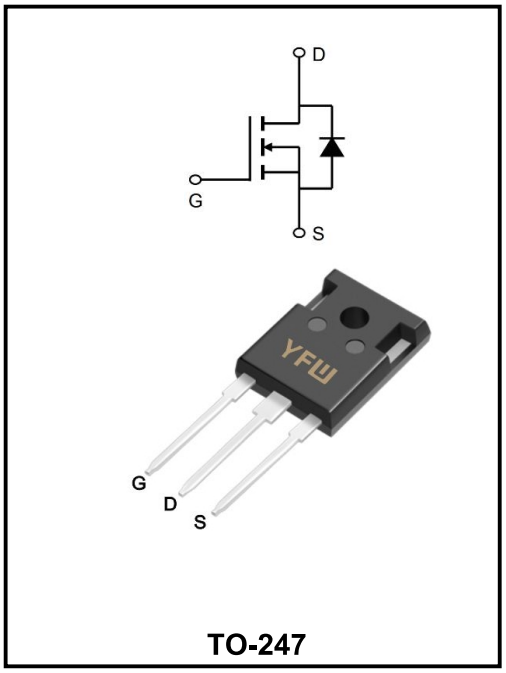
1500V N-Channel Enhancement Mode Power MOSFET

MAIN CHARACTERISTICS

I_D	3A
V_{DS}	1500V
R_{DSON}-typ(@V_{GS}=10V)	＜6Ω(Typ:5Ω)



TO-247

FEATURES

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

APPLICATIONS

- Power switch circuit of adaptor and charger

MECHANICAL DATA

- Case: TO-247/AP
- Mounting Position: Any
- Molded Plastic: UL Flammability Classification Rating 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Solder bath temperature 275℃ maximum,10s per JESD 22-B106

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	1500	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current (Note1)	I_{DM}	12	A
Power Dissipation	P_D	230	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	225	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.54	°C/W
Thermal Resistance, Junction Ambient	$R_{\theta JA}$	40	°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} = 0 V,I_D = 250 μA	BV_{DSS}	1500	-	-	V
Drain-Source Leakage Current	V_{DS} = 1500 V, V_{GS} = 0 V	I_{DSS}	-	-	10	μA
Gate Leakage Current	V_{GS} = ± 30V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	3	-	5	V
Drain-Source On-State Resistance	V_{GS} = 10 V, I_D =1.5 A	$R_{DS(ON)}$	-	5	6	Ω
Forward Trans conductance	V_{DS} = 30 V, I_D =1.5 A	gfs	-	4.5	-	S
Input Capacitance	V_{GS} = 0 V V_{DS} = 25 V f = 1MHz	C_{iss}	-	2030	-	pF
Output Capacitance		C_{oss}	-	96	-	
Reverse Transfer Capacitance		C_{rss}	-	3	-	
Turn-on Delay Time(Note2)	I_D = 3 A V_{DD} = 750 V R_G=10 Ω	$t_{d(on)}$	-	35	-	nS
Rise Time(Note2)		T_r	-	19	-	
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	55	-	
Fall Time(Note2)		t_f		30.5		
Total Gate Charge(Note2)	I_D = 3 A V_{DD} = 750 V V_{GS} = 10 V	Q_g	-	38	-	nC
Gate to Source Charge(Note2)		Q_{gs}	-	10	-	
Gate to Drain Charge(Note2)		Q_{gd}	-	15	-	
Maximun Body-Diode Continuous Current		I_S	-	-	3	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	12	A
Drain-Source Diode Forward Voltage	I_{SD} = 3 A	V_{SD}	-		1.5	V
Reverse Recovery Time(Note2)	I_{SD} = 3 A, V_{GS} = 0 V, dIF /dt = 100 A/μs	t_{rr}	-	880	-	nS
Reverse Recovery Charge(Note2)		Q_{rr}	-	6.5	-	uC

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

Ratings and Characteristic Curves

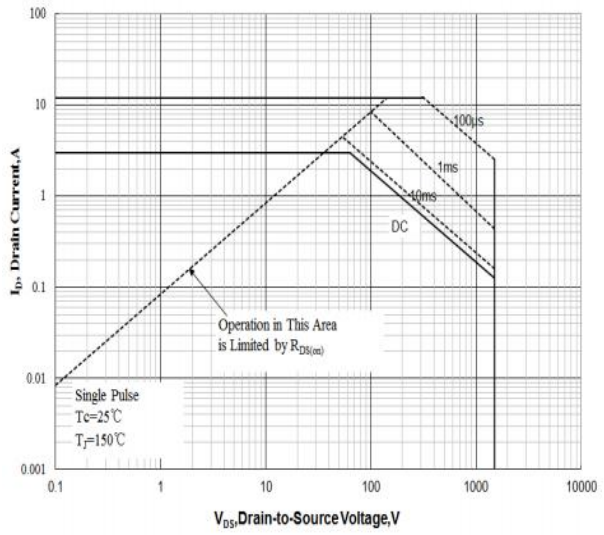


Figure 1 Maximum Forward Bias Safe Operating Area

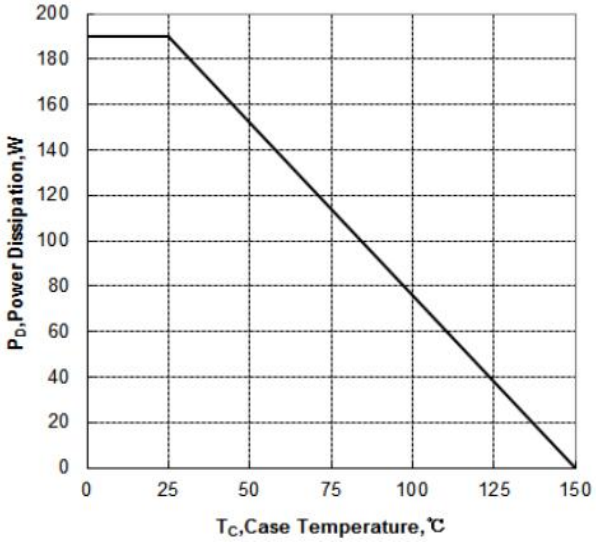
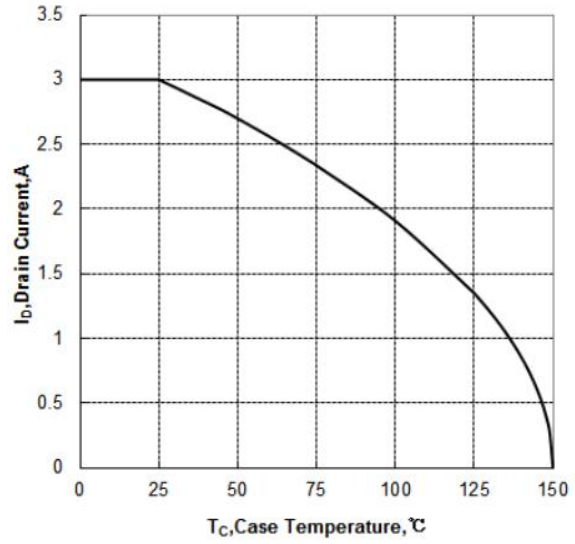
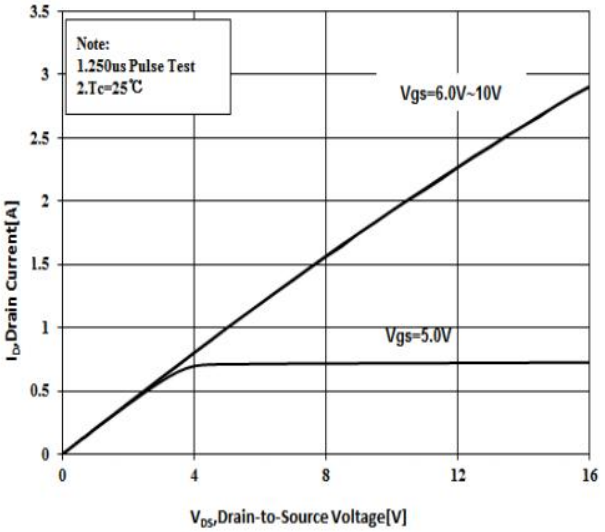
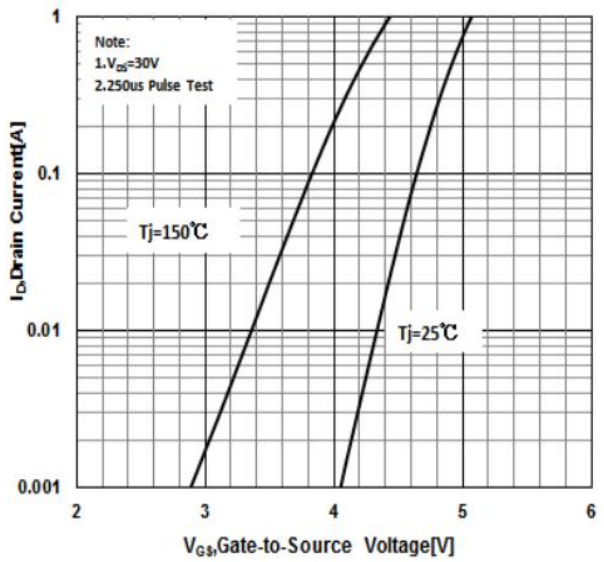
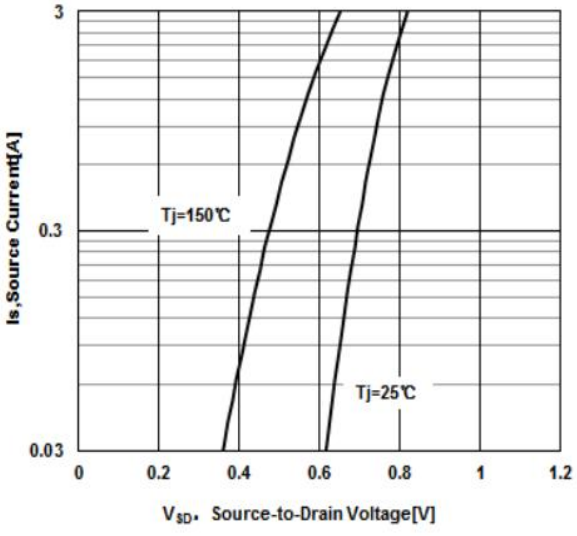


Figure 2 Maximum Power dissipation vs Case Temperature

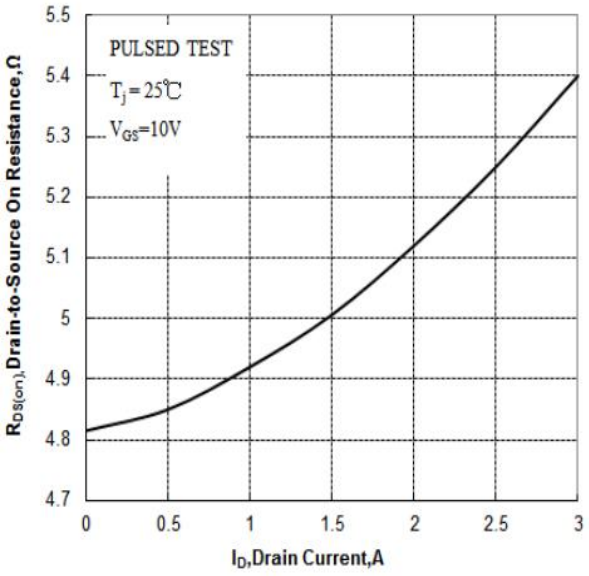


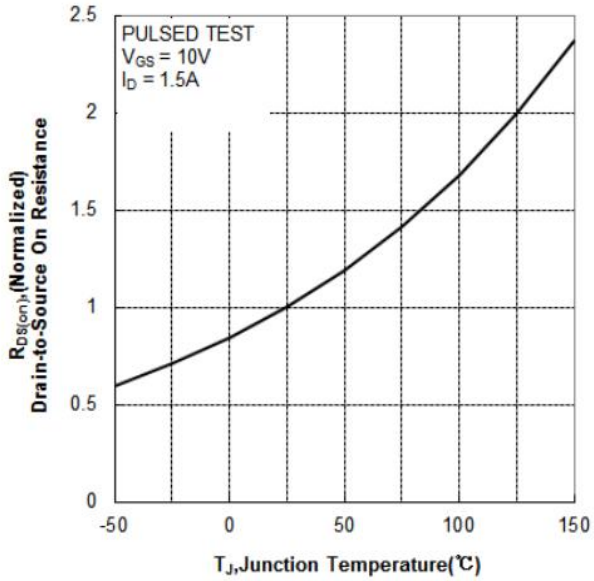


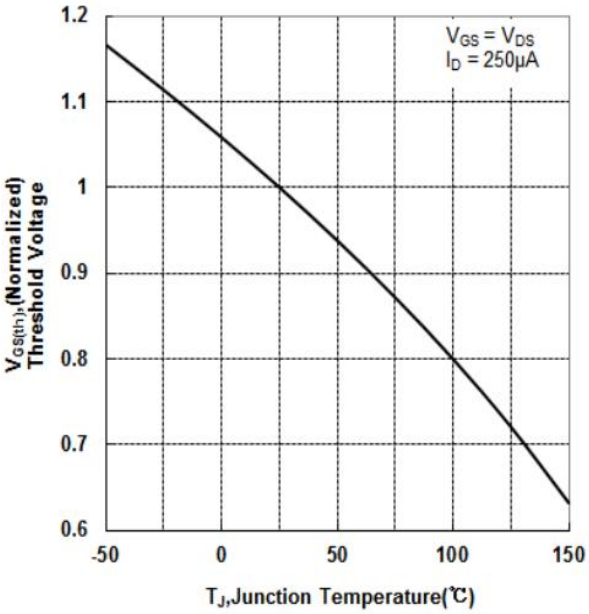


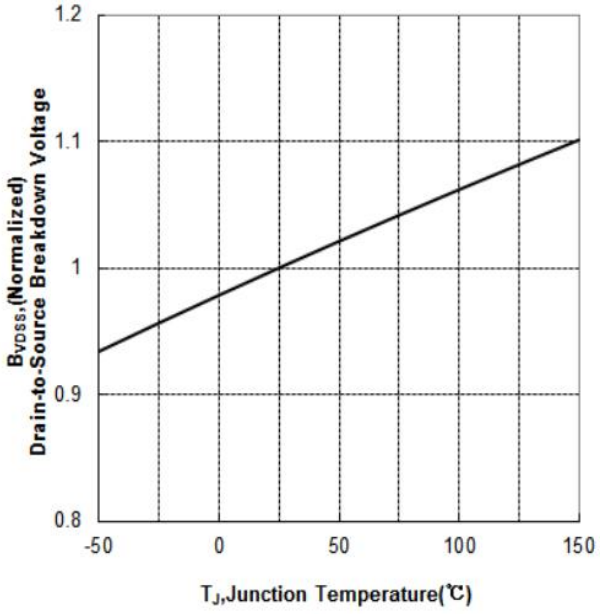


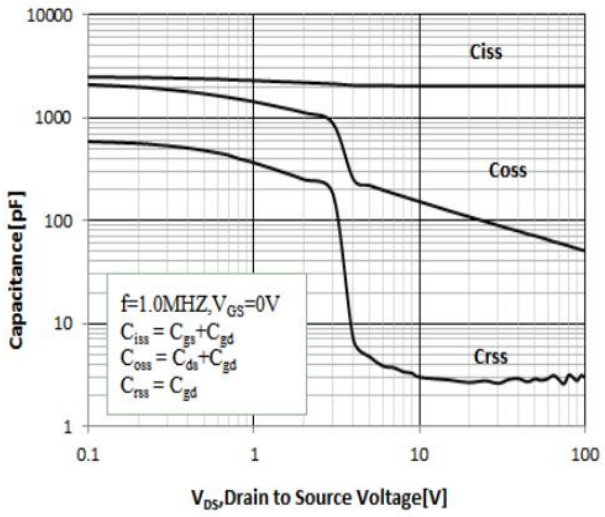
Ratings and Characteristic Curves

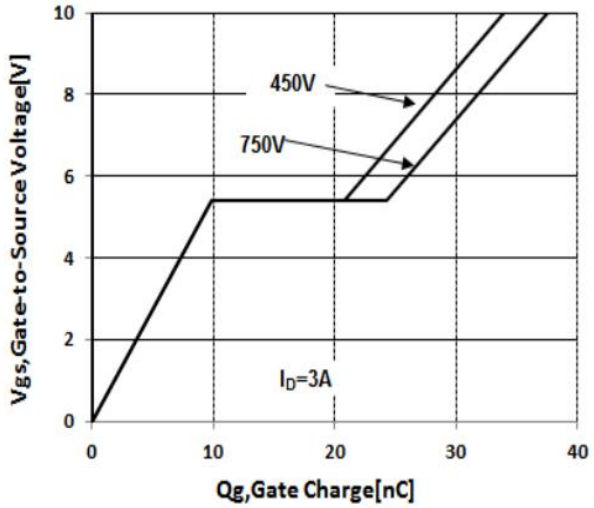




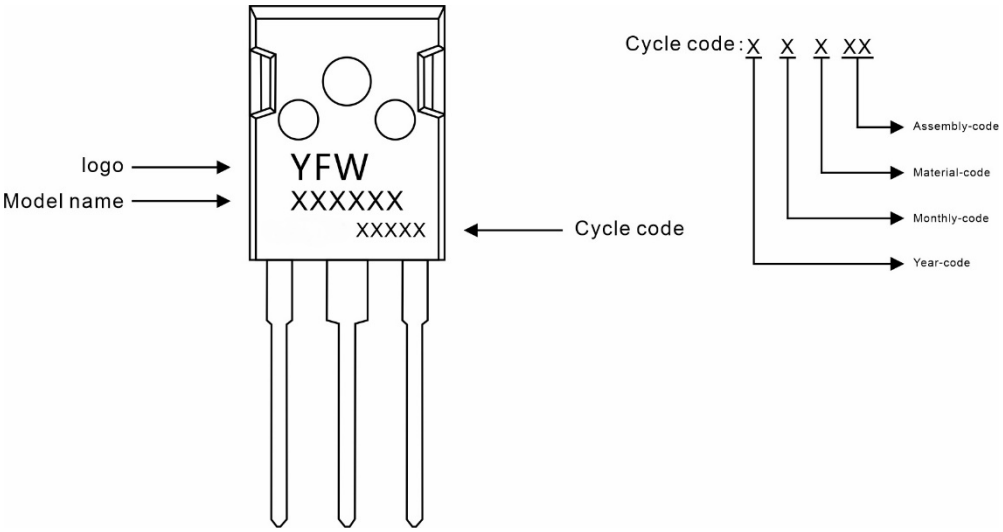








Marking Diagram

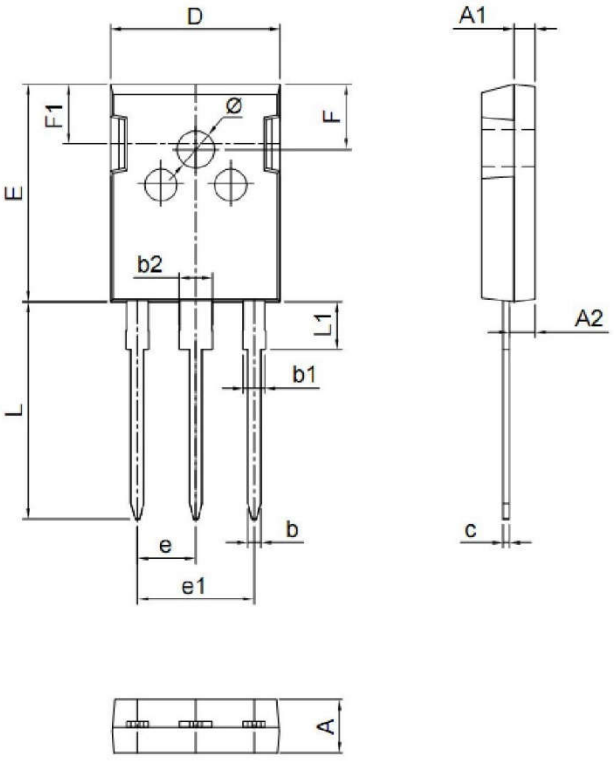


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW3N150AP	TO-247	0.209oz(5.93g)	30pcs/tube	600PCS/Box 2400PCS/Carton

Package Dimensions

TO-247



Symbol	Dimensions in mm		Dimensions in Inch	
	Min.	Max.	Min.	Max.
A	4.90	5.10	0.193	0.201
A1	1.90	2.10	0.075	0.083
A2	2.29	2.54	0.090	0.100
b	1.00	1.40	0.039	0.055
b1	2.00	2.20	0.079	0.087
b2	3.00	3.20	0.118	0.126
c	0.50	0.70	0.020	0.028
D	15.75	16.05	0.620	0.632
E	20.20	20.80	0.795	0.819
e	5.45 (BSC)		0.215 (BSC)	
e1	10.90 (BSC)		0.429 (BSC)	
F	6.05	6.25	0.238	0.246
F1	5.80	6.00	0.228	0.236
L	20.10	20.40	0.791	0.803
L1	4.05	4.35	0.159	0.171
Φ	3.50	3.70	0.138	0.146

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