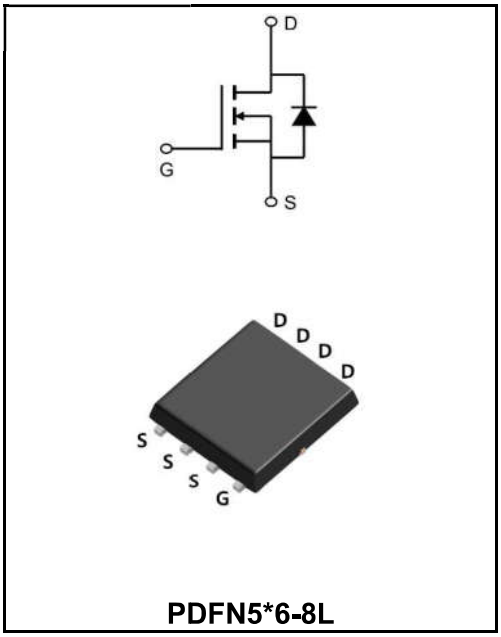
60V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	80A
V_{DSS}	60V
R_{DSON}-typ(@V_{GS}=10V)	< 6mΩ(Type:4.7 mΩ)



PDFN5*6-8L

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW80N06NF	PDFN5*6-8L	YFW 80N06NF 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[1)]	I_D	80	A
Continuous drain current[2)]	$I_{D,\ pulse}$	210	A
Diode forward current	I_S	70	A
Pulsed source current	I_{SP}	210	A
Power dissipation	P_D	87	W
Single pulsed avalanche energy[)]	E_{AS}	66	mJ
Operation and storage temperature	T_{STG} ,T_J	-55 to +150	°C
Thermal Resistance Junction-Case	$R_{\theta JC}$	1.44	°C/W
Thermal Resistance, Junction-to-Ambient [4)]	$R_{\theta JA}$	62	°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	-	-	V
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	1.0	-	2.5	V
Drain-source on-state resistance	V_{GS}=10V, I_D=20A	$R_{DS(ON)}$	-	4.7	6	mΩ
	V_{GS}=4.5V, I_D=10A		-	6.4	10	
Gate-Source Leakage Current	V_{GS}=±20V	I_{GSS}	-	-	±100	nA
Drain -Source Leakage Current	V_{DS}=60V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Gate Resistance	f=1MHz, Open drain	R_g		2.8		Ω
Input Capacitance	V_{GS}=0V V_{DS}=50V f=100KHz	C_{iss}	-	2136	-	pF
Output Capacitance		C_{oss}	-	331.5	-	
Reverse Transfer Capacitance		C_{rss}	-	10.6	-	
Turn-on delay time	V_{GS}=10V V_{DD}=50V R_G=2Ω I_D=25A	$t_{d(on)}$	-	22.9	-	ns
Rise Time		T_r	-	6.5	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	45.7	-	
Fall Time		t_f	-	20.4	-	
Total Gate Charge	I_D=25A V_{DS}=50V V_{GS}=10V	Q_g	-	30	-	nC
Gate-Source Charge		Q_{gs}	-	5.8	-	
Gate-Drain Charge		Q_{gd}	-	6.1	-	
Gate plateau voltage		$V_{plateau}$	-	3.6	-	V
Diode Forward Voltage	V_{GS}=0V , I_S=20A	V_{SD}	-	-	1.3	V
Reverse Recovery Time	I_F=25A , dI/dt=100A/μs	t_{rr}	-	50.3	-	ns
Reverse Recovery Charge		Q_{rr}	-	45.1	-	nC
Peak reverse recovery current		I_{rrm}	-	1.5	-	A

Note
1、Calculated continuous current based on maximum allowable junction temperature.
2、Repetitive rating; pulse width limited by max. junction temperature.
3、Pd is based on max. junction temperature, using junction-case thermal resistance.
4、VDD=30 V, RG=25 Ω, L=0.3 mH, starting Tj=25 ℃.
5、The value of RθJA is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25 ℃..

Ratings and Characteristic Curves

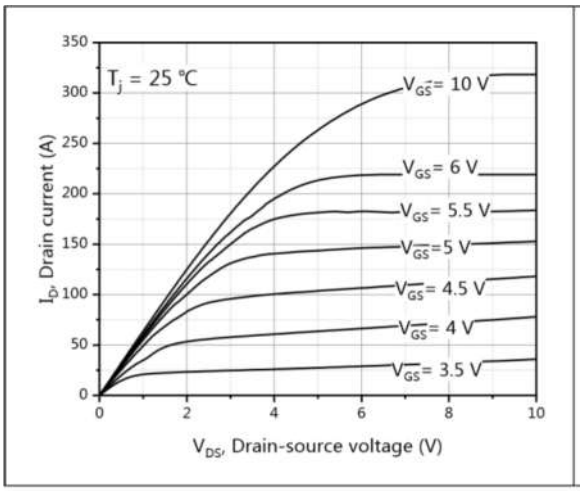


Figure 1, Typ. output characteristics

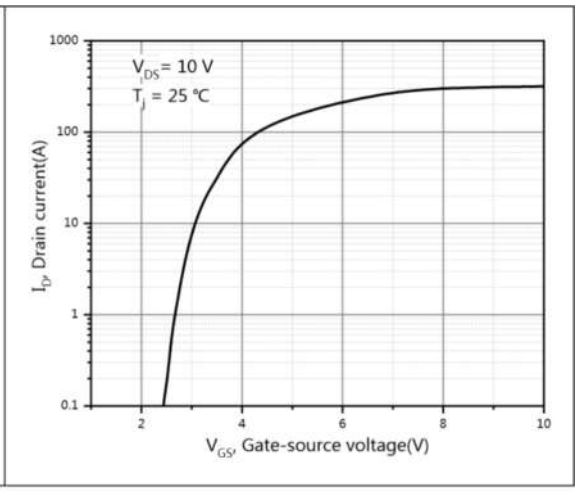


Figure 2, Typ. transfer characteristics

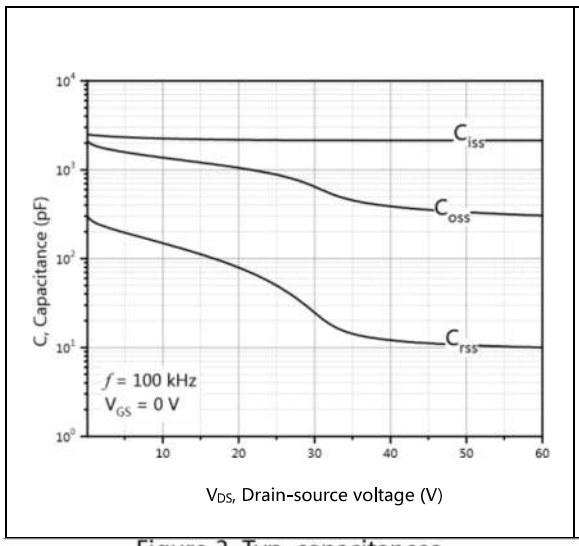


Figure 3, Typ. capacitances

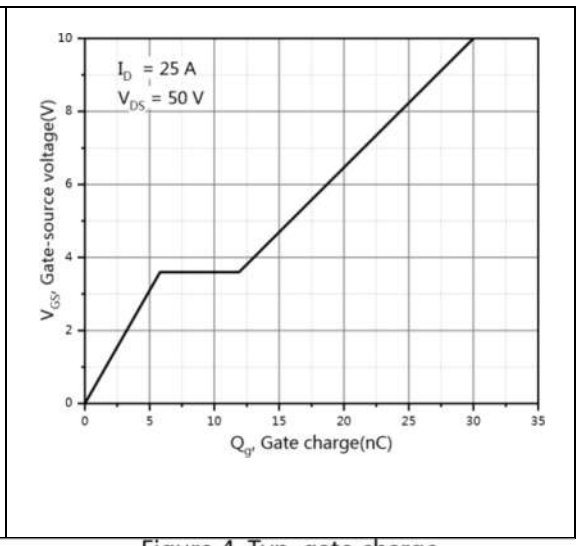


Figure 4, Typ. gate charge

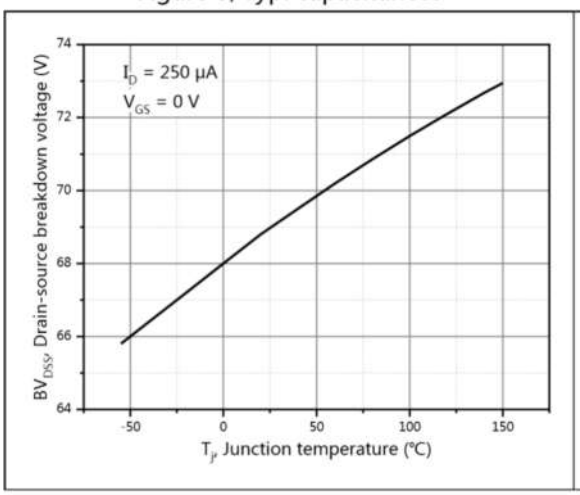


Figure 5, Drain-source breakdown voltage

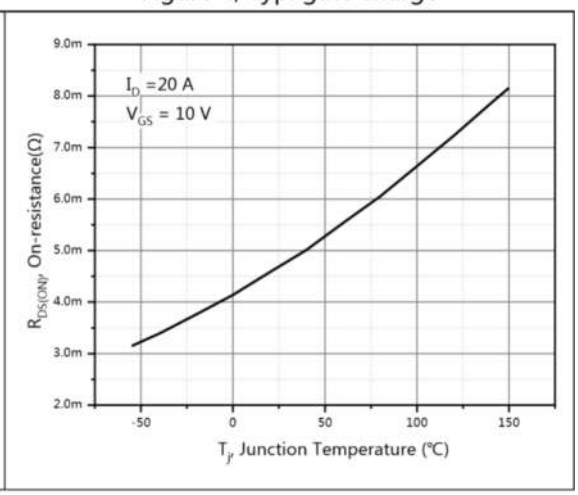


Figure 6, Drain-source on-state resistance

Ratings and Characteristic Curves

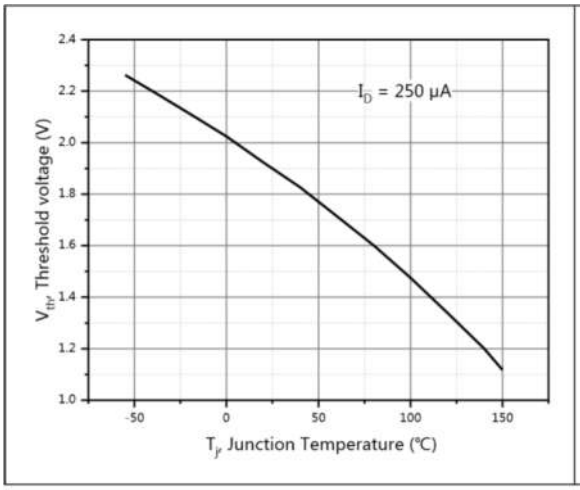


Figure 7, Threshold voltage

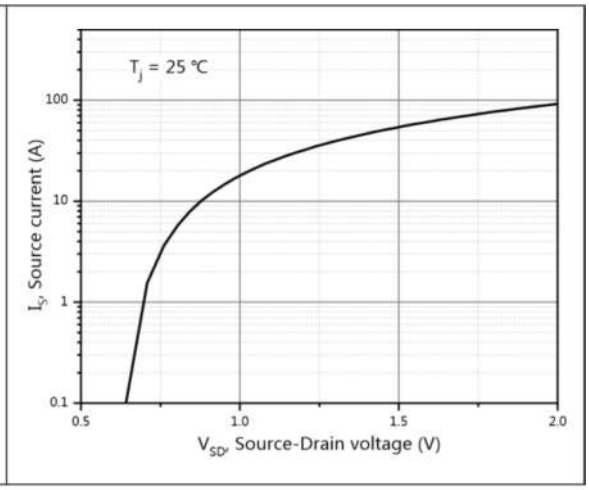


Figure 8, Forward characteristic of body diode

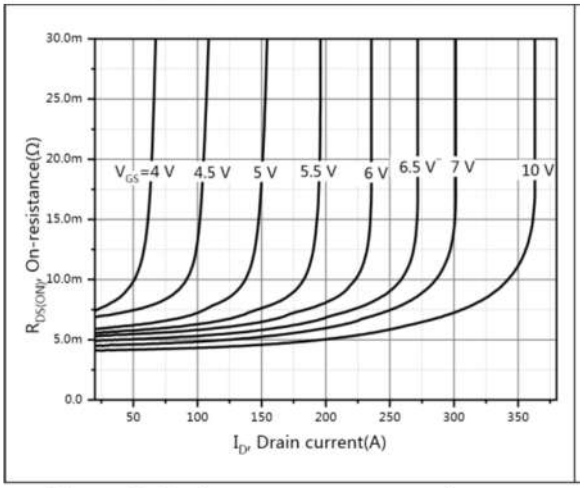


Figure 9, Drain-source on-state resistance

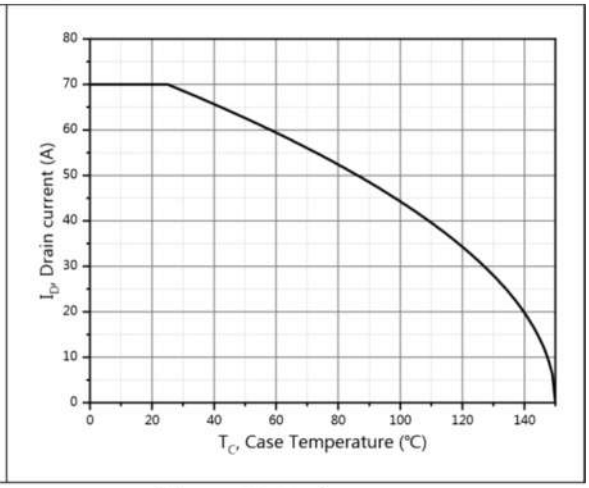


Figure 10, Drain current

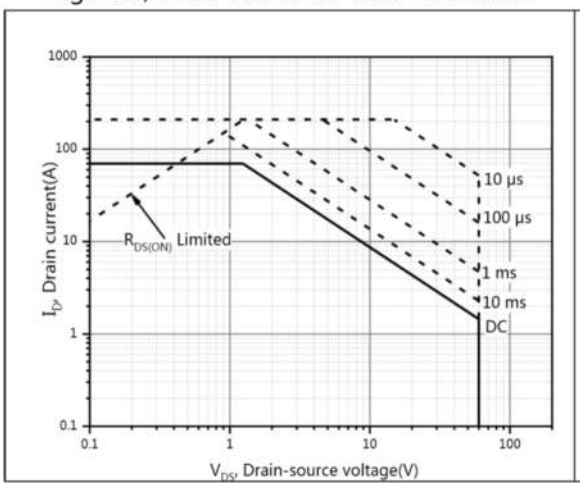


Figure 11, Safe operation area for T_C=25 ℃

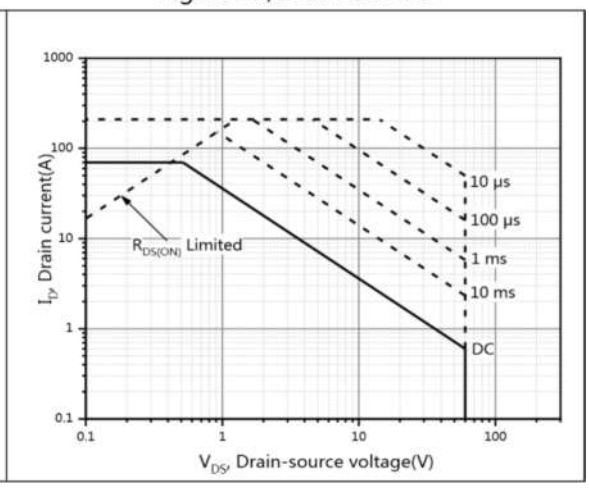


Figure 12, Safe operation area for PDFN5*6

Ratings and Characteristic Curves

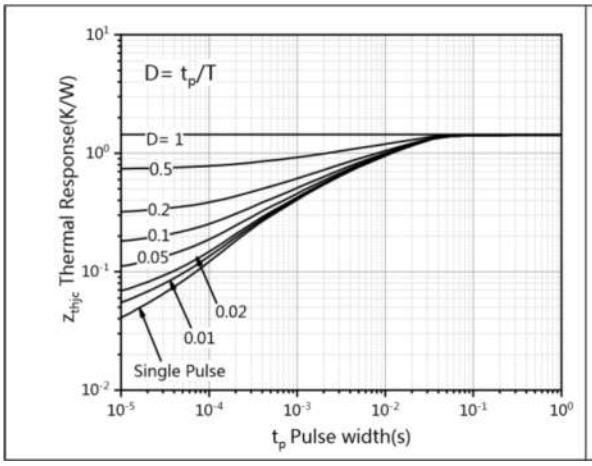


Figure 13, Max. transient thermal impedance

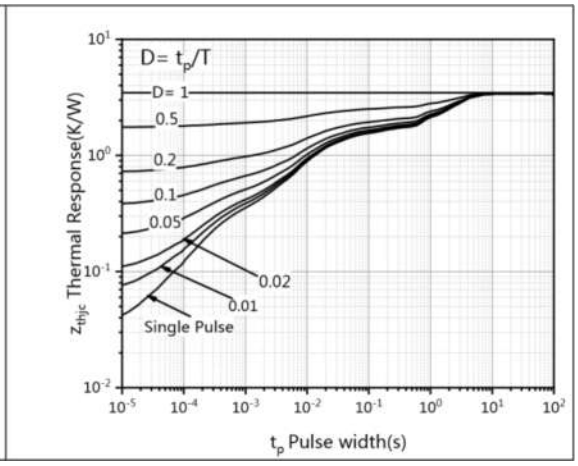
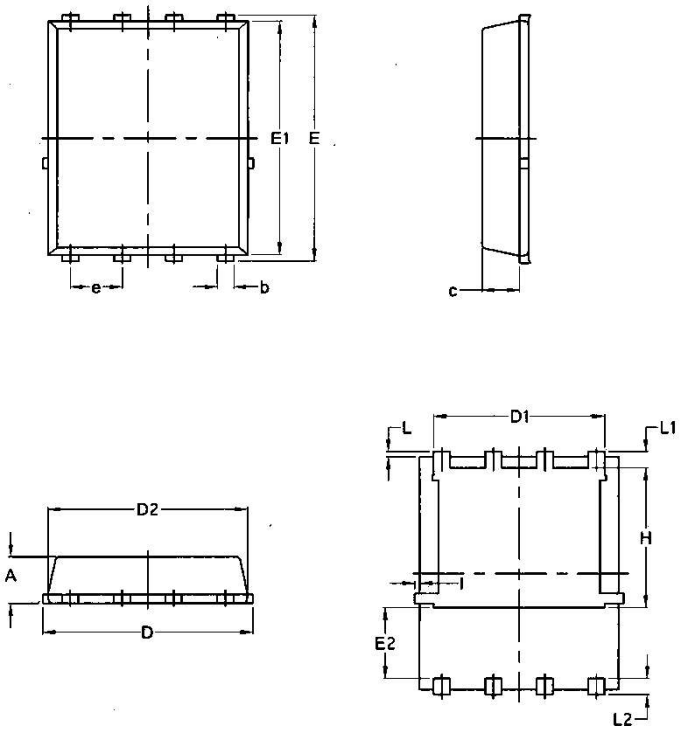


Figure 14, Max. transient thermal impedance

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