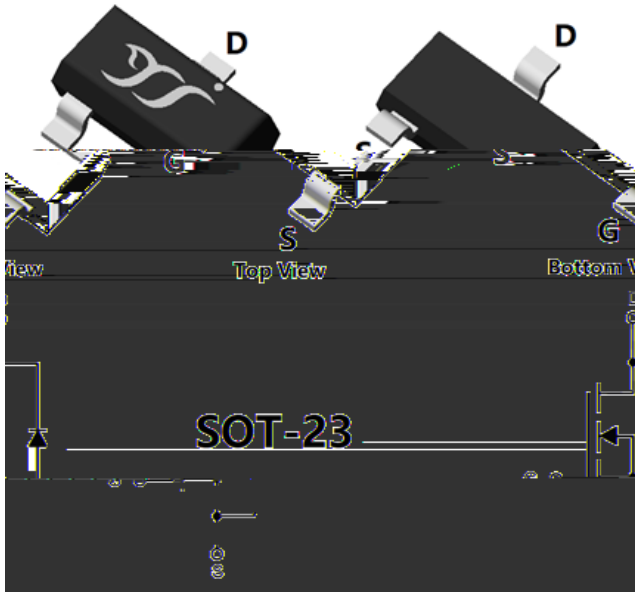


N-Channel Enhancement Mode Field Effect Transistor



Product Summary

- V_{DS} 30V
- I_D 3.5A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) $< 45m\Omega$
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) $< 85m\Omega$

General Description

- Trench Power LV MOSFET technology
- High Speed switching
- Halogen Free
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Power switching application
- Uninterruptible power supply
- DC-DC convertor

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	30	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_A=25$	I_D	3.5	A
	$T_A=100$		2.2	
Pulsed Drain Current ^A		I_{DM}	20	A
Total Power Dissipation ^B	$T_A=25$	P_D	1.05	W
	$T_A=100$		0.43	
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	

■ Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^C	Steady-State	$R_{\theta JA}$	95	115	/W

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJL2304D	F2	2304D.	3000	30000	120000	7" reel



YJL2304D

■ 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
		$V_{DS}=30V, V_{GS}=0V, T_J=150$	-	-	100	
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	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=3.5A$	-	34	45	m Ω
		$V_{GS}=4.5V, I_D=2A$	-	58	85	
Diode Forward Voltage	V_{SD}	$I_S=3.5A, V_{GS}=0V$	-	0.85		



Typical Electrical and Thermal Characteristics Diagrams

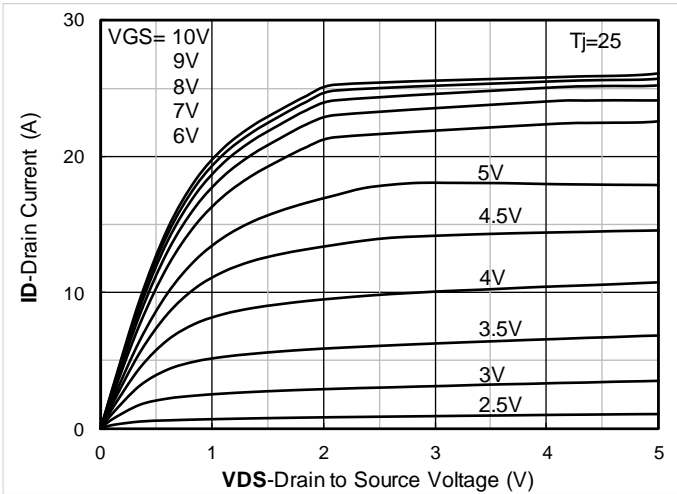


Figure 1. Output Characteristics

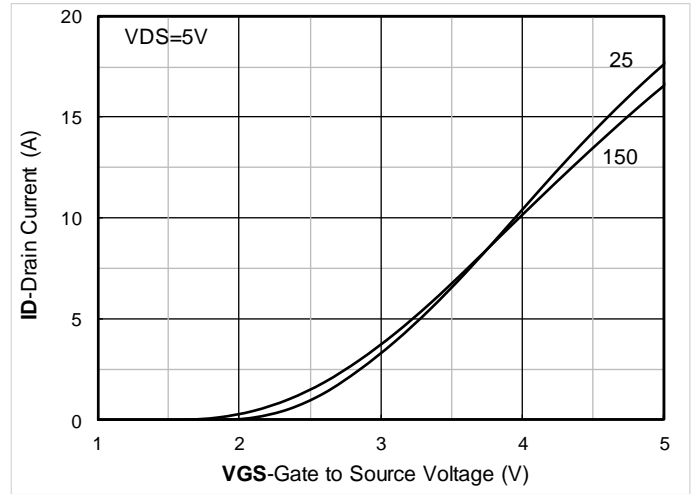


Figure 2. Transfer Characteristics

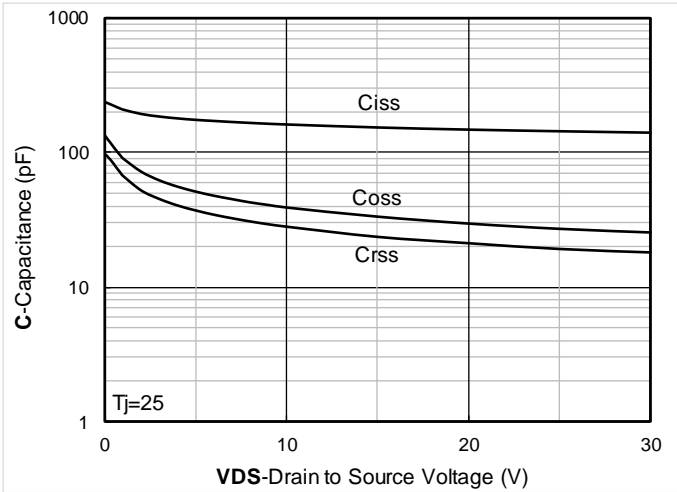


Figure 3. Capacitance Characteristics

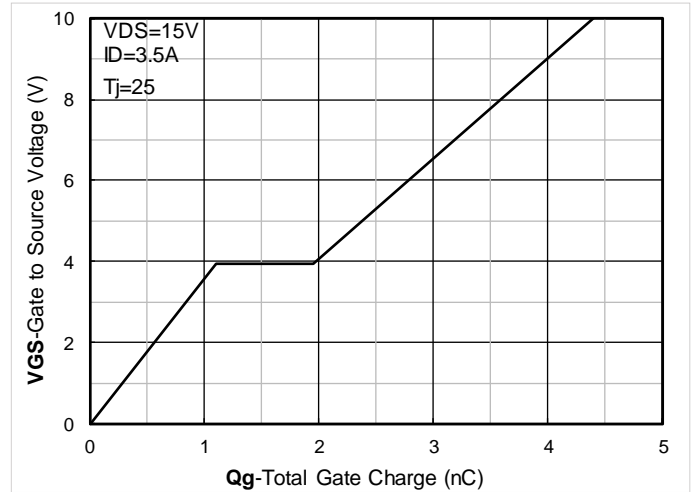


Figure 4. Gate Charge

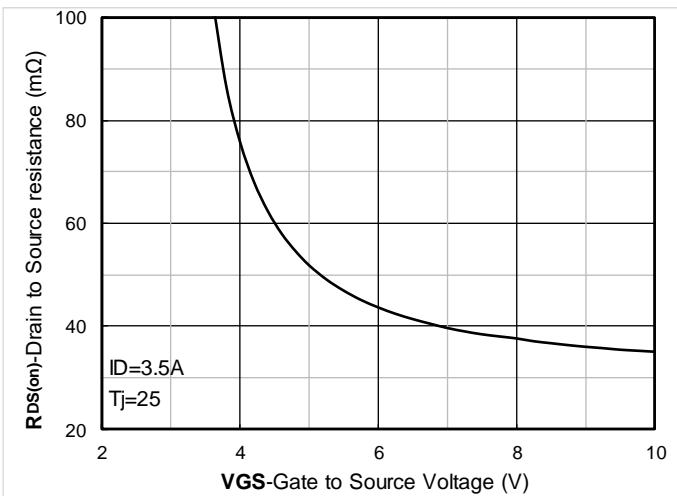


Figure 5. On-Resistance vs Gate to Source Voltage

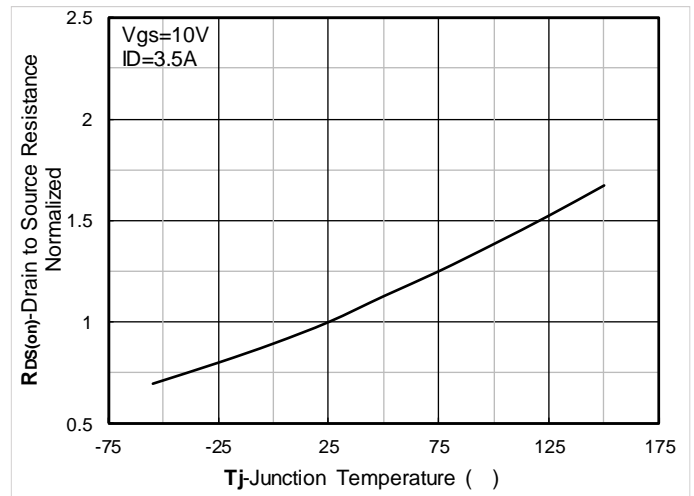


Figure 6. Normalized On-Resistance



YJL2304D

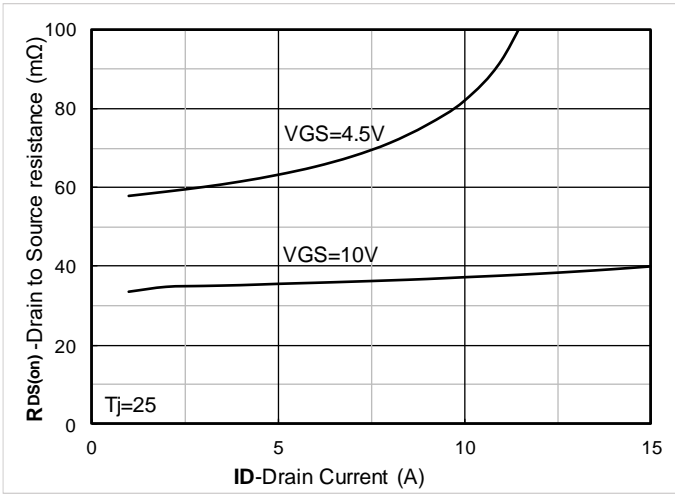


Figure 7. RDS(on) VS Drain Current

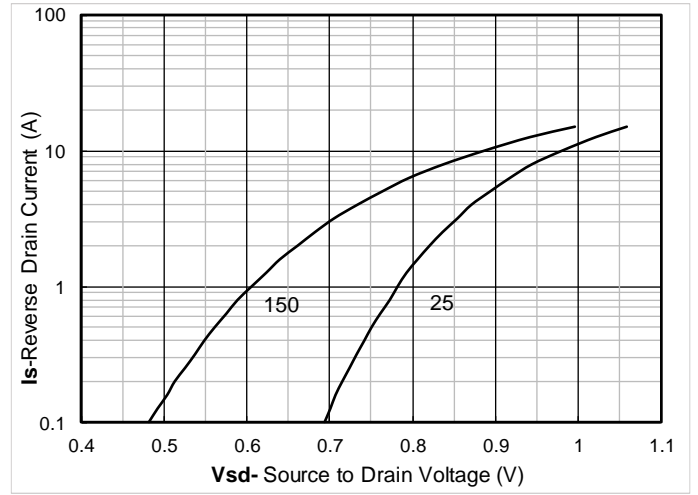


Figure 8. Forward characteristics of reverse diode

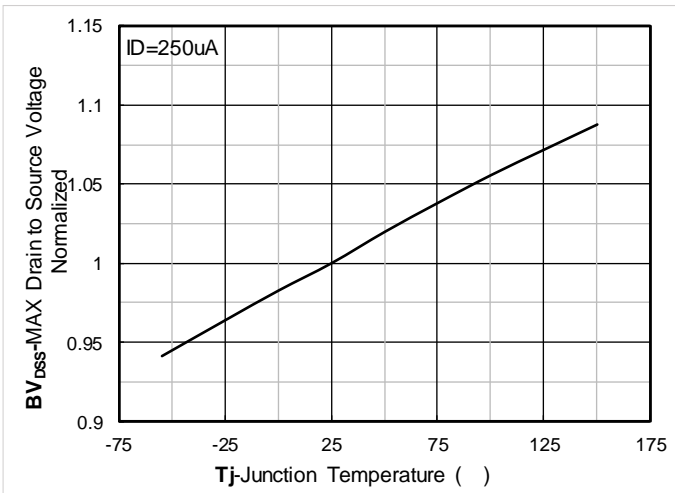


Figure 9. Normalized breakdown voltage

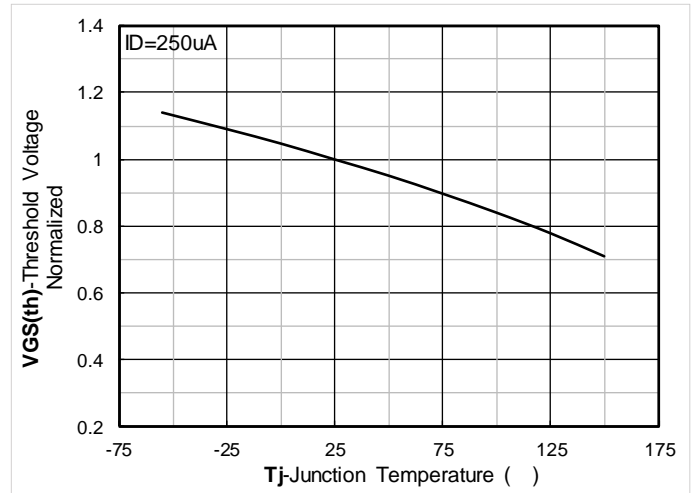


Figure 10. Normalized Threshold voltage

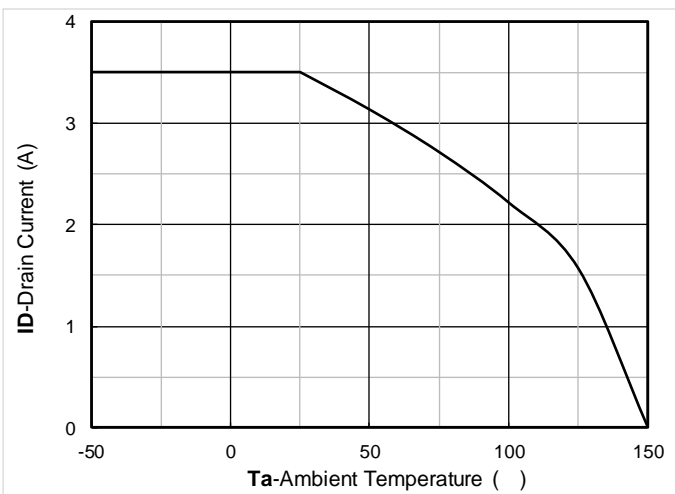


Figure 11. Current dissipation

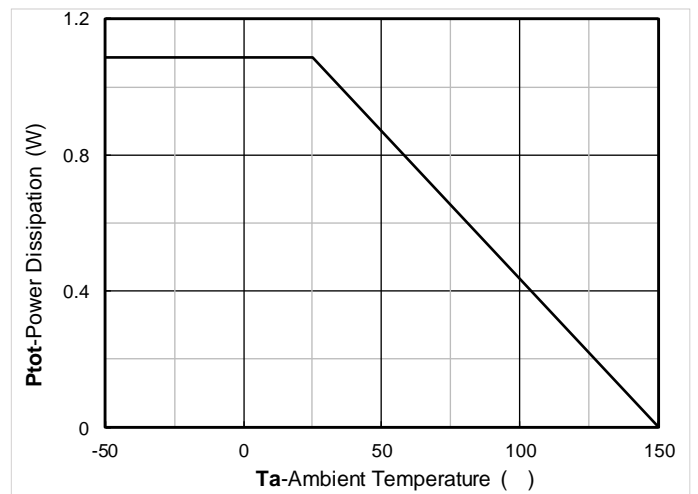


Figure 12. Power dissipation

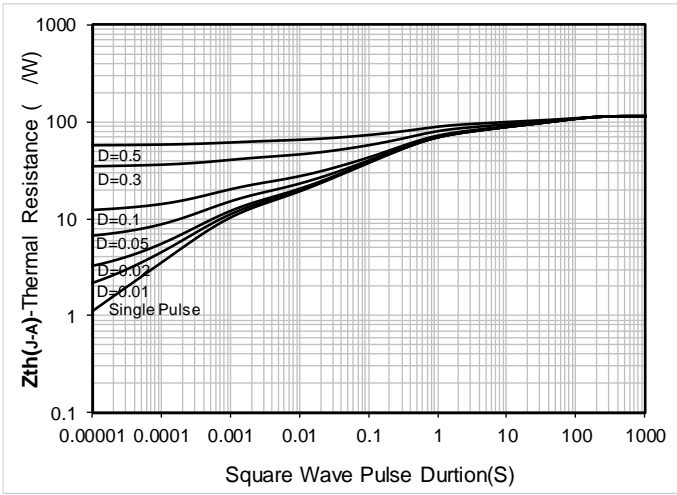


Figure 13. Maximum Transient Thermal Impedance

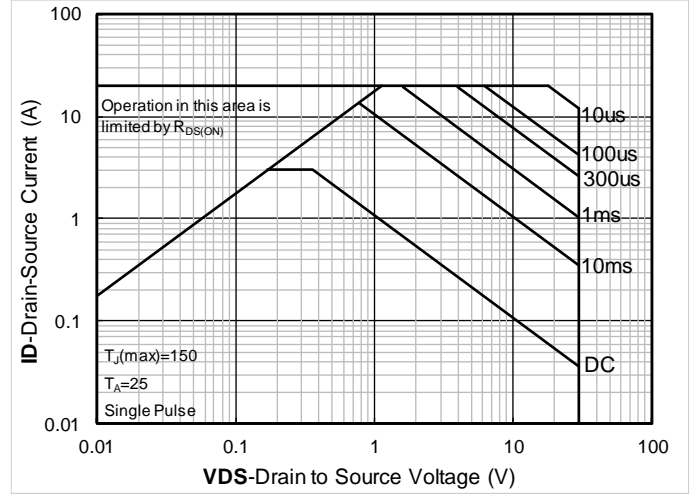


Figure 14. Safe Operation Area

■ Test Circuits & Waveforms

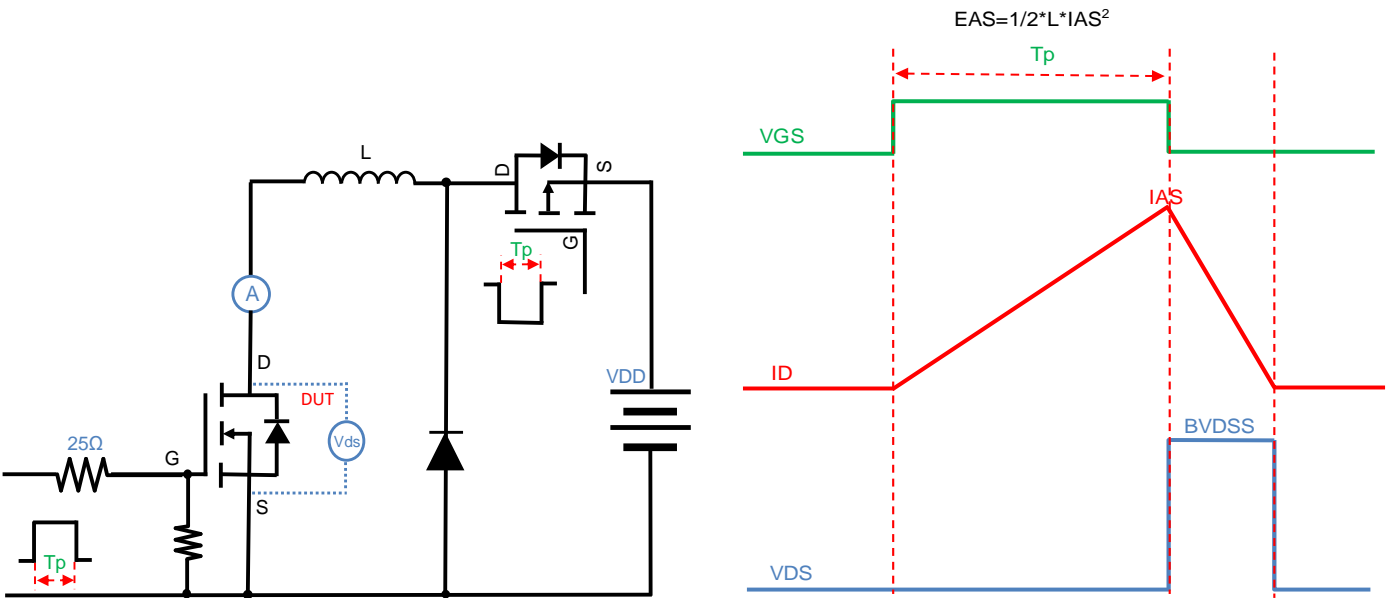


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform



Figure B. Gate Charge Test Circuit & Waveform



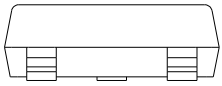
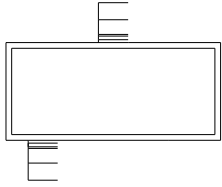
Figure C. Resistive Switching Test Circuit & Waveform



Figure D. Diode Recovery Test Circuit & Waveform



■ SOT-23 Package Information



UNIT: mm



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> , or consult your nearest Yangjie's sales office for further assistance.