

N-Channel Enhancement Mode Field Effect Transistor

Product Summary

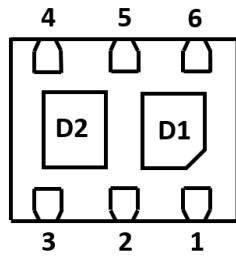
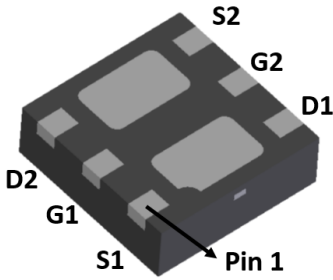
• V_{DS}	30V
• I_D	7.7A
• $R_{DS(ON)}$ (at $V_{GS}=10V$)	<27 mohm
• $R_{DS(ON)}$ (at $V_{GS}=4.5V$)	<33 mohm
• $R_{DS(ON)}$ (at $V_{GS}=2.5V$)	<45 mohm

General Description

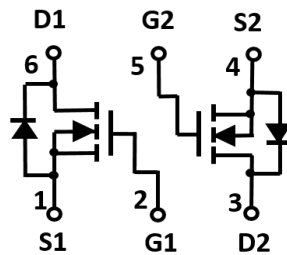
- Trench Power LV MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- High Speed switching

Applications

- Battery protection
- Load switch
- Power management



DFN2020-6L



■ Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	30	V
Gate-source Voltage	V_{GS}	± 12	V
Drain Current	I_D	$T_A=25^\circ C$	7.7
		$T_A=70^\circ C$	6.2
Pulsed Drain Current ^A	I_{DM}	30	A
Total Power Dissipation @ $T_A=25^\circ C$	P_D	2.0	W
Thermal Resistance Junction-to-Ambient @ Steady State	$R_{\theta JA}$	56	$^\circ C/W$
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
YJQ3400A	F2	3400A.	3000	15000	60000	7" reel



YJQ3400A

■ 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	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} = ±12V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	0.5	0.9	1.4	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =7.7A		21	27	mΩ
		V _{GS} = 4.5V, I _D =5A		25	33	
		V _{GS} =2.5V, I _D =3A		33	45	
Diode Forward Voltage	V _{SD}	I _S =7.7A, V _{GS} =0V		0.8	1.2	V
Maximum Body-Diode Continuous Current	I _S				7.7	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHZ		530		pF
Output Capacitance	C _{oss}			130		
Reverse Transfer Capacitance	C _{rss}			36		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =15V, I _D =7.7A		4.8		nC
Gate Source Charge	Q _{gs}			1.2		
Gate Drain Charge	Q _{gd}			1.7		
Turn-on Delay Time	t _{D(on)}	V _{GS} =4.5V, V _{DD} =15V, I _D =1A, R _{GEN} =2.8Ω		12		ns
Turn-on Rise Time	t _r			52		
Turn-off Delay Time	t _{D(off)}			17		
Turn-off Fall Time	t _f			10		

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



■ Typical Performance Characteristics

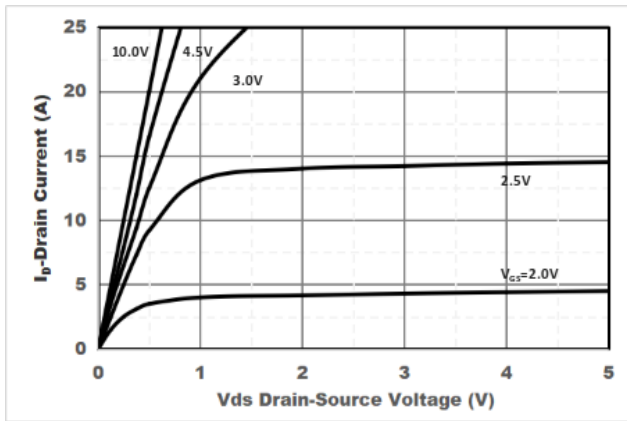


Figure1. Output Characteristics

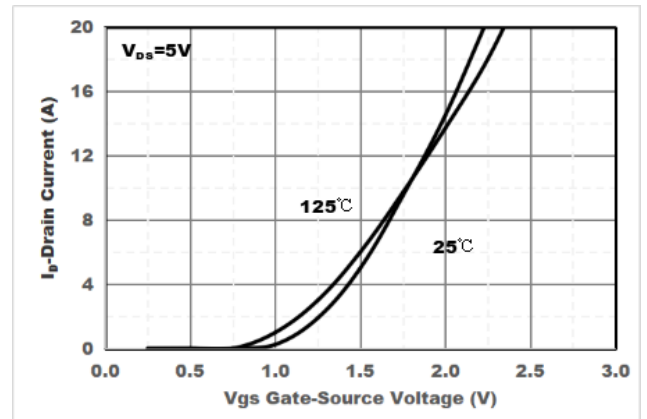


Figure2. Transfer Characteristics

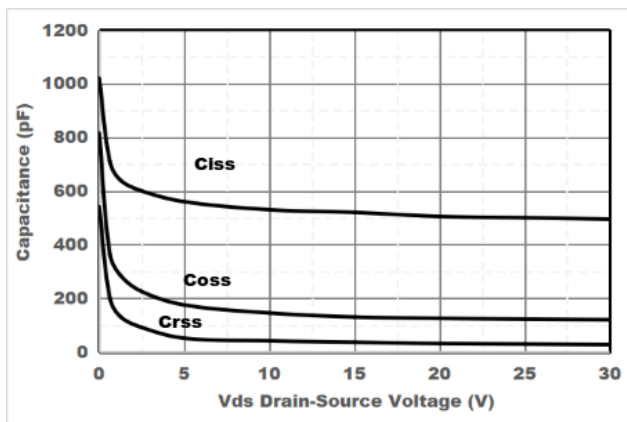


Figure3. Capacitance Characteristics

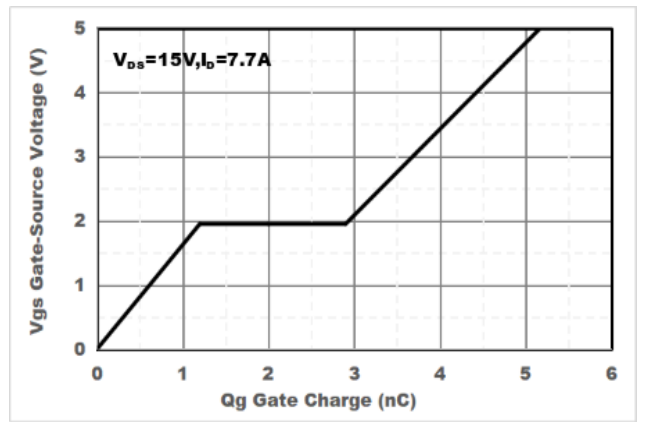


Figure4. Gate Charge

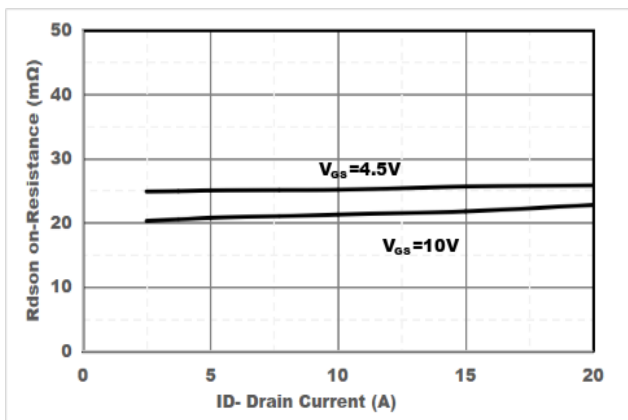


Figure5. Drain-Source on Resistance

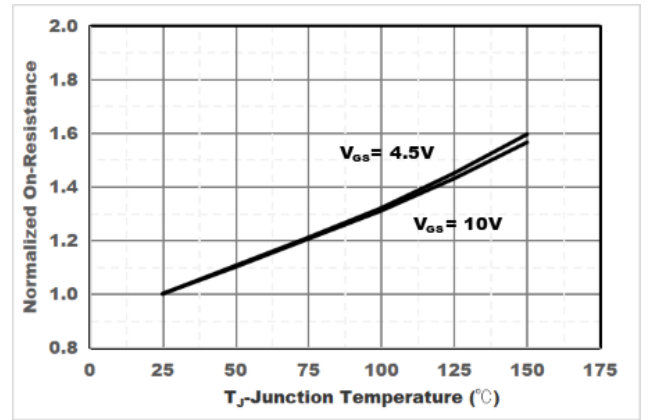


Figure6. Drain-Source on Resistance

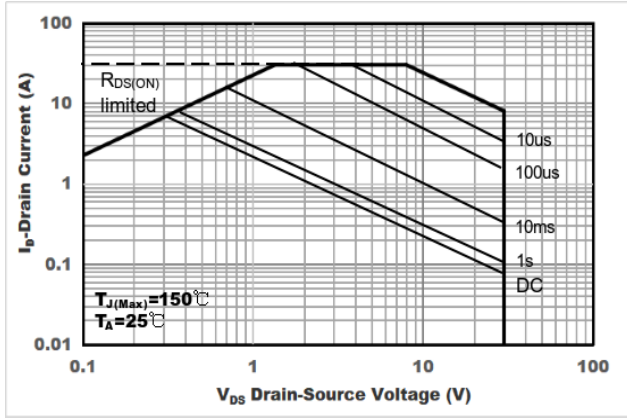


Figure7. Safe Operation Area

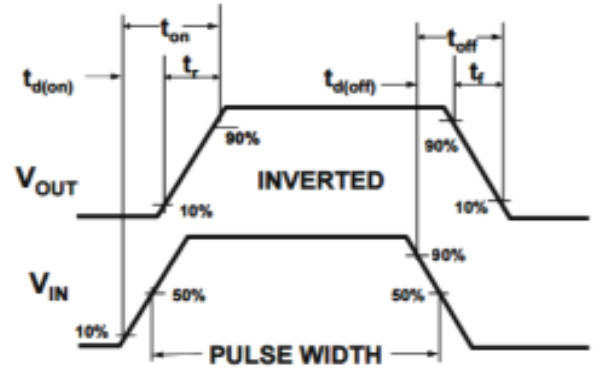
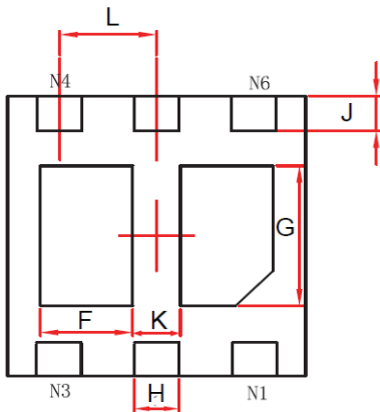
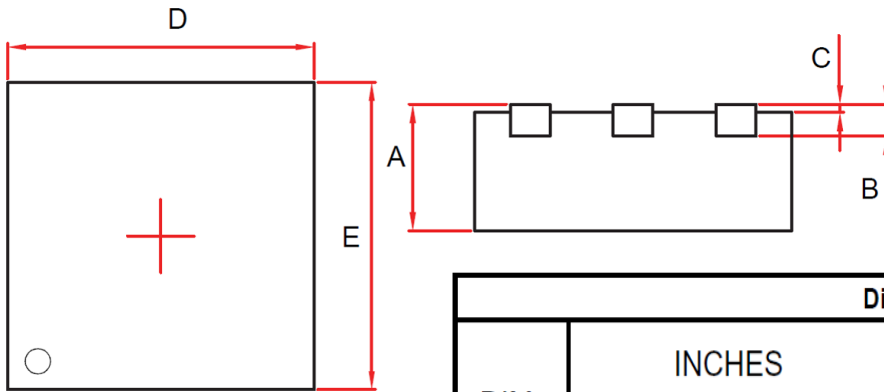


Figure8. Switching wave



YJQ3400A

■ DFN2020-6L Package information



Dimensions					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	.034	0.750	0.850	
B	0.008REF.		0.200REF.		
C	0.000	0.002	0.000	0.050	
D	0.077	0.081	1.950	2.050	
E	0.077	0.081	1.950	2.050	
F	0.017	0.027	0.440	0.690	
G	0.033	0.043	0.840	1.090	
H	0.010	0.014	0.250	0.350	
J	0.007	0.015	0.175	0.375	
K	0.010	0.014	0.250	0.350	
L	0.026TYP.		0.650TYP.		



YJQ3400A

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