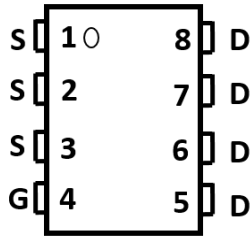
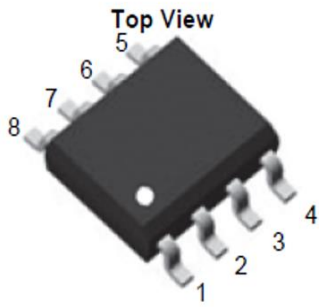
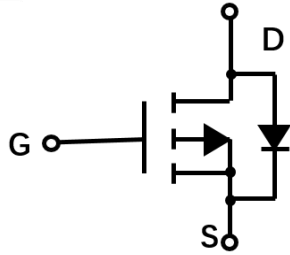


P-Channel Enhancement Mode Field Effect Transistor



SOP-8



Product Summary

- V_{DS} -30V
- I_D -18A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) <6.2mohm
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) <10mohm
- 100% ∇V_{DS} Tested

General Description

- Trench Power LV MOSFET technology
- High Power and current handling capability

Applications

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

■ 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}	± 25	V
Drain Current	I_D	$T_C=25^\circ C$	-18
		$T_C=70^\circ C$	-14.4
Pulsed Drain Current ^A	I_{DM}	-72	A
Total Power Dissipation	P_D	3.4	W
Thermal Resistance Junction-to-Ambient @ Steady State ^B	$R_{\theta JA}$	37	$^\circ C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-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
YJS4447B	F2	Q4447B	4000	8000	64000	13" reel



YJS4447B

■ 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	-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} = ±25V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =-250μA	-1.2	-1.8	-2.8	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -15A		5.0	6.2	mΩ
		V _{GS} = -4.5V, I _D = -10A		6.9	10	
Diode Forward Voltage	V _{SD}	I _S = -15A, V _{GS} =0V			-1.2	V
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} =0V, f=1MHZ		6464		pF
Output Capacitance	C _{oss}			779		
Reverse Transfer Capacitance	C _{rss}			477		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} = -10V, V _{DS} = -15V, I _D = -20A		111.7		nC
Gate-Source Charge	Q _{gs}			21.1		
Gate-Drain Charge	Q _{gd}			22.9		
Reverse Recovery Charge	Q _{rr}	I _F =-20A, di/dt=100A/μs		8.6		ns
Reverse Recovery Time	t _{rr}			24		
Turn-on Delay Time	t _{D(on)}	V _{GS} = -10V, V _{DD} = -15V, R _G =3Ω, R _L = 0.75Ω		15		ns
Turn-on Rise Time	t _r			79		
Turn-off Delay Time	t _{D(off)}			136		
Turn-off fall Time	t _f			80		

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

B. The value of R_{θJA} is measured with the device mounted on 1 in² 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.

C. The R_{θJA} is the sum of the thermal impedance from junction to lead R_{θJL} and lead to ambient.

■ Typical Performance Characteristics

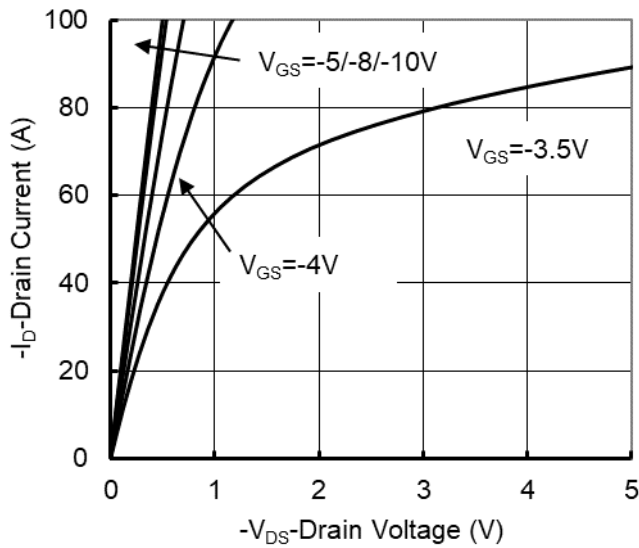


Figure1. Output Characteristics

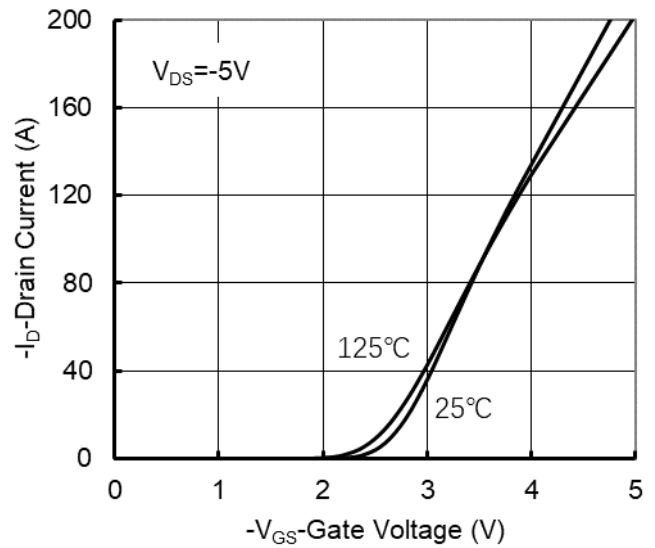


Figure2. Transfer Characteristics

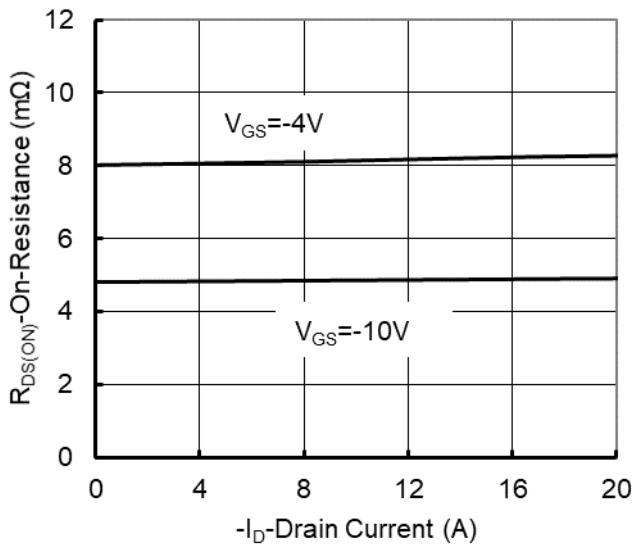


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

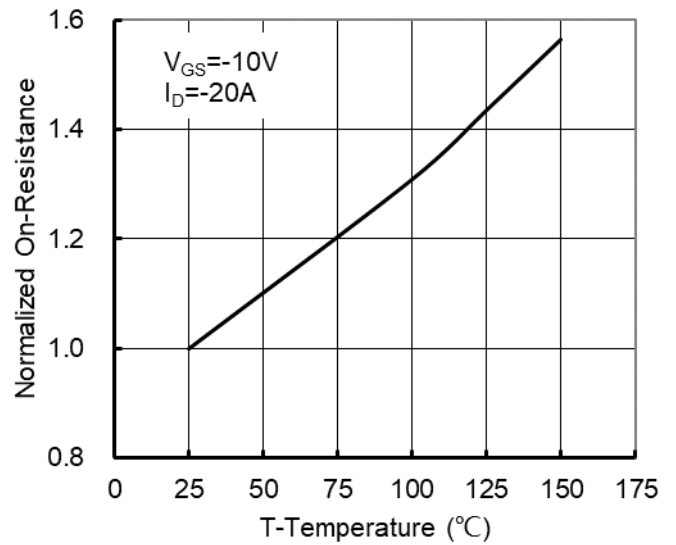


Figure 4: On-Resistance vs. Junction Temperature

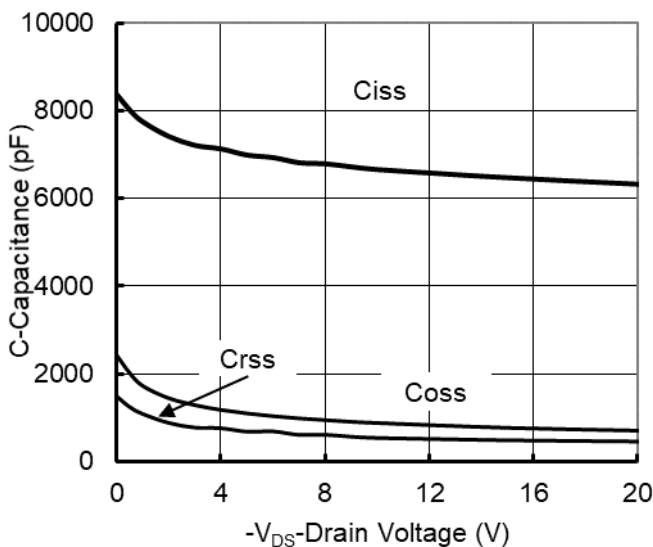


Figure5. Capacitance Characteristics

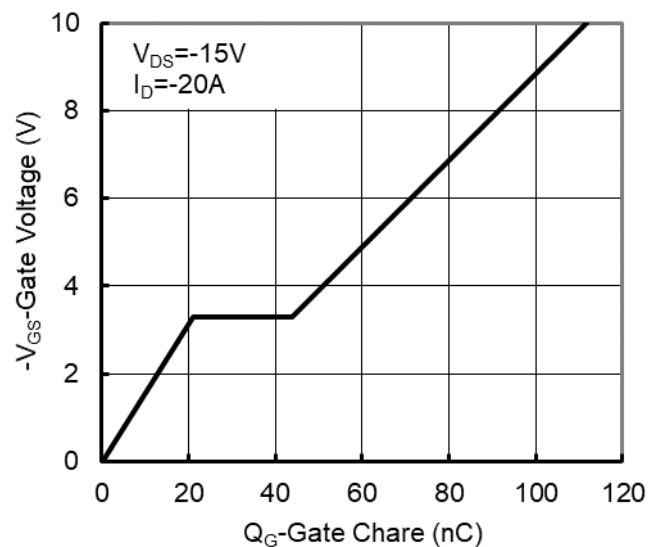


Figure6. Gate Charge

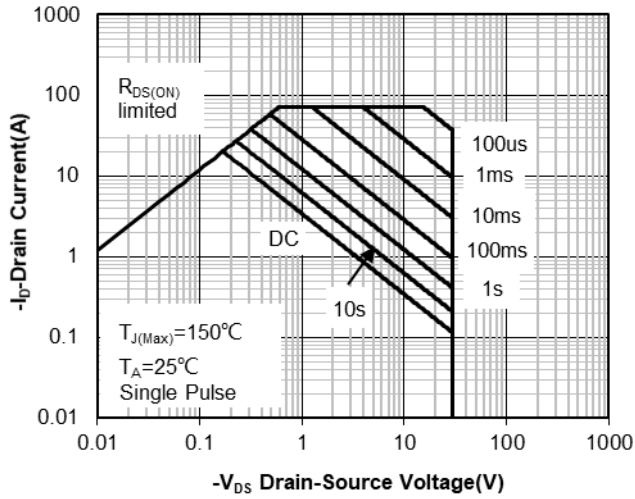


Figure7. Safe Operation Area

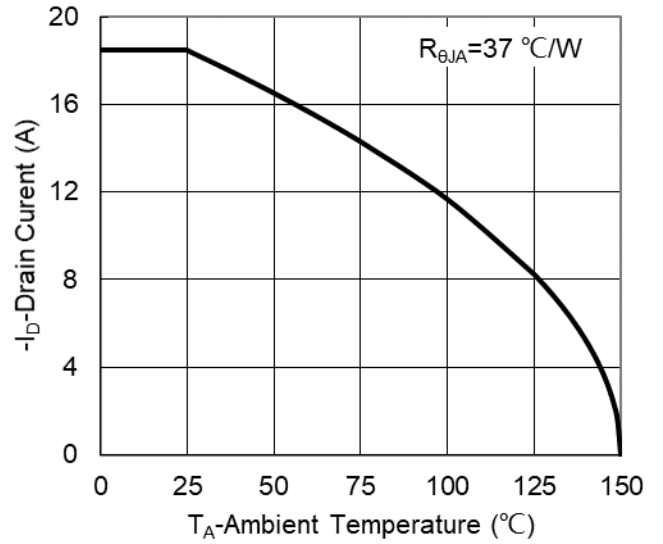


Figure8. Maximum Continuous Drain Current vs Case Temperature

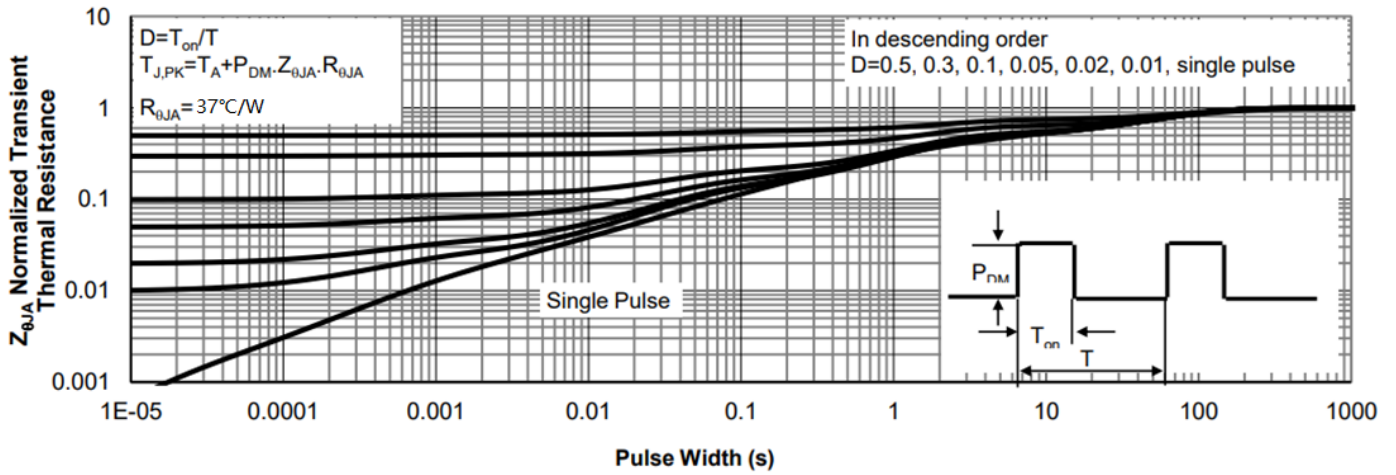
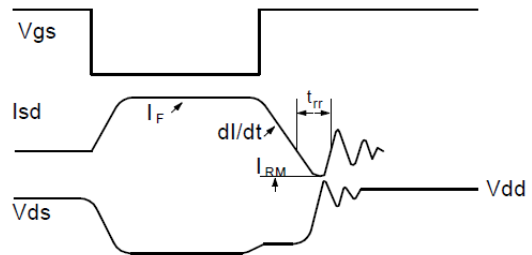
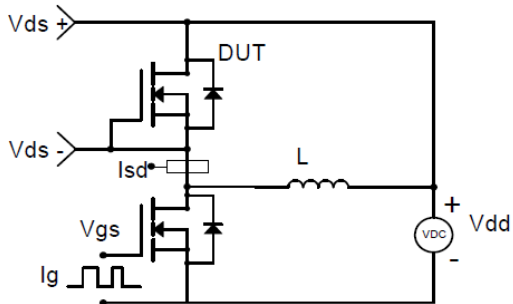


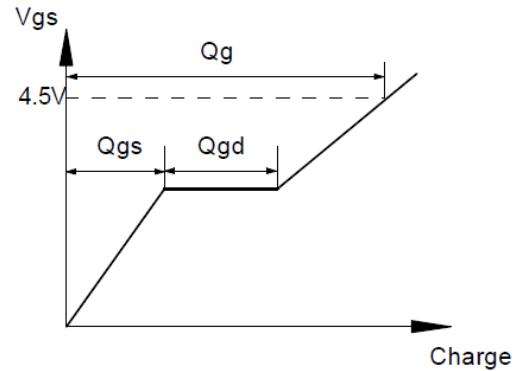
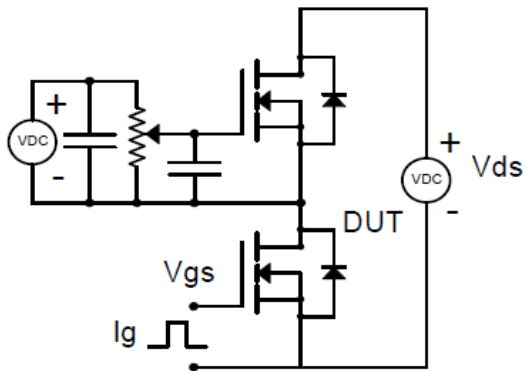
Figure9. Normalized Maximum Transient Thermal Impedance



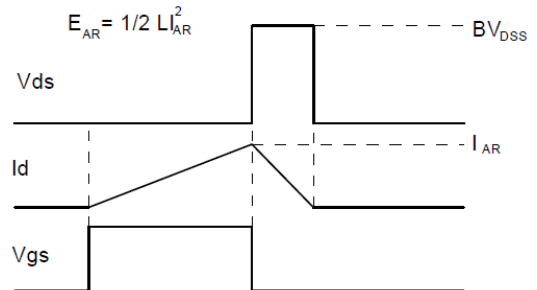
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Gate Charge Test Circuit & Waveform

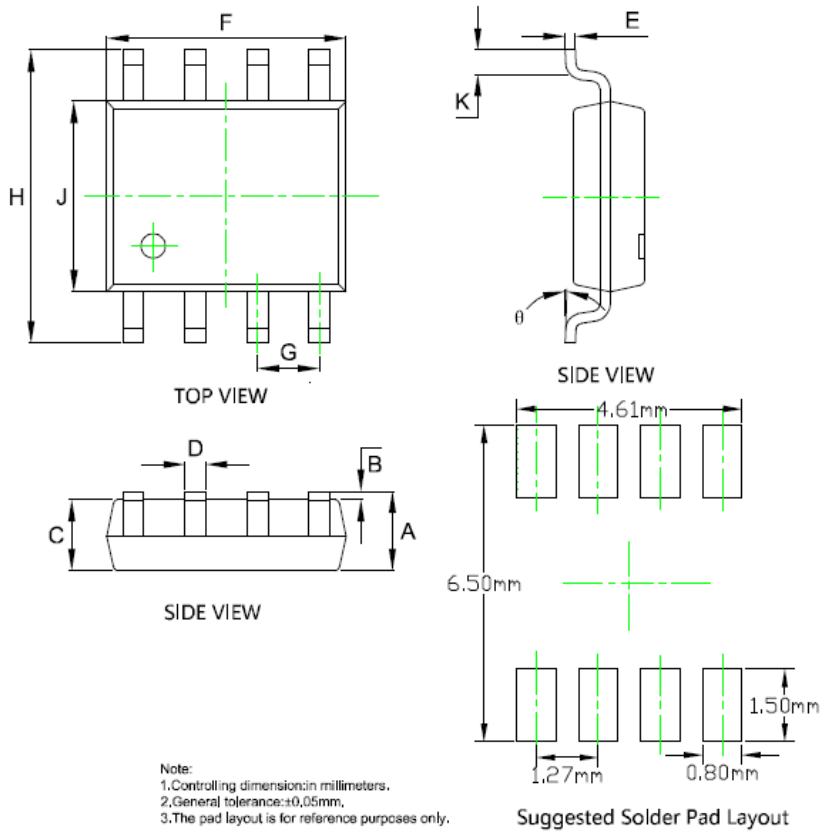


Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



YJS4447B

■ SOP-8 Package information



SYMBOL	DIMENSIONS			
	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°



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