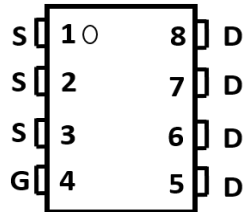
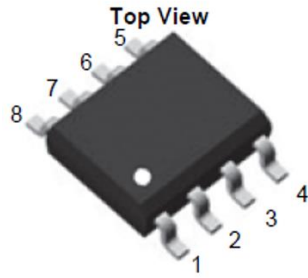
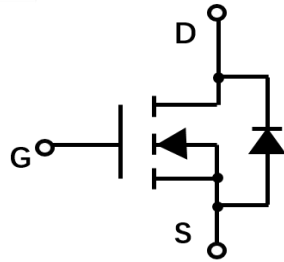


N-Channel Enhancement Mode Field Effect Transistor



SOP-8



Product Summary

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

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 ($T_A=25^{\circ}C$ 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	$T_A=25^{\circ}C$ 8.2	A
		$T_A=70^{\circ}C$ 6.6	
Pulsed Drain Current ^B	I_{DM}	39	A
Total Power Dissipation	P_D	$T_A=25^{\circ}C$ 3.1	W
		$T_A=70^{\circ}C$ 2	
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	$t \leq 10s$ 40	$^{\circ}C/W$
		Steady-State 75	
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	30	$^{\circ}C/W$
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
YJS4438A	F2	Q4438	4000	8000	64000	13" reel



YJS4438A

■ 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	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} = ±20V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	1.0	1.5	2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D =8.2		14.5	22	mΩ
		V _{GS} = 4.5V, I _D =7.6		17	34	
Diode Forward Voltage	V _{SD}	I _S =8.2V _{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		1550		pF
Output Capacitance	C _{oss}			191		
Reverse Transfer Capacitance	C _{rss}			133		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V,V _{DS} =30V,I _D =8.2A		48		nC
Gate-Source Charge	Q _{gs}			7		
Gate-Drain Charge	Q _{gd}			10		
Reverse Recovery Chrage	Q _{rr}	I _F =8.2A, di/dt=100A/us		48		ns
Reverse Recovery Time	t _{rr}			41		
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V,V _{DD} =30V,R _L =3.5Ω R _{GEN} =3Ω		10		
Turn-on Rise Time	t _r			5		
Turn-off Delay Time	t _{D(off)}			30		
Turn-off fall Time	t _f			8		

- A. 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. The current rating is based on the t ≤ 10s thermal resistance rating.
- B. Repetitive rating, pulse width limited by junction temperature.

■ Typical Performance Characteristics

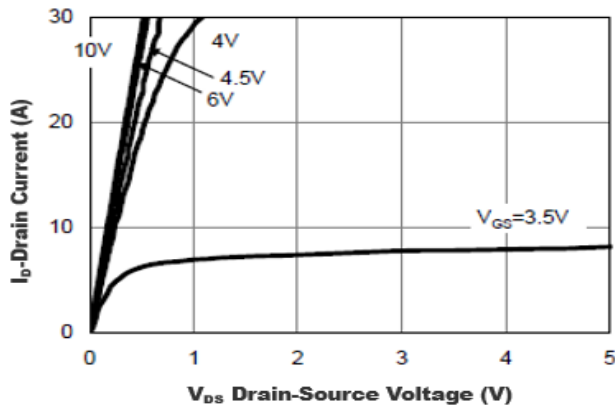


Figure1. Output Characteristics

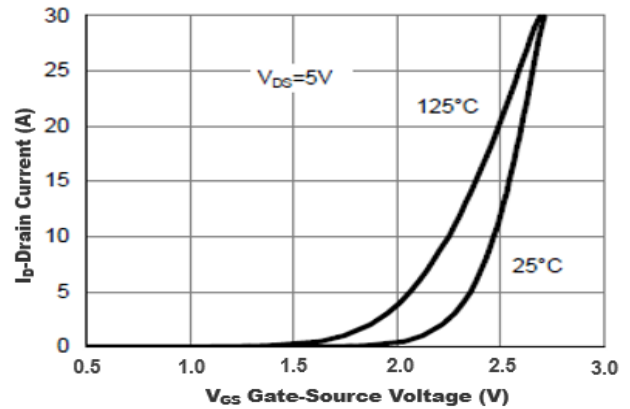


Figure2. Transfer Characteristics

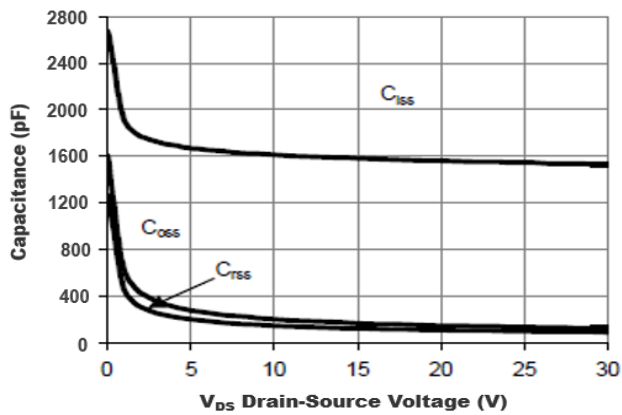


Figure3. Capacitance Characteristics

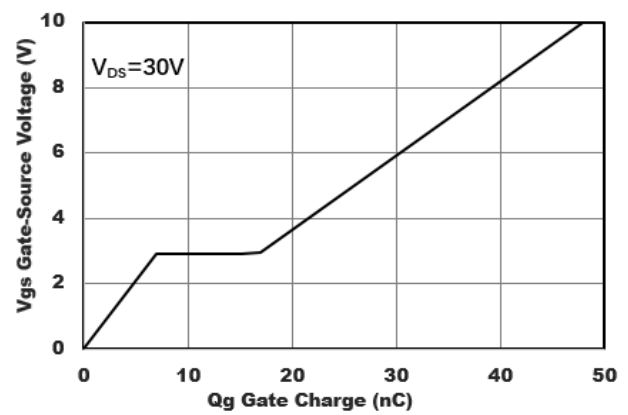


Figure4. Gate Charge

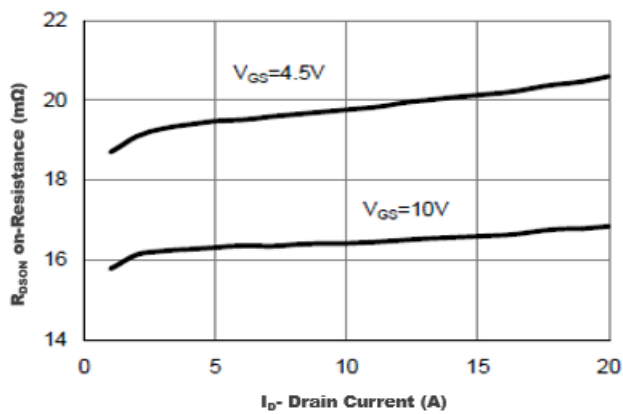


Figure5. Drain-Source on Resistance

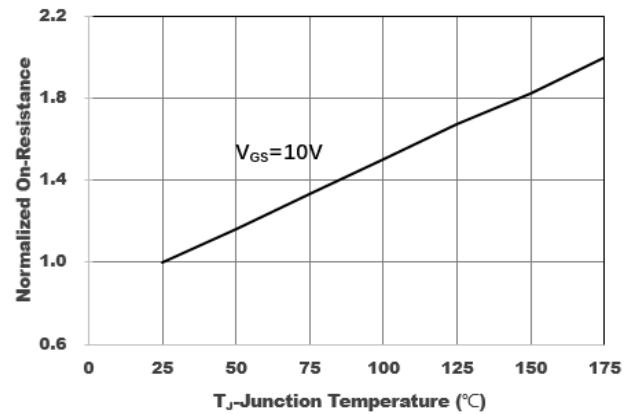


Figure6. Drain-Source on Resistance

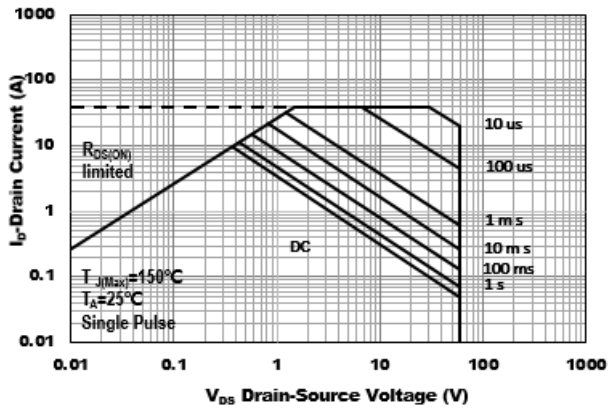


Figure7. Safe Operation Area

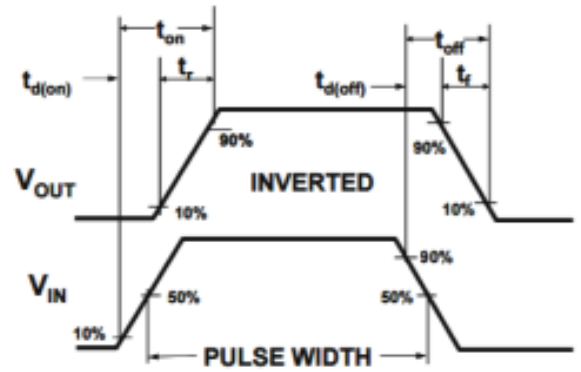
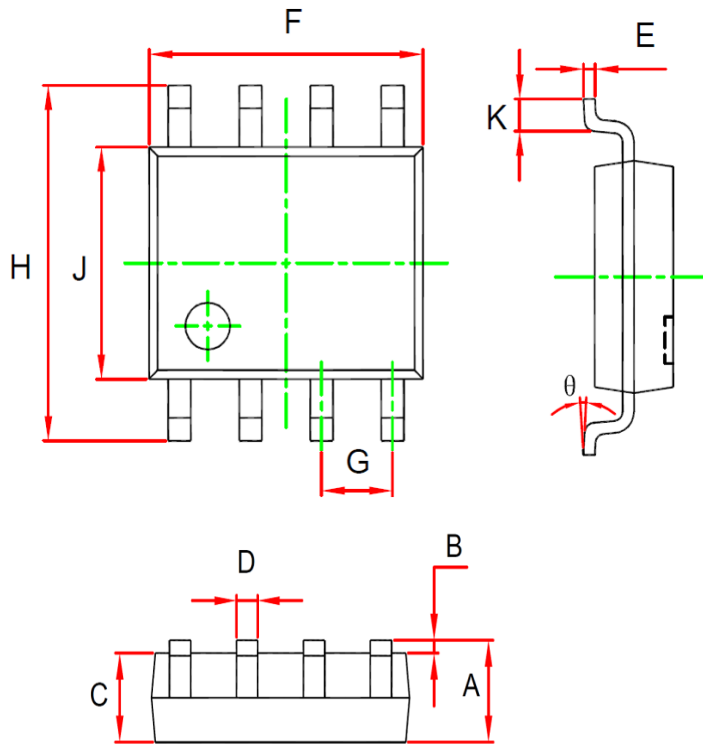


Figure8. Switching wave

■ SOP-8 Package information



YJS4438A



DIMENSIONS					
DIM	INCHES		MM		NOTE
	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	0.050 (BSC)		1.270 (BSC)		
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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