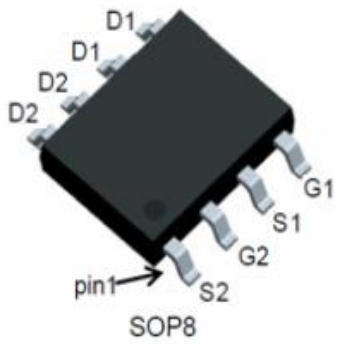
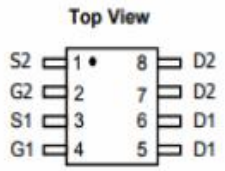
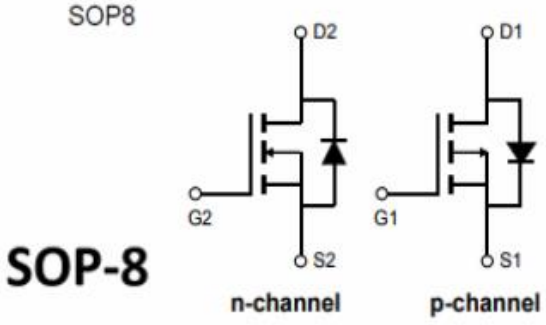
N-Channel and P-Channel Complementary Power MOSFET







Product Summary

NMOS

- V_{DS} 30V
- I_D 6.0A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜29 mohm
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜40 mohm

PMOS

- V_{DS} -30V
- I_D -5.0A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜55 mohm
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜68 mohm

General Description

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

Applications

- Wireless charger
- Load switch
- Power management

■ Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter		Symbol	N-Channel	P-Channel	Unit
Drain-source Voltage		V_{DS}	30	-30	V
Gate-source Voltage		V_{GS}	±20	±20	V
Drain Current	T_A=25℃ @ Steady State	I_D	6.0	-5.0	A
	T_A=70℃ @ Steady State		4.8	-4.0	
Pulsed Drain Current [A]		I_{DM}	24	-20	A
Total Power Dissipation @ T_A=25℃		P_D	2.0	2.0	W
Thermal Resistance Junction-to-Ambient @ Steady State [B]		$R_{\theta JA}$	62.5	62.5	℃/ W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	-55～+150	℃

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJS4606A	F2	YJS4606A	4000	8000	64000	13“ reel

■ N-MOS 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			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	1.5	2.2	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=6.0A		21	29	mΩ
		V_{GS}= 4.5V, I_D=5.0A		27	40	
Diode Forward Voltage	V_{SD}	I_S=6.0A,V_{GS}=0V		0.8	1.2	V
Maximum Body-Diode Continuous Current	I_S				5.6	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHZ		490		pF
Output Capacitance	C_{oss}			92		
Reverse Transfer Capacitance	C_{rss}			68		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=15V,I_D=6.0A		5.2		nC
Gate Source Charge	Q_{gs}			0.9		
Gate Drain Charge	Q_{gd}			1.3		
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=4.5V,V_{DD}=15V, I_D=1A, R_{GEN}=2.8Ω		4.5		ns
Turn-on Rise Time	t_r			2.5		
Turn-off Delay Time	$t_{D(off)}$			14.5		
Turn-off Fall Time	t_f			3.5		

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.
B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

■ P-MOS 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}= ±20V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=-250μA	-1.0	-1.5	-2.4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= -10V, I_D=-5.0A		40	55	mΩ
		V_{GS}= -4.5V, I_D=-3.5A		53	68	
Diode Forward Voltage	V_{SD}	I_S=-5.0A,V_{GS}=0V		-0.8	-1.2	V
Maximum Body-Diode Continuous Current	I_S				-5.1	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V,f=1MHZ		580		pF
Output Capacitance	C_{oss}			98		
Reverse Transfer Capacitance	C_{rss}			74		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=-10V,V_{DS}=-15V,I_D=-5.1A		6.8		nC
Gate Source Charge	Q_{gs}			1.0		
Gate Drain Charge	Q_{gd}			1.4		
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			61		
Turn-off Delay Time	$t_{D(off)}$			19		
Turn-off Fall Time	t_f			10		

A. Repetitive Rating: Pulse width limited by maximum junction temperature.
B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

N-MOS Typical Performance Characteristics

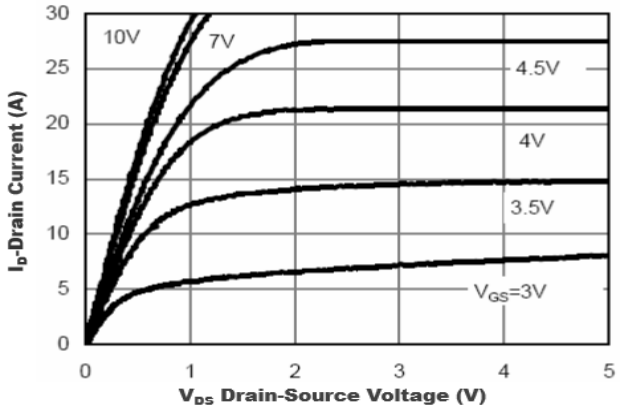


Figure1. Output Characteristics

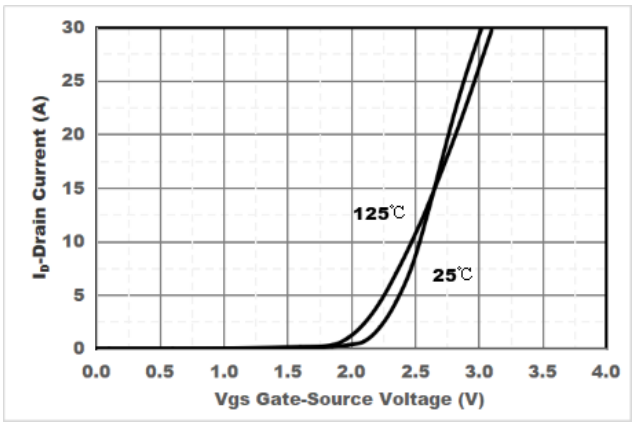


Figure2. Transfer Characteristics

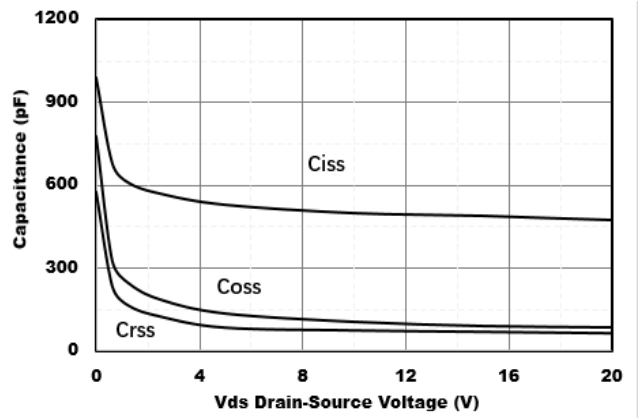


Figure3. Capacitance Characteristics

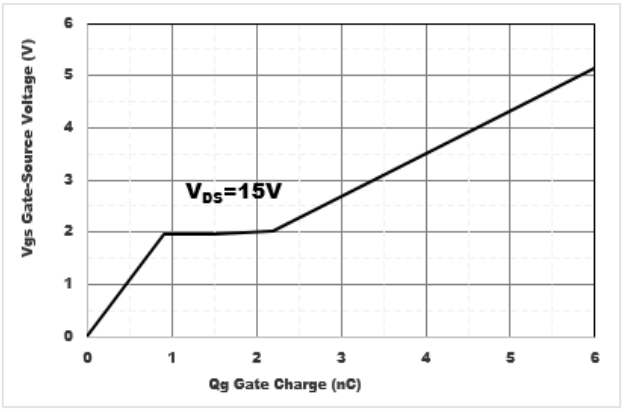


Figure4. Gate Charge

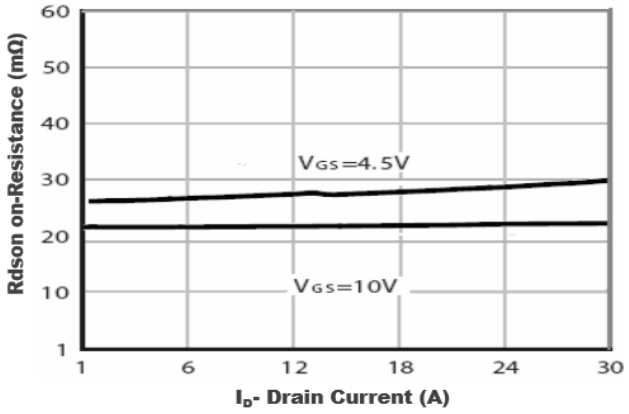


Figure5. Drain-Source on Resistance

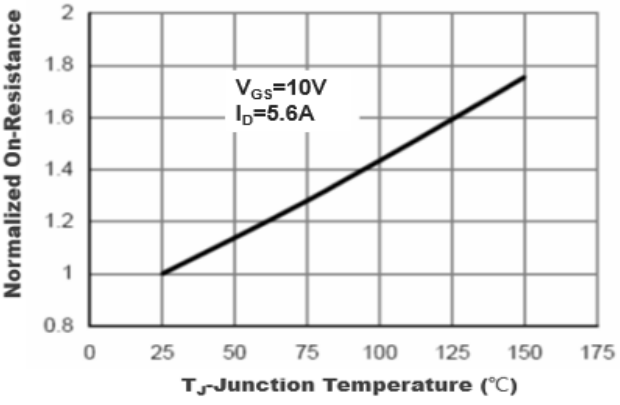


Figure6. Drain-Source on Resistance

N-MOS Typical Performance Characteristics

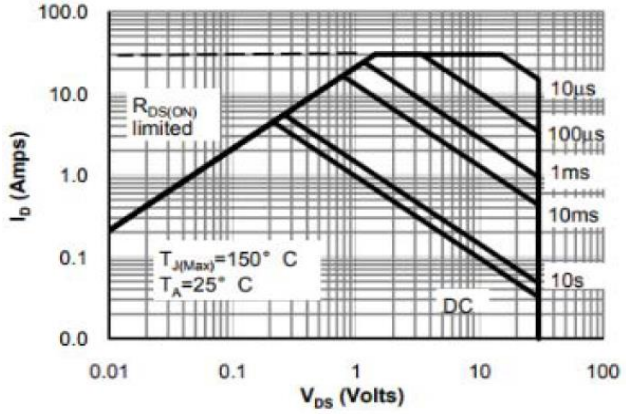


Figure7. Safe Operation Area

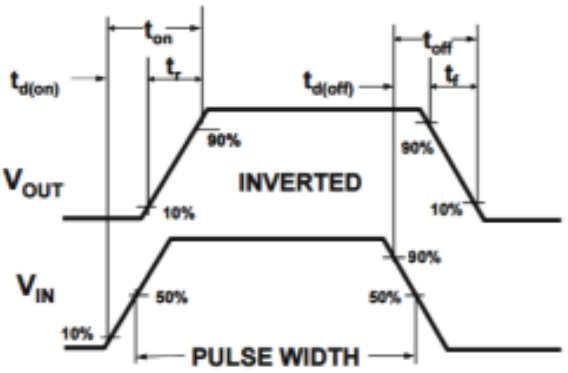


Figure8. Switching wave

P-MOS Typical Performance Characteristics

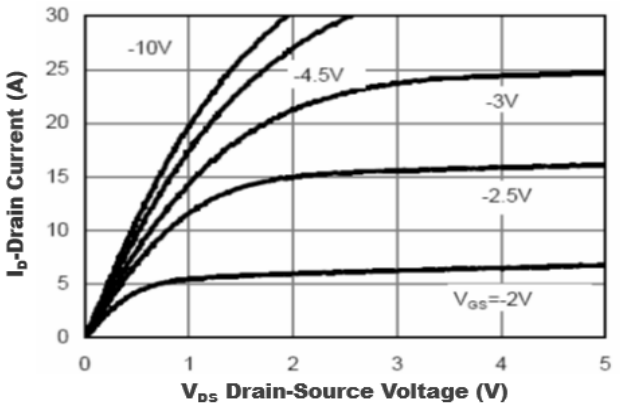


Figure1. Output Characteristics

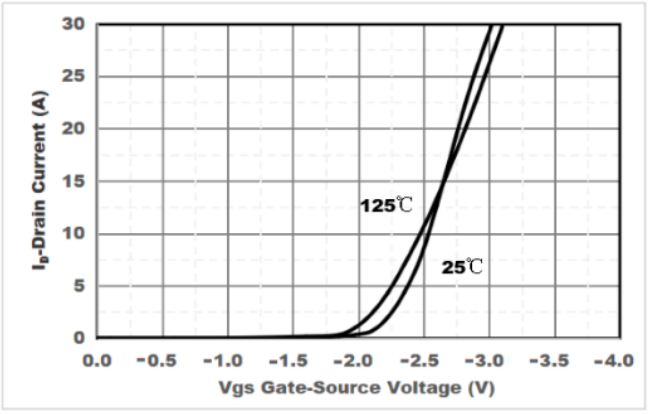


Figure2. Transfer Characteristics

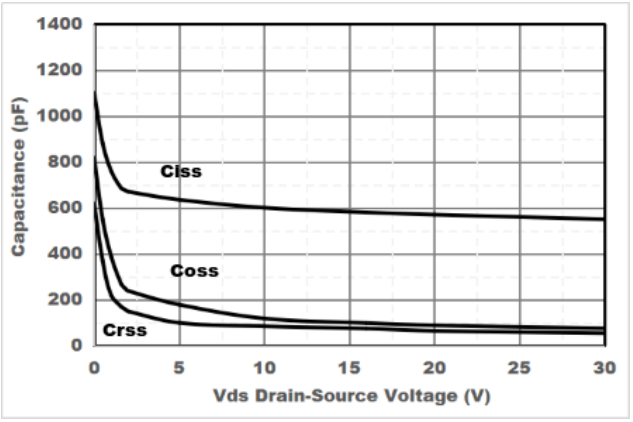


Figure3. Capacitance Characteristics

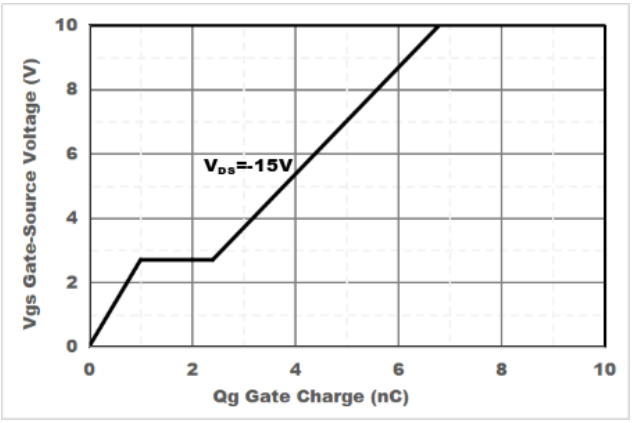


Figure4. Gate Charge

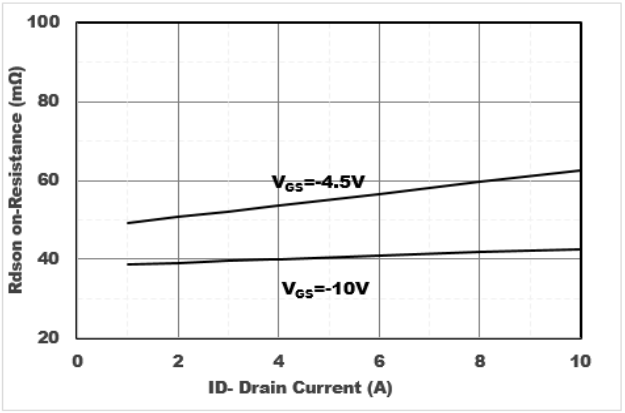


Figure5. Drain-Source on Resistance

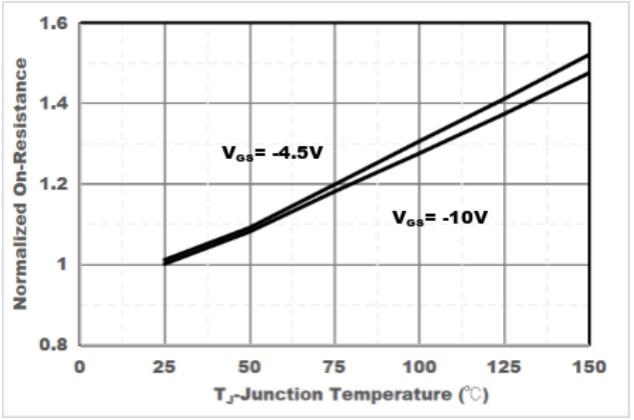


Figure6. Drain-Source on Resistance

P-MOS Typical Performance Characteristics

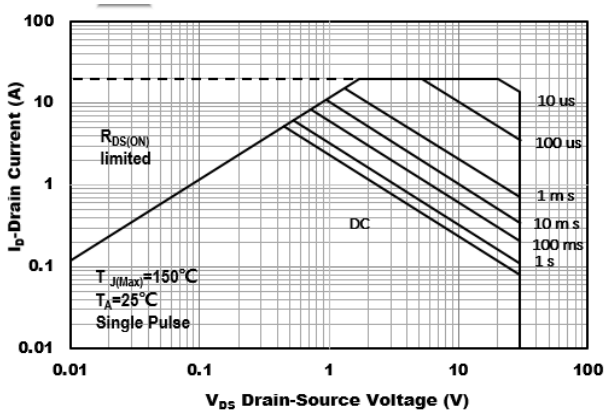


Figure7. Safe Operation Area

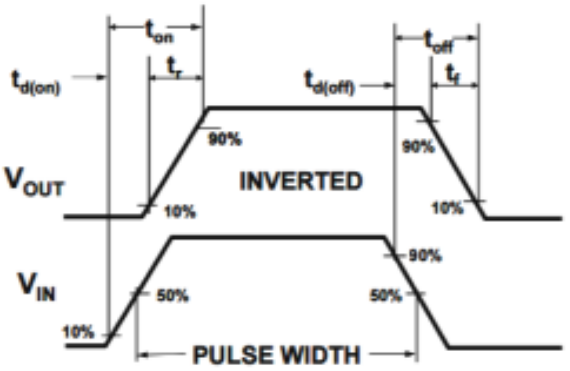
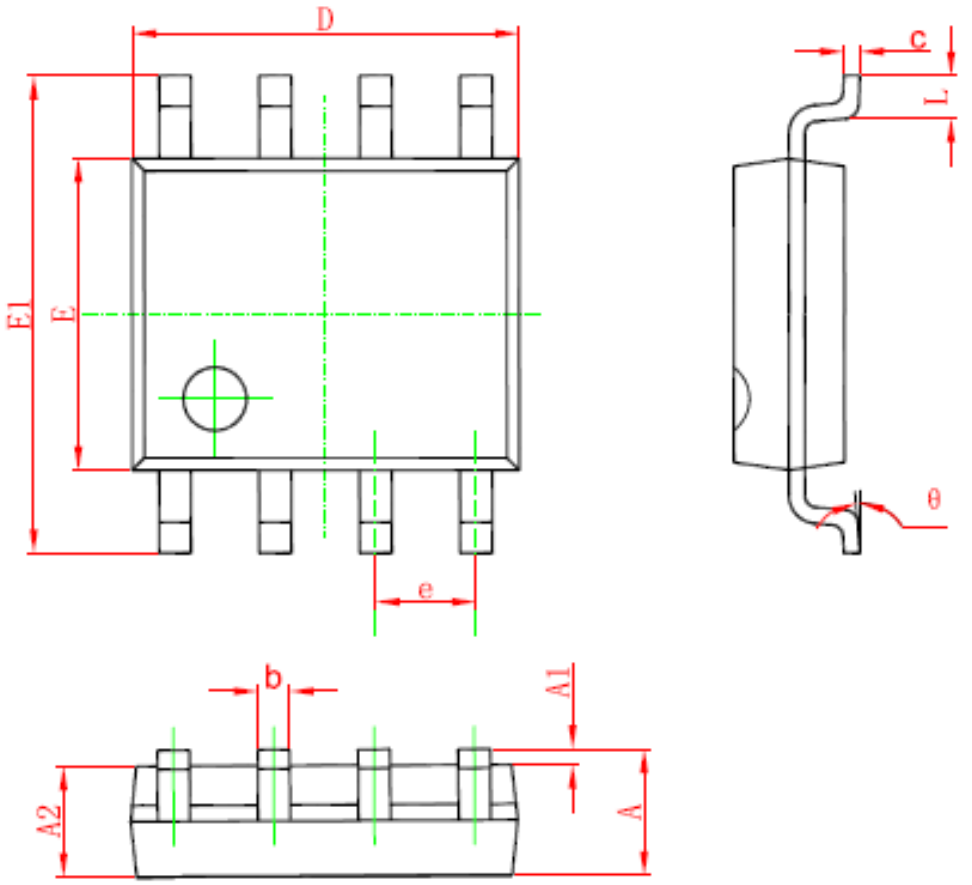


Figure8. Switching wave

■ SOP-8 Package information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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