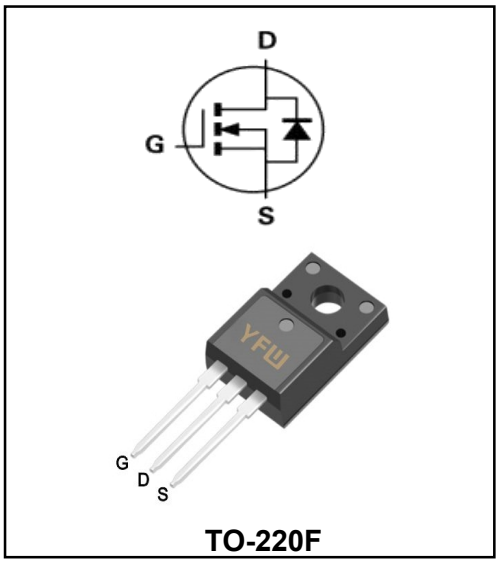
650V N-channel Super Junction MOSFET

MAIN CHARACTERISTICS

I_D	5A
V_{DSS}	650V
R_{DSON}-typ(@V_{GS}=10V)	＜900mΩ(Type:750mΩ)



TO-220F

FEATURES

Adopt advanced trench technology to provide excellent RDS(ON), low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

APPLICATIONS

- Solar inverters
- LCD/LED/PDP TV
- Telecom/Server Power supplies
- AC-DC Power Supply

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
		220F	
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continue Drain Current	I_D	5	A
Pulsed Drain Current (Note1)	I_{DM}	15	A
Power Dissipation	P_D	26	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	130	mJ
Operating Temperature Range	T_J	-50 to +150	°C
Storage Temperature Range	T_{STG}	-50 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.4	°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

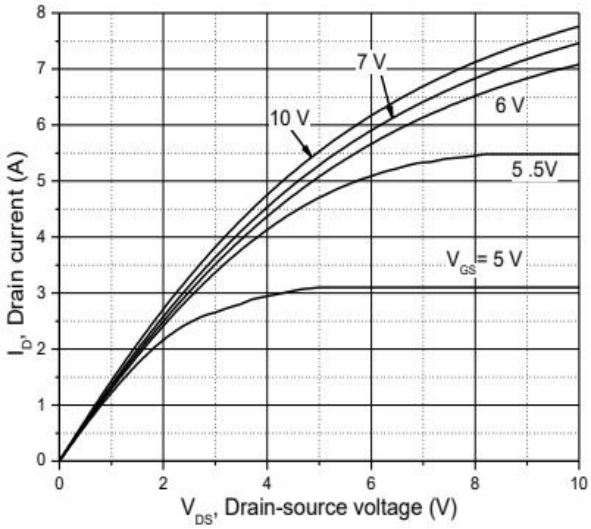
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = 250 μA	BV_{DSS}	650	-	-	V
Drain-Source Leakage Current	V_{DS} =650 V, V_{GS} = 0 V	I_{DSS}	-	-	1	μA
Gate Leakage Current	V_{GS} = ± 30 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	VGS=10V, ID=3A	RDS(on)	-	750	900	mΩ
Forward Transconductance	V_{DS} = 5 V, I_D = 3 A	gfs	-	-	8	S
Input Capacitance	VDS=50V , VGS=0V , f=1MHz	C_{iss}	-	341	-	pF
Output Capacitance		C_{oss}	-	30	-	pF
Reverse Transfer Capacitance		C_{rss}	-	1.4	-	pF
Turn-on Delay Time(Note2)	VDD = 380V, ID = 5A, VGS =10V, RG =25Ω	$t_{d(ON)}$	-	15	-	ns
Rise Time(Note2)		t_r	-	10.8	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	24	-	ns
Fall Time(Note2)		t_f	-	21	-	ns
Total Gate Charge(Note2)	VDS = 400V, VGS = 10V, ID = 7A	Q_G	-	7.5	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	1.8	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	3.4	-	nC

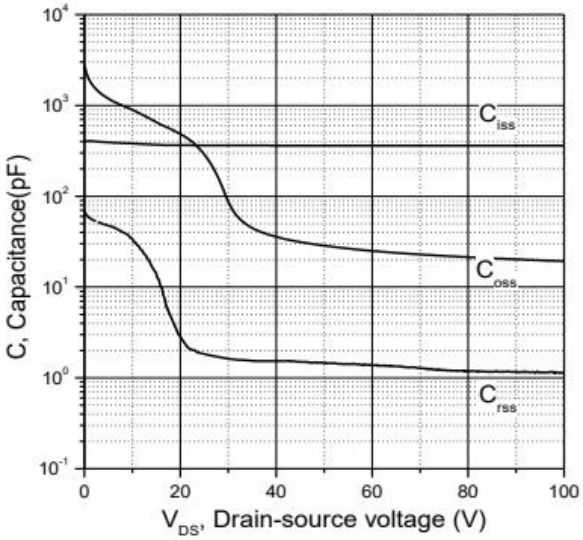
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

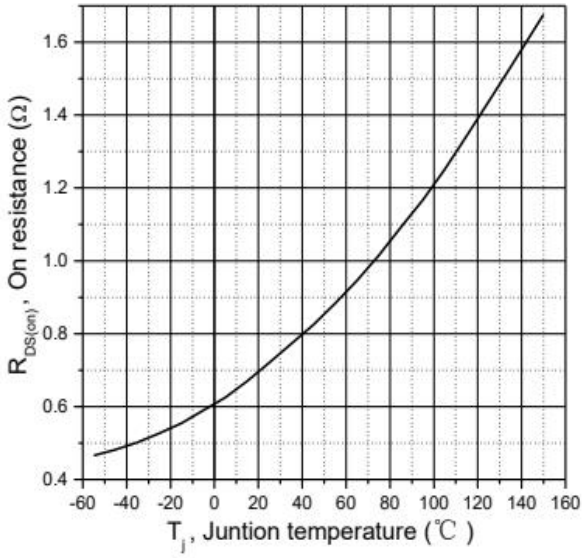
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	5	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	15	A
Drain-Source Diode Forward Voltage	VGS=0V , IS=5A , TJ=25℃	V_{SD}	-	-	1.4	V

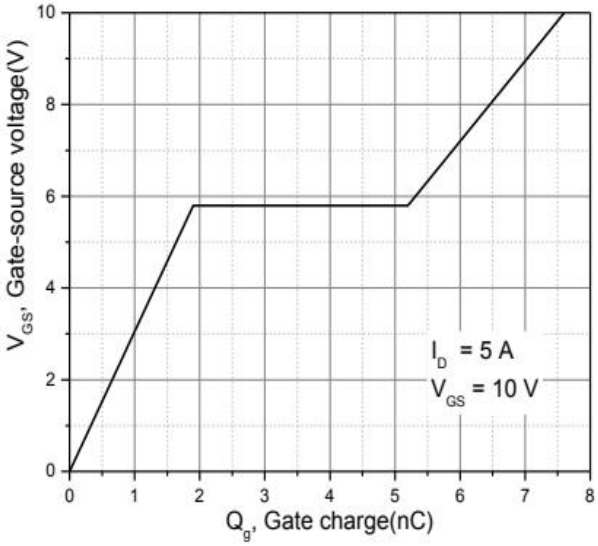
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

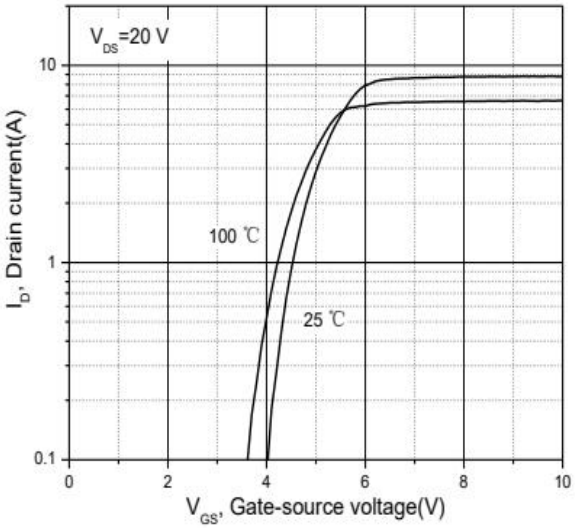
RATINGS AND CHARACTERISTIC CURVES

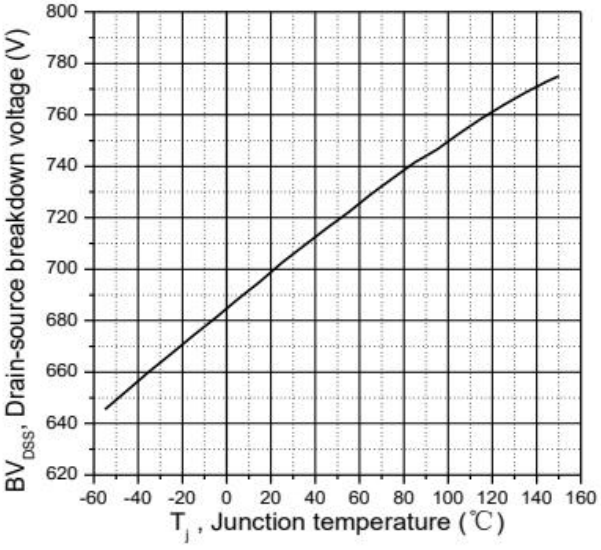












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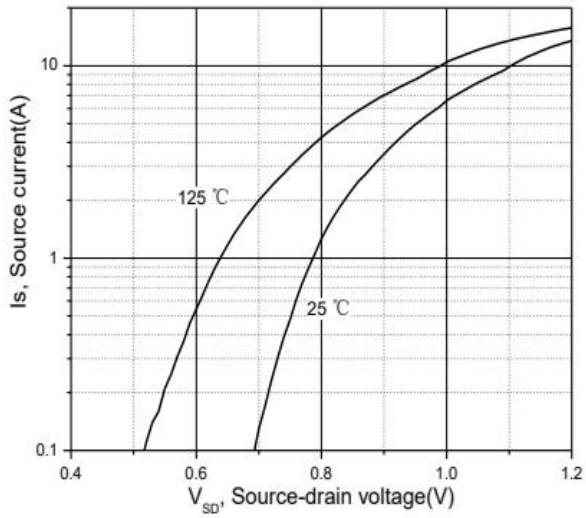
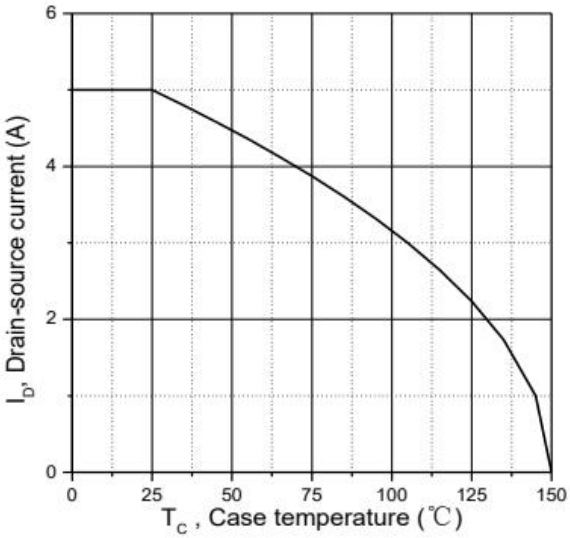
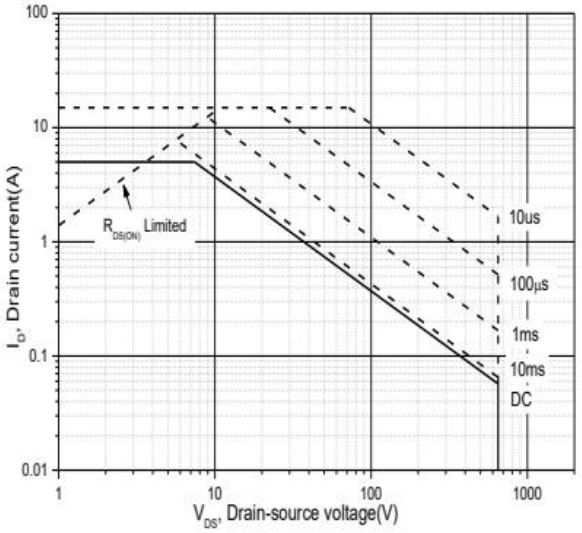
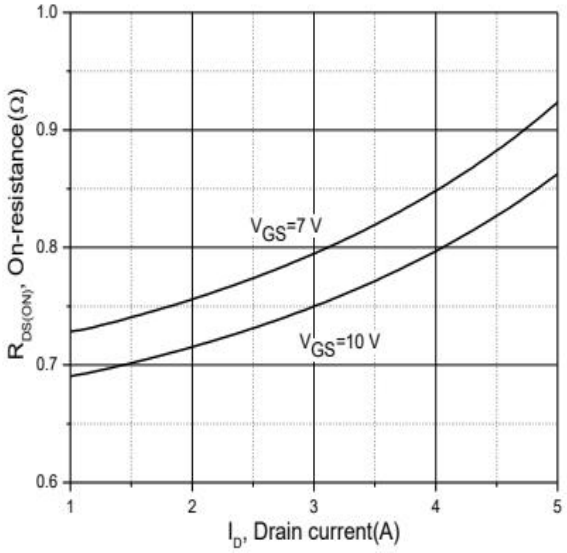
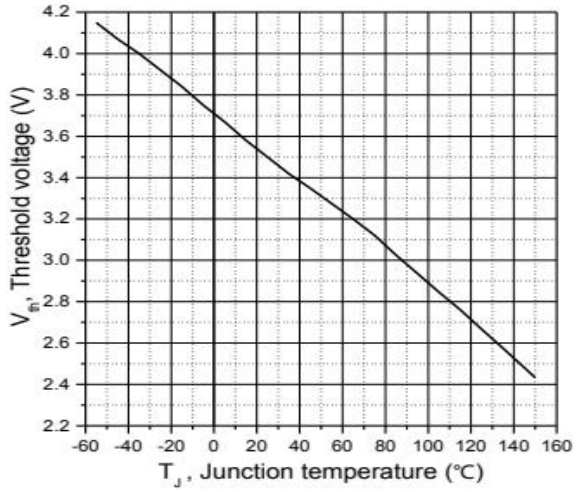


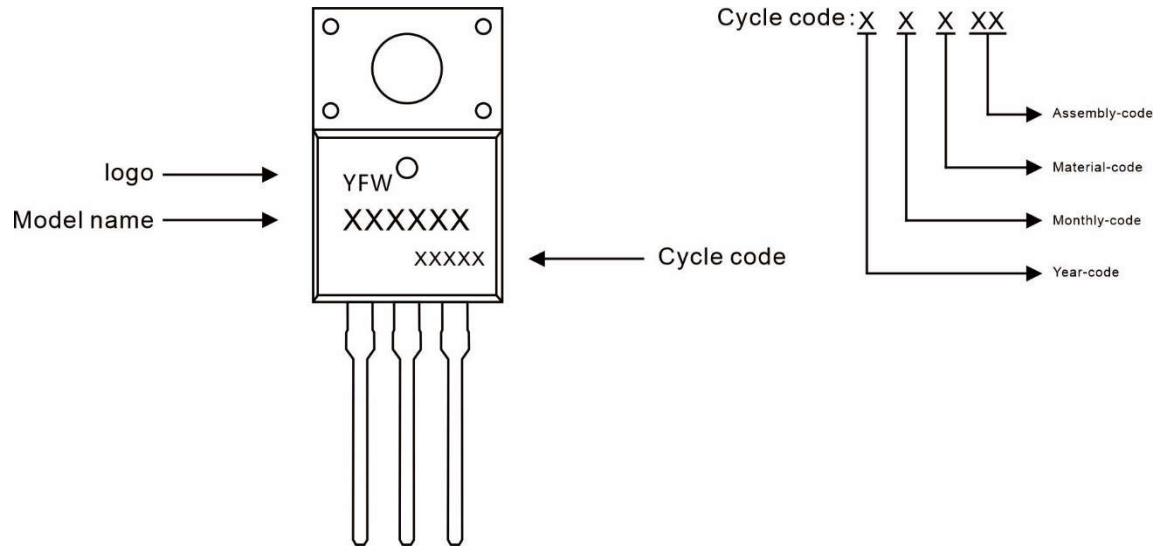








Marking Diagram

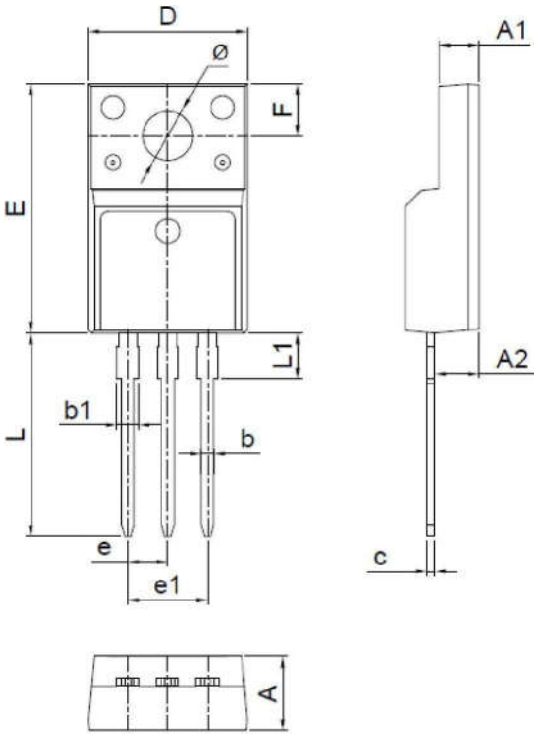


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW65R900AF	TO-220F	0.06oz(1.74g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220F



Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.66	2.86	0.105	0.113
b	0.75	0.85	0.030	0.033
b1	1.24	1.44	0.049	0.057
c	0.40	0.60	0.016	0.024
D	10.00	10.32	0.394	0.406
E	15.75	16.05	0.620	0.632
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	3.10	3.5	0.122	0.138
L	13.50	13.90	0.531	0.547
L1	2.90	3.30	0.114	0.130
Φ	3.10	3.30	0.122	0.130

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