

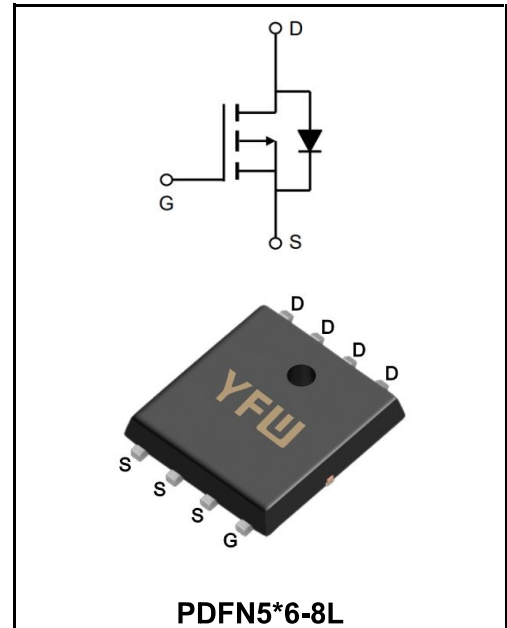
-100V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-18A
V_{DSS}	-100V
$R_{DS(on)-typ}(@V_{GS}=-10V)$	$< 100m\Omega$ (Typ:80m Ω)

APPLICATIONS

- ◆Brushless motor
- ◆Load switch
- ◆Uninterruptible power supply



Maximum Ratings at $T_c=25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DSS}	-100	V
Gate - Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current, $V_{GS} @ -10V^1$ $T_c=25^\circ\text{C}$	I_D	-18	A
Continuous Drain Current, $V_{GS} @ -10V^1$ $T_c=100^\circ\text{C}$	I_D	-10.8	A
Pulsed Drain Current 2	I_{DM}	-72	A
Single Pulsed Avalanche Energy 3	E_{AS}	72	mJ
Avalanche Current	I_{AS}	-17	A
Power Dissipation $T_c=25^\circ\text{C}$	P_D	78	W
Operating Temperature Range	T_J	-55 to +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.6	$^\circ\text{C/W}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	BV_{DSS}	-100	-110	-	V
Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	I_{GSS}	-	-	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=-100V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	I_{DSS}	-	-	-1	μA
	$V_{DS}=-100V, V_{GS}=0V, T_J=100^{\circ}\text{C}$		-	-	-100	μA
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-1.0	-1.6	-2.5	V
Static Drain-Source on-Resistance ⁴	$V_{GS}=-10V, I_D=-20A$	$R_{DS(on)}$	-	80	100	m Ω
	$V_{GS}=-4.5V, I_D=-15A$		-	85	120	
Forward Transconductance ⁴	$V_{DS}=-10V, I_D=-10A$	g_{fs}	-	30	-	S
Input Capacitance	$V_{DS}=-50V$ $V_{GS}=0V$ $f=1.0\text{MHz}$	C_{iss}	-	3985	-	pF
Output Capacitance		C_{oss}	-	85	-	
Reverse Transfer Capacitance		C_{rss}	-	71	-	
Gate Resistance	$f=1\text{MHz}$	R_g	-	4	-	Ω
Total Gate Charge	$V_{GS}=-10V$ $V_{DS}=-50V$ $I_D=-10A$	Q_g	-	65	-	nC
Gate to Source Charge		Q_{gs}	-	10.2	-	nC
Gate to Drain Charge		Q_{gd}	-	13	-	nC
Turn-on Delay Time	$V_{GS}=-10V$ $V_{DD}=-50V$ $R_G=3\Omega$ $I_D=-10A$	$t_{d(on)}$	-	12.8	-	ns
Turn-on Rise Time		T_r	-	30	-	ns
Turn-off Delay Time		$t_{d(OFF)}$	-	82	-	ns
Turn-off Fall Time		t_f	-	61	-	ns
Reverse Recovery Time	$I_F=-10A, di/dt=100A/\mu s$	t_{rr}	-	62	-	ns
Reverse Recovery Charge		Q_{rr}	-	56	-	nC
Diode Forward Voltage ⁴	$I_S=-10A, V_{GS}=0V$	V_{SD}	-	-	-1.2	A
Maximun Body-Diode Continuous Current $T_C=25^{\circ}\text{C}$		I_S	-	-	-18	A

Note :

- 1、The data tested by surface mounted on a 1 inch 2 FR-4 board with 20Z copper.
- 2、The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3、The EAS data shows Max. rating . The test condition is $V_{DD}=-50V, V_{GS}=-10V, L=0.5mH, I_{AS}=-17A$
- 4、The power dissipation is limited by 150°C 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.

Typical Characteristics

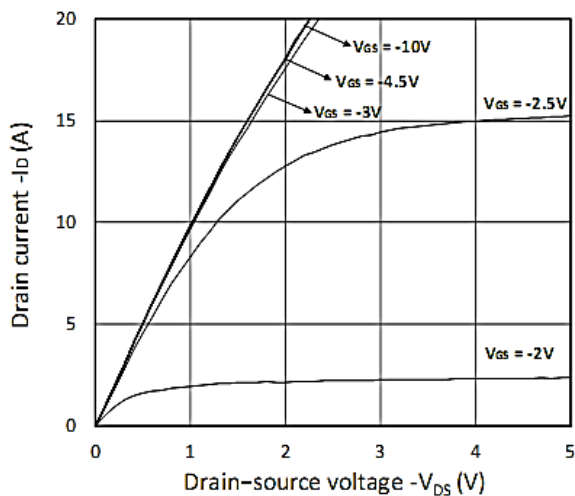


Figure 1. Output Characteristics

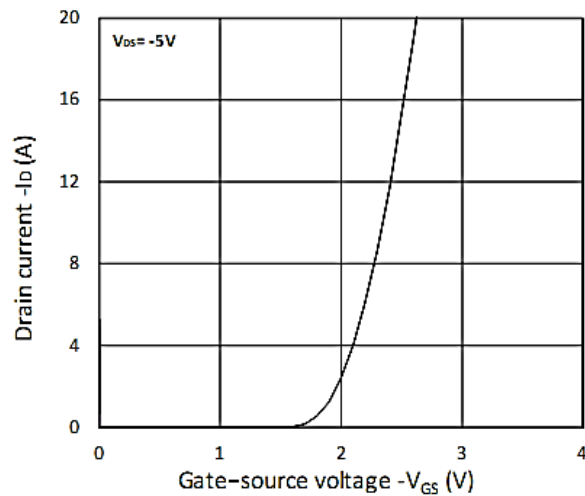


Figure 2. Transfer Characteristics

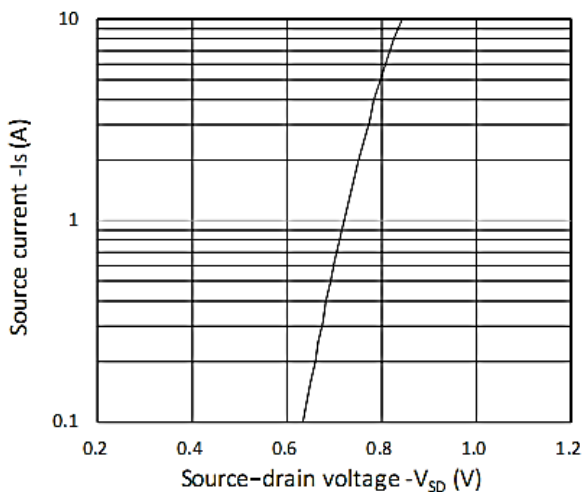


Figure 3. Forward Characteristics of Reverse

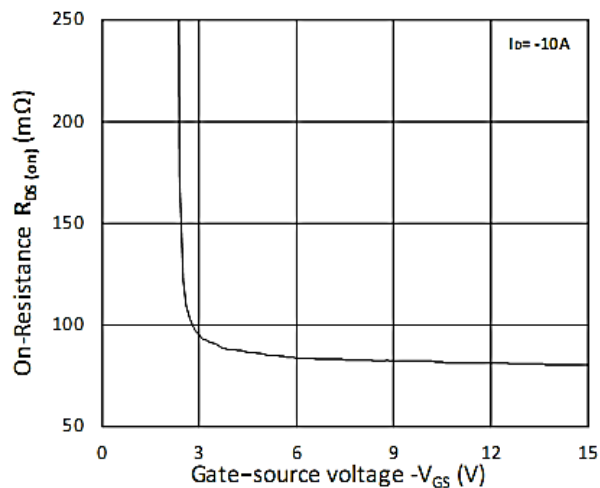


Figure 4. R_DS(ON) vs. V_GS

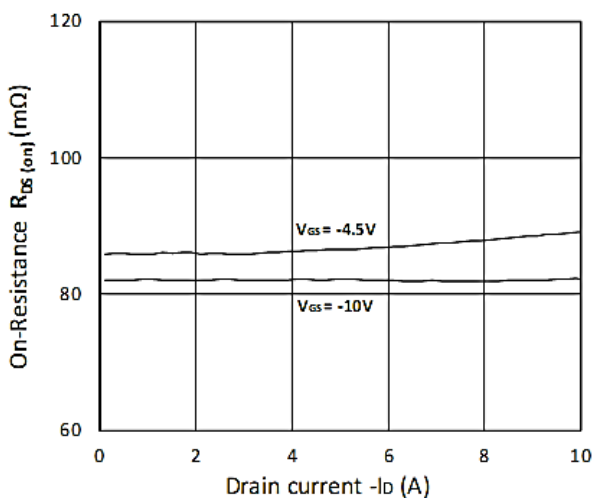


Figure 5. R_DS(ON) vs. I_D

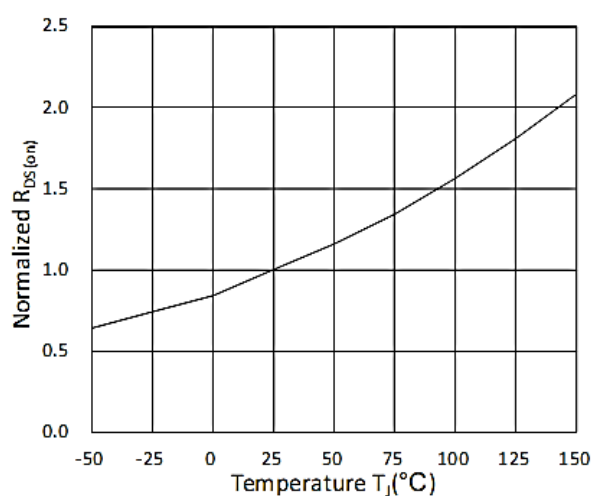


Figure 6. Normalized R_DS(on) vs. Temperature

Typical Characteristics

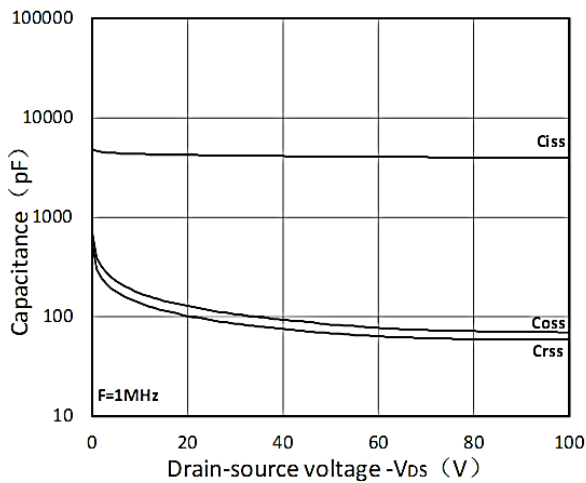


Figure 7. Capacitance Characteristics

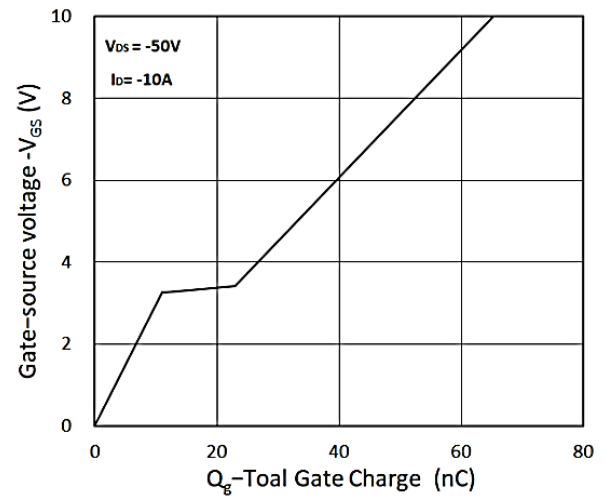


Figure 8. Gate Charge Characteristics

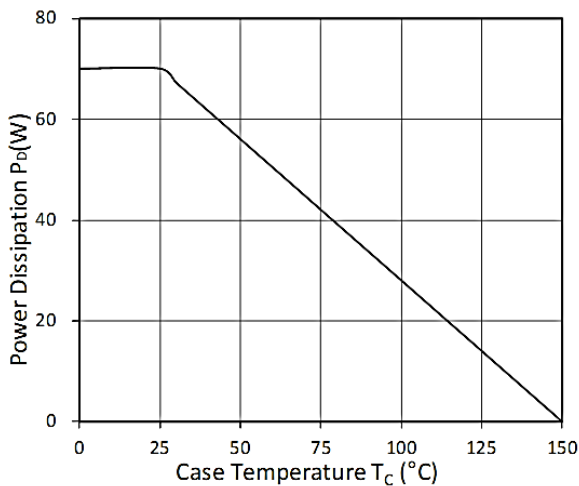


Figure 9. Power Dissipation

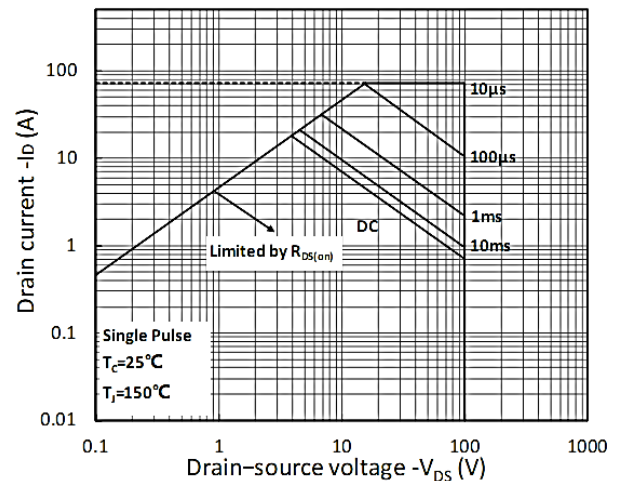


Figure 10. Safe Operating Area

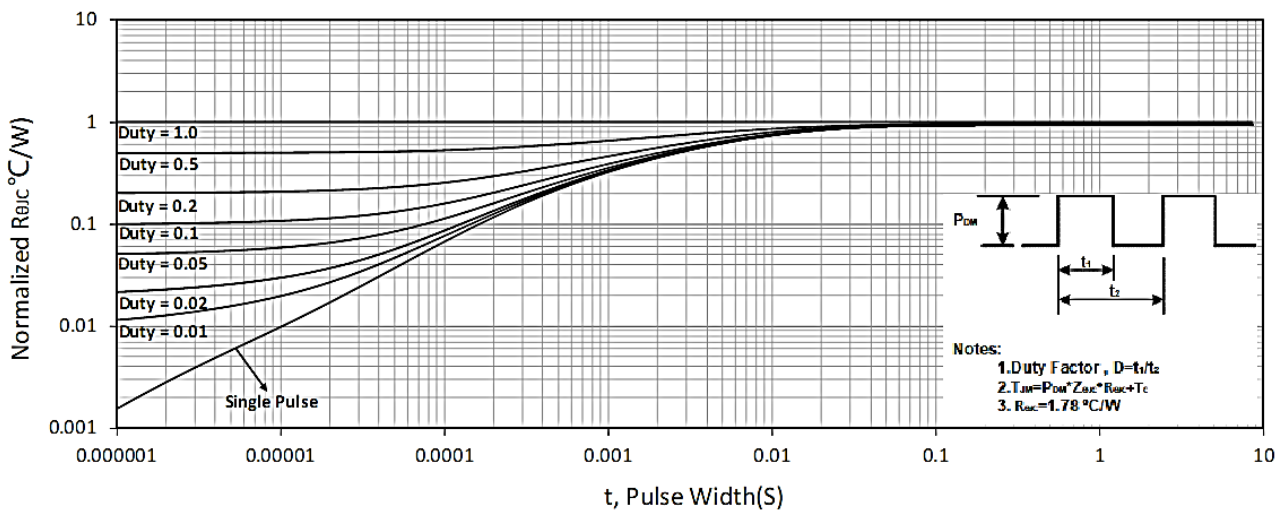
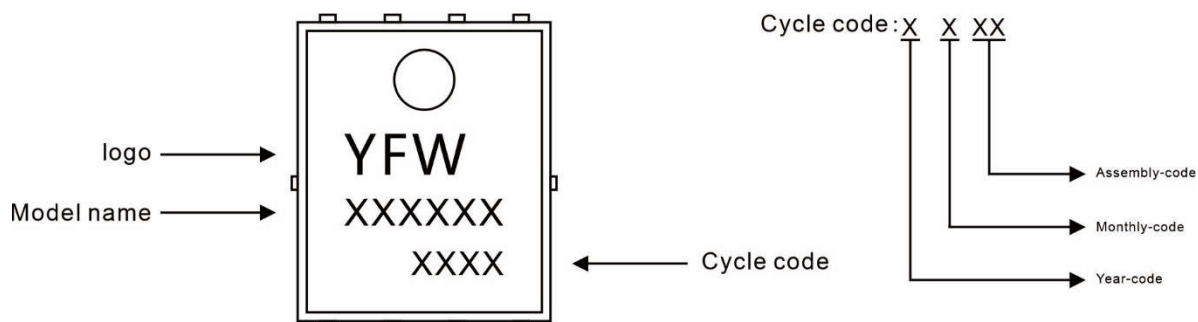


Figure 11. Normalized Maximum Transient Thermal Impedance

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW18P10NF	PDFN5*6-8L	0.0032oz(0.093g)	5000pcs/reel	10000pcs/box 50000pcs/Carton

Package Dimensions

PDFN5*6-8L

Dim	Millimeter		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.2	35	45
A2	0.204	0.304	8	12
b	0.4ref.		16ref.	
b1	0.2	0.4	8	16
D	5.0	5.3	197	209
D1	4.84	5.24	191	206
E	5.95	6.35	234	250
E1	3.275	3.675	129	145
E2	5.69	6.09	224	232
e	1.27typ.		50typ.	
K	1.29typ.		51typ.	
L	0.585	0.785	23	27
L1	0.7typ.		28typ.	

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