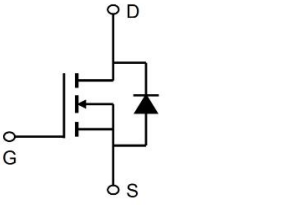
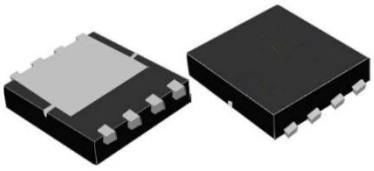
60V N-Channel Trench Power MOSFET

MAIN CHARACTERISTICS

I_D	60A
V_{DSS}	60V
R_{DSON}-typ(@V_{GS}=10V)	＜16mΩ(Typ:12mΩ)
R_{DSON}-typ(@V_{GS}=4.5V)	＜25mΩ(Typ:16mΩ)





PDFN3*3-8L

FEATURES

- Fast Switching
- Low ON Resistance
- Low Gate Charge
- 100% Single Pulse avalanche energy Test

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}	60	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current	@T_C=25℃	I_D	60	A
Continuous Drain Current	@T_C=100℃	I_D	33	A
Pulsed Drain Current (Note1)		I_{DM}	200	A
Power Dissipation		P_D	20	W
Single Pulse Avalanche Energy		E_{AS}	80	mJ
Operating Junction Temperature Range		T_J	150	°C
Storage Temperature Range		T_{STG}	-55 to +150	°C
Thermal Resistance Junction-Case(Note2)		$R_{\theta JC}$	15	°C/W

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

Electrical Characteristics at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = 250 μA	BV_{DSS}	60	-	-	V
Drain-Source Leakage Current	V_{DS} = 60V, V_{GS} = 0 V	I_{DSS}	-	-	1	μA
Gate Leakage Current	V_{GS} = ± 20 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	1	-	2.5	V
Drain-Source On-State Resistance	V_{GS} = 10 V, I_D = 30A	$R_{DS(ON)}$	-	12	16	mΩ
	V_{GS} = 4.5 V, I_D = 20A		-	16	25	
Input Capacitance	V_{GS} = 0 V V_{DS} = 25 V f = 1 MHz	C_{iss}	-	2950	-	pF
Output Capacitance		C_{oss}	-	130	-	
Reverse Transfer Capacitance		C_{rss}	-	115	-	
Turn-on Delay Time	V_{DD}=30V V_{GS}=10V R_G=1.8Ω I_D=30A	$t_{d(on)}$	-	11	-	ns
Rise Time		T_r	-	79	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	33	-	
Fall Time		t_f	-	105	-	
Total Gate Charge	V_{DS}=30V V_{GS}=10V I_D=30A	Q_g	-	45	-	nC
Gate to Source Charge		Q_{gs}	-	8	-	
Gate to Drain Charge		Q_{gd}	-	11	-	
Maximun Body-Diode Continuous Current (Note 2)		I_S	-	-	60	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	200	A
Drain-Source Diode Forward Voltage (Note 3)	I_{SD}= 30A	V_{SD}	-	-	1.2	V
Reverse Recovery Time	I_S = I_F, I_{SD}=30A,V_{GS} = 0 V, dI / dt = 100 A/μs	trr	-	14	-	ns
Reverse Recovery Charge		Qrr	-	10	-	μC

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

RATINGS AND CHARACTERISTIC CURVES

Figure1: Output Characteristics

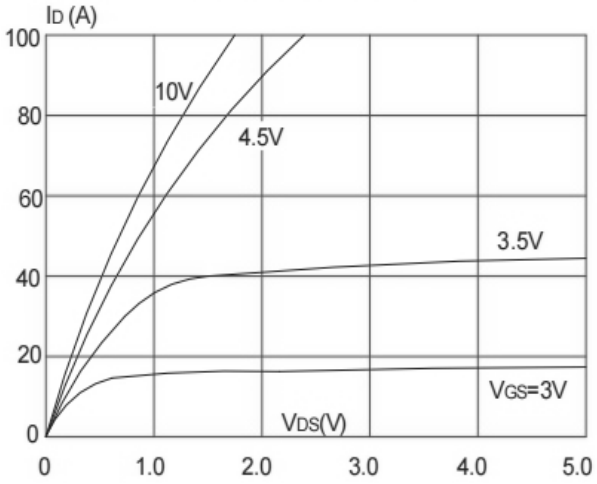


Figure 2: Typical Transfer Characteristics

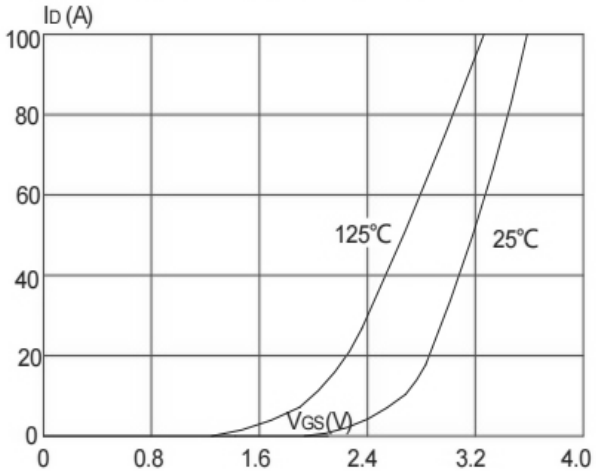


Figure 3: On-resistance vs. Drain Current

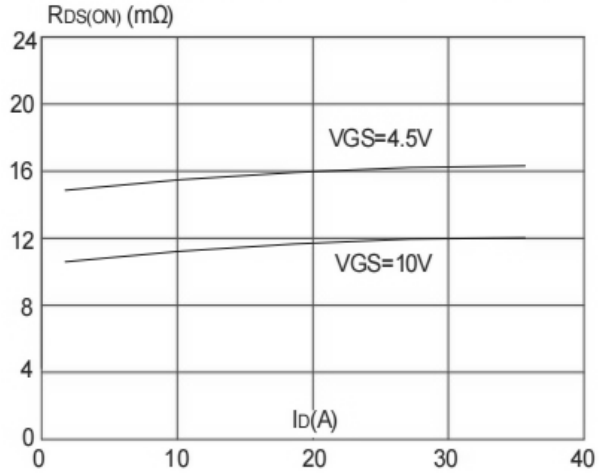


Figure 4: Body Diode Characteristics

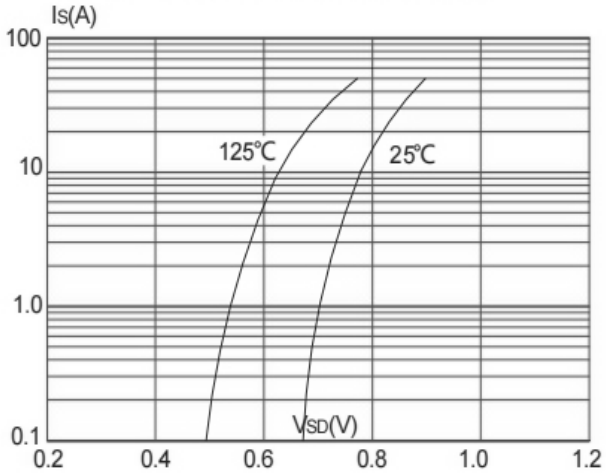


Figure 5: Gate Charge Characteristics

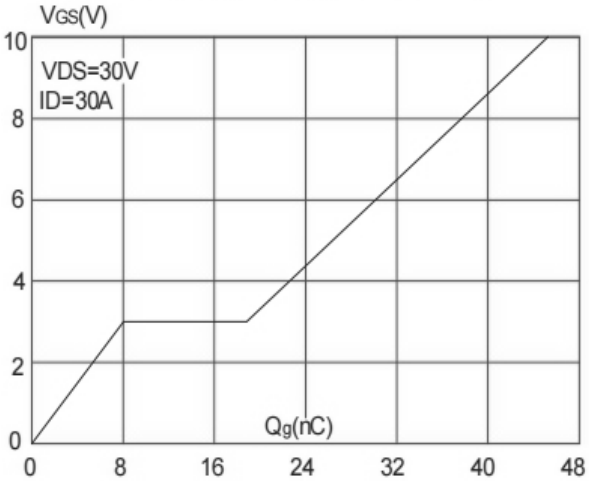
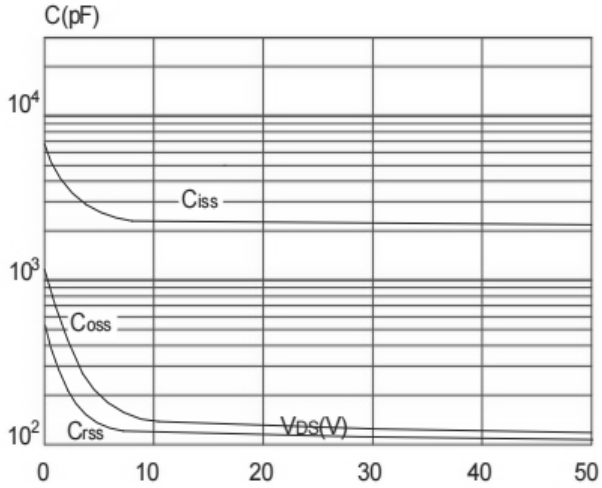


Figure 6: Capacitance Characteristics



RATINGS AND CHARACTERISTIC CURVES

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

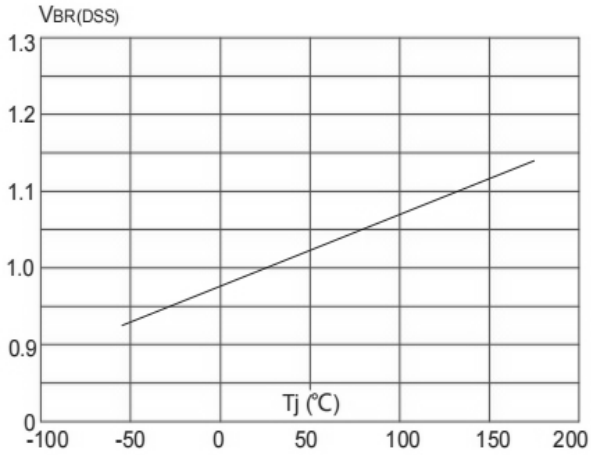


Figure 8: Normalized on Resistance vs. Junction Temperature

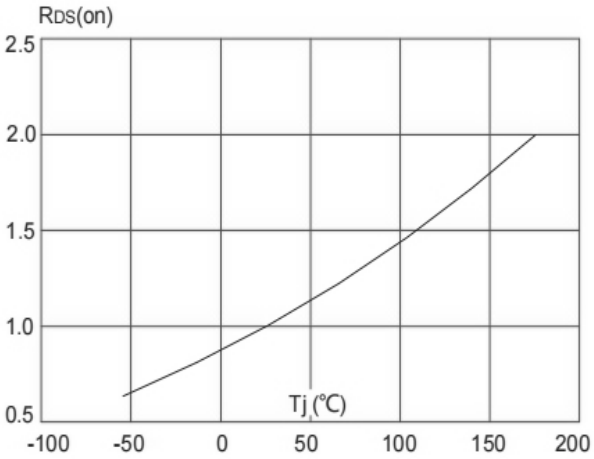


Figure 9: Maximum Safe Operating Area

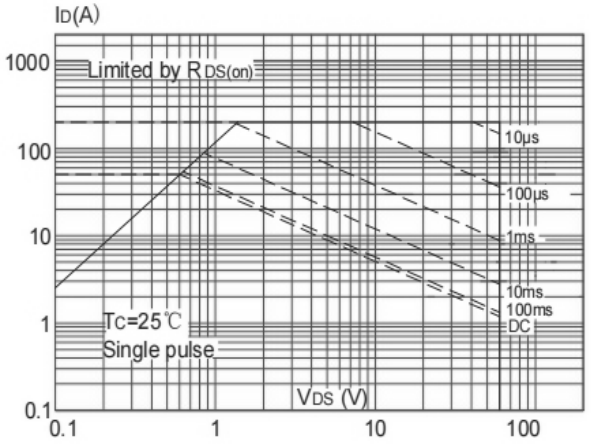


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

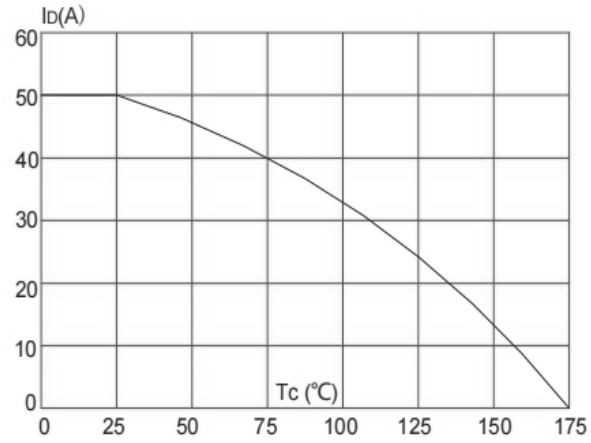
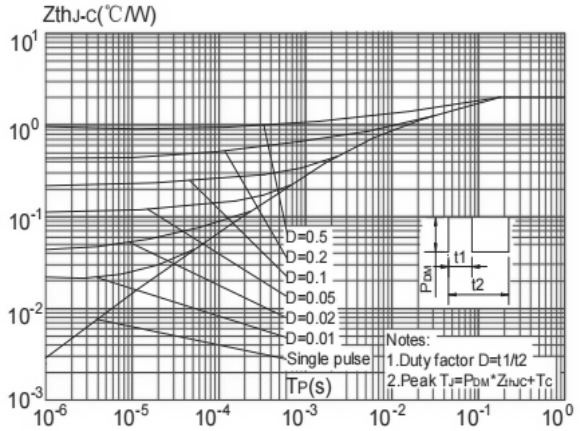
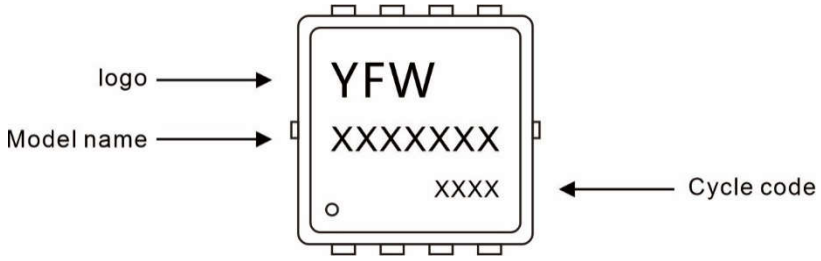


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Marking Diagram

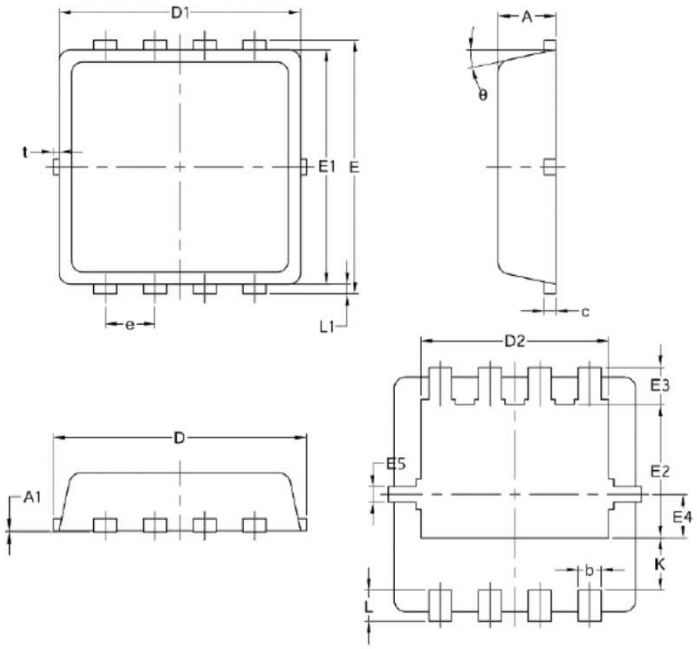


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW60N06DF	PDFN3*3-8L	0.0023oz(0.065g)	5000pcs/reel	10000pcs/box 50000pcs/Carton

Package Dimensions

PDFN3*3-8L



Dim	Millimeter		mil	
	Min.	Max.	Min.	Max.
A	0.70	0.85	0.0276	0.0335
A1	-	0.05	-	0.002
b	0.20	0.40	0.008	0.016
c	0.10	0.25	0.004	0.010
D	3.15	3.45	0.124	0.136
D1	3.00	3.25	0.118	0.128
D2	2.29	2.65	0.09	0.104
E	3.15	3.45	0.124	0.136
E1	2.90	3.20	0.114	0.126
E2	1.54	1.94	0.061	0.076
E3	0.28	0.65	0.011	0.026
E4	0.37	0.77	0.015	0.030
E5	0.10	0.30	0.004	0.012
e	0.60	0.70	0.024	0.028
K	0.59	0.89	0.023	0.035
L	0.30	0.50	0.012	0.020
L1	0.06	0.20	0.002	0.008
t	-	0.13	-	0.005
Φ	10℃	14℃	10℃	14℃

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 with 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.