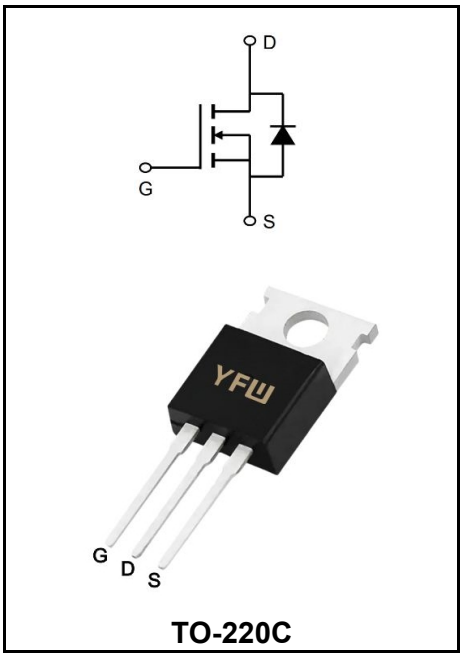
60V N- Channel Advanced Power MOSFET

MAIN CHARACTERISTICS

I_D	50A
V_{DSS}	60V
R_{DSON}-typ(@V_{GS}=10V)	＜14.4mΩ



TO-220C

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: Molded plastic
- 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	Symbol	Value	Unit
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(Note 2)	$R_{\theta JC}$	3	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	°C/W

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

Electrical Characteristics at Tc=25°C unless otherwise specified

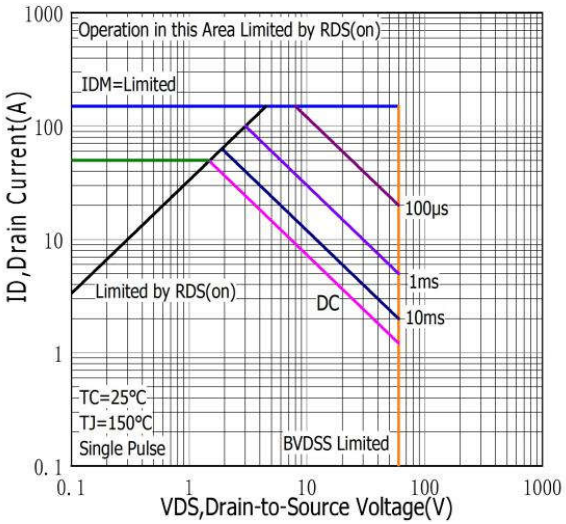
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = 250 μA	BV_{DSS}	60	-	-	V
Drain-Source Leakage Current	V_{DS} = 60V, V_{GS} = 0 V	I_{DSS}	-	-	1	μA
Gate Leakage Current	V_{GS} = ± 20 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	1	-	2	V
Drain-Source On-State Resistance (Note 3)	V_{GS} = 10 V, I_D = 20A	$R_{DS(on)}$	-	14.4		mΩ
	V_{GS} = 4.5 V, I_D = 10A	$R_{DS(on)}$	-	18.4	22.5	mΩ
Forward Transconductance	V_{DS} = 50 V, I_D = 30 A	gfs	-	20	-	S
Input Capacitance	V_{GS} = 0 V, V_{DS} = 15 V, f = 1 MHz	C_{iss}	-	1714	-	pF
Output Capacitance		C_{oss}	-	120	-	pF
Reverse Transfer Capacitance		C_{rss}	-	88	-	pF
Turn-on Delay Time	VDD=30V , VGS=10V , RG=3.3 , ID=15A	$t_{d(ON)}$	-	7.5	-	ns
Rise Time		t_r	-	45	-	ns
Turn-Off Delay Time		$t_{d(OFF)}$	-	33	-	ns
Fall Time		t_f	-	7.8	-	ns
Total Gate Charge	VDS=48V , VGS=4.5V , ID=15A	Q_G	-	20	-	nC
Gate to Source Charge		Q_{GS}	-	7.2	-	nC
Gate to Drain Charge		Q_{GD}	-	8.1	-	nC

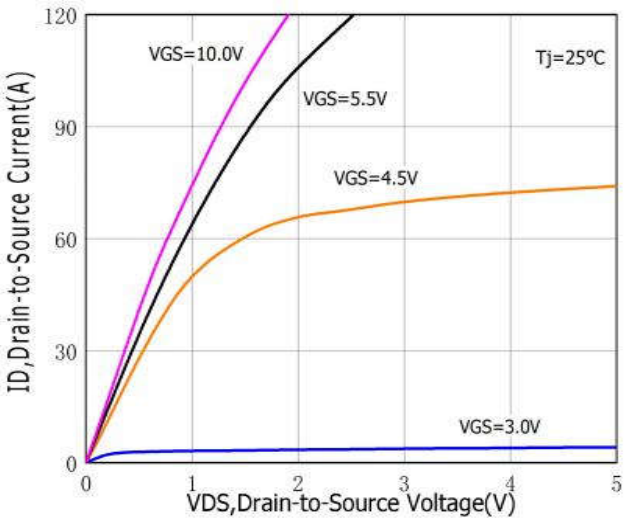
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

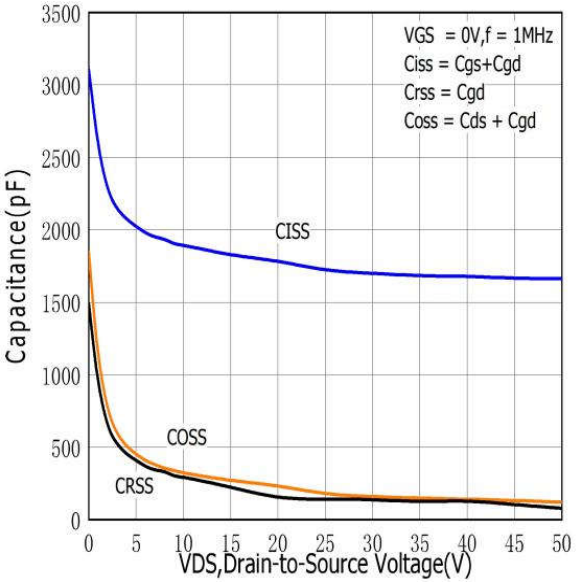
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current (Note 2)		I_S	-	-	50	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	100	A
Drain-Source Diode Forward Voltage (Note 3)	I_{SD} = 30A	V_{SD}	-	-	1.2	V
Reverse Recovery Time	I_S = I_F, ISD=20A,V_{GS} = 0 V, dI / dt = 100 A/μs (Note3)	trr	-	15	-	ns
Reverse Recovery Charge		Qrr	-	12	-	μC

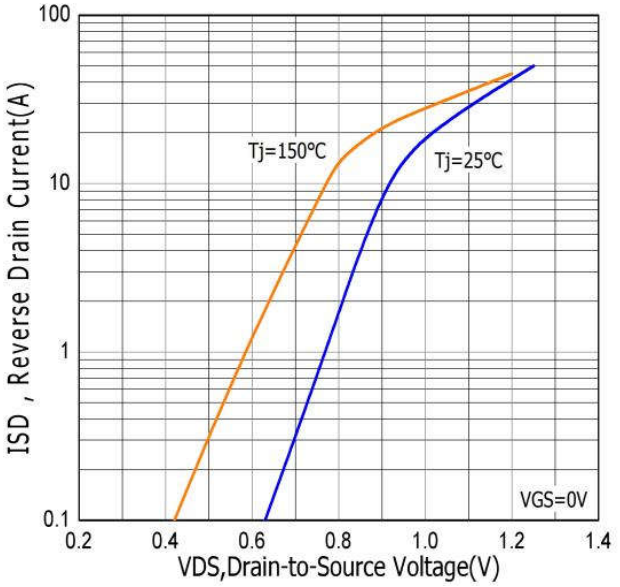
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

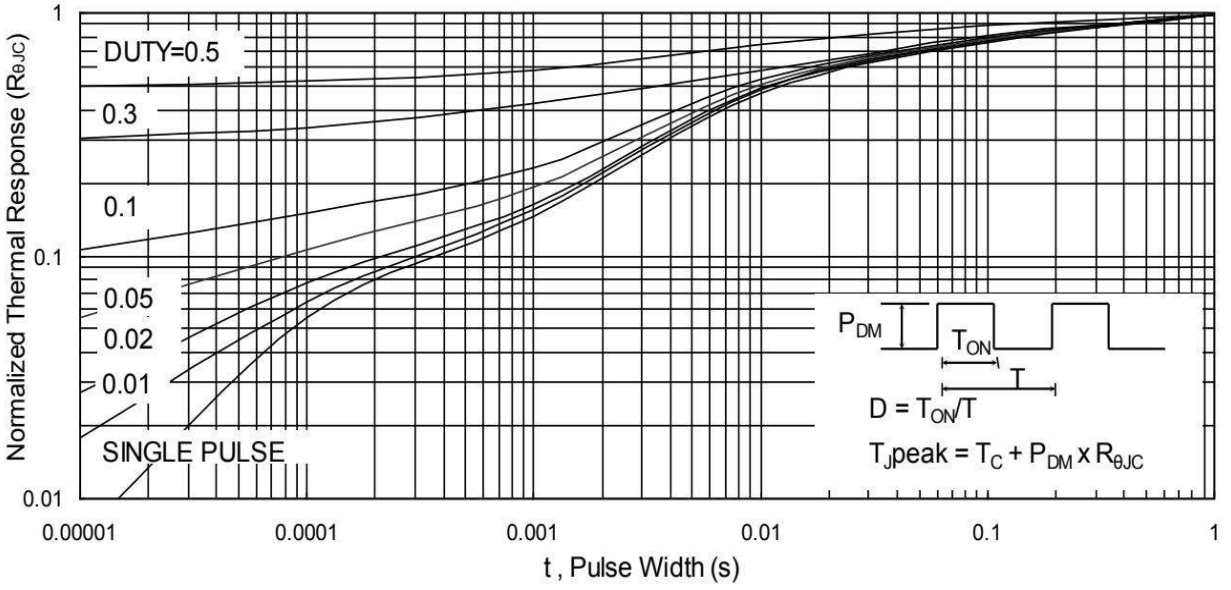
RATINGS AND CHARACTERISTIC CURVES



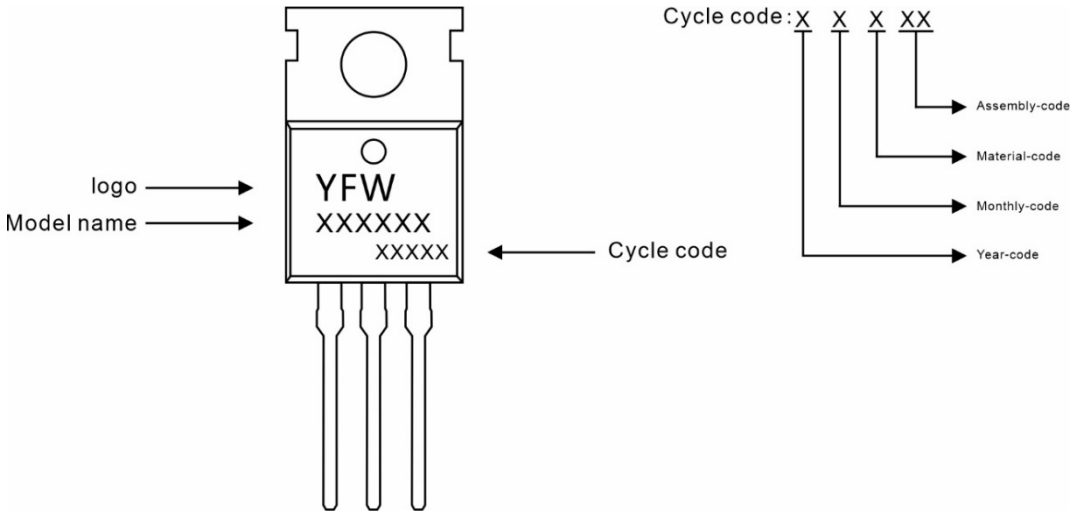








Marking Diagram

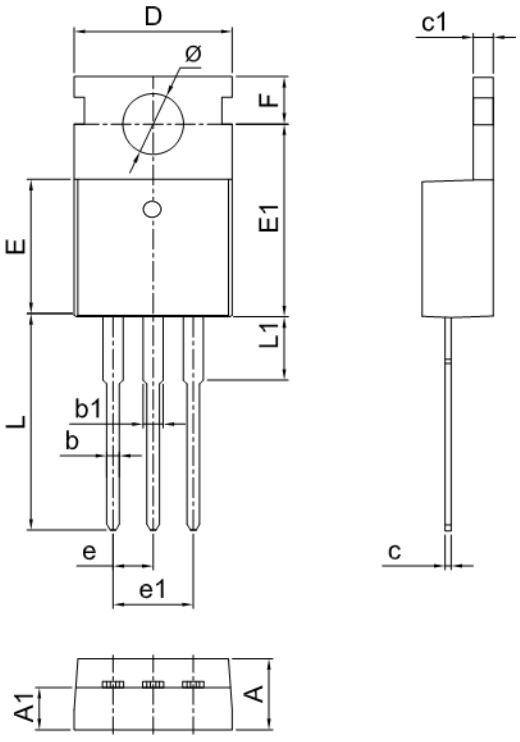


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW50N06AC	TO-220C	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220C



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.34	4.67	0.171	0.184
A1	2.52	2.82	0.099	0.111
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
c	0.30	0.50	0.012	0.020
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
E1	12.00	12.50	0.472	0.492
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	2.60	2.80	0.102	0.110
L	13.20	13.80	0.520	0.543
L1	3.80	4.20	0.150	0.165
Φ	3.60	3.96	0.142	0.156

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