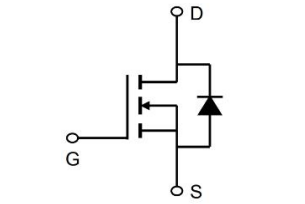
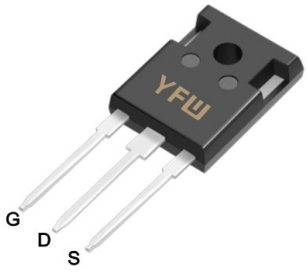
500V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	28A
V_{DSS}	500V
R_{DSON}-typ(@V_{GS}=10V)	<0.18Ω **(Type:0.14Ω)**





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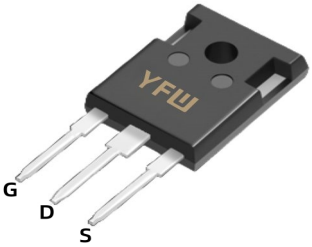


TO-247S

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℃maximum,10s per JESD22-106

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
		247/247S	
Drain-Source Voltage	V_{DS}	500	V
Gate-Source Voltage	V_{GS}	±30	V
Continue Drain Current	I_D	28	A
-Continuous (TC = 100°C)		19	
Pulsed Drain Current (Note1)	I_{DM}	100	A
Power Dissipation	P_D	300	W
-Derate above 25°C		2.5	W/°C
Single Pulse Avalanche Energy (Note2)	E_{AS}	1500	mJ
Avalanche Current (Note 1)	I_{AR}	28	A
Repetitive Avalanche Energy (Note 1)	E_{AS}	32	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.42	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	40	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

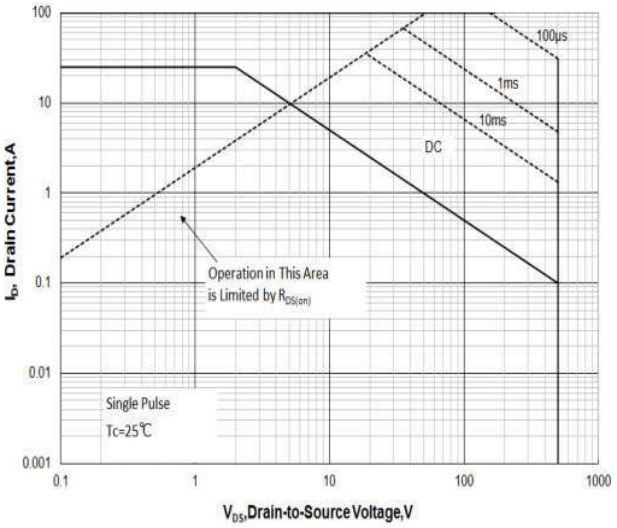
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = 250 μA	BV_{DSS}	500	-	-	V
Breakdown Voltage Temperature Coefficient	ID=250μA (Referenced to 25°C)	△ BVDSS /△TJ	-	0.5	-	V/°C
Drain-Source Leakage Current	V_{DS} = 500 V, V_{GS} = 0 V	I_{DSS}	-	-	1	uA
	V_{DS} = 400 V, T_c = 125°C		-	-	10	
Gate Leakage Current	V_{GS} = ± 30 V, VDS = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	2	0	4	V
Drain-Source On-State Resistance	V_{GS} = 10 V, I_D = 14A	$R_{DS(on)}$	-	0.14	0.18	Ω
Forward Transconductance	V_{DS} = 15 V, I_D = 14 A	gfs	-	18	-	S
Input Capacitance	V_{GS} = 0 V, V_{DS} = 25 V, f = 1MHz	C_{iss}	-	4611	-	pF
Output Capacitance		C_{oss}	-	225	-	
Reverse Transfer Capacitance		C_{rss}	-	12	-	
Turn-on Delay Time	I_D = 28, V_{DD} = 250V, R_G=25Ω(Note3,4)	td(ON)	-	37.2	-	nS
Rise Time		tr	-	64.4	-	
Turn-Off Delay Time		td(OFF)	-	86.8	-	
Fall Time		tf	-	46	-	
Total Gate Charge	I_D =28 A, V_{DD} = 400 V, V_{GS} = 10 V(Note3,4)	Q_G	-	121	-	nC
Gate to Source Charge		Q_{GS}	-	20	-	
Gate to Drain Charge		Q_{GD}	-	32	-	

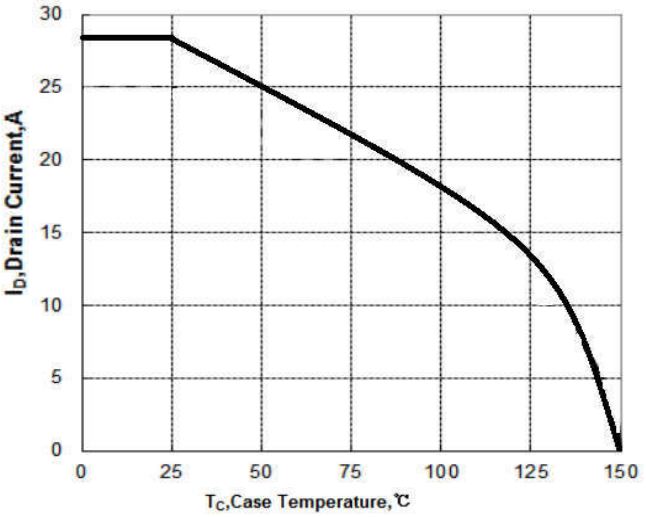
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

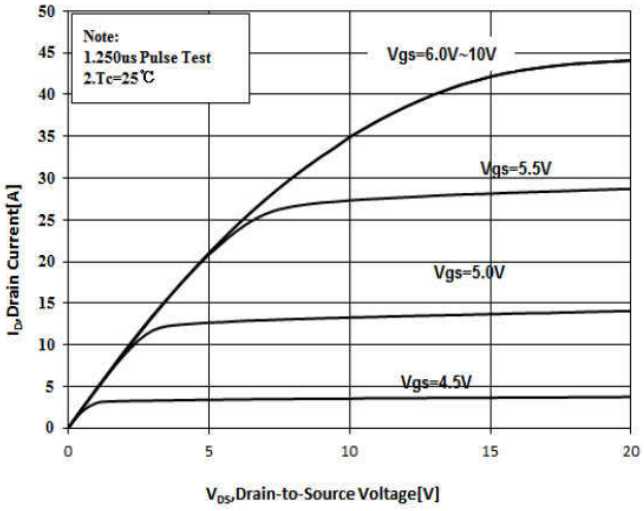
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Maximun Body-Diode Continuous Current		I_S	-	-	25	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	100	A
Drain-Source Diode Forward Voltage	I_{SD} =28A	V_{SD}	-	-	1.5	V
Reverse Recovery Time	I_{SD} = 28A, V_{GS} = 0 V, dI_F / dt = 100 A/μs	trr	-	490	-	nS
Reverse Recovery Charge		Qrr	-	6.2	-	uC

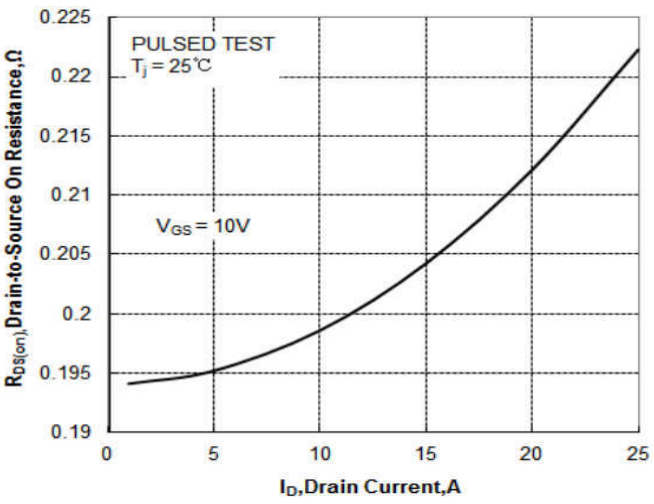
Note:
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. IAS = 28 A, VDD = 50 V, L = 4mH, RG = 25Ω, starting TJ = 25°C.
3. ulse test: Pulse Width ≤300 μ s, Duty Cycle≤2%.
4. Essentially Independent of Operating Temperature.

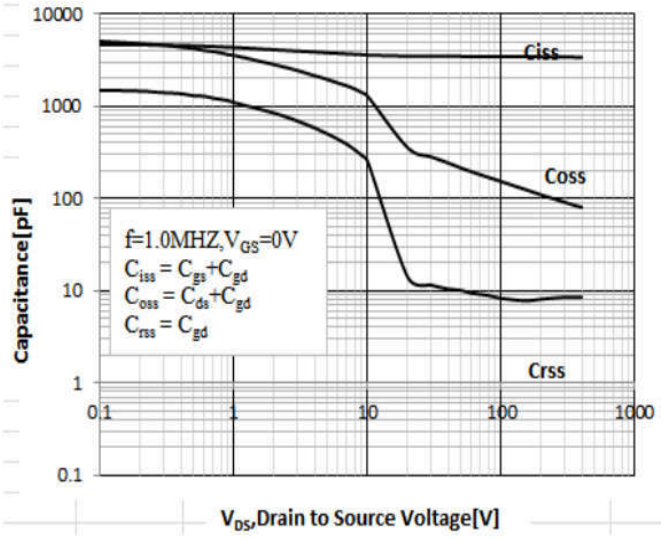
Ratings and Characteristic Curves

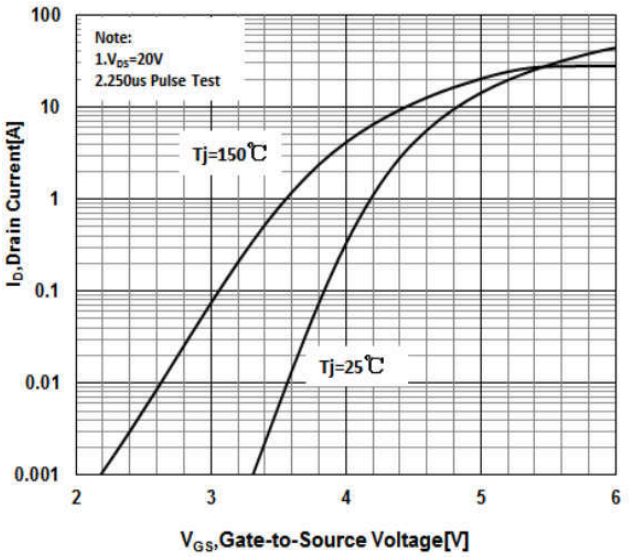




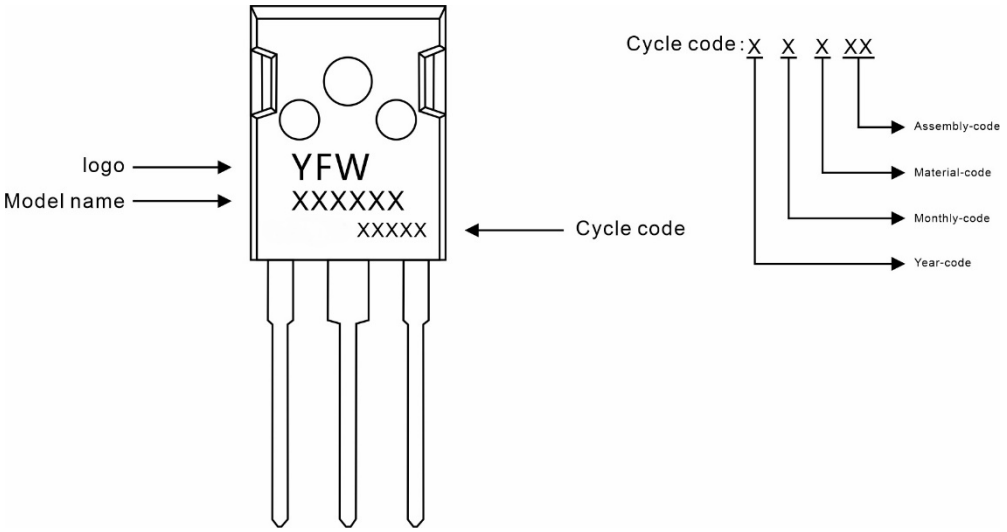








Marking Diagram

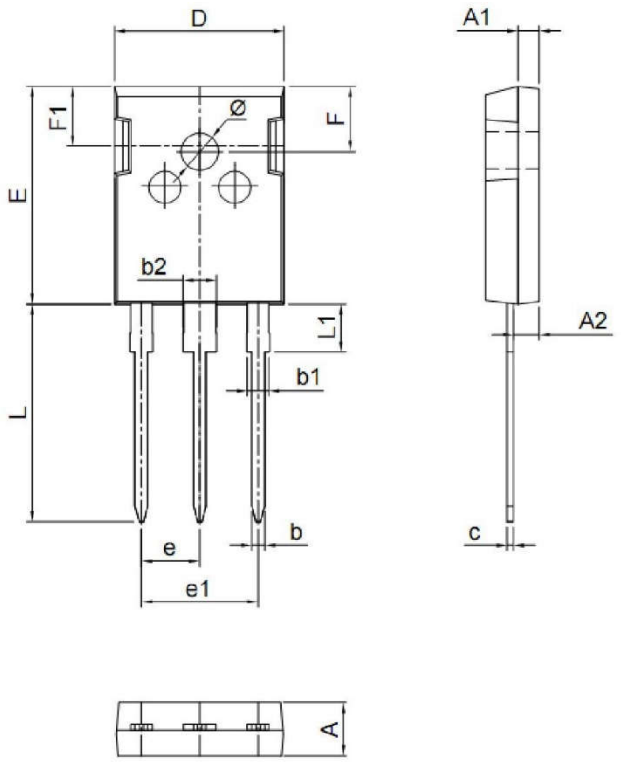


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW28N50AP	TO-247	0.209oz(5.93g)	30pcs/tube	600PCS/Box 2400PCS/Carton

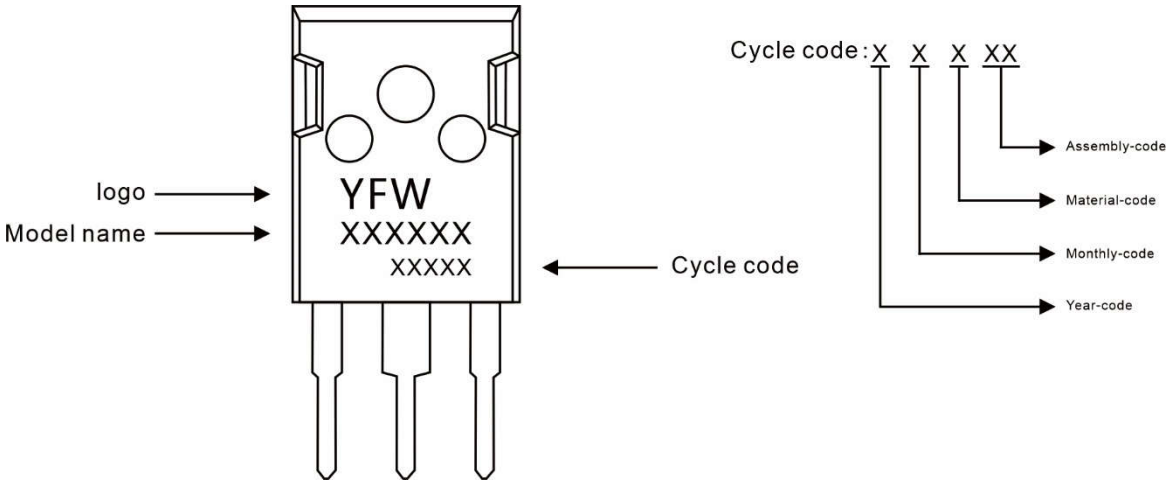
Package Dimensions

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

Marking Diagram

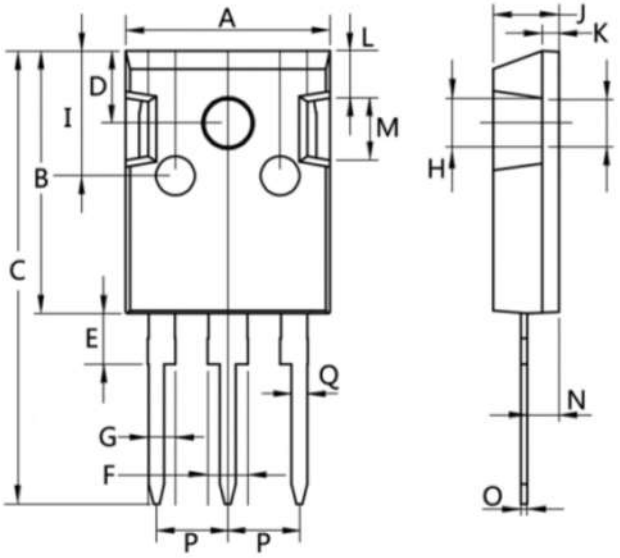


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW28N50APS	TO-247S	0.158oz(4.48g)	30pcs/tube	600PCS/Box 2400PCS/Carton

Package Dimensions

TO-247S



Symbol	Dimensions in mm		Dimensions in Inch	
	Min.	Max.	Min.	Max.
A	15.0	16.0	0.59	0.63
B	19.5	20.5	0.77	0.81
C	33.5	35.5	1.32	1.40
D	5.0	6.0	0.20	0.24
E	3.5	4.5	0.14	0.18
F	2.5	3.5	0.10	0.14
G	1.75	2.5	0.07	0.14
H	3.0	4.0	0.12	0.16
I	9.0	11.0	0.35	0.43
J	4.9	5.1	0.19	0.20
K	1.0	1.3	0.04	0.05
L	3.75	4.25	0.15	0.17
M	4.75	5.25	0.19	0.21
N	1.8	2.2	0.07	0.09
O	0.45	0.6	0.018	0.024
P	5.08		0.2	
Q	1.2	1.3	0.05	0.051

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