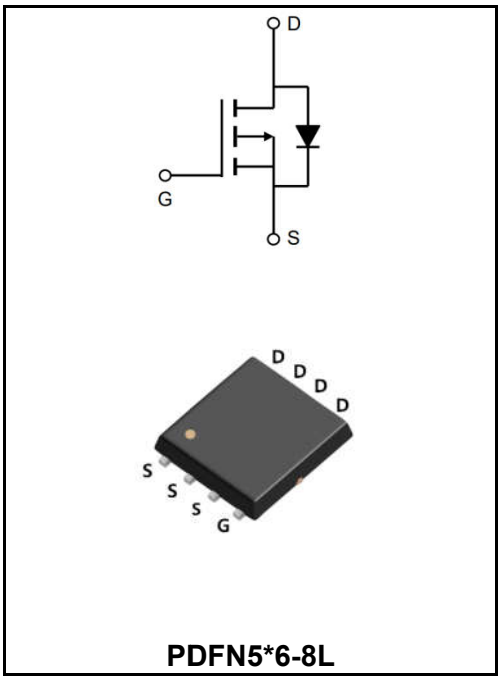
-40V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-100A
V_{DSS}	-40V
R_{DSON}-typ(@V_{GS}=-10V)	< -5.8mΩ(Type:4.6 mΩ)



PDFN5*6-8L

Pb lead-free ROHS

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW100P04NF	PDFN5*6-8L	YFW 100P04NF XXXXX	5000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-40	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS} @ -10V[1] @T_C=25℃	I_D	-100	A
Continuous Drain Current, V_{GS} @ -10V[1] @T_C=100℃	I_D	-66	A
Pulsed Drain Current [2]	I_{DM}	-300	A
Single Pulse Avalanche Energy[3]	E_{AS}	400	mJ
Avalanche Current	I_{AS}	-50	A
Total Power Dissipation[4] @T_C=25℃	P_D	52.1	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-Ambient [1]	$R_{\theta JA}$	25	°C/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	1.8	°C/W

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Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	BV_{DSS}	-40	-44	-	V
BV_{DSS} Temperature Coefficient	Reference to 25℃ , I_D=-1mA	$\Delta BV_{DSS/\Delta TJ}$	-	-0.023	-	V/°C
Static Drain-Source On-Resistance [2]	V_{GS}=-10V, I_D=-20A	$R_{DS(ON)}$	-	4.6	5.8	mΩ
	V_{GS}=-4.5V, I_D=-10A		-	6.0	9.0	
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	$V_{GS(th)}$	-1.2	-1.8	-2.5	V
Drain-Source Leakage Current	V_{DS}=-40V , V_{GS}=0V , T_J=25℃	I_{DSS}	-	-	1	μA
	V_{DS}=-40V , V_{GS}=0V , T_J=55℃		-	-	5	
Gate –Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Forward Transconductance	V_{DS}=-15V , I_D=-12A	g_{fs}	-	50	-	S
Gate resistance	V_{GS}=0V, V_{DS}=0V, F=1MHz	R_g	-	7	14	Ω
Total Gate Charge(-4.5V)	V_{DS}=-20V V_{GS}=-10V I_D=-12A	Q_g	-	120	-	nC
Gate-Source Charge		Q_{gs}	-	23	-	
Gate-Drain Charge		Q_{gd}	-	29	-	
Turn-on delay time	V_{DD} =-20V V_{GS}=-10V I_D= -12A R_G=3.0Ω	$t_{d(on)}$	-	18	-	ns
Rise Time		T_r	-	12	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	80	-	
Fall Time		t_f	-	20	-	
Input Capacitance	V_{DS}=-20V V_{GS}=0V f=1MHz	C_{iss}	-	7000	-	pF
Output Capacitance		C_{oss}	-	950	-	
Reverse Transfer Capacitance		C_{rss}	-	735	-	
Continuous Source Current[1.5]	V_G=V_D=0V , Force Current	I_S	-	-	-100	A
Diode Forward Voltage[2]	V_{GS}=0V , I_S=-1A , T_J=25℃	V_{SD}	-	-	-1.2	V

Note :
1、The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3、The EAS data shows Max. rating . The test condition is VDD=-32V,VGS=-10V,L=0.1mH,IAS=-50A
4、The power dissipation is limited by 150℃ junction temperature
5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

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Ratings and Characteristic Curves

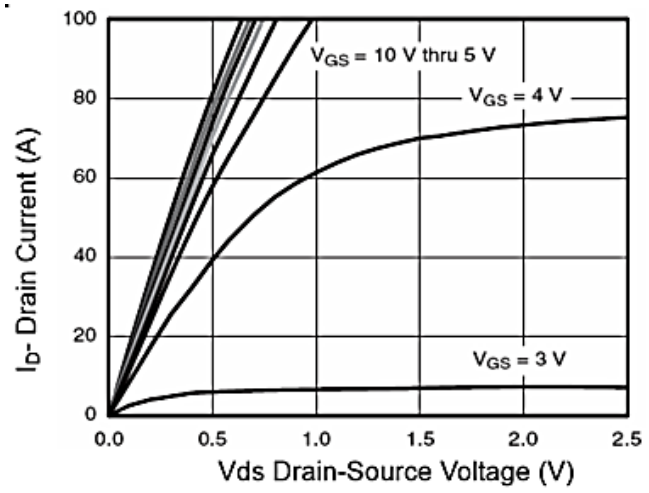


Figure 1 Output Characteristics

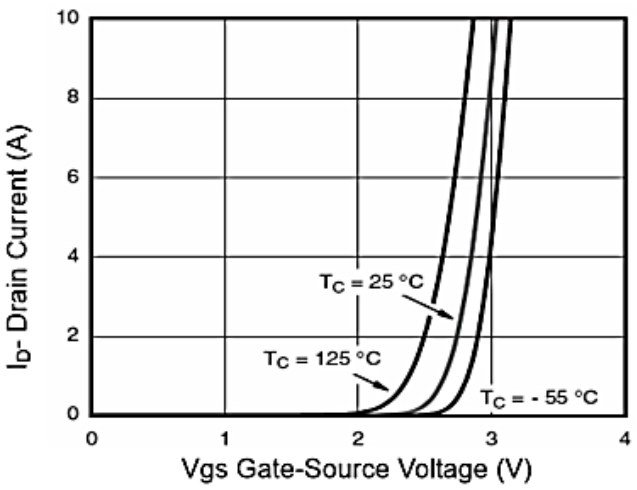


Figure 2 Transfer Characteristics

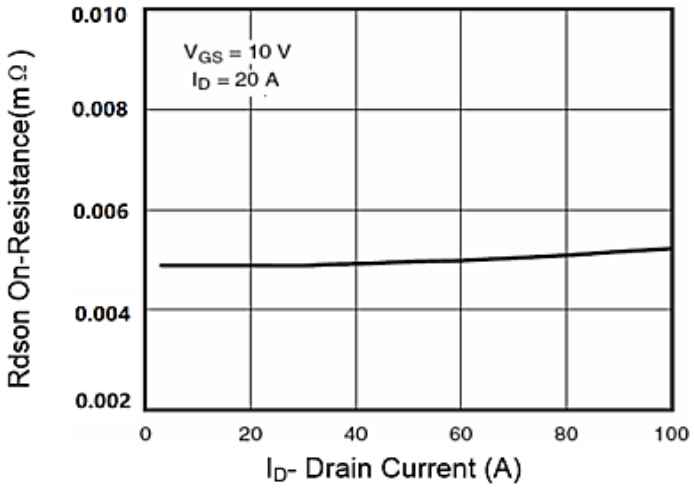


Figure 3 Rdson- Drain Current

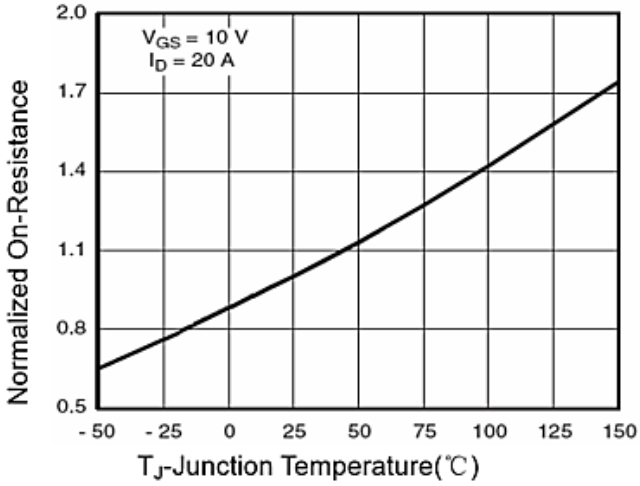


Figure 4 Rdson-Junction Temperature

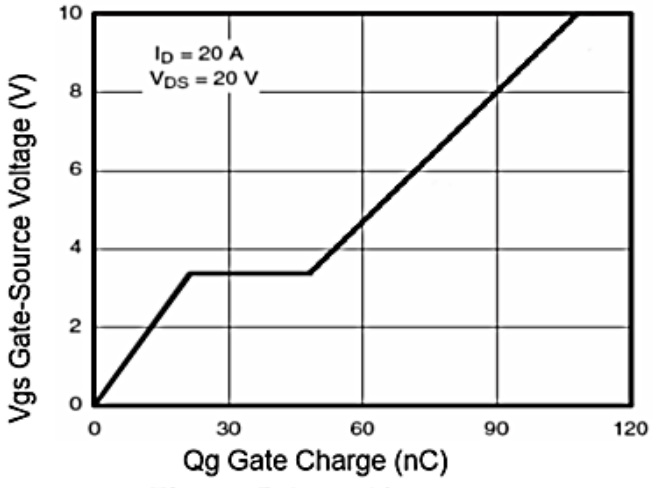


Figure 5 Gate Charge

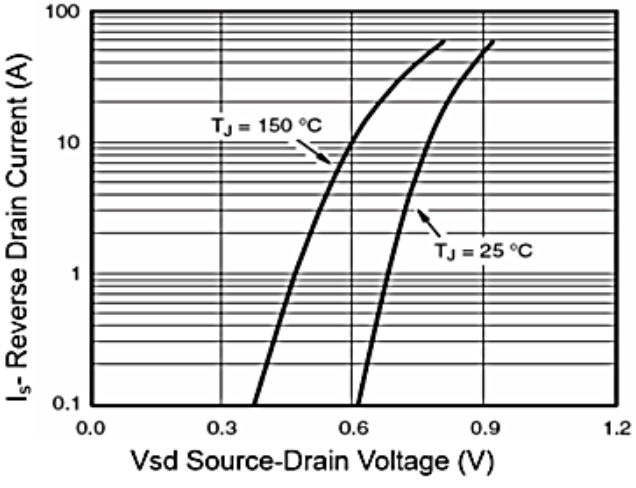


Figure 6 Source- Drain Diode Forward

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Ratings and Characteristic Curves

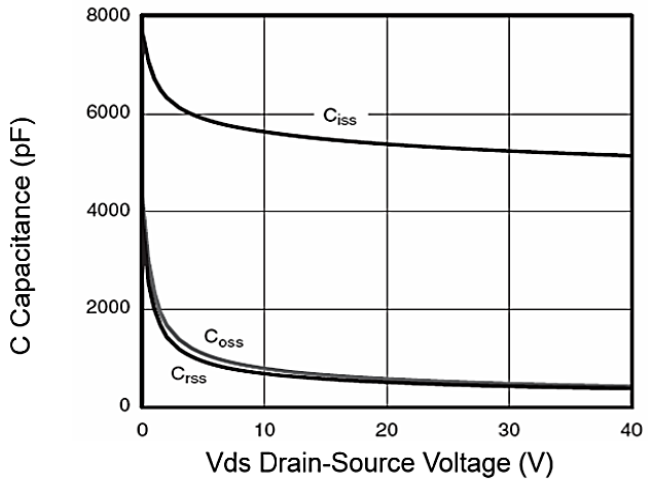


Figure 7 Capacitance vs Vds

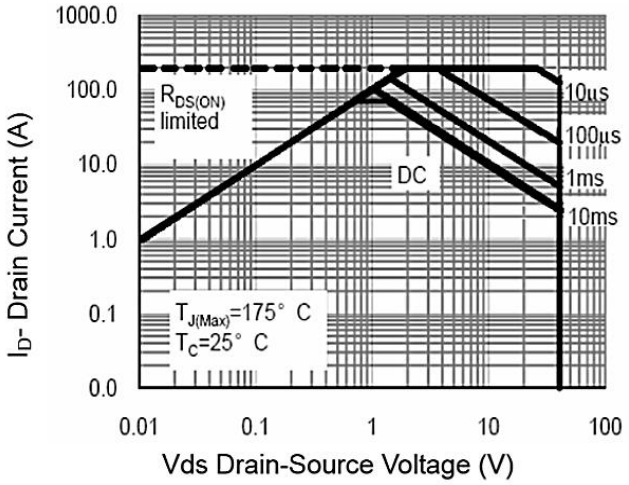


Figure 8 Safe Operation Area

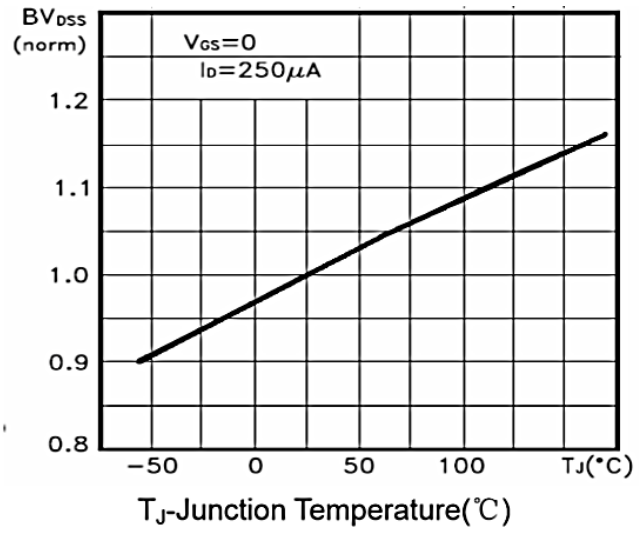


Figure 9 BV_{DSS} vs Junction Temperature

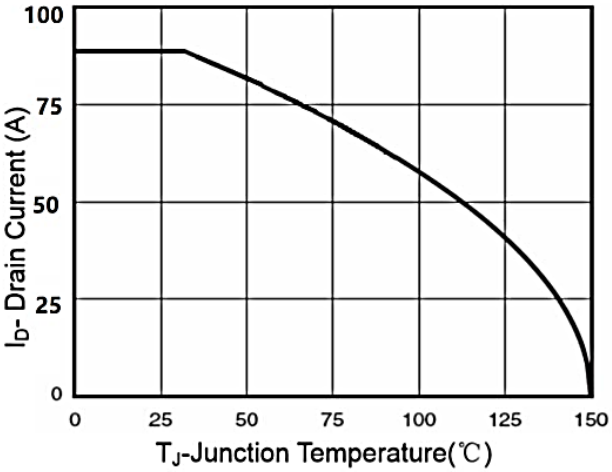


Figure 10 ID Current Derating vs Junction Temperature

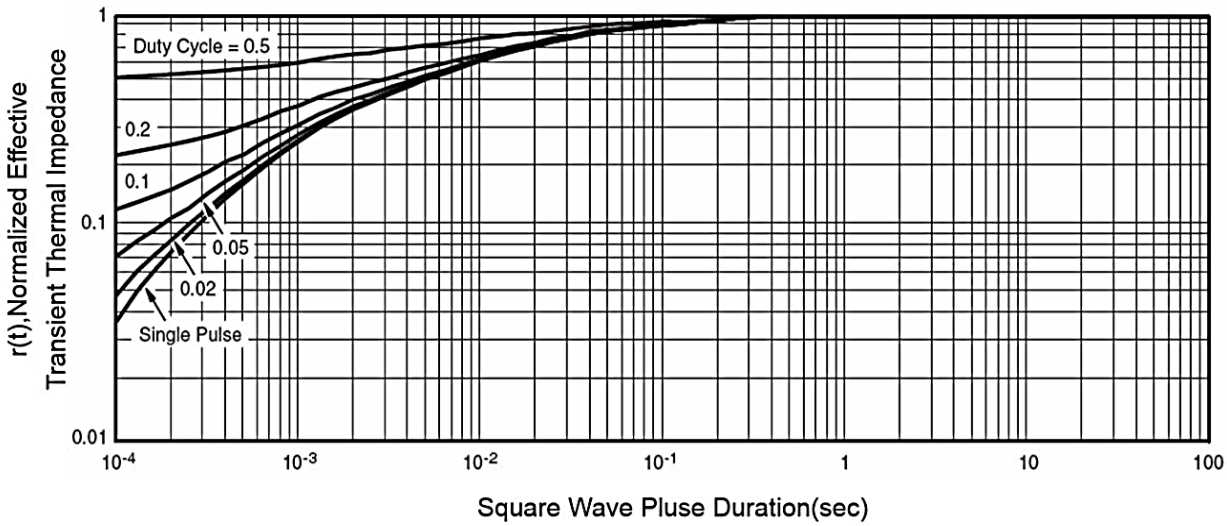
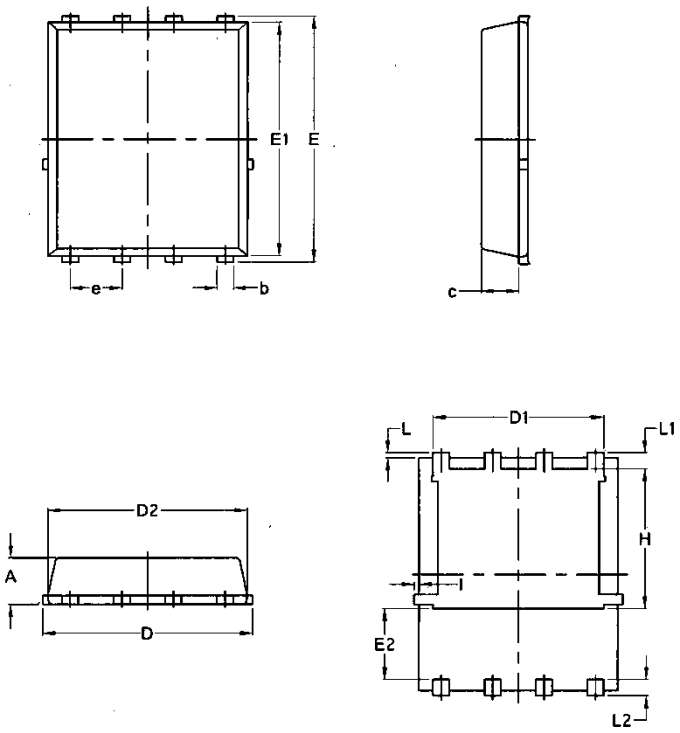


Figure 11 Normalized Maximum Transient Thermal Impedance

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Package Outline Dimensions Millimeters

PDFN5*6-8L



Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070

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