

600V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	20A
V_{DSS}	600V
R_{DS(on)-typ}(@V_{GS}=10V)	<0.45 Ω (Typ:0.325 Ω)

FEATURES

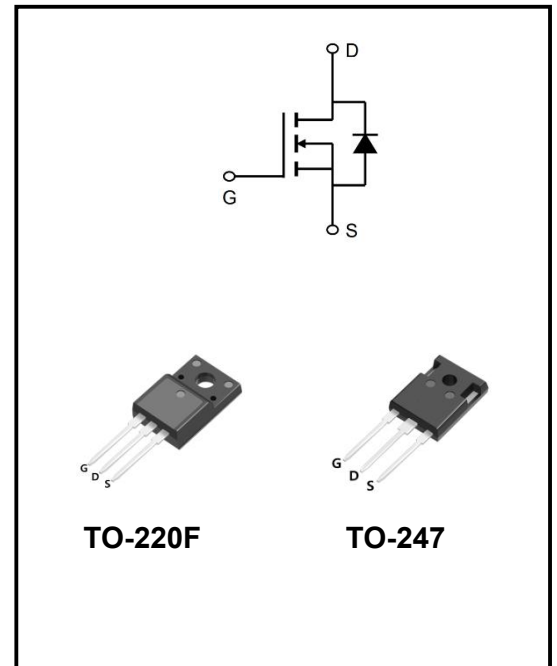
- ♦Fast Switching
- ♦Low ON Resistance
- ♦Low Gate Charge
- ♦100% Single Pulse avalanche energy Test

Application

- ♦Power switch circuit of adaptor and charge

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°C maximum,10s per JESD 22-B106



Product Specification Classification

Part Number	Package	Marking	Pack
YFW20N60AF	TO-220F	YFW 20N60AF XXXXX	1000pcs/box 5000pcs/carton
YFW20N60AP	TO-247	YFW 20N60AP XXXXX	600pcs/box 3000pcs/carton

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value		Units
		220F	247	
Drain-Source Voltage	V _{DS}	600		V
Gate - Source Voltage	V _{GS}	±30		V
Continuous Drain Current	I _D	20		A
Pulsed Drain Current(note1)	I _{DM}	80		A
Power Dissipation	P _D	45	250	W
Single Pulse Avalanche Energy(note1)	E _{AS}	1200		mJ
Operating Temperature Range	T _J	150		°C
Operating Temperature Range	T _{STG}	-55 to +150		°C
Thermal Resistance, Junction-to-case	R _{θJC}	2.78	0.5	°C/W
Thermal Resistance, Junction ambient	R _{θJA}	62.5	40	°C/W

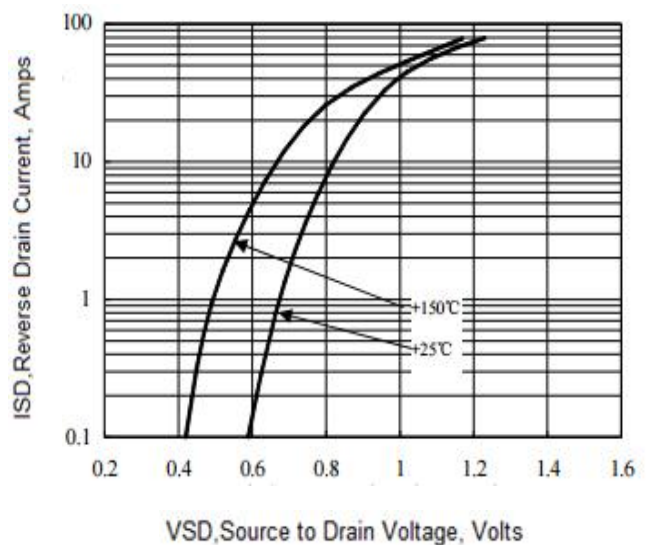
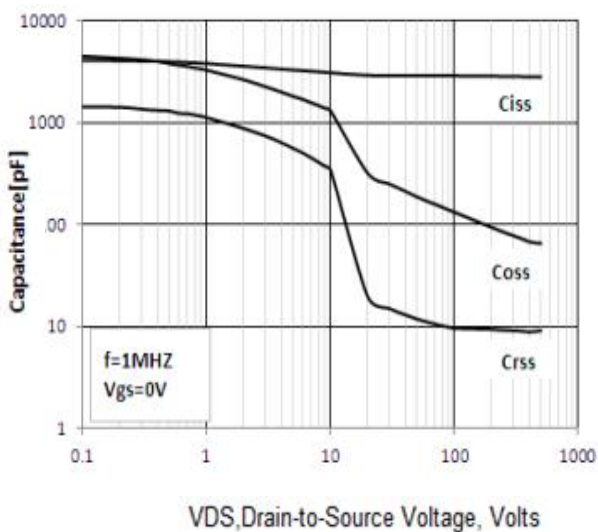
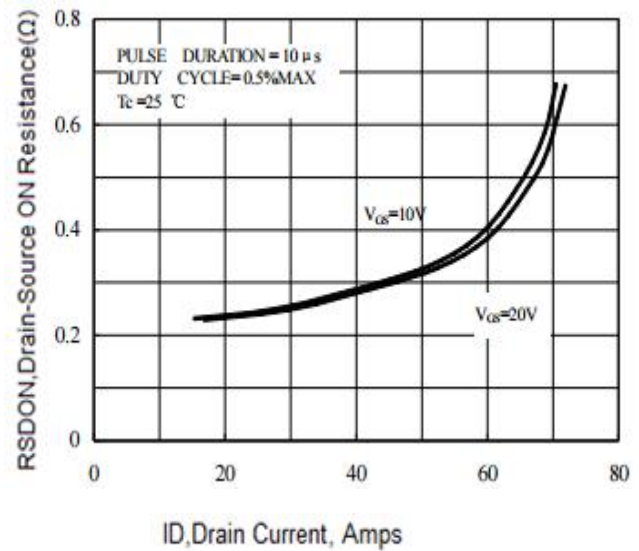
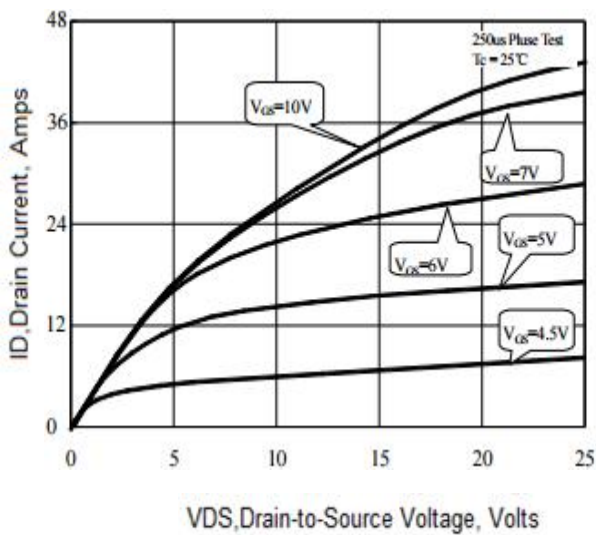
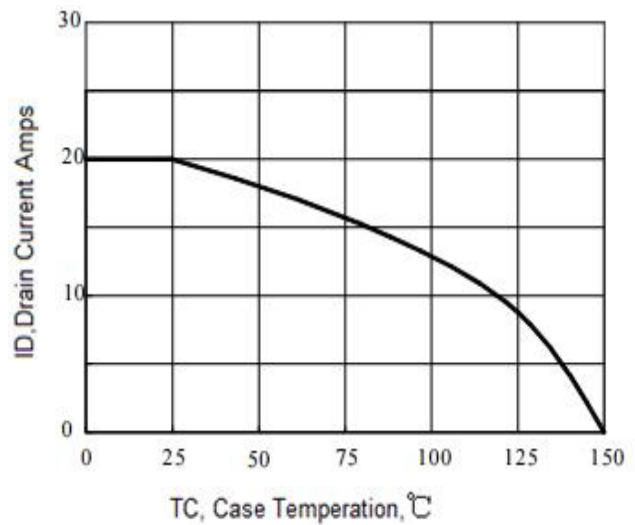
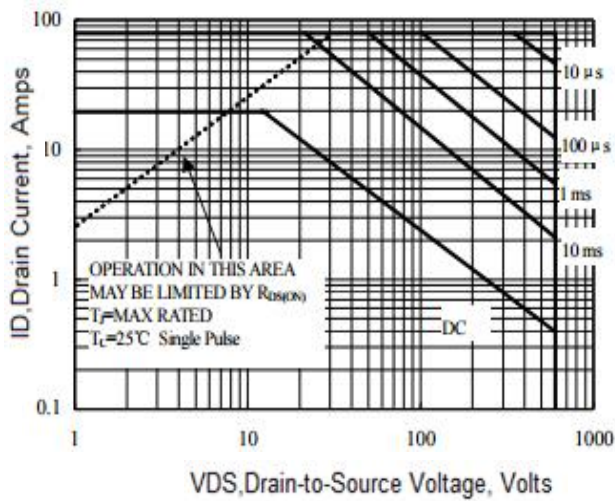
Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	600	-	-	V
Drain-Source Leakage Current	$V_{DS}=600V, V_{GS}=0V$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	$V_{GS}=10V, I_D=10A$	$R_{DS(ON)}$	-	0.325	0.45	Ω
Forward Transconductance	$V_{DS}=15V, I_D=10A$	g_{fs}	-	17	-	S
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	2881	-	pF
Output Capacitance		C_{oss}	-	253	-	
Reverse Transfer Capacitance		C_{rss}	-	22	-	
Turn-on delay time(note2)	$I_D=20A$ $V_{DD}=250V$ $R_G=10\Omega$	$t_{d(on)}$	-	36	-	nS
Rise Time(note2)		T_r	-	72	-	
Turn-Off Delay Time(note2)		$t_{d(OFF)}$	-	160	-	
Fall Time(note2)		t_f	-	72	-	
Total Gate Charge(note2)	$I_D=20A$ $V_{DD}=400V$ $V_{GS}=10V$	Q_g	-	61	-	nC
Gate-Source Charge(note2)		Q_{gs}	-	15	-	
Gate-Drain Charge(note2)		Q_{gd}	-	23	-	
Maximun Body-Diode Continuous Current		I_S	-	-	20	A
Maximun Body-Diode Continuous Current(note2)		I_{SM}	-	-	80	A
Drain-Source Diode Forward Voltage	$I_{SD}=20A$	V_{SD}	-	-	1.4	V
Reverse Recovery Time(note2)	$V_{GS}=0V, I_{SD}=20A$ $diF/dt=100A/\mu s$	t_{rr}	-	422	-	nS
Reverse Recovery Charge(note2)		Q_{rr}	-	3.6	-	uC

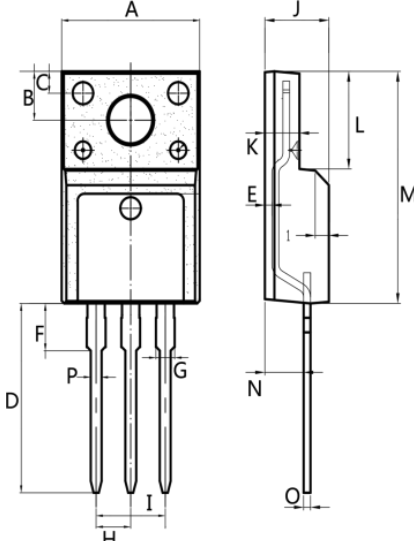
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

Ratings and Characteristic Curves

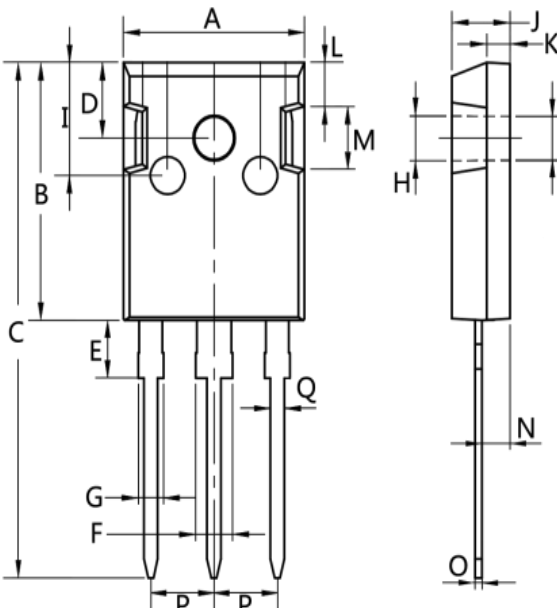


Package Outline Dimensions Millimeters

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	1.17	1.3
All Dimensions in millimeter			