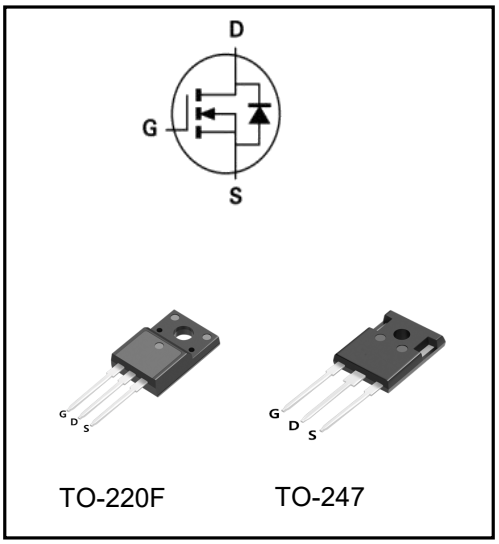
650V N-Channel Enhancement Mode Power MOSFET

MAIN CHARACTERISTICS

I_D	25A
V_{DSS}	650V
R_{DSON}-typ(@V_{GS}=10V)	＜0.42Ω(Type:0.3Ω)



FEATURES

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

Application

- LED power supplies
- Cell Phone Charger
- Standby Power

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

Product Specification Classification

Part Number	Package	Marking	Pack
YFW25N65AF	TO-220F	YFW 25N65AF XXXXX	50PCS/Tube/1000pcs/box
YFW25N65AP	TO-247	YFW 25N65AP XXXXX	600pcs/box 3000pcs/carton

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value		Unit
		220F	247	
Drain-Source Voltage	V_{DS}	650		V
Gate-Source Voltage	V_{Gs}	±30		V
Continue Drain Current	I_D	25		A
Pulsed Drain Current (Note1)	I_{DM}	100		A
Power Dissipation	P_D	280		W
Single Pulse Avalanche Energy(Note2)	E_{AS}	620		mJ
Operating Temperature Range	T_J	150		°C
Storage Temperature Range	T_{STG}	-55 to +150		°C
Thermal Resistance, Junction to	$R_{\theta JC}$	0.5		°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	40		°C/W

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

Electrical Characteristics at Tc=25°C unless otherwise specified

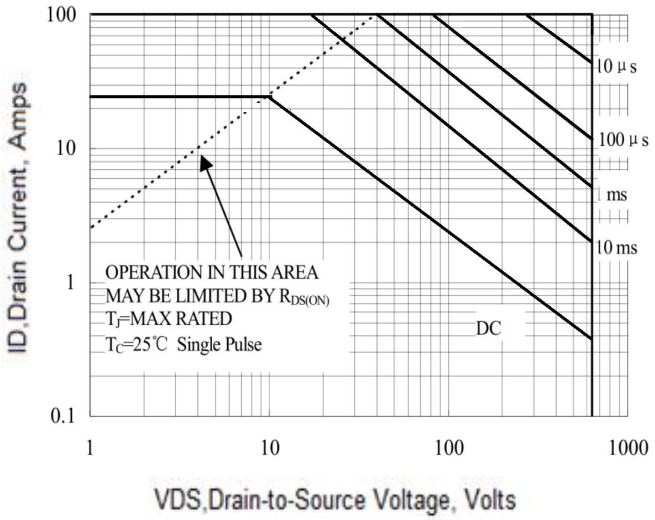
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = 250 μA	BV_{DSS}	650	680	-	V
Drain-Source Leakage Current	V_{DS}=650V,V_{GS}=0V	I_{DSS}	-	-	1	μA
Gate Leakage Current	V_{GS}=±30V,V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	V_{GS}=10V,I_D=12.5A	$R_{DS(on)}$	-	0.3	0.42	Ω
Forward Transconductance	V_{DS}=15V,I_D=10A	gfs	-	19	-	S
Input Capacitance	V_{GS}=0V,V_{DS}=2V, f = 200 KHz	C_{iss}	-	3761	-	pF
Output Capacitance		C_{oss}	-	270	-	pF
Reverse Transfer Capacitance		C_{rss}	-	22	-	pF
Turn-on Delay Time(Note2)	I_D = 12 A, V_{DD} = 325V, R_G= 10 Ω (Note3,4)	$t_{d(ON)}$	-	28	-	ns
Rise Time(Note2)		t_r	-	77	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	89	-	ns
Fall Time(Note2)		t_f	-	56	-	ns
Total Gate Charge(Note2)	I_D = 25 A, V_{DD} = 400 V, V_{GS} = 10 V	Q_G	-	70	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	25	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	34	-	nC

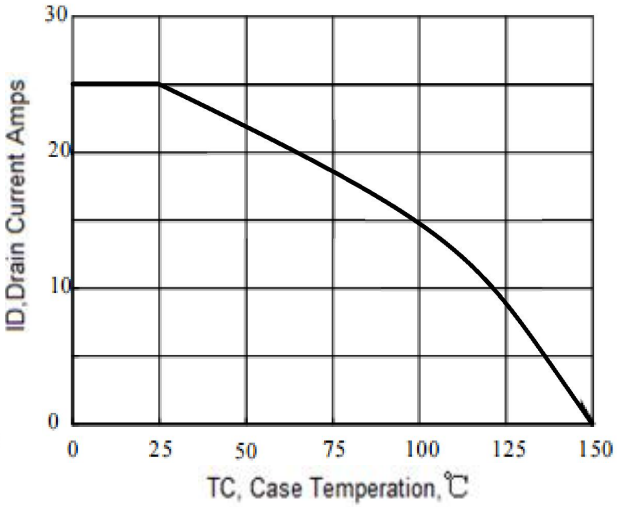
Electrical Characteristics at Tc=25°C unless otherwise specified

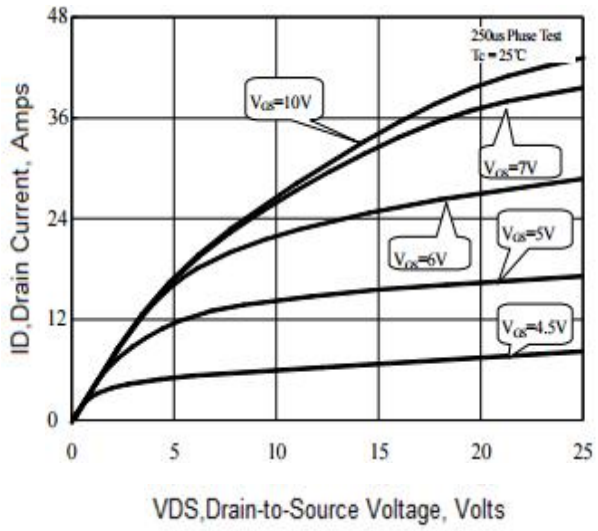
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	25	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	100	A
Drain-Source Diode Forward Voltage	I_{SD} =25A	V_{SD}	-	-	1.4	V
Reverse Recovery Time(Note2)	I_{SD}=20A,V_{GS}=0V, dI_F / dt = 100 A/μs (Note3)	trr	-	655	-	ns
Reverse Recovery Charge(Note2)		Qrr	-	7.6	-	μC

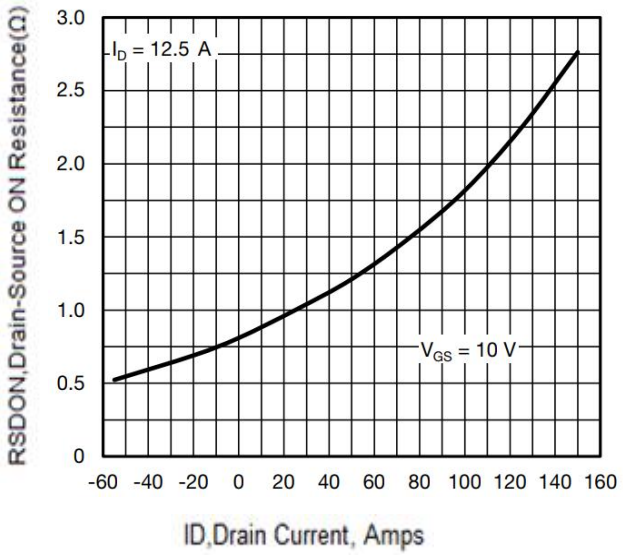
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

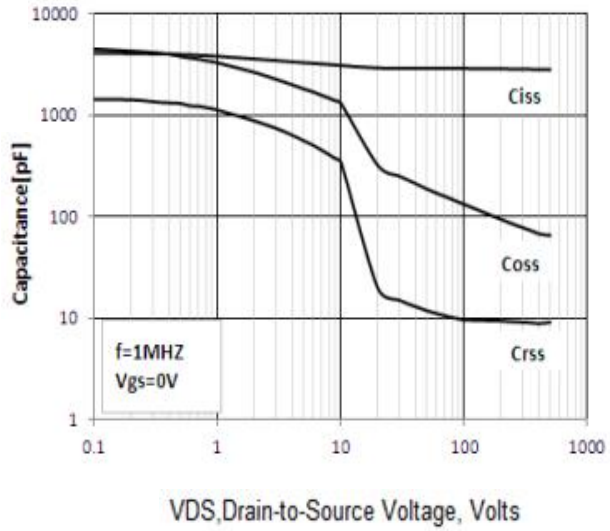
Ratings and Characteristic Curves

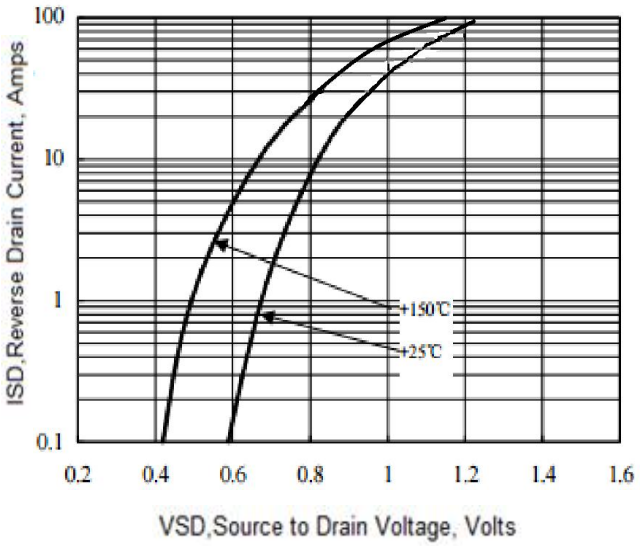






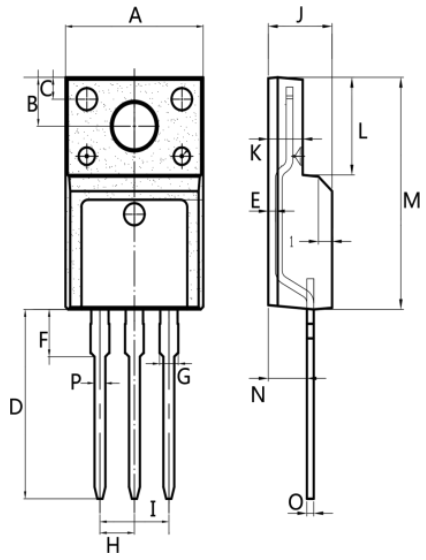






Package Outline Dimensions Millimeters

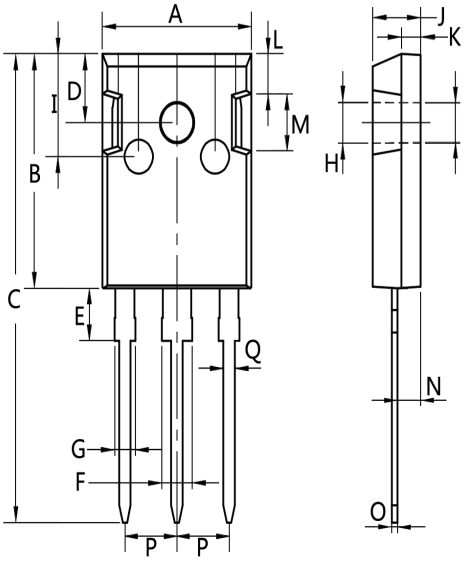
TO-220F



Dim.	Min.	Max.
A	9.95	10.35
B	2.95	3.25
C	1.25	1.45
D	12.65	12.95
E	0.4	0.6
F	2.8	3.5
G	1.3	1.45
H	Typ 2.54	
I	Typ 5.08	
J	4.6	4.75
K	2.45	2.65
L	6.45	6.85
M	15.4	16
N	2.75	3.05
O	0.45	0.55
P	0.7	0.9

All Dimensions in millimeter

TO-247



Dim.	Min.	Max.
A	15.0	16.0
B	20.0	21.0
C	40.0	42.0
D	5.5	6.5
E	4.0	5.5
F	2.5	3.5
G	1.75	2.5
H	3.0	4.0
I	8.0	10.0
J	4.9	5.1
K	1.9	2.1
L	3.0	4.0
M	4.75	5.25
N	2.0	3.0
O	0.55	0.65
P	TYP5.4	
Q	1. 2	1.3

All Dimensions in millimeter