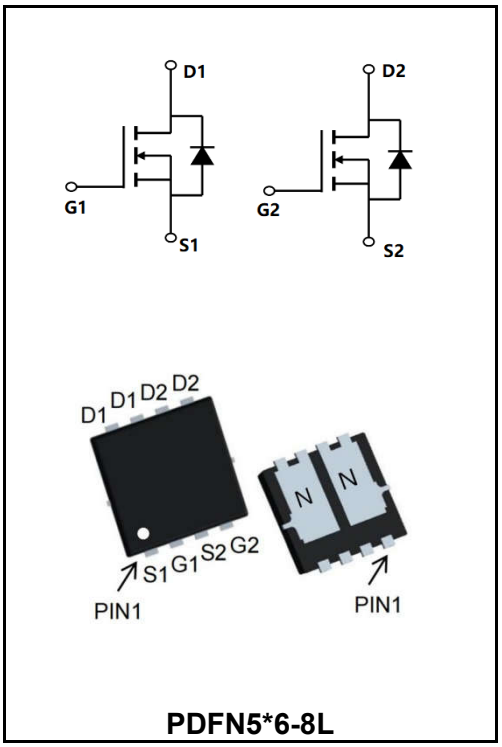
500V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	3A
V_{DS}	500V
R_{DSON}-typ(@V_{GS}=10V)	＜3.2Ω(Type:2.6Ω)



PDFN5*6-8L

DESCRIPTION

The YFW3H50NF is silicon N-channel Enhanced VDMOSFETs, is obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy. The transistor can be used in various power switching circuit for system miniaturization and higher efficiency.

APPLICATION

- Uninterruptible Power Supply(UPS)
- Power Factor Correction (PFC)

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage (VGS = 0V)	V_{DS}	500	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current(note1)	I_{DM}	12	A
Single Pulse Avalanche Energy (note2)	E_{AS}	57	mJ
Avalanche Current (note1)	I_{AR}	2.4	A
Repetitive Avalanche Energy note1)	E_{AR}	6.4	mJ
Power Dissipation (T_C = 25ºC)	P_D	32.9	W
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	6.25	ºC/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	ºC/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	BV_{DSS}	500	550	--	V
Zero Gate Voltage Drain Current	V_{DS}= 500V, V_{GS}= 0V, T_J=25ºC	I_{DSS}	--	--	1	μA
Gate-Source Leakage	V_{GS} = ±30V	I_{GSS}	--	--	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	$V_{GS(th)}$	2.0	3.0	4.0	V
Drain-Source On-Resistance (Note3)	V_{GS} = 10V, I_D = 1.0A	$R_{DS(on)}$	--	2.6	3.2	Ω
Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1.0MHz	C_{iss}	--	310	--	pF
Output Capacitance		C_{oss}	--	39	--	
Reverse Transfer Capacitance		C_{rss}	--	6	--	
Total Gate Charge	V_{DD}=400V I_D = 3A V_{GS} = 10V	Q_G	--	8	--	nC
Gate-Source Charge		Q_{GS}	--	1.2	--	
Gate-Drain Charge		Q_{GD}	--	5	--	
Turn-on Delay Time	V_{DD}=250V I_D = 3A R_G = 25Ω	$t_{d(ON)}$	--	7.8	--	ns
Turn-on Rise Time		t_r	--	33	--	
Turn-off Delay Time		$t_{d(OFF)}$	--	23	--	
Turn-off Fall Time		t_f	--	59	--	
Continuous Body Diode Current	T_C = 25 ºC	I_S	--	--	4.0	A
Pulsed Diode Forward Current		I_{SM}	--	--	12	A
Body Diode Voltage	T_J = 25ºC, I_{SD} = 3A, V_{GS} = 0V	V_{SD}	--	--	1.4	V
Reverse Recovery Time	V_{GS} = 0V,I_S = 3A, diF/dt =100A/μs	t_{rr}	--	80	--	ns
Reverse Recovery Charge		Q_{rr}	--	1.8	--	μC

Note :
1.The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2.The E_{AS} data shows Max. rating . I_{AS} = 2.4A, V_{DD} = 50V, R_G = 25 Ω, Starting T_J = 25 ºC
3.The test condition is Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%
4.The power dissipation is limited by 150℃ junction temperature
5.The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Typical Characteristics

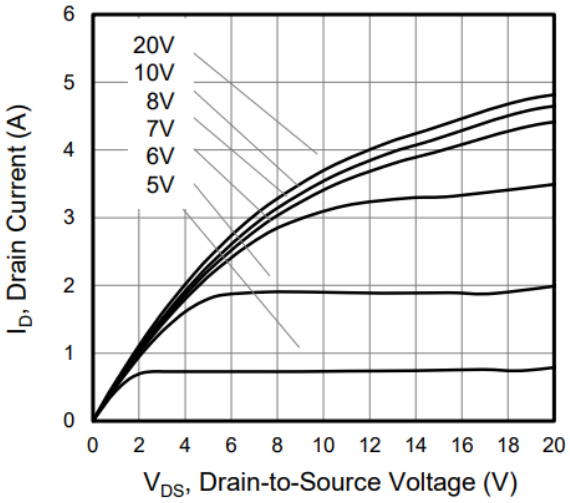


Figure 1. Output Characteristics (T J = 25ºC)

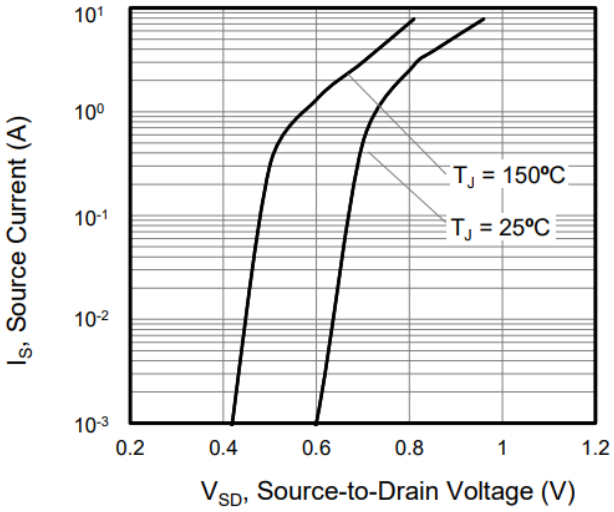


Figure 2. Body Diode Forward Voltage

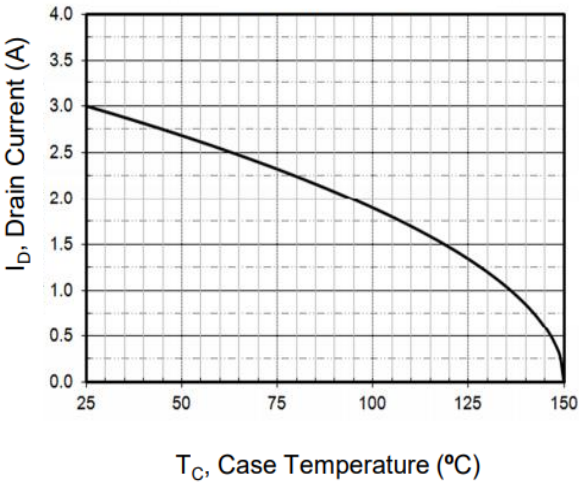


Figure 3. Drain Current vs. Temperature

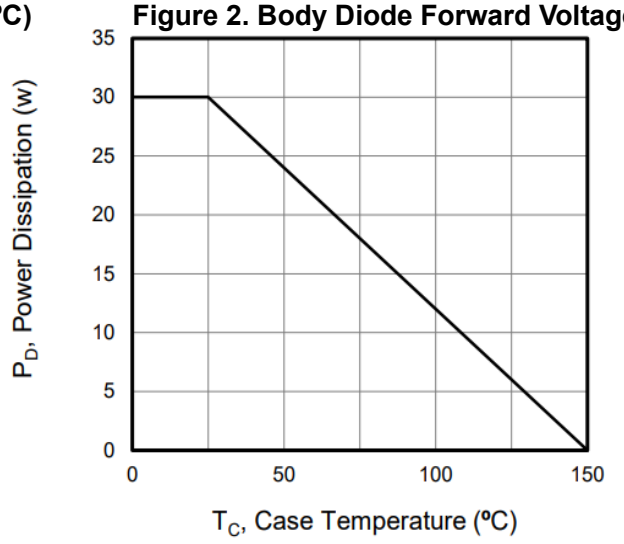


Figure 4. BV DSS Variation vs. Temperature

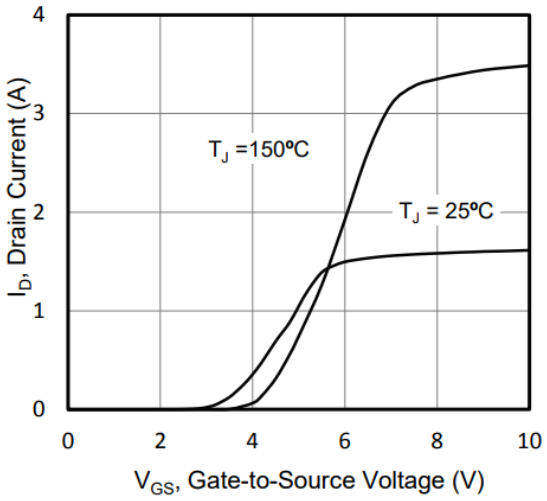


Figure 5. Transfer Characteristics

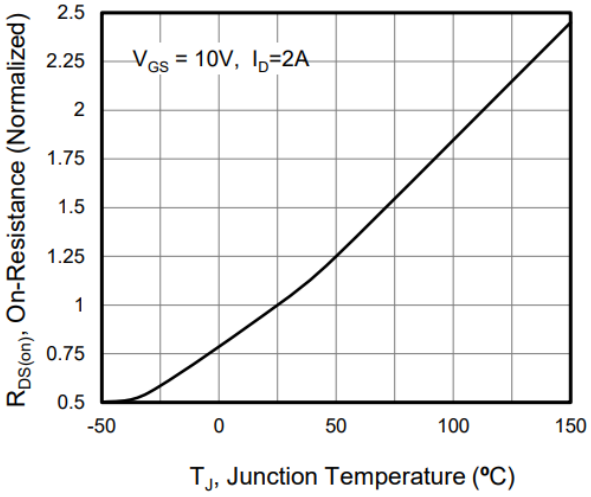


Figure 6. On-Resistance vs. Temperature

Typical Characteristics

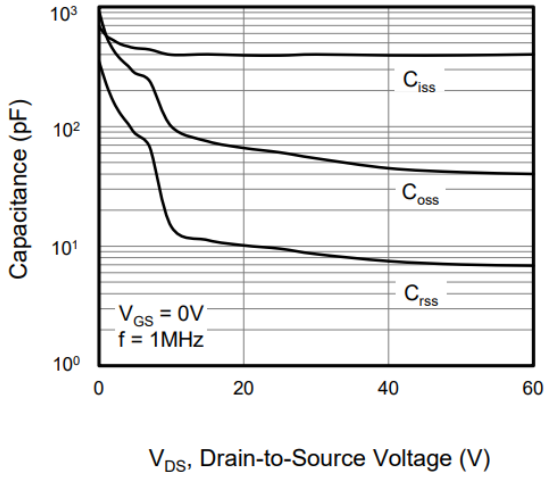


Figure 7. Capacitance

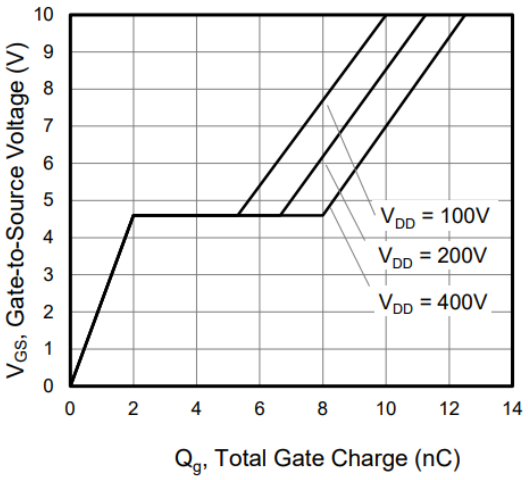


Figure 8. Gate Charge

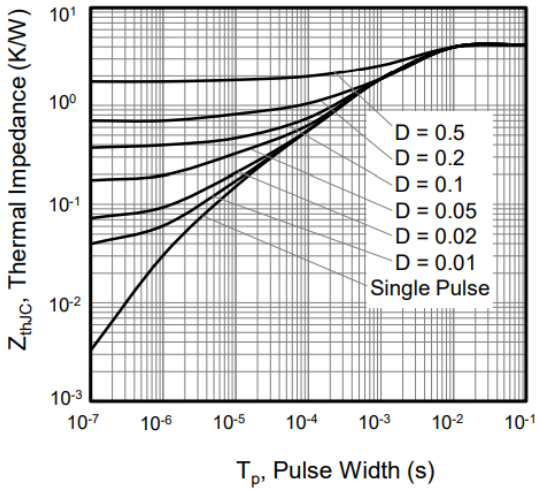
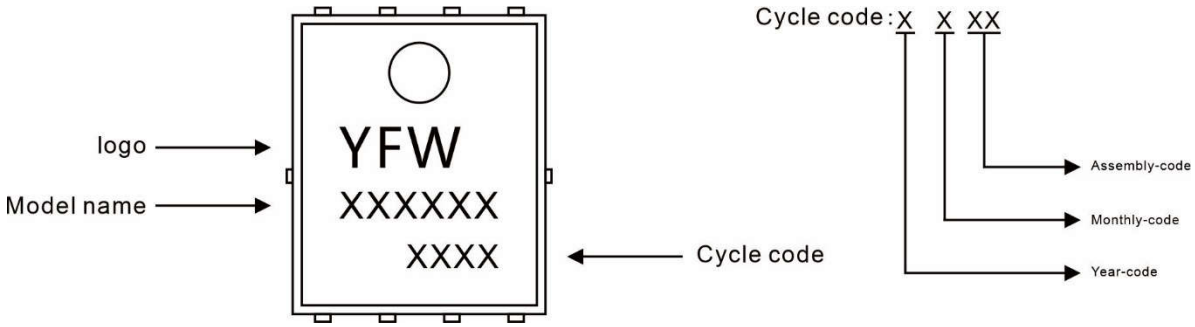


Figure 9. Transient Thermal Impedance

Marking Diagram

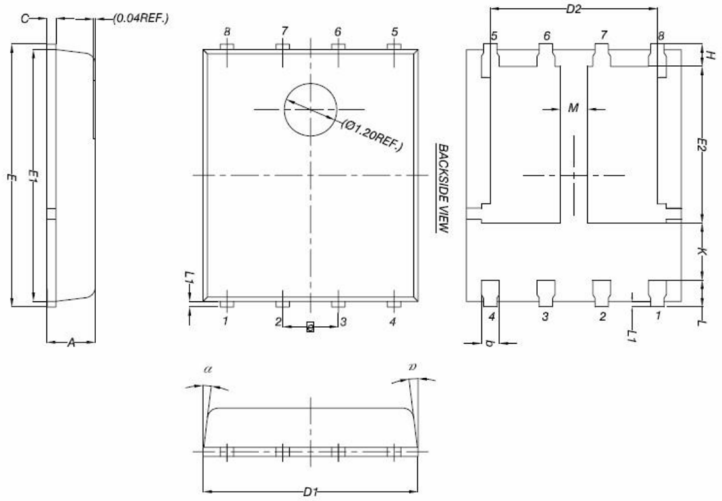


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW3H50NF	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	0.90	1.10	35.43	43.31
b	0.33	0.51	12.99	20.08
C	0.20	0.30	7.87	11.81
D1	4.80	5.00	188.98	196.85
D2	3.61	3.96	142.13	155.91
E	5.90	6.10	232.28	240.16
E1	3.45	5.70	135.83	224.41
E2	3.05	3.38	120.08	133.07
e	1.27BSC		50BSC	
H	0.41	0.61	16.14	24.02
K	1.10	-	43.31	-
L	0.51	0.71	20.08	27.95
L1	0.06	0.20	2.46	7.87
M	0.50	-	19.69	-
a	0°	12°	0°	12°

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