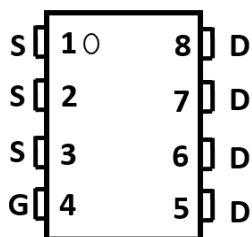
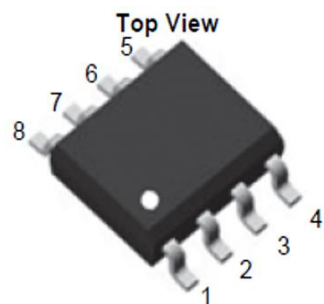
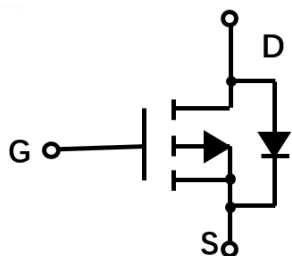


P-Channel Enhancement Mode Field Effect Transistor



SOP-8



Product Summary

• V_{DS}	-30V
• I_D	-12A
• $R_{DS(ON)}$ (at $V_{GS}=-20V$)	<10.5 mohm
• $R_{DS(ON)}$ (at $V_{GS}=-10V$)	<12.5 mohm
• $R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	<25 mohm

General Description

- Trench Power LV 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	Maximum	Unit
Drain-source Voltage	V_{DS}	-30	V
Gate-source Voltage	V_{GS}	± 25	V
Drain Current	I_D	$T_A=25^{\circ}C$ @ Steady State	A
		$T_A=70^{\circ}C$ @ Steady State	
Pulsed Drain Current ^A	I_{DM}	-55	A
Single Pulse Avalanche Energy ^B	E_{AS}	105	mJ
Total Power Dissipation @ $T_A=25^{\circ}C$ ^C	P_D	3.2	W
Thermal Resistance Junction-to-Ambient @ Steady State ^D	$R_{\theta JA}$	39	$^{\circ}C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^{\circ}C$

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJS4407A	F2	Q4407B.	4000	8000	64000	13" reel



YJS4407A

■ 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 =-250μA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V,V _{GS} =0V,T _C =25℃			-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} = -20V, I _D =-12A		9.0	10.5	mΩ
		V _{GS} = -10V, I _D =-12A		10.2	12.5	
		V _{GS} = -6.0V, I _D =-10A		12.3	16.5	
		V _{GS} = -4.5V, I _D =-10A		16	25	
Diode Forward Voltage	V _{SD}	I _S =-12A,V _{GS} =0V		-0.8	-1.2	V
Maximum Body-Diode Continuous Current	I _S				-12	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-15V,V _{GS} =0V,f=1MHZ		2050		pF
Output Capacitance	C _{oss}			355		
Reverse Transfer Capacitance	C _{rss}			301		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V,V _{DS} =-15V,I _D =-12A		29.8		nC
Gate Source Charge	Q _{gs}			4.7		
Gate Drain Charge	Q _{gd}			10		
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V,V _{DD} =-15V, I _D =-1A, R _{GEN} =2.5Ω		14		ns
Turn-on Rise Time	t _r			12		
Turn-off Delay Time	t _{D(off)}			26		
Turn-off Fall Time	t _f			10		

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

B. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150℃. Ratings are based on low frequency and duty cycles to keep Initial T_J=25℃.

C. The power dissipation PD is based on T_{J(MAX)}=150℃, using ≤ 10s junction-to-ambient thermal resistance.

D. 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℃. The value in any given application depends on the user's specific board design.

■ Typical Performance Characteristics

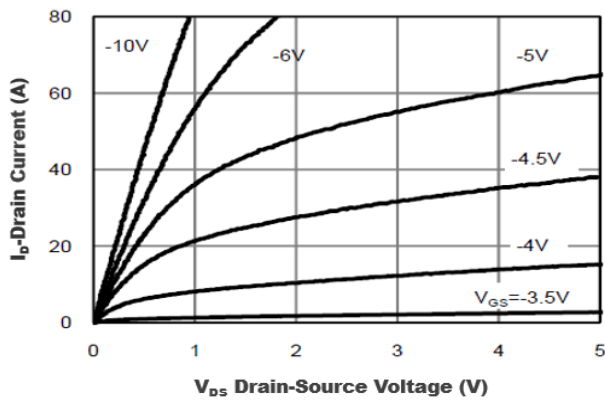


Figure1. Output Characteristics

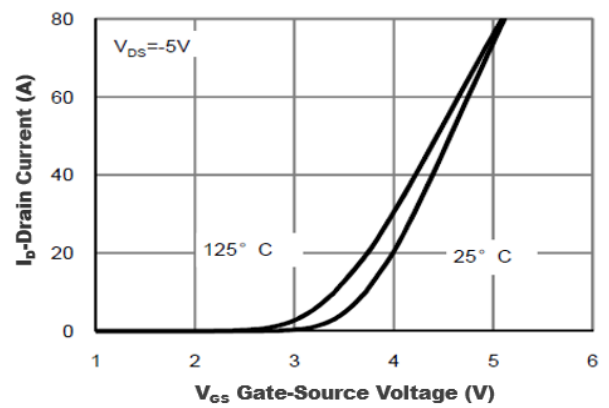


Figure2. Transfer Characteristics

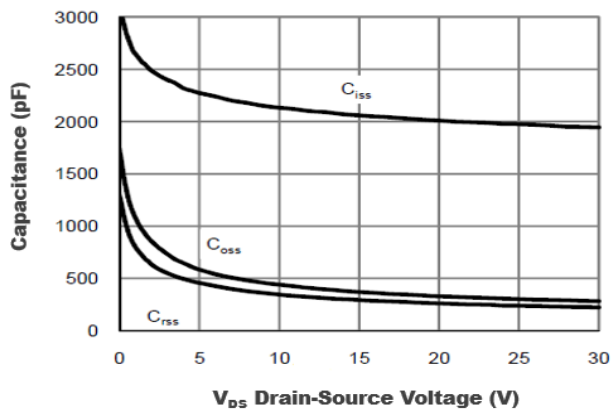


Figure3. Capacitance Characteristics

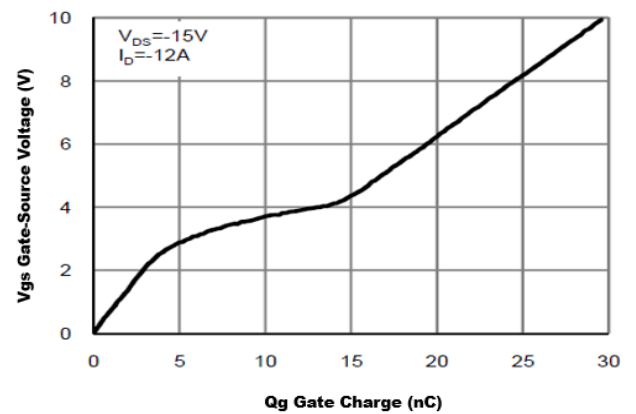


Figure4. Gate Charge

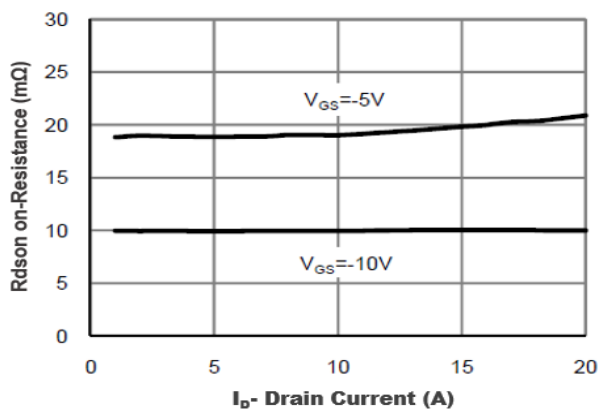


Figure5. Drain-Source on Resistance

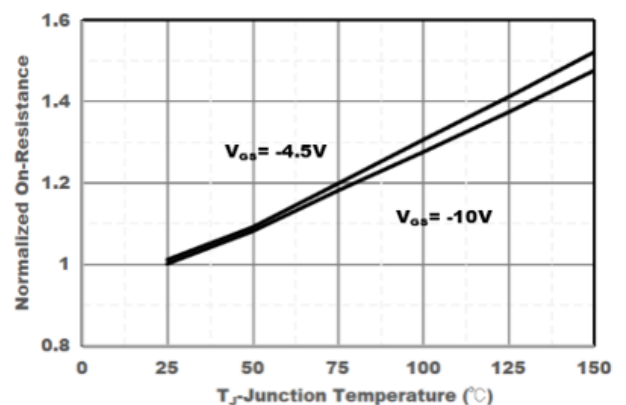


Figure6. Drain-Source on Resistance

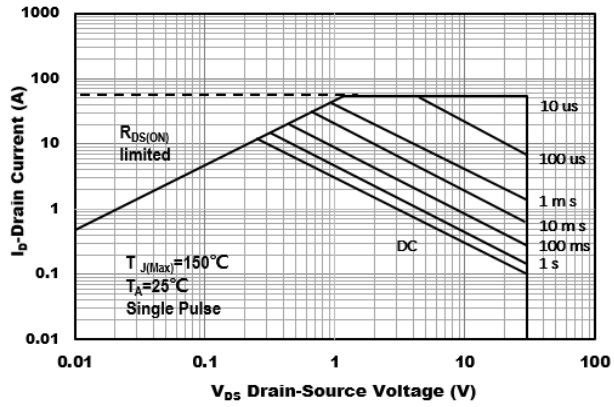


Figure7. Safe Operation Area

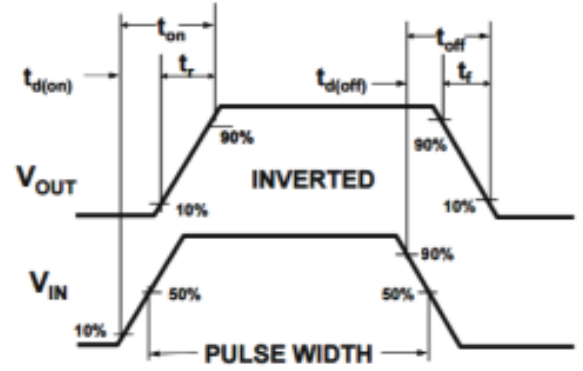
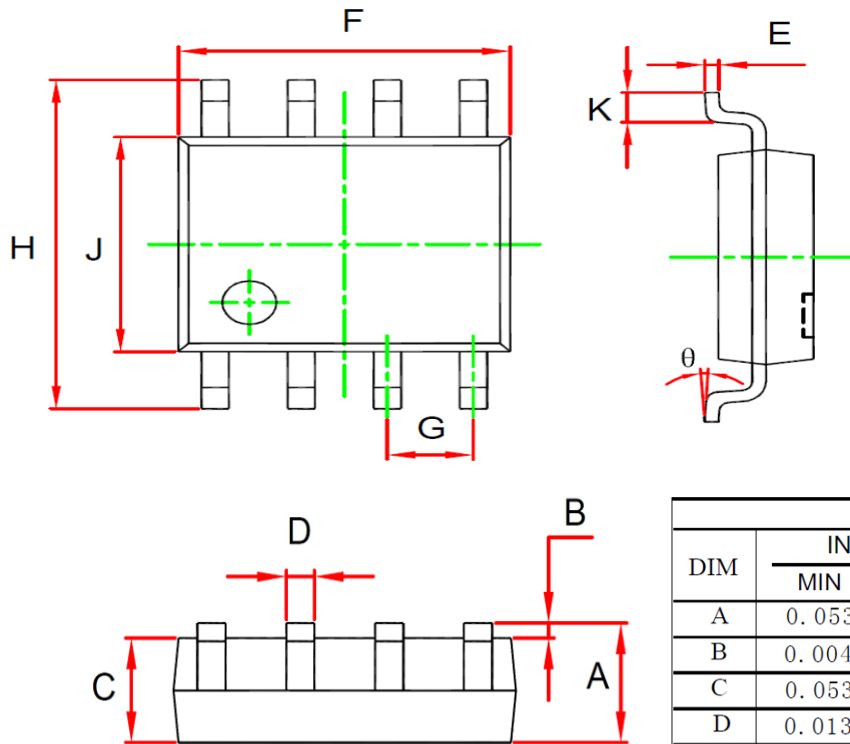


Figure8. Switching wave



■ SOP-8 Package information



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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