

60V N-CHANNEL ENHANCEMENT MODE POWER MOSFET

MAIN CHARACTERISTICS

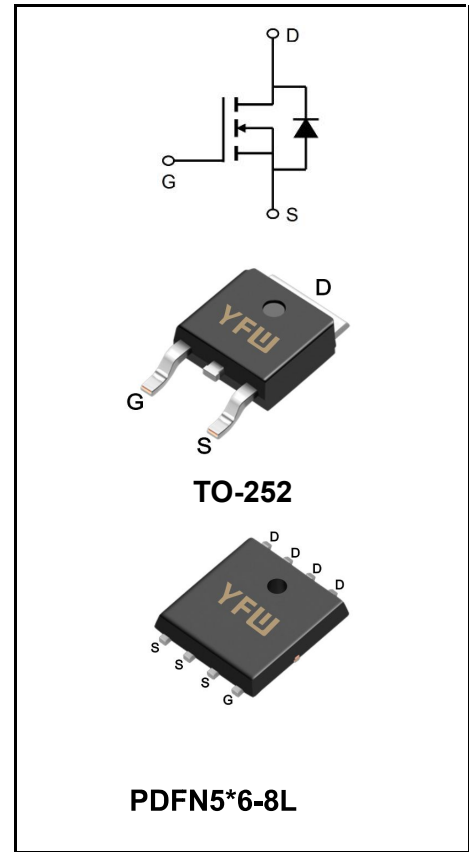
I_D	50A
V_{DSS}	60V
R_{DS(ON)}-typ(@V_{GS}=10V)	< 17mΩ(Type:14 mΩ)

FEATURES

- ◆Fast Switching
- ◆Low ON Resistance
- ◆Low Gate Charge
- ◆100% Single Pulse avalanche energy Test
- ◆LeadfreeincomplywithEURoHS2011/65/EUdirectives

MECHANICAL DATA

- ◆Case: Molded plastic
- ◆Mounting Position: Any
- ◆Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆Solder bath temperature275°Cmaximum,10s per JESD22-106
- ◆Case: TO-252, PDFN5*6-8L



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
Continue Drain Current	I_D	50	A
Pulsed Drain Current (Note1)	I_{DM}	100	A
Power Dissipation	P_D	45	W
Single Pulse Avalanche Energy (Note5)	E_{AS}	60	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	R_{θJC}	3	°C/W
Thermal Resistance, Junction to Ambient	R_{θJA}	62	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 250 \mu A$	BV_{DSS}	60	-	-	V
Drain-Source Leakage Current	$V_{DS} = 60 V, V_{GS} = 0 V$	I_{DSS}	-	-	1	μA
	$V_{DS}=60V, T_c=125^\circ C$		-	-	100	μA
Gate Leakage Current	$V_{GS} = \pm 20 V, V_{DS} = 0 V$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu A$	$V_{GS(th)}$	1	-	2	V
Drain-Source On-State Resistance(Note3)	$V_{GS} = 10 V, I_D = 20 A$	$R_{DS(on)}$	-	14	17	mΩ
	$V_{GS} = 4.5 V, I_D = 10 A$		-	18	22	mΩ
Forward Transconductance	$V_{DS} = 50 V, I_D = 30 A$	g_{fs}	-	20	-	S
Input Capacitance	$V_{GS} = 0 V, V_{DS} = 15 V, f = 1 MHz$	C_{iss}	-	1714	-	pF
Output Capacitance		C_{oss}	-	120	-	
Reverse Transfer Capacitance		C_{rss}	-	88	-	
Turn-on Delay Time	$V_{DD} = 30 V, V_{GS} = 10 V, R_G = 3.3, I_D = 15 A,$	$t_d(ON)$	-	7.5	-	nS
Rise Time		t_r	-	45	-	
Turn-Off Delay Time		$t_d(OFF)$	-	33	-	
Fall Time		t_f	-	7.8	-	
Total Gate Charge	$V_{DS} = 48 V, I_D = 15 A, V_{GS} = 4.5 V$	Q_G	-	20	-	nC
Gate to Source Charge		Q_{GS}	-	7.2	-	
Gate to Drain Charge		Q_{GD}	-	8.1	-	

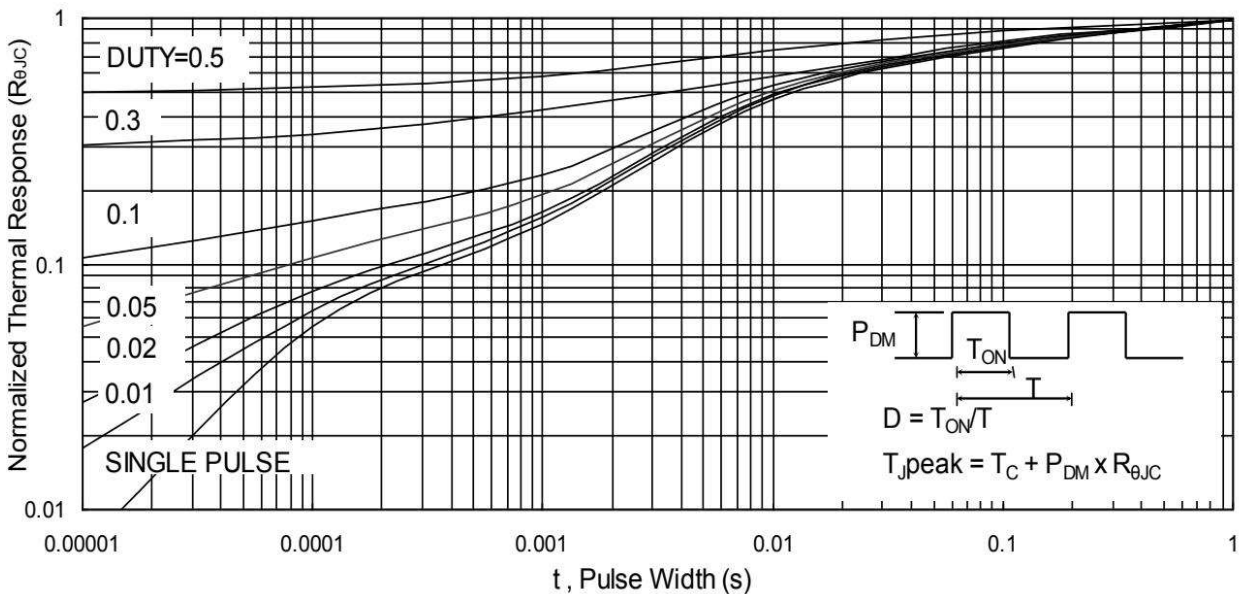
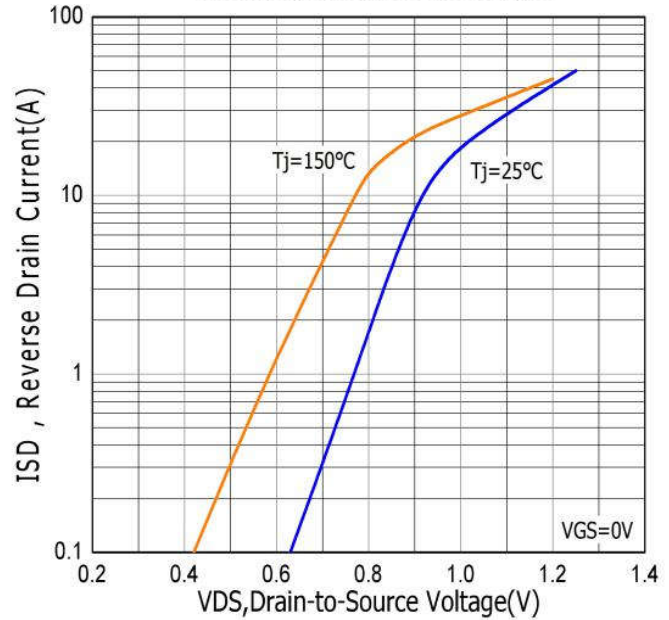
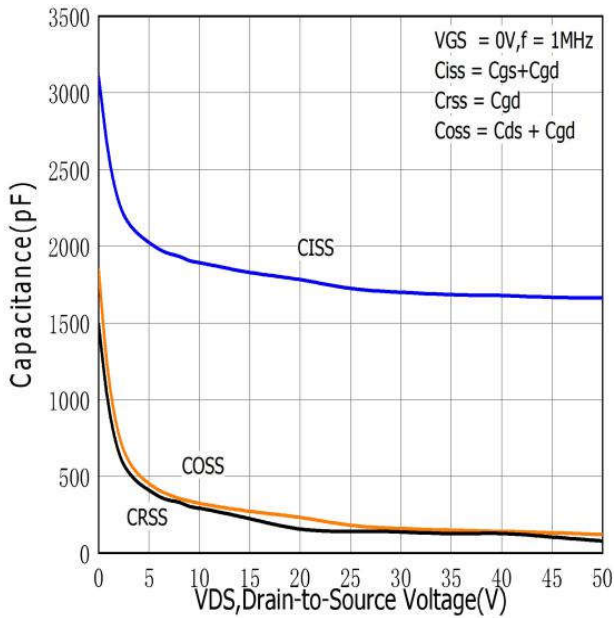
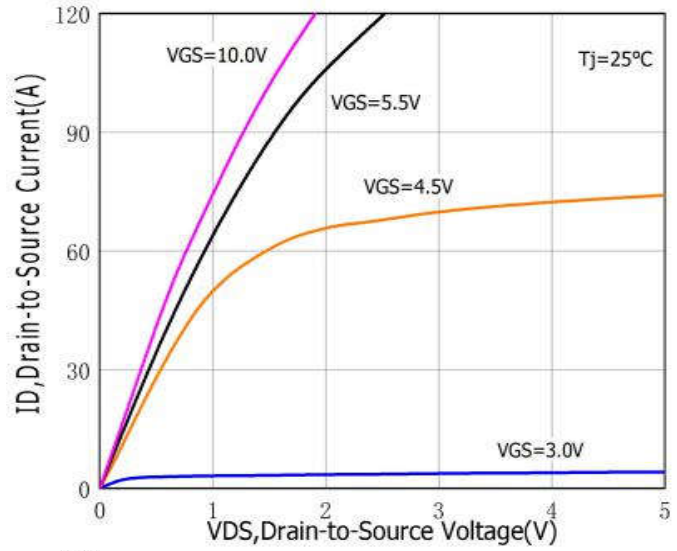
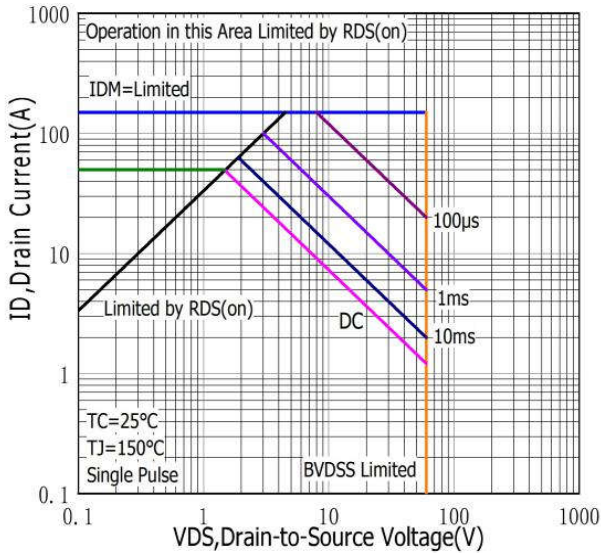
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Maximun Body-Diode Continuous Current(Note2)		I_S	-	-	50	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	100	A
Drain-Source Diode Forward Voltage(Note3)	$I_{SD} = 30 A$	V_{SD}	-	-	1.2	V
Reverse Recovery Time	$I_S = I_F, I_{SD} = 20 A, V_{GS} = 0 V, dI_F / dt = 100 A/\mu s$ (Note3)	t_{rr}	-	15	-	nS
Reverse Recovery Charge		Q_{rr}	-	12	-	μC

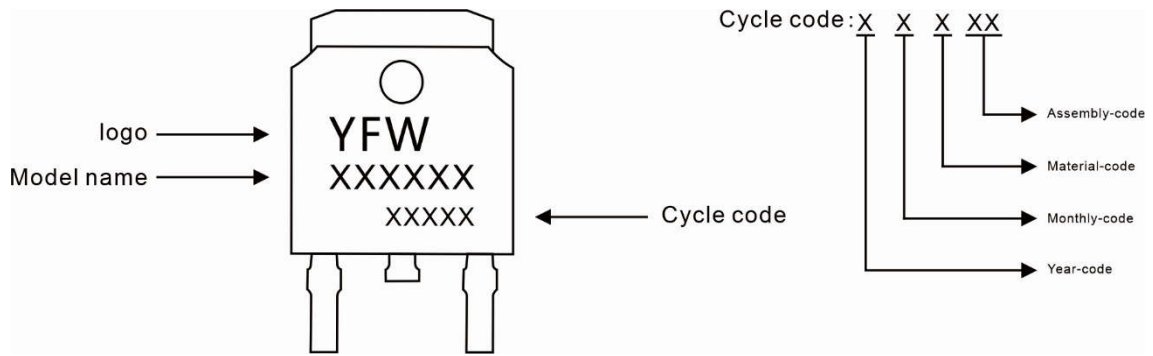
Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production
5. EAS condition: $T_j = 25^\circ C, V_{DD} = 30 V, V_G = 10 V, L = 0.1 mH, R_g = 2$

RATINGS AND CHARACTERISTIC CURVES



Marking Diagram



Ordering information

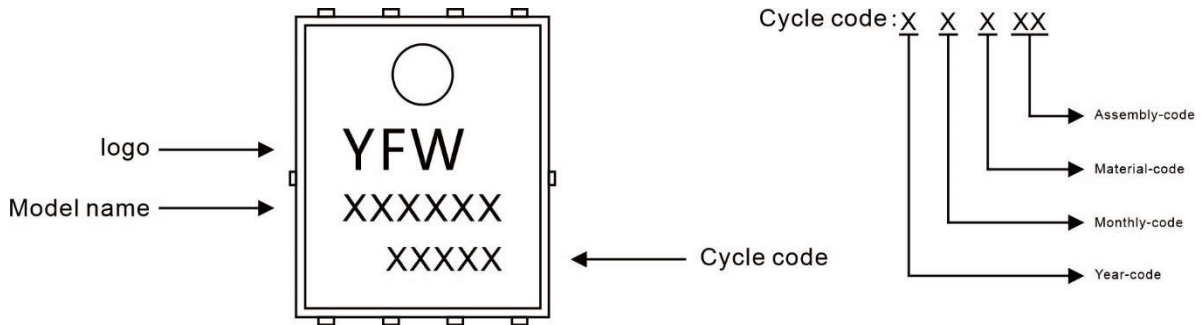
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW50N06AD	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Carton

Package Dimensions

TO-252

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	10.00	11.00	0.393	0.433
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW50N06NF	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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