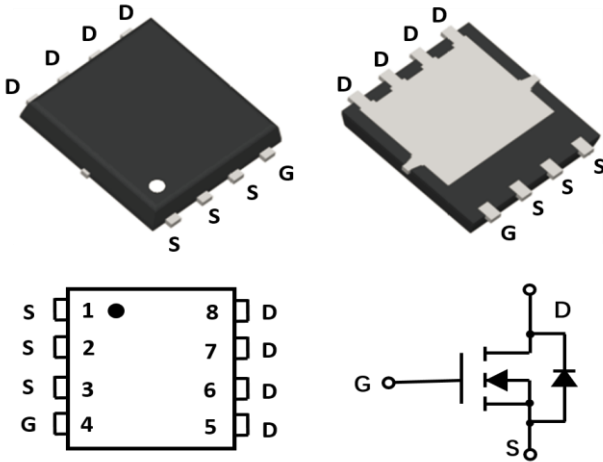


N-Channel Enhancement Mode Field Effect Transistor

DFN5X6



Product Summary

- V_{DS} 60V
- I_D 20A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) < 35 mohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) < 45 mohm
- 100% UIS Tested
- 100% ∇V_{DS} Tested

General Description

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

Applications

- DC-DC Converters
- Power management functions
- Backlighting

■ 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	$T_C=25^\circ C$	20
		$T_C=100^\circ C$	12.5
Pulsed Drain Current ^A	I_{DM}	60	A
Total Power Dissipation @ $T_C=25^\circ C$	P_D	41	W
Single Pulse Avalanche Energy ^B	E_{AS}	20	mJ
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	3.0	$^\circ C/W$
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
YJG20N06A	F2	YJG20N06A	2500	2500	25000	13" reel



YJG20N06A

■ 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}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.7	1.3	2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		32	35	m Ω
		$V_{GS}=4.5V, I_D=10A$		35	45	
Diode Forward Voltage	V_{SD}	$I_S=10A, V_{GS}=0V$		0.8	1.2	V
Maximum Body-Diode Continuous Current	I_S				20	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1\text{MHz}$		800		pF
Output Capacitance	C_{oss}			68		
Reverse Transfer Capacitance	C_{rss}			36		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=30V, I_D=10A$		15		nC
Gate-Source Charge	Q_{gs}			2.4		
Gate-Drain Charge	Q_{gd}			2.5		
Reverse Recovery Charge	Q_{rr}	$I_F=20A, di/dt=500A/\mu s$		23		nC
Reverse Recovery Time	t_{rr}			45		
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=30V, I_D=2A, R_L=1\Omega$ $R_{GEN}=3\Omega$		5		ns
Turn-on Rise Time	t_r			39		
Turn-off Delay Time	$t_{D(off)}$			19		
Turn-off fall Time	t_f			7		

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

B. $T_J=25^\circ\text{C}$, $V_{DD}=30V$, $V_G=10V$, $L=0.5\text{mH}$, $R_g=25\Omega$



■ Typical Performance Characteristics

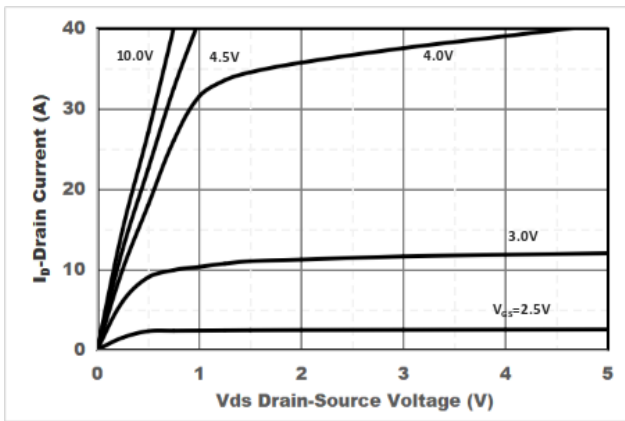


Figure1. Output Characteristics

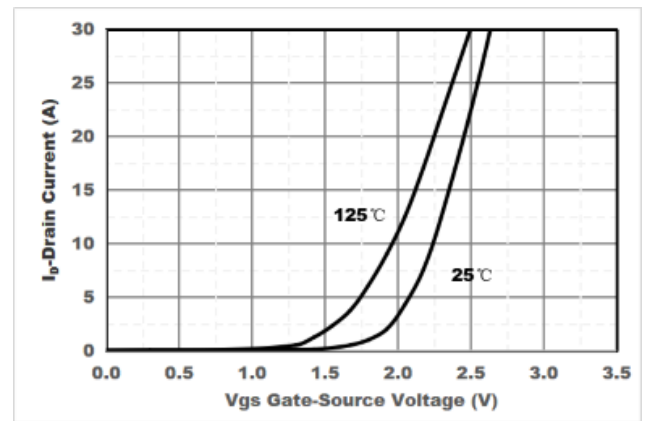


Figure2. Transfer Characteristics

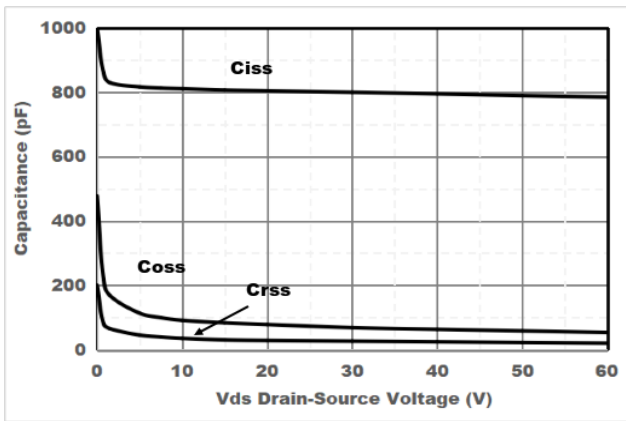


Figure3. Capacitance Characteristics

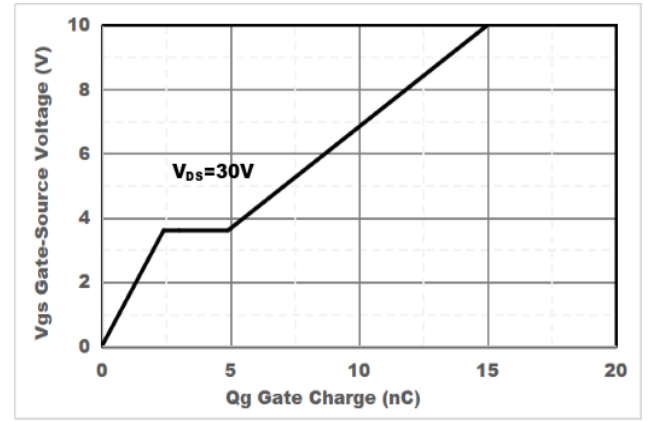


Figure4. Gate Charge

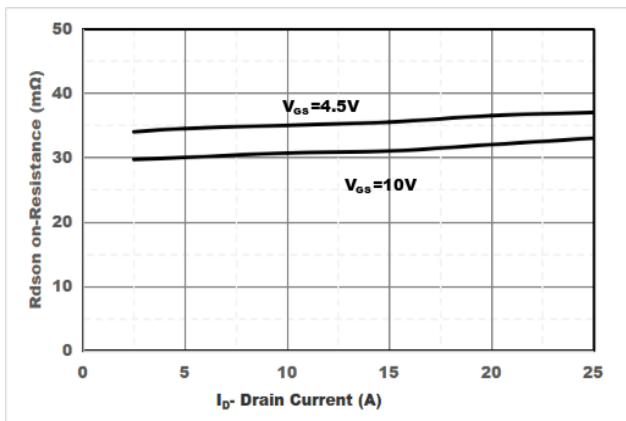


Figure5. Drain-Source on Resistance

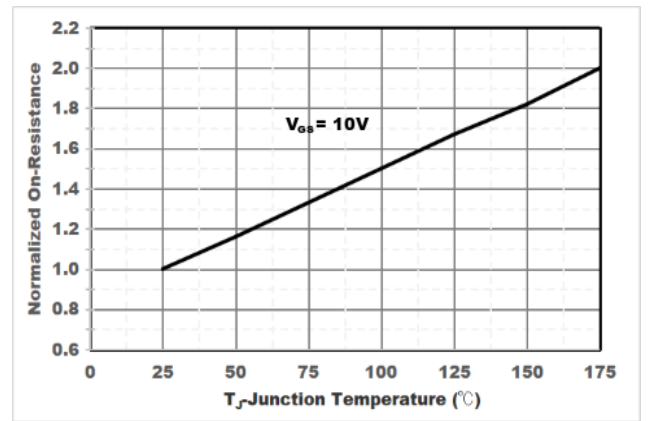


Figure6. Drain-Source on Resistance

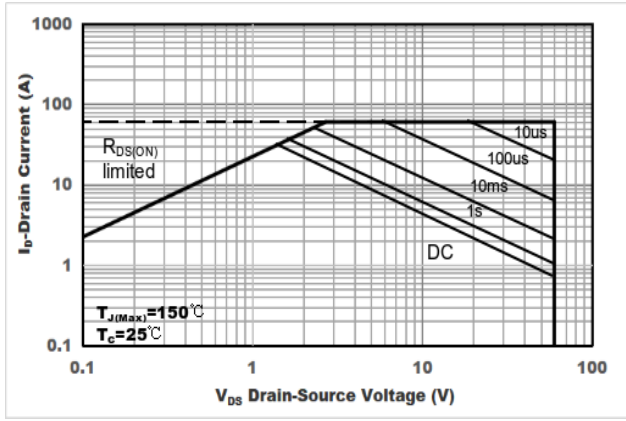


Figure7. Safe Operation Area

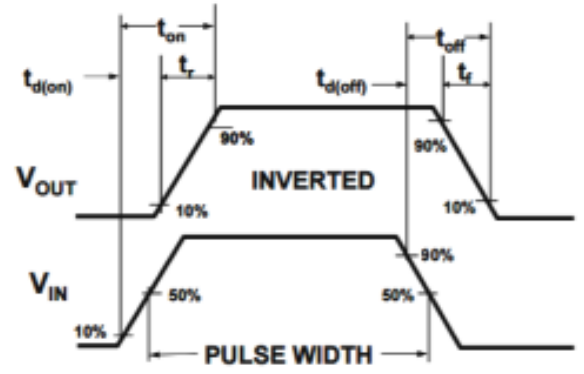
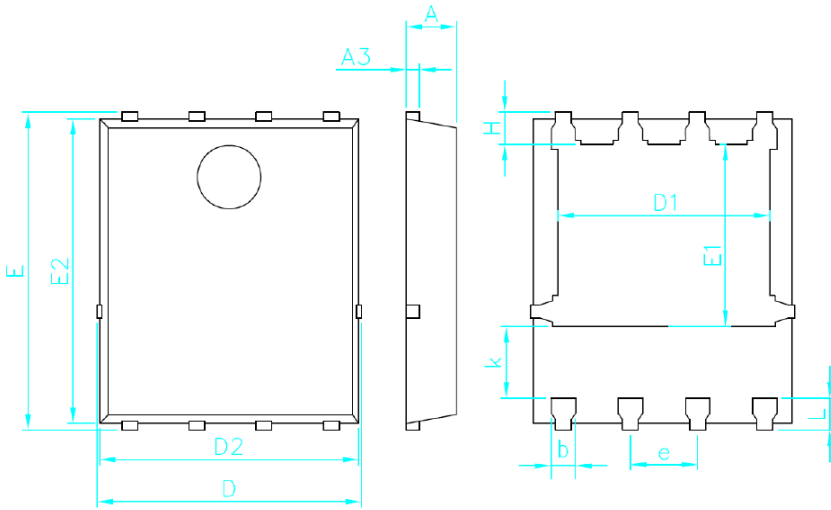


Figure8. Switching wave



YJG20N06A

■ DFN5X6 Package information



Symbol	Min	Typ.	Max
A	0.900	0.950	1.000
A3	0.254REF.		
D	4.900	5.000	5.100
E	5.900	6.000	6.100
D1	3.750	3.950	4.150
E1	3.300	3.450	3.600
D2	4.800	4.900	5.000
E2	5.650	5.750	5.850
k	1.200	1.350	1.500
b	0.350	0.400	0.450
e	1.220	1.270	1.320
L	0.510	0.610	0.710
H	0.510	0.610	0.710



YJG20N06A

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