YFW80P06NF

-60V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-80A
V_{DSS}	-60V
R_{DSON}-typ(@V_{GS}=-10V)	< 11mΩ(Type:9 mΩ)

Application

♦Lithium battery protection
♦Wireless impact
♦Mobile phone fast charging

PDFN5*6-8L

Product Specification Classification

Part Number	Package	Marking	Pack
YFW80P06NF	PDFN5*6-8L	YFW 80P06NF XXXXX	5000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-60	**V**
Gate - Source Voltage	V_{GS}	±20	**V**
Continuous Drain Current, V_{GS} @ -10V[1] @T_C=25℃	I_D	-80	**A**
Continuous Drain Current, V_{GS} @ -10V[1] @T_C=100℃	I_D	-38	**A**
Pulsed Drain Current [2]	I_{DM}	-240	**A**
Single Pulse Avalanche Energy[3]	E_{AS}	400	**mJ**
Avalanche Current	I_{AS}	41	**A**
Total Power Dissipation[4] @T_C=25℃	P_D	104	**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]	$R_{θJA}$	1.2	**°C/W**
Thermal Resistance Junction-Case[1]	$R_{θJC}$	70	**°C/W**

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}	-60	-68	-	V
BV_{DSS} Temperature Coefficient	Reference to 25℃ , I_D=-1mA	$\triangle BV_{DSS/\triangle TJ}$	-	-0.035	-	V/°C
Static Drain-Source On-Resistance [2]	V_{GS}=-10V, I_D=-20A	$R_{DS(ON)}$	-	9.0	11	mΩ
	V_{GS}=-4.5V, I_D=-15A		-	12	16	
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	$V_{GS(th)}$	-1.2	-1.8	-2.5	V
V_{GS}(th) Temperature Coefficient		$\triangle V_{GS(th)}$	-	4.28	-	mV/°C
Drain-Source Leakage Current	V_{DS}=-60V , V_{GS}=0V , T_J=25℃	I_{DSS}	-	-	1	μA
	V_{DS}=-60V , 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}=-5V , I_D=-20A	g_{fs}	-	50	-	S
Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	R_g	-	2.0	-	Ω
Total Gate Charge(-4.5V)	V_{DS}=-30V V_{GS}=-10V I_D=-20A	Q_g	-	56	-	nC
Gate-Source Charge		Q_{gs}	-	11	-	
Gate-Drain Charge		Q_{gd}	-	9	-	
Turn-on delay time	V_{DD} =-30V V_{GS}=-10V I_D= -20A R_G=3Ω	$t_{d(on)}$	-	4.5	-	ns
Rise Time		T_r	-	2.5	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	14.5	-	
Fall Time		t_f	-	3.8	-	
Input Capacitance	V_{DS}=-15V V_{GS}=0V f=1MHz	C_{iss}	-	3500	-	pF
Output Capacitance		C_{oss}	-	600	-	
Reverse Transfer Capacitance		C_{rss}	-	25	-	
Continuous Source Current[1.5]	V_G=V_D=0V , Force Current	I_S	-	-	-80	A
Pulsed Source Current[2.5]		I_{SM}	-	-	-240	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 inch 2 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 =-48V,VGS =-10V,L=0.1mH,IAS =-41A

4、The power dissipation is limited by 150℃ junction temperature

5、The data is theoretically the same as I D and I DM , in real applications , should be limited by total power dissipation.
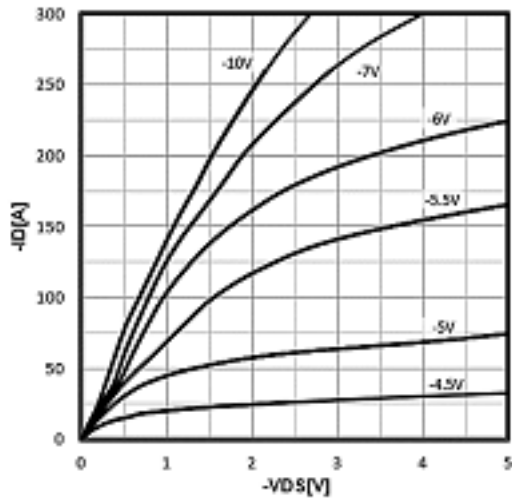
Ratings and Characteristic Curves

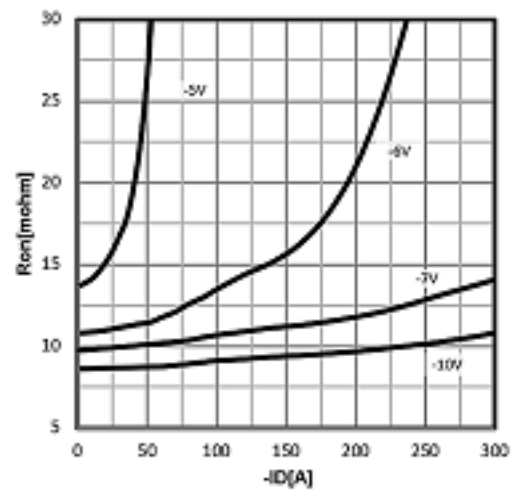Figure 1. Type. Output Characteristics (Tj=25 ℃)
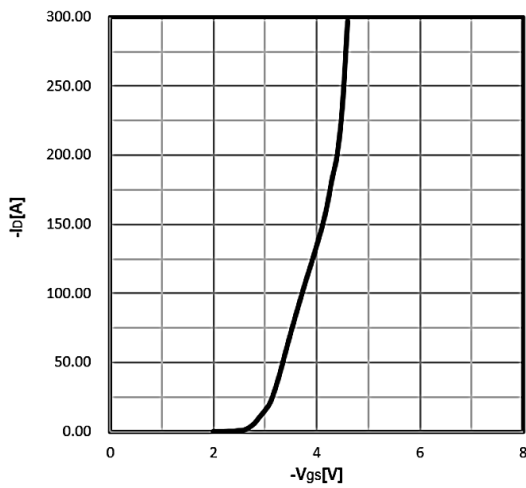

Figure 2. Type. drain-source on resistance

Figure 3. Type. transfer characteristics
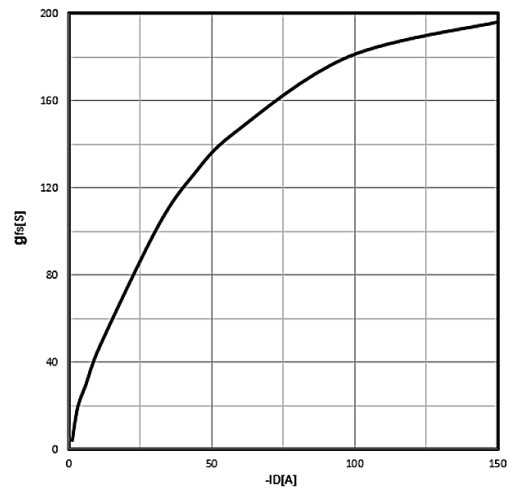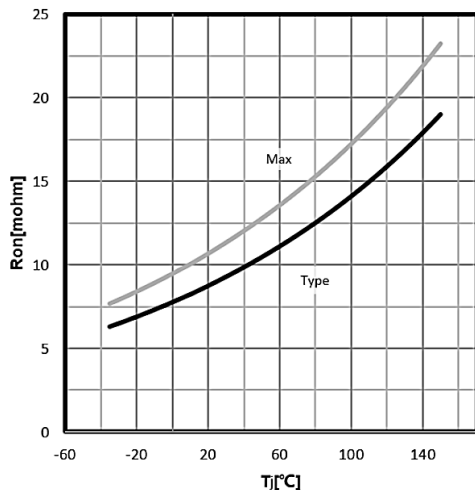

Figure 4. Type. forward transconductance

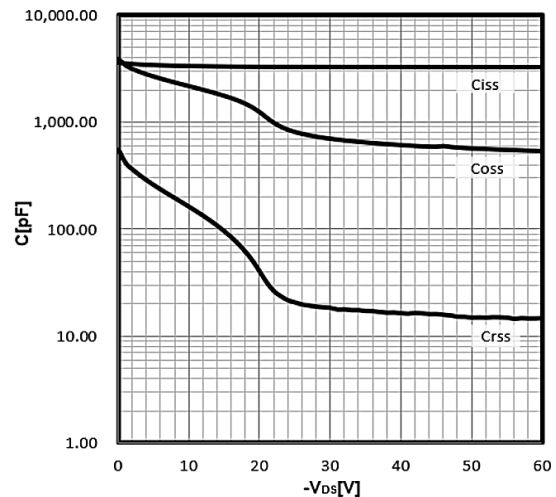Figure 5. Drain-source on-state resistance
RDS(on) =f(Tj); ID =80A; VGS =10V

Figure 6 . Body-Diode Characteristics
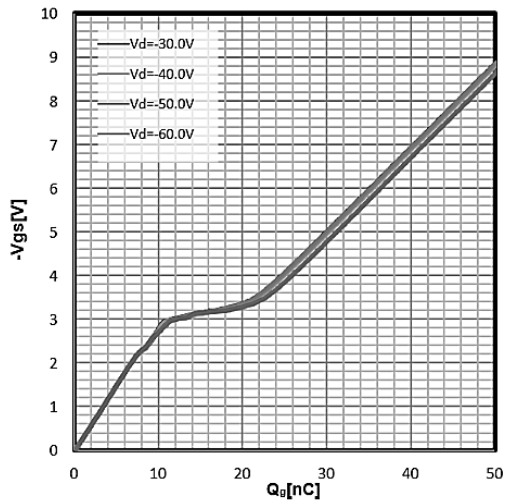C=f(VDS); VGS =0V; f=1MHz

Ratings and Characteristic Curves

Figure 7. Typ. gate charge
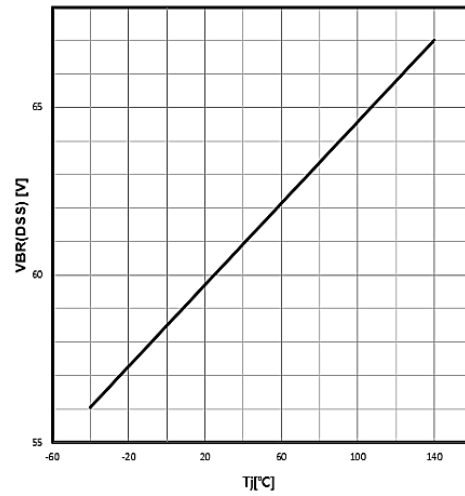**VGS =f(Q gate) ; ID =20A**
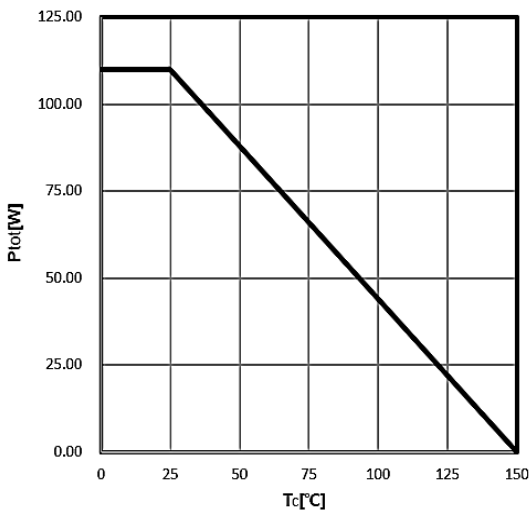
Figure 8. Drain Current Derating
VBR(DSS) =f(T j); I D =250uA

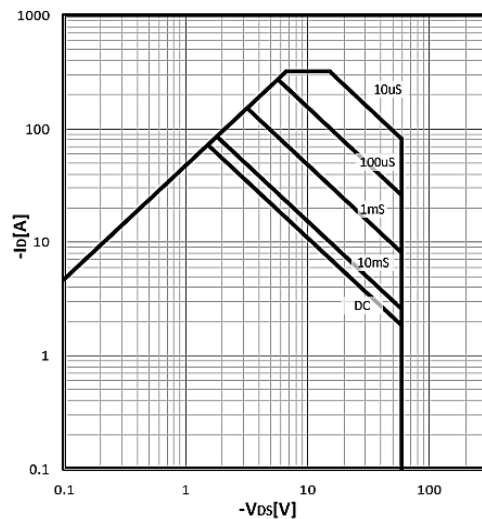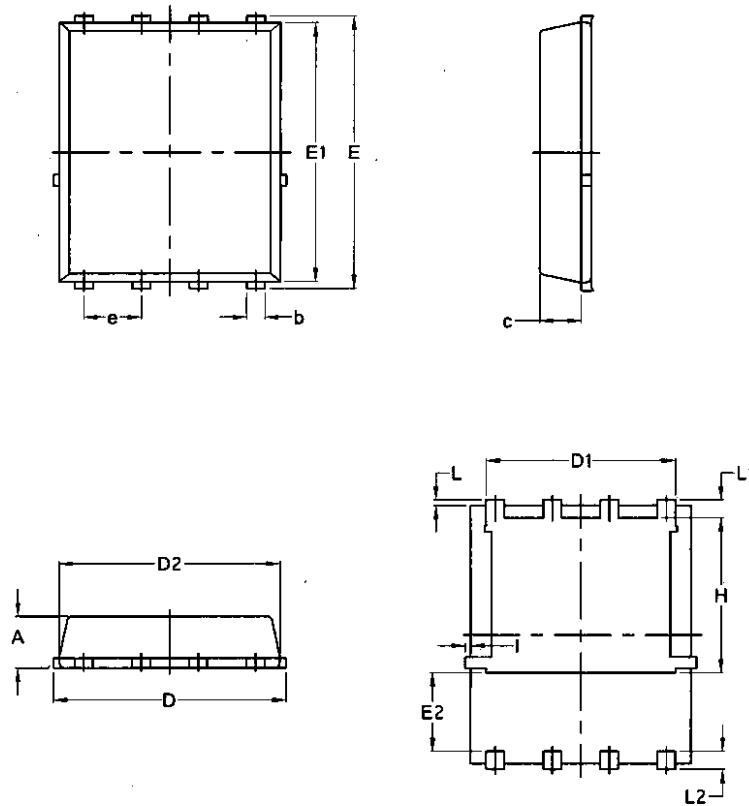**Figure 7. Power Dissipation**

Figure 8. Safe operating area

Figure 10. Max. transient thermal impedance

ZthJC =f(tp)

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