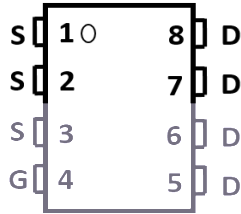
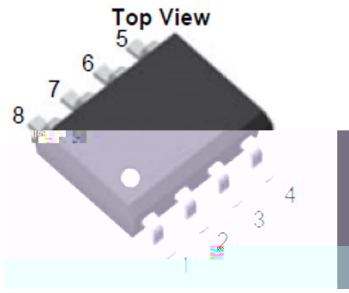
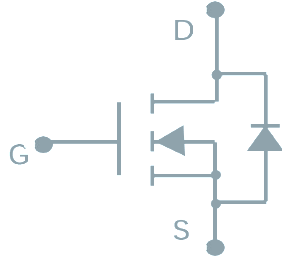




N-Channel Enhancement Mode Field Effect Transistor



SOP-8



Product Summary

V_{DS}	60V
I_D	8.2A
$R_{DS(ON)}$ (at $V_{GS}= 10V$)	22mohm
$R_{DS(ON)}$ (at $V_{GS}= 4.5V$)	34mohm

General Description

Trench Power MV MOSFET technology
 High density cell design for Low $R_{DS(ON)}$
 High Speed switching

Applications

Battery protection
 Load switch
 Power management

Absolute Maximum Ratings ($T_A=25$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-source Voltage	V_{DS}	60	V	
Gate-source Voltage	V_{GS}	± 20	V	
Drain Current ^A	I_D	$T_A=25$	8.2	A
		$T_A=70$	6.6	
Pulsed Drain Current ^B	I_{DM}	39	A	
Total Power Dissipation	P_D	$T_A=25$	3.1	W
		$T_A=70$	2	
Thermal Resistance Junction-to-Ambient	R_{JA}	t 10s	40	/ W
		Steady-State	75	
Thermal Resistance Junction-to-Case	R_{JL}	30	/ W	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 +150		

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJS4438A	F2	Q4438	4000	8000	64000	13" reel



YJS4438A

Electrical Characteristics ($T_J=25$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			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	$R_{DS(on)}$	$V_{GS}=10V, I_D=8.2A$		14.5	22	m
		$V_{GS}=4.5V, I_D=7.6A$		17	34	
Diode Forward Voltage	V_{SD}	$I_S=8.2A, V_{GS}=0V$		0.8	1.2	V
Maximum Body-Diode Continuous Current	I_S				8.2	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		2027		pF
Output Capacitance	C_{oss}			132		
Reverse Transfer Capacitance	C_{rss}			116		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=30V, I_D=10A$		51		nC
Gate-Source Charge	Q_{gs}			8.1		
Gate-Drain Charge	Q_{gd}			11.4		



Typical Performance Characteristics

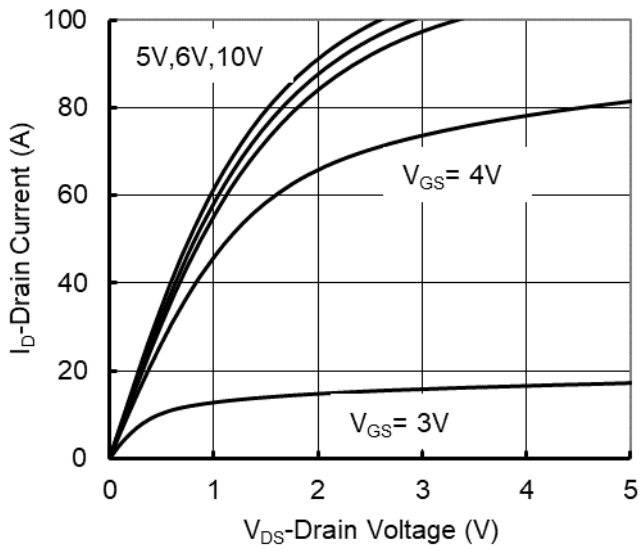


Figure 1. Output Characteristics

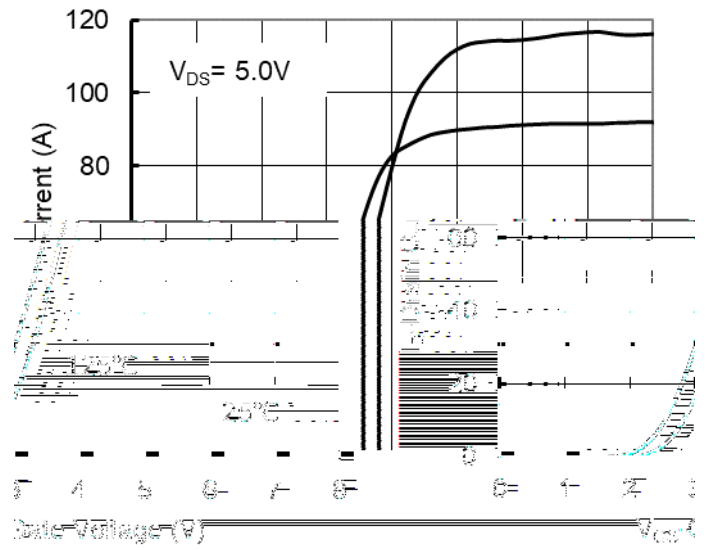


Figure 2. Transfer Characteristics

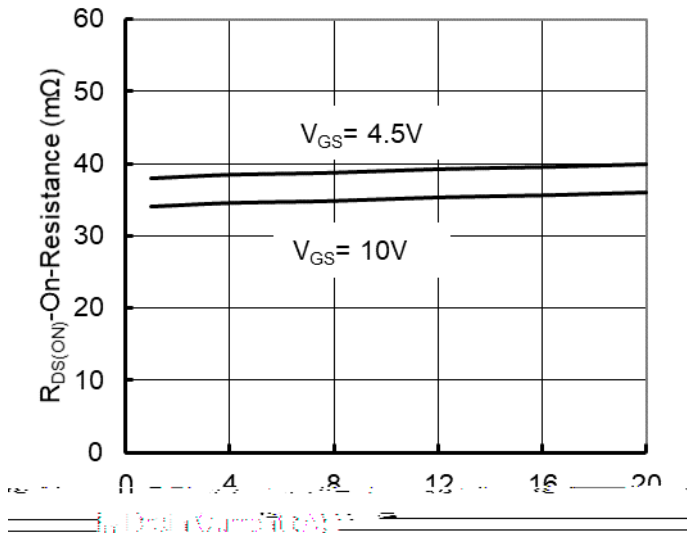


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

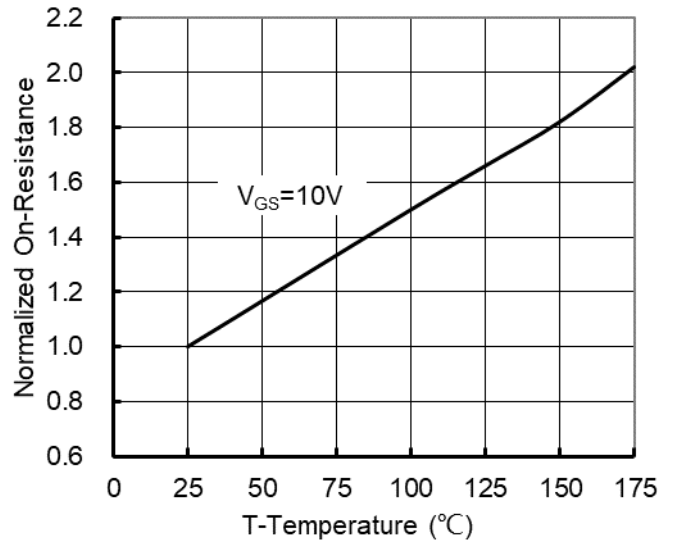


Figure 4. On-Resistance vs. Junction Temperature

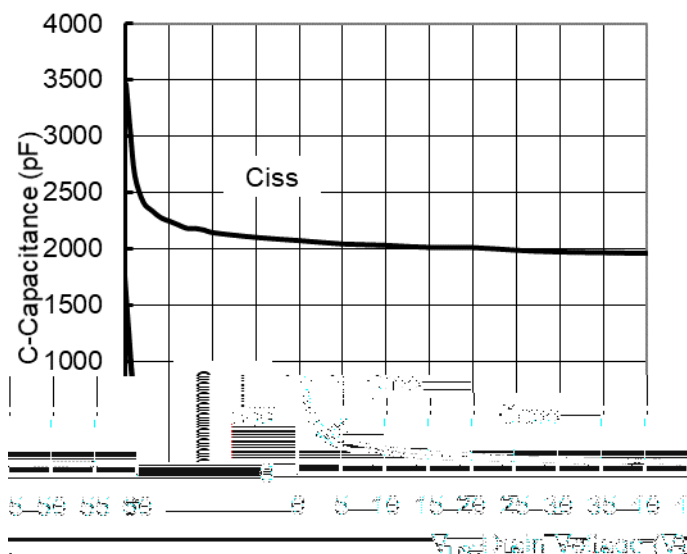


Figure 5. Capacitance Characteristics

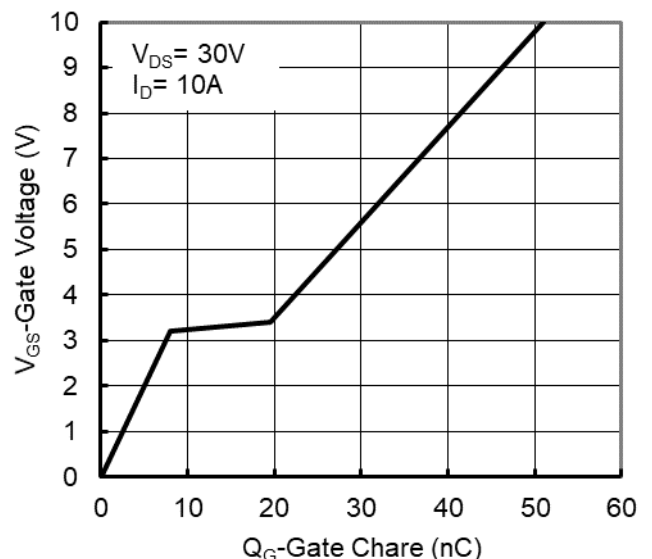


Figure 6. Gate Charge

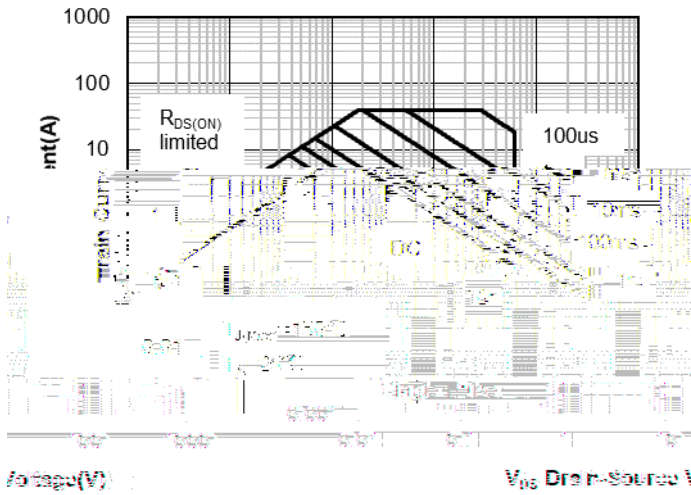


Figure 7. Safe Operation Area

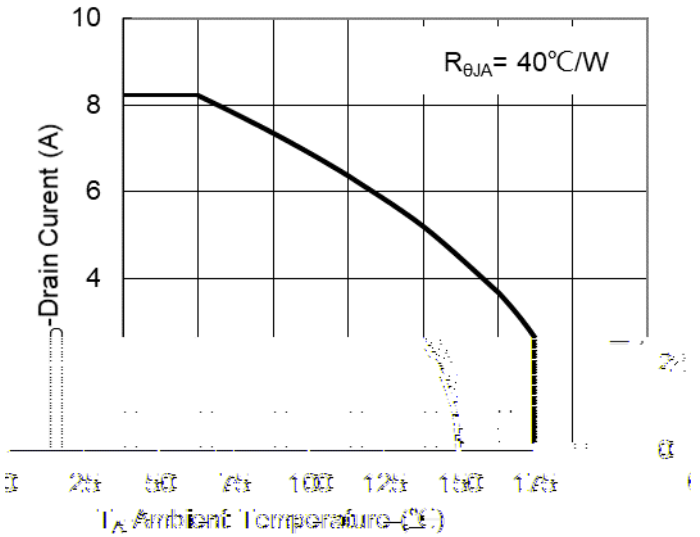


Figure 8. Maximum Continuous Drain Current vs Ambient Temperature

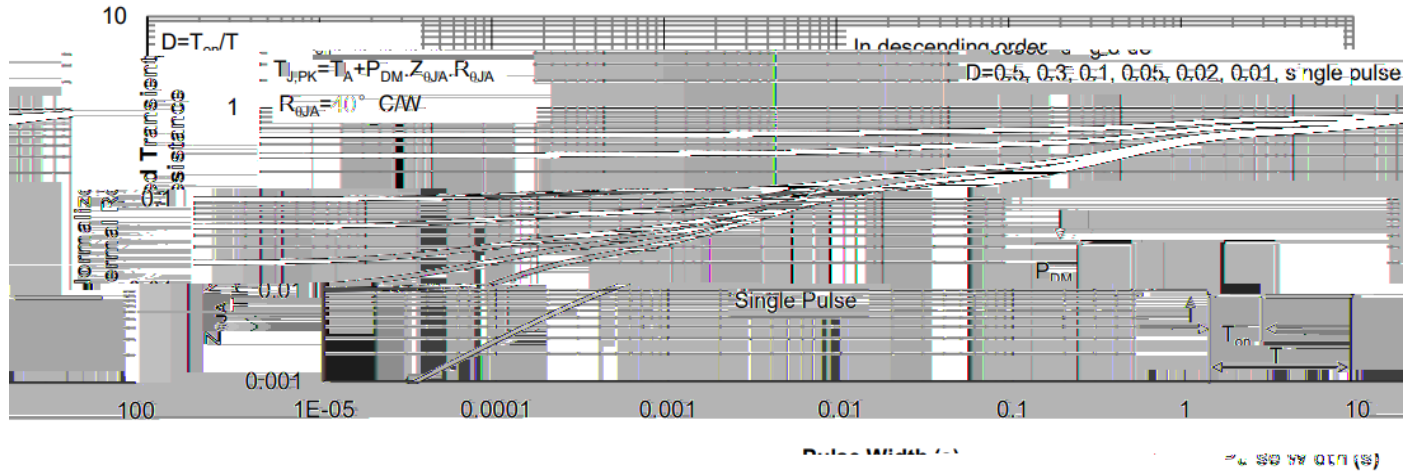
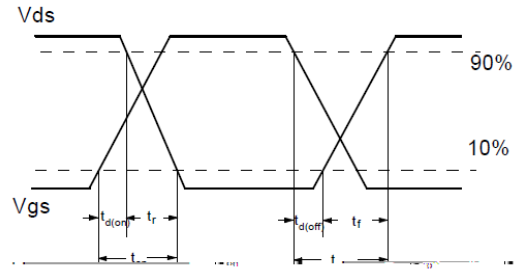
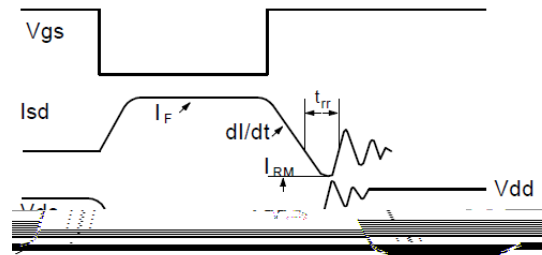
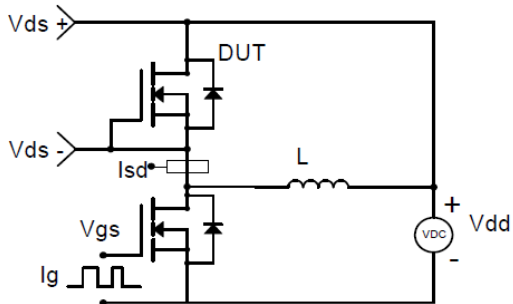


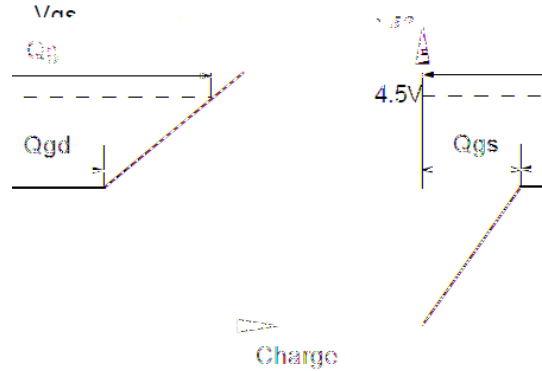
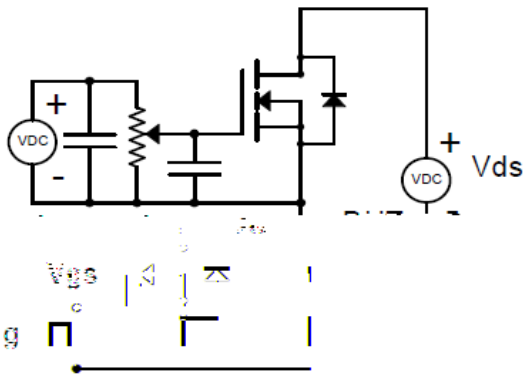
Figure 9. Normalized Maximum Transient Thermal Impedance



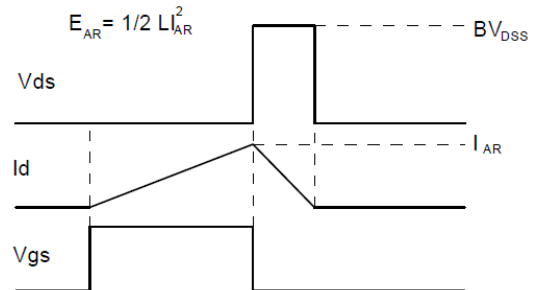
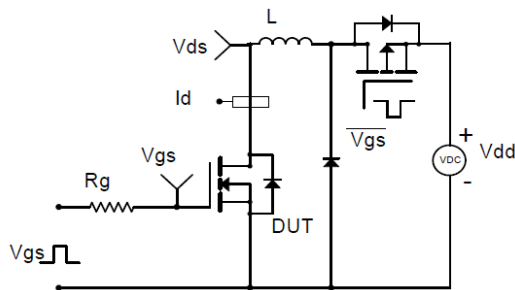
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Gate Charge Test Circuit & Waveform

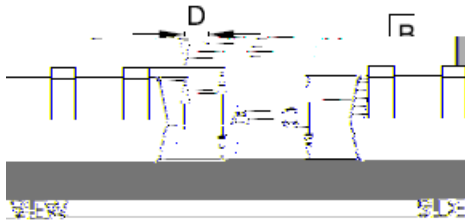
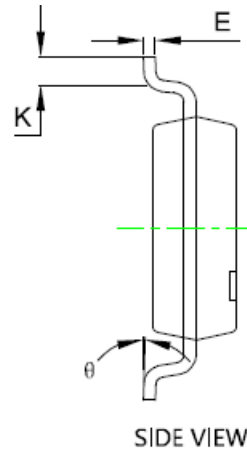
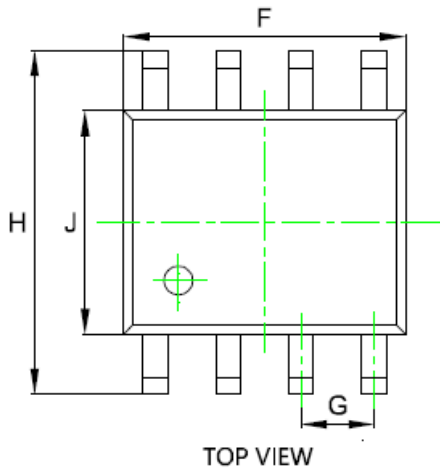


Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

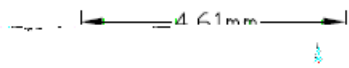


YJS4438A

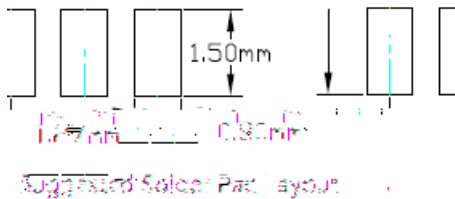
SOP-8 Package information



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MTN	MAX	MIN	MAX
D	0.088	0.095	0.900	1.000
E	0.000	0.004	0.000	0.004
F	0	0.055	0.300	0.350
G	0	0.000	0.020	0.330
H		0.000	0.000	0.170
J		0.120	0.150	0.300
K	0	0.000	0.000	0.030
theta		0.226	0.249	0.300
R	0	0.000	0.000	0.000
W	K	0.010	0.050	0.070
W*	W	0	0	0



6.50mm



- Note
- Controlling dimension: in millimeters
 - General tolerance: ± 0.5 mm.
 - The pad layout is for reference purposes only.

