

30V N-Channel Enhancement Mode Power MOSFET

MAIN CHARACTERISTICS

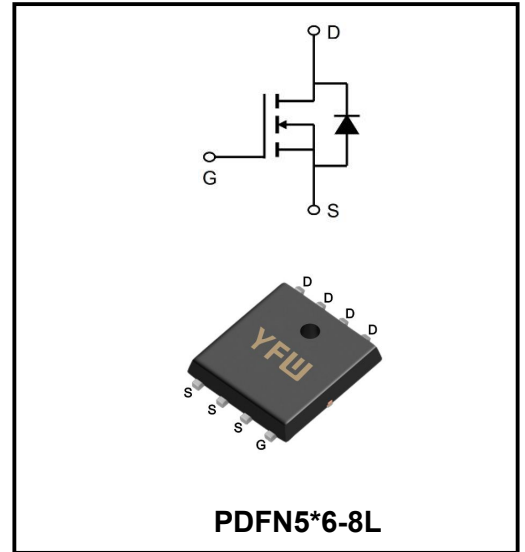
I_D	80A
V_{DSS}	30V
R_{DS(on)-typ(@V_{GS}=10V)}	<5.3mΩ(Typ:3.9mΩ)

FEATURES

- ◆Advanced Trench Technology
- ◆Excellent RDS(ON) and Low Gate Charge

Application

- ◆Load Switch
- ◆PWM Application
- ◆Power Management



Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	30	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	80	A
Pulsed Drain Current(Note1)	I_{DM}	280	A
Total Power Dissipation	P_D	50	W
Single Pulse Avalanche Energy(Note1)	E_{AS}	81	mJ
Operating Junction Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	R_{θJC}	2.5	°C/W
Thermal Resistance, Junction ambient	R_{θJA}	31	°C/W

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	30	-	-	V
Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	I_{DSS}	-	-	1	μA
Gate Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1	-	2	V
Drain-Source on-Resistance	$V_{GS}=10V, I_D=30A$	$R_{DS(on)}$	-	3.9	5.3	m Ω
	$V_{GS}=4.5V, I_D=25A$	$R_{DS(on)}$	-	6.8	9.5	m Ω
Input Capacitance	$V_{DS}=15V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	1788	-	μF
Output Capacitance		C_{oss}	-	225	-	
Reverse Transfer Capacitance		C_{rss}	-	180	-	
Total Gate Charge(Note2)	$I_D=30A,$ $V_{DD}=15V,$ $V_{GS}=10V$	Q_g	-	34	-	nC
Gate-Source Charge(Note2)		Q_{gs}	-	6.5	-	
Gate-Drain Charge(Note2)		Q_{gd}	-	7.5	-	
Turn-on delay time(Note2)	$V_{DD}=15V$ $V_{GS}=10V$ $R_G=3\Omega$ $I_D=30A$	$t_{d(on)}$	-	7	-	ns
Rise Time(Note2)		T_r	-	14	-	
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	34	-	
Fall Time(Note2)		t_f	-	11	-	
Maximun Body-Diode Continuous Current		I_S	-	-	80	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	280	A
Drain-Source Diode Forward Voltage	$I_{SD}=30A$	V_{SD}	-	-	1.2	V
Reverse Recovery Time(Note2)	$I_{SD}=20A, V_{GS}=0V,$ $dI/dt=100A/\mu s$	t_{rr}	-	10	-	ns
Reverse Recovery Charge(Note2)		Q_{rr}	-	1.7	-	nC

 Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

Ratings and Characteristic Curves

Figure 1: Output Characteristics

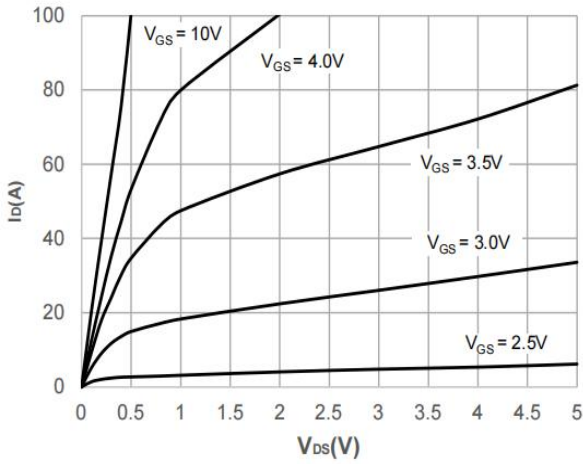


Figure 2: Typical Transfer Characteristics

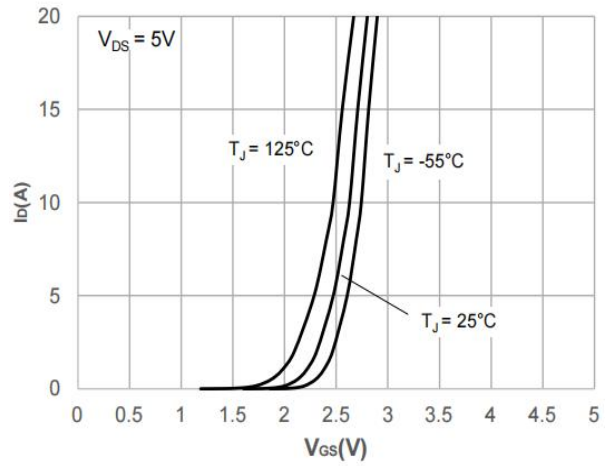


Figure 3: On-resistance vs. Drain Current

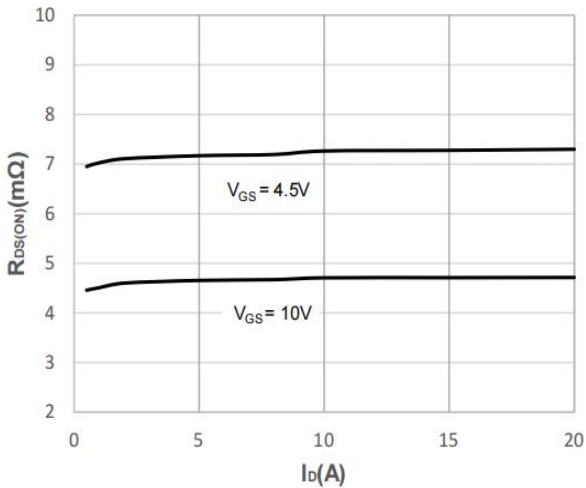


Figure 4: Body Diode Characteristics

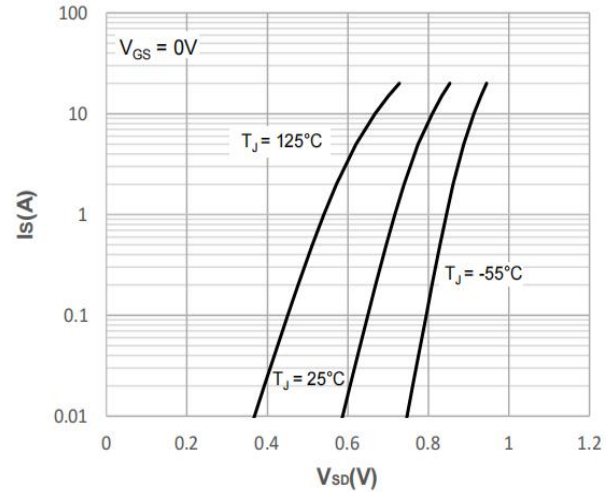


Figure 5: Gate Charge Characteristics

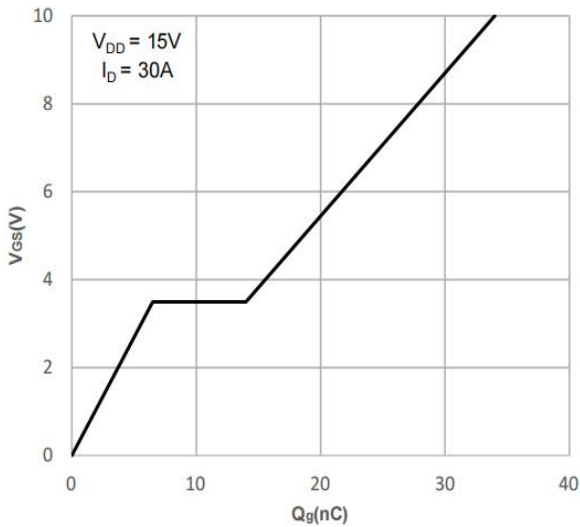
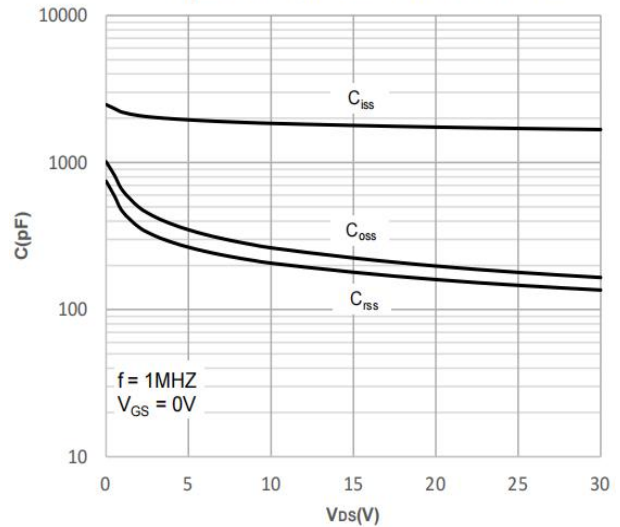


Figure 6: Capacitance Characteristics



Ratings and Characteristic Curves

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

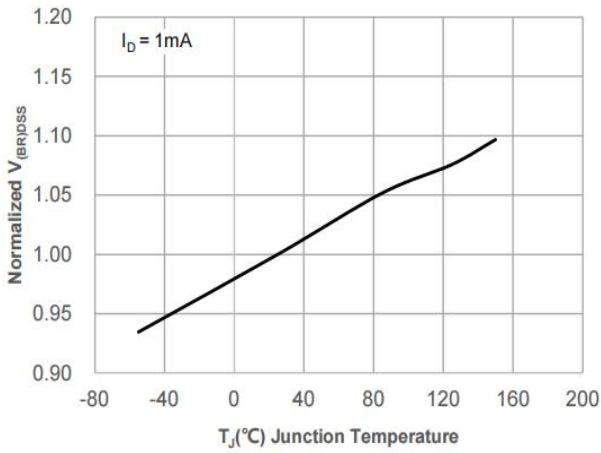


Figure 8: Normalized on Resistance vs. Junction Temperature

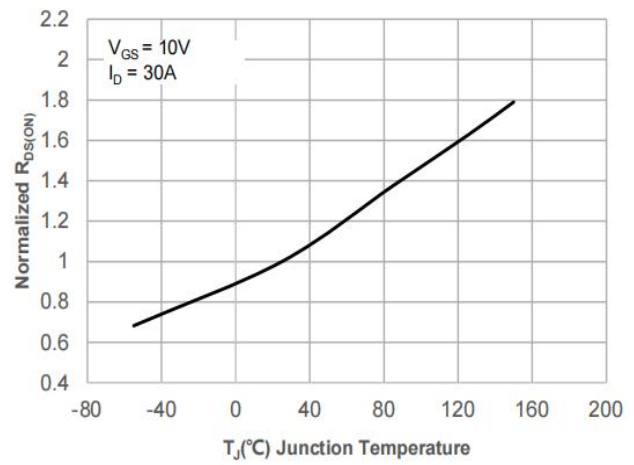


Figure 9: Maximum Safe Operating Area

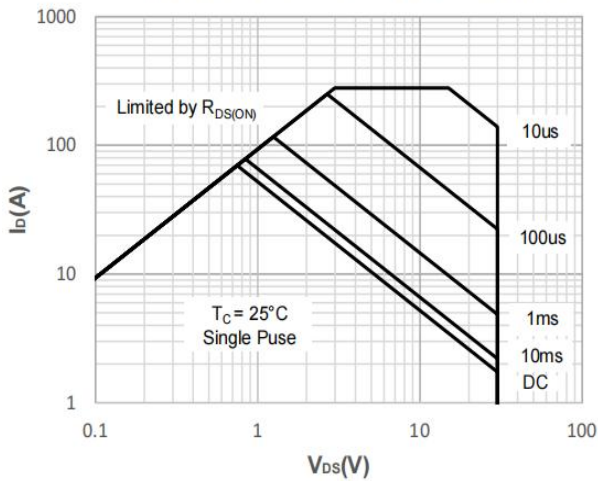


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

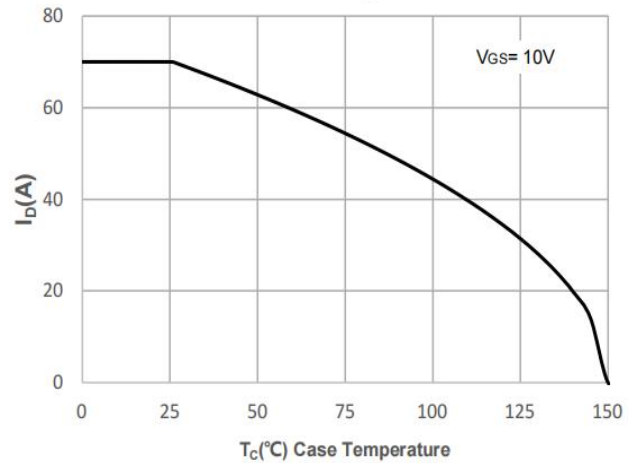


Figure 11: Normalized Maximum Transient Thermal Impedance

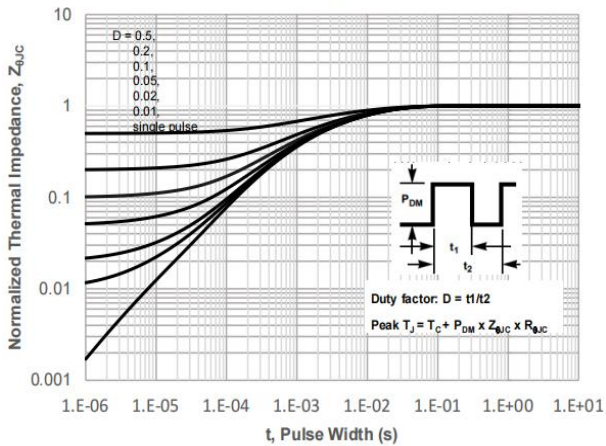
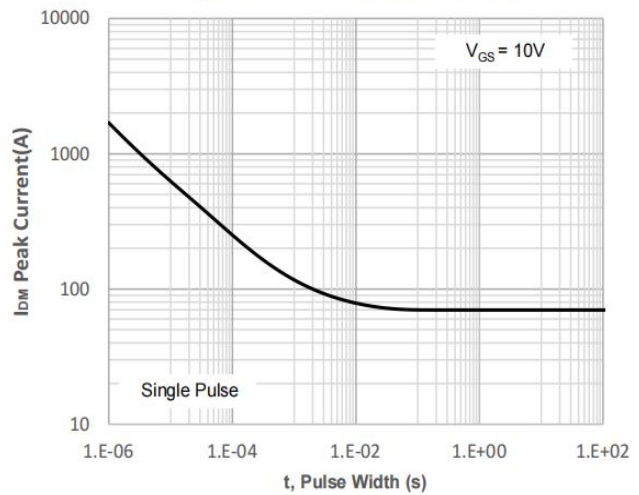
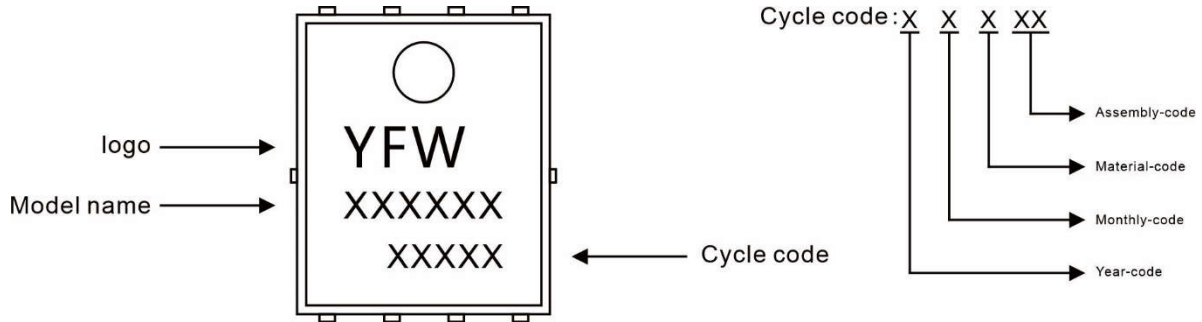


Figure 12: Peak Current Capacity



Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW80N03NF	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	43
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.	

Disclaimer

The information presented in this document is for reference only. Guangdong Youfeng Microelectronics 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 which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), YFW 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 <https://www.yfwdiode.com>, or consult YFW sales office for further assistance.