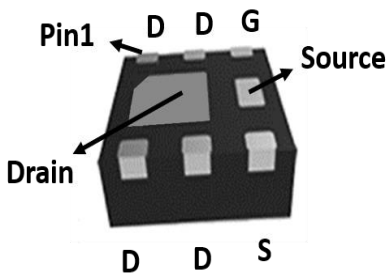
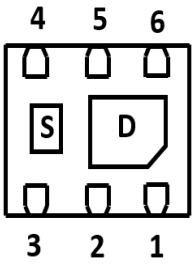
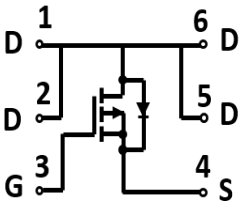
P-Channel Enhancement Mode Field Effect Transistor





DFN2020-6L



Product Summary

- V_{DS} -16V
- I_D -7A
- $R_{DS(ON)}$(at V_{GS}=-4.5V) ＜32 mohm
- $R_{DS(ON)}$(at V_{GS}=-2.5V) ＜42 mohm
- $R_{DS(ON)}$(at V_{GS}=-1.8V) ＜60 mohm

General Description

- Trench Power LV MOSFET technology
- Low $R_{DS(ON)}$
- Low Gate Charge

Applications

- Battery charge
- Load switching in Cellular handset
- Ultraportable applications

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

Parameter		Symbol	Maximum	Unit
Drain-source Voltage		V_{DS}	-16	V
Gate-source Voltage		V_{GS}	±10	V
Drain Current	T_A=25℃	I_D	-7	A
	T_A=70℃		-5.6	
Pulsed Drain Current [A]		I_{DM}	-28	A
Total Power Dissipation @ T_A=25℃		P_D	2.2	W
Thermal Resistance Junction-to-Ambient [B]		$R_{\theta JA}$	50	℃/ W
Thermal Resistance Junction-to-Case		$R_{\theta JC}$	15	℃/ W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJQ4666B	F2	..G66B	3000	15000	60000	7” reel

■ 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	-16			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-16V,V_{GS}=0V,T_C=25℃			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±10V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=-250μA	-0.4	-0.62	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= -4.5V, I_D=-7A		26	32	mΩ
		V_{GS}= -2.5V, I_D=-5A		34	42	
		V_{GS}= -1.8V, I_D=-2A		45	60	
Diode Forward Voltage	V_{SD}	I_S=-7A,V_{GS}=0V		-0.7	-1.2	V
Maximum Body-Diode Continuous Current	I_S				-7	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=-9V,V_{GS}=0V,f=1MHZ		890		pF
Output Capacitance	C_{oss}			140		
Reverse Transfer Capacitance	C_{rss}			90		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=-4.5V,V_{DS}=-9V,I_D=-7A		7.2		nC
Gate Source Charge	Q_{gs}			1.2		
Gate Drain Charge	Q_{gd}			1.6		
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=-4.5V,V_{DD}=-9V, I_D=-1A, R_{GEN}=2.5Ω		15		ns
Turn-on Rise Time	t_r			63		
Turn-off Delay Time	$t_{D(off)}$			21		
Turn-off Fall Time	t_f			12		

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

B. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

■ Typical Performance Characteristics

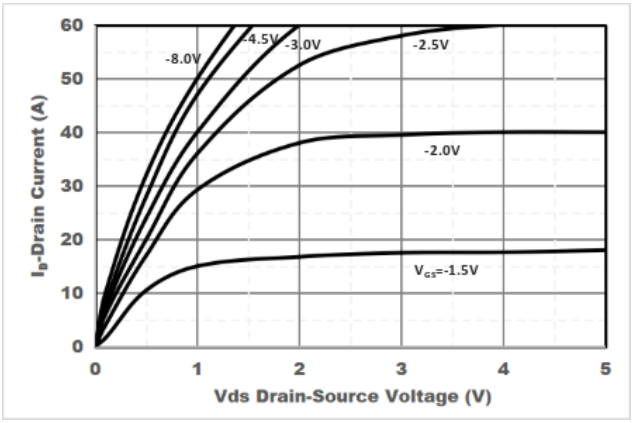


Figure1. Output Characteristics

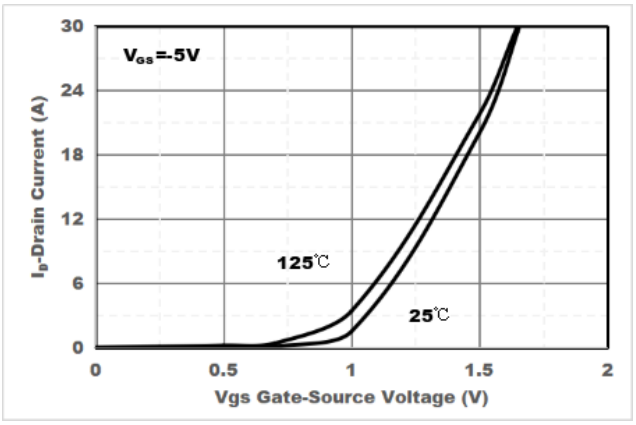


Figure2. Transfer Characteristics

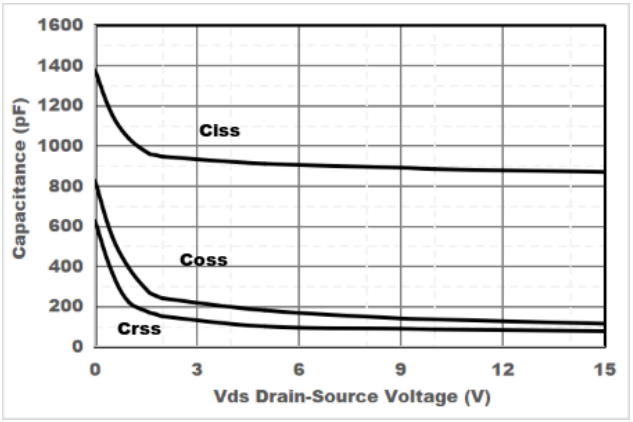


Figure3. Capacitance Characteristics

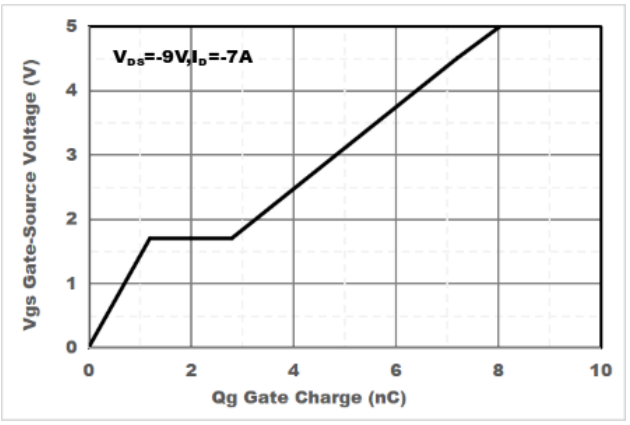


Figure4. Gate Charge

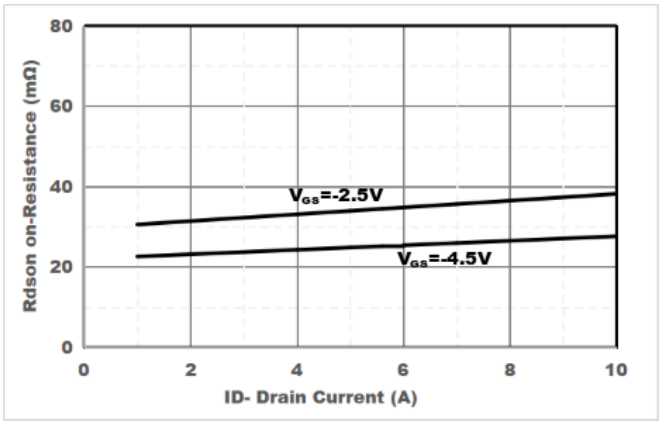


Figure5. Drain-Source on Resistance

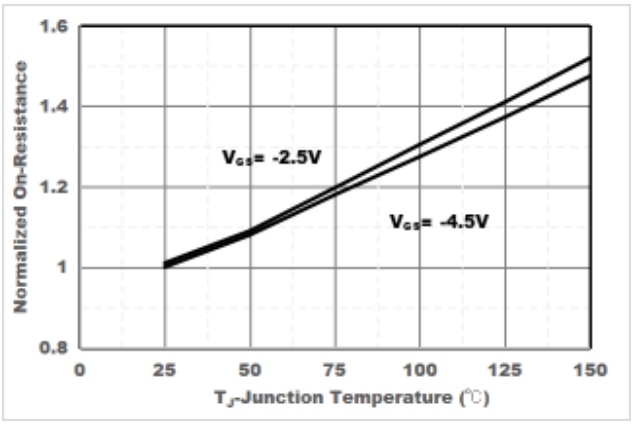


Figure6. Drain-Source on Resistance

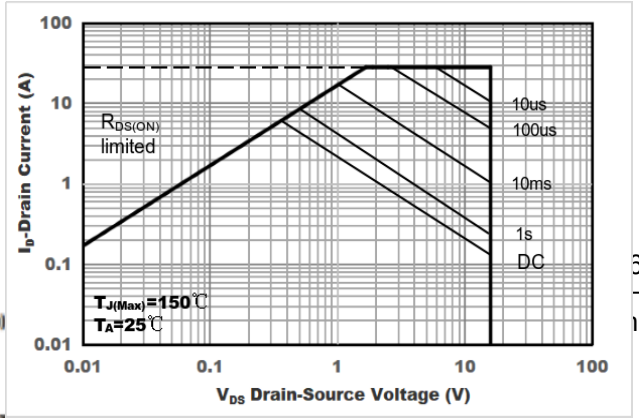
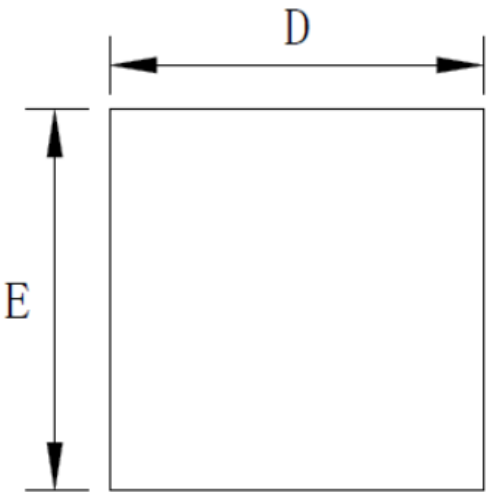


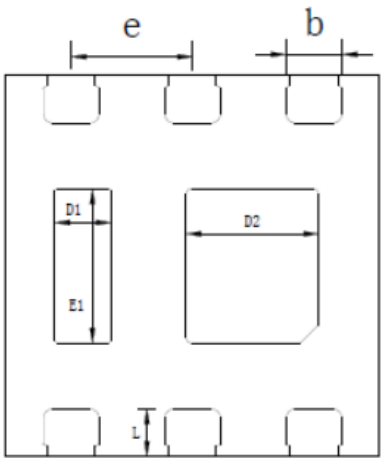
Figure7. Safe Operation Area

Figure8. Switching wave

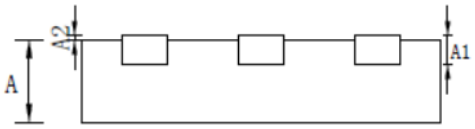
■ DFN2020-6L(0.45mm) Package information



Top View
【顶视图】



Bottom View
【背视图】



Side View
【侧视图】

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.40	0.45	0.50
A1		0.15REF	
A2	0.00	0.02	0.05
L	0.20	0.25	0.30
b	0.25	0.30	0.35
D	1.95	2.00	2.05
E	1.95	2.00	2.05
e		0.65BSC	
D2	0.61	0.71	0.81
D1	0.20	0.30	0.40
E1	0.71	0.81	0.91

Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.21yangjie.com , or consult your nearest Yangjie's sales office for further assistance.