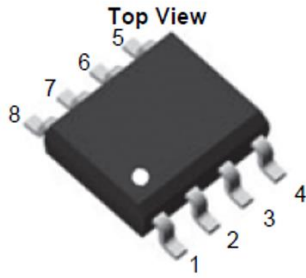
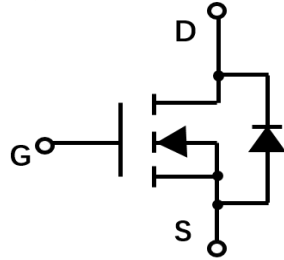
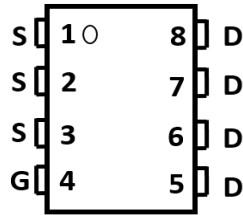


N-Channel Enhancement Mode Field Effect Transistor



SOP-8



Product Summary

- V_{DS} 60V
- I_D 12A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <9 mohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <13 mohm

General Description

- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- DC-DC Converters
- Power management functions
- Industrial and Motor Drive application

■ 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	I_D	$T_C=25^\circ C$	12
		$T_C=100^\circ C$	7.5
Pulsed Drain Current ^A	I_{DM}	48	A
Total Power Dissipation	P_D	$T_C=25^\circ C$	3.1
		$T_C=100^\circ C$	1.24
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	$t \leq 10\mu s$	40
		Steady-State	75
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	24	$^\circ C/W$
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
YJS12G06A	F2	Q12N06	4000	8000	64000	13" reel



YJS12G06A

■ Electrical Characteristics ($T_J=25^\circ\text{C}$ 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}	$V_{DS}=60V, V_{GS}=0V$	$T_J=25^\circ\text{C}$		1	μA
			$T_J=55^\circ\text{C}$		5	
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=12A$		8.2	9	m Ω
		$V_{GS}=4.5V, I_D=10A$		10.5	13	
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}	$V_{DS}=30V, V_{GS}=0V, f=1\text{MHz}$		1980		pF
Output Capacitance	C_{oss}			470		
Reverse Transfer Capacitance	C_{rss}			14		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=30V, I_D=12A$		31		nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			5		
Reverse Recovery Charge	Q_{rr}	$I_F=20A, di/dt=500A/\mu s$		17		ns
Reverse Recovery Time	t_{rr}			58		
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=30V, R_L=1\Omega, R_{GEN}=3\Omega$		10		ns
Turn-on Rise Time	t_r			5		
Turn-off Delay Time	$t_{D(off)}$			30		
Turn-off fall Time	t_f			8		

A. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.



■ Typical Performance Characteristics

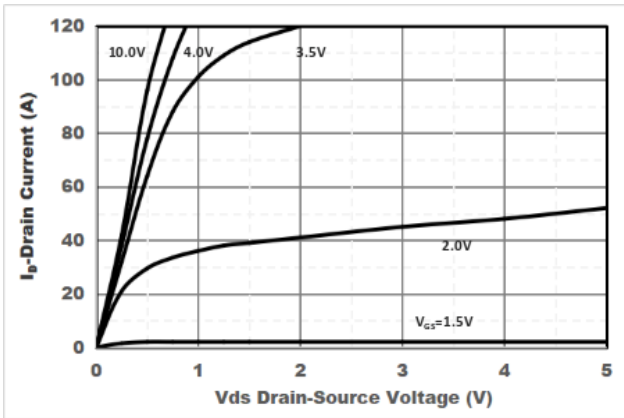


Figure1. Output Characteristics

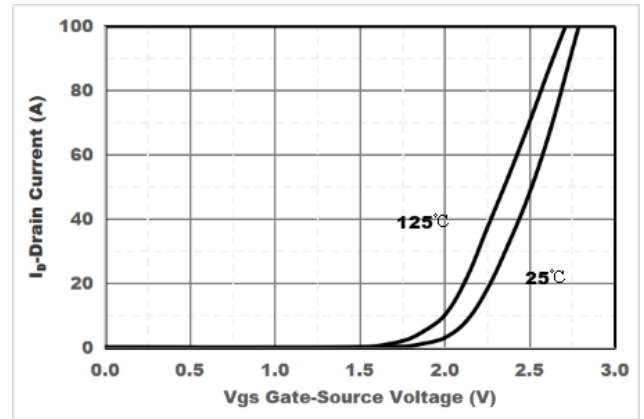


Figure2. Transfer Characteristics

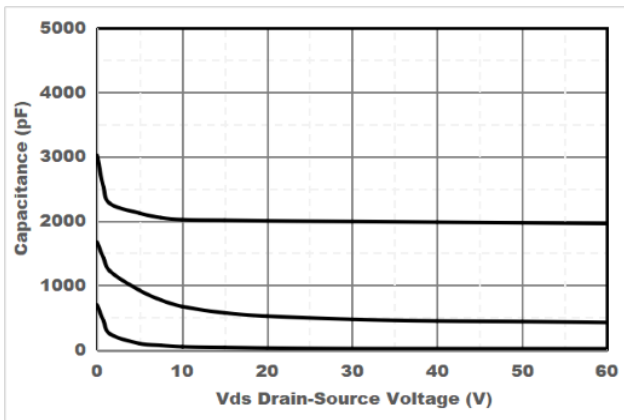


Figure3. Capacitance Characteristics

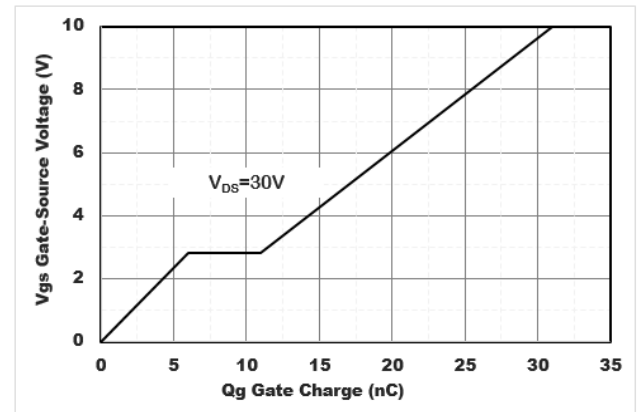


Figure4. Gate Charge

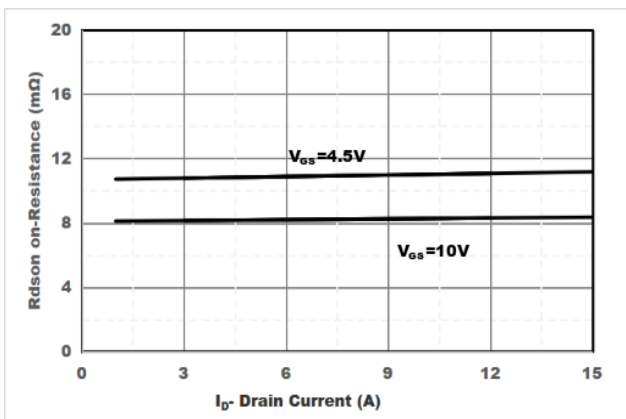


Figure5. Drain-Source on Resistance

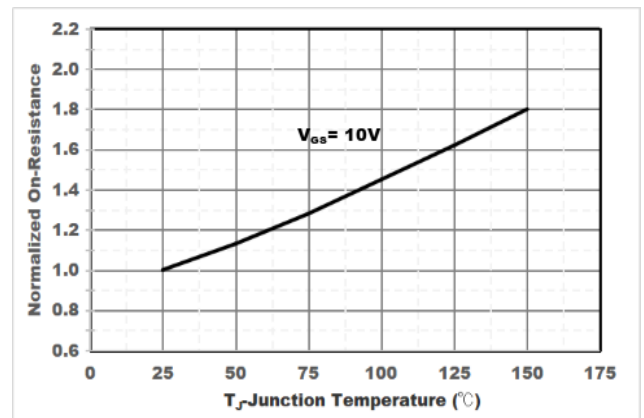


Figure6. Drain-Source on Resistance



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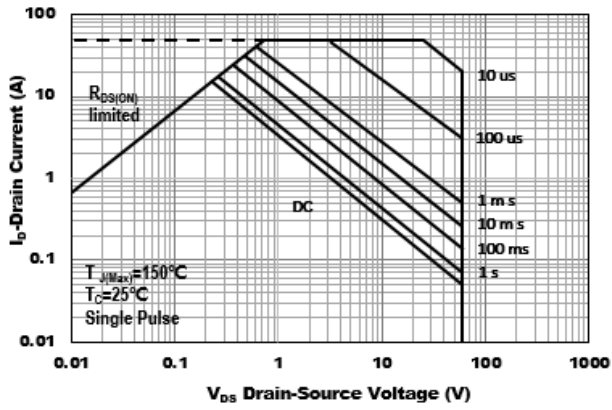


Figure7. Safe Operation Area

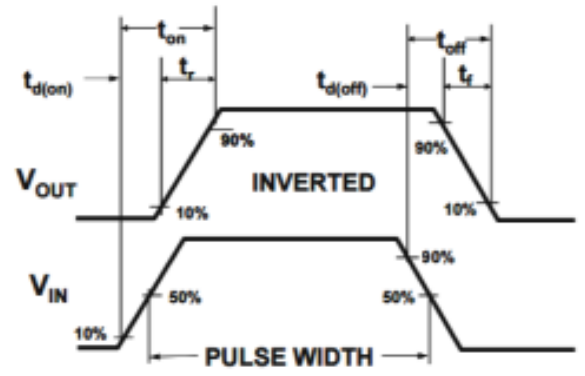
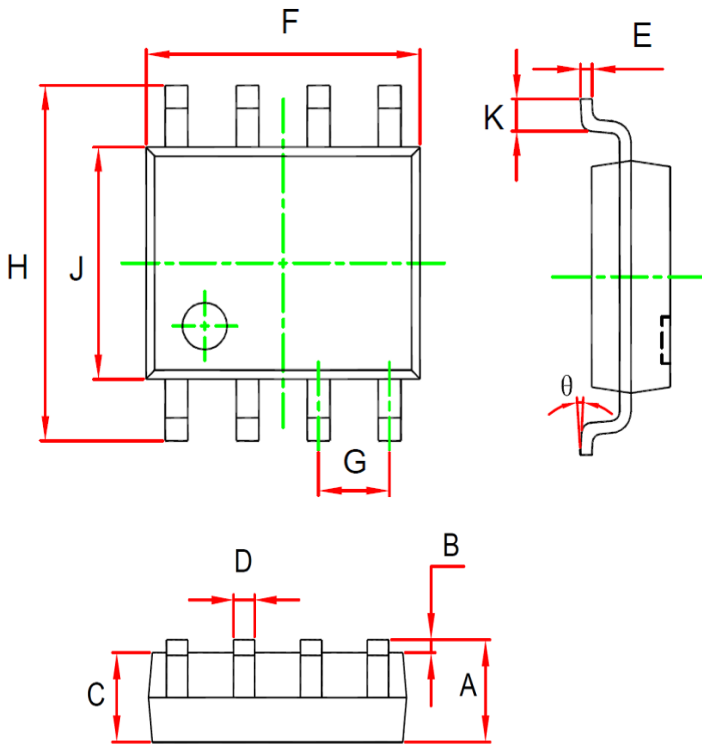


Figure8. Switching wave

■ 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°	



YJS12G06A

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