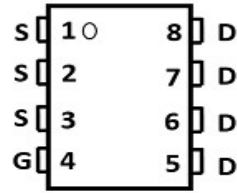
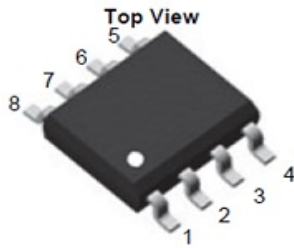
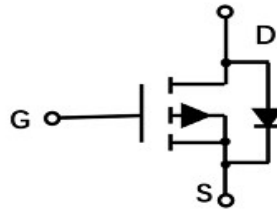


P-Channel Enhancement Mode Field Effect Transistor



SOP-8



Product Summary

- V_{DS} -100V
- I_D -4.5A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) <110 mohm
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) <120 mohm
- 100% UIS Tested
- 100% ∇V_{DS} Tested

General Description

- Split gate trench MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- Low C_{rss} (Typ.25pF)

Applications

- DC motor control
- power supplies

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	-100	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_A=25^\circ\text{C}$	I_D	-4.5	A
	$T_A=100^\circ\text{C}$		-2.85	
Pulsed Drain Current ^A		I_{DM}	-18	A
Avalanche energy ^B		E_{AS}	56	mJ
Total Power Dissipation	$T_A=25^\circ\text{C}$	P_D	3.1	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ\text{C}$

■ Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^C	$t \leq 10S$	$R_{\theta JA}$	31	40	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Ambient ^C	Steady-State		59	75	
Thermal Resistance Junction-to-Lead	Steady-State	$R_{\theta JL}$	16	24	

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJS05GP10A	F2	Q05P10A	4000	8000	64000	13" reel



YJS05GP10A

■ 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		-100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-100V, V _{GS} =0V	T _J =25℃			-1	μA
			T _J =55℃			-5	
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 =-3A			83	110	mΩ
		V _{GS} = -4.5V, I _D =-2A			95	120	
Diode Forward Voltage	V _{SD}	I _S =-3A, V _{GS} =0V				-1.3	V
Maximum Body-Diode Continuous Current	I _S					-4.5	A
Dynamic Parameters							
Input Capacitance	C _{iss}	V _{DS} =-50V, V _{GS} =0V, f=1MHZ			1051		pF
Output Capacitance	C _{oss}				119		
Reverse Transfer Capacitance	C _{rss}				25		
Switching Parameters							
Total Gate Charge	Q _g (-10V)	V _{GS} =-10V, V _{DS} =-50V, I _D =-5A			20		nC
Total Gate Charge	Q _g (-4.5V)				9.7		
Gate-Source Charge	Q _{gs}				3.9		
Gate-Drain Charge	Q _{gd}				4.3		
Reverse Recovery Chrage	Q _{rr}	I _F =-5A, di/dt=100A/us			140		ns
Reverse Recovery Time	t _{rr}				80		
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V, V _{DD} =-50V, I _{DS} =-5A R _{GEN} =6Ω			10		
Turn-on Rise Time	t _r				30		
Turn-off Delay Time	t _{D(off)}				77		
Turn-off fall Time	t _f				81		

A. Repetitive rating; pulse width limited by max. junction temperature.

B. Pd is based on max. junction temperature, using ≤10s junction-ambient thermal resistance.

C. 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 value in any given application depends on the user's specific board design.



■ Typical Performance Characteristics

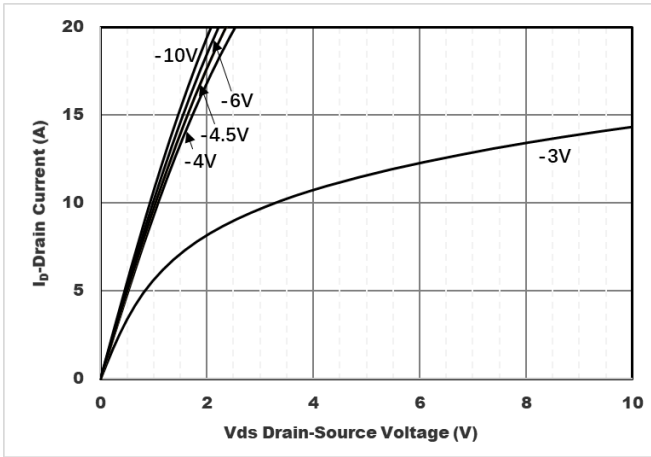


Figure1. Output Characteristics

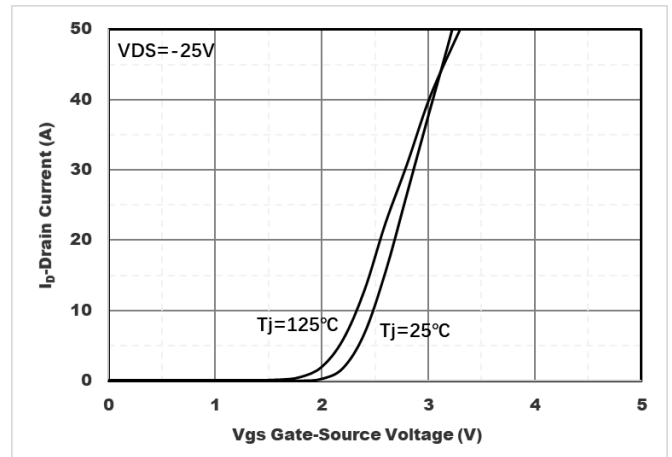


Figure2. Transfer Characteristics

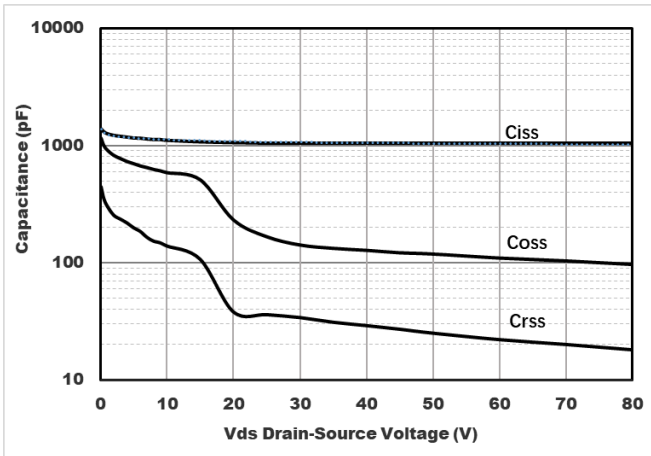


Figure3. Capacitance Characteristics

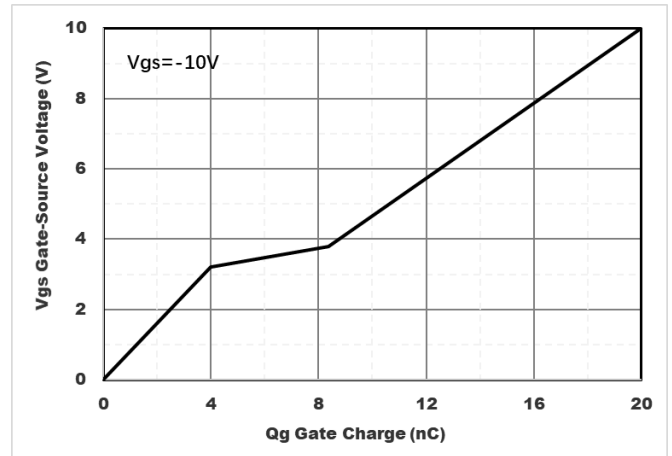


Figure4. Gate Charge

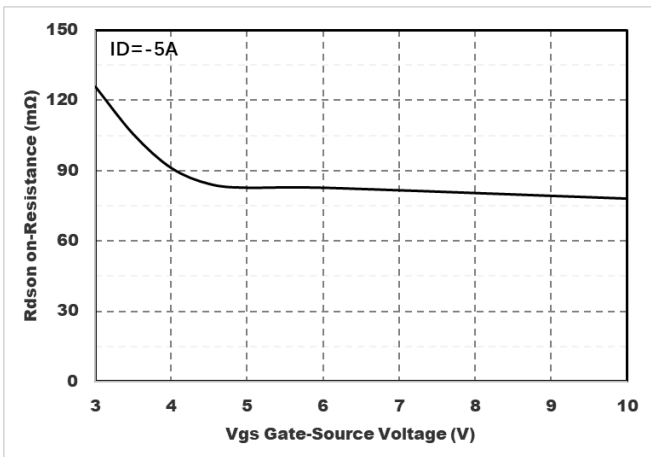


Figure5. : On-Resistance vs. Gate to Source Voltage

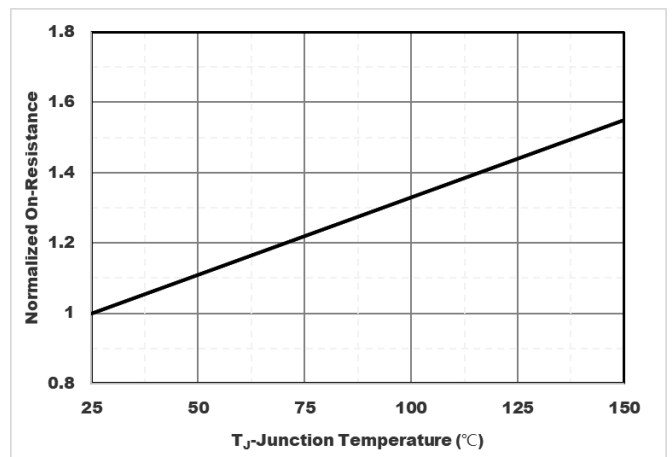


Figure6.Normalized On-Resistance

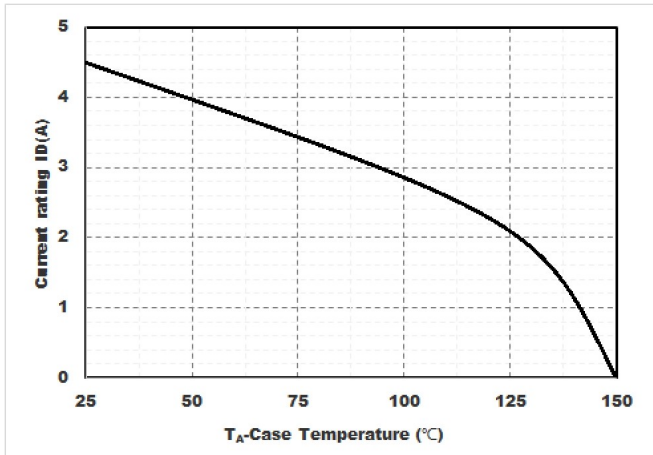


Figure7. Drain current

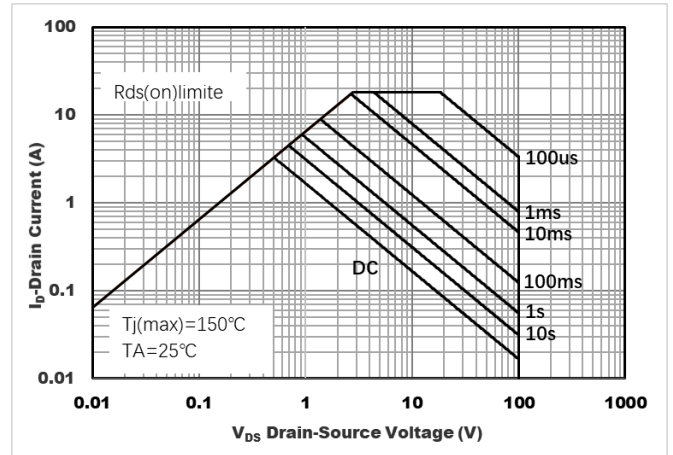


Figure8.Safe Operation Area

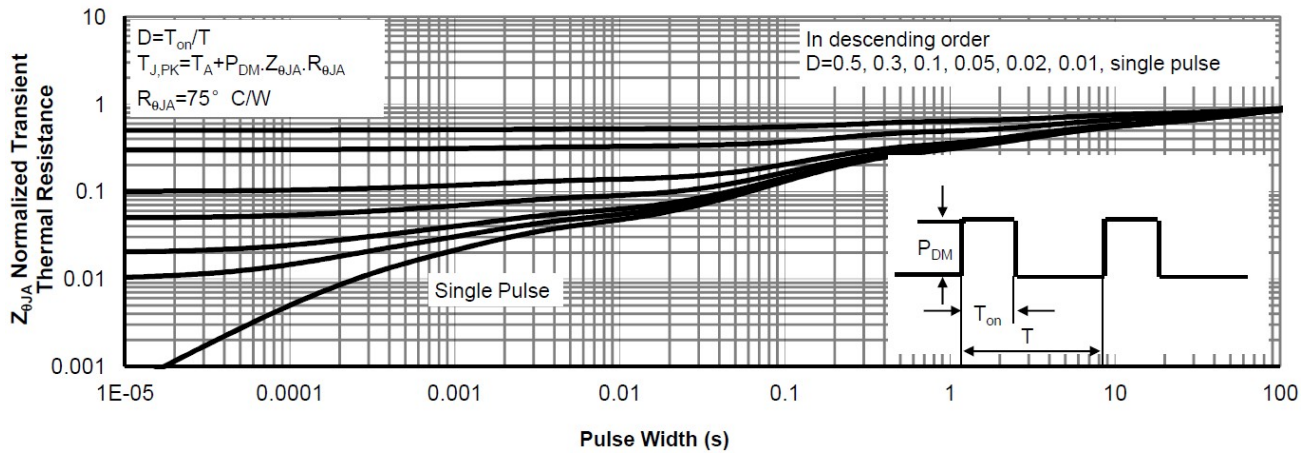
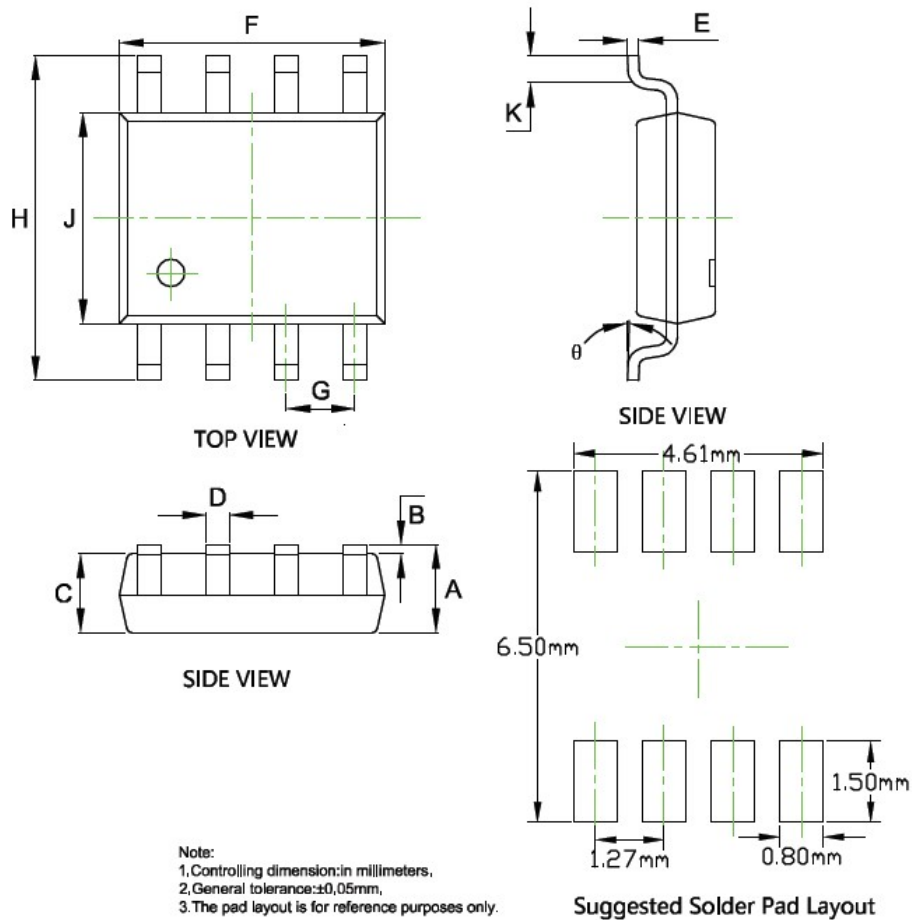


Figure9. Normalized Maximum Transient Thermal Impedance



YJS05GP10A

■ SOP-8 Package Information



Suggested Solder Pad Layout

DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.053	0.069	1.350	1.750
B	0.004	0.010	0.100	0.250
C	0.053	0.061	1.350	1.550
D	0.013	0.020	0.330	0.510
E	0.007	0.010	0.170	0.250
F	0.189	0.197	4.800	5.000
G	0.050BSC		1.270BSC	
H	0.228	0.244	5.800	6.200
J	0.150	0.157	3.800	4.000
K	0.016	0.050	0.400	1.270
θ	0°	8°	0°	8°



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.