

**650V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

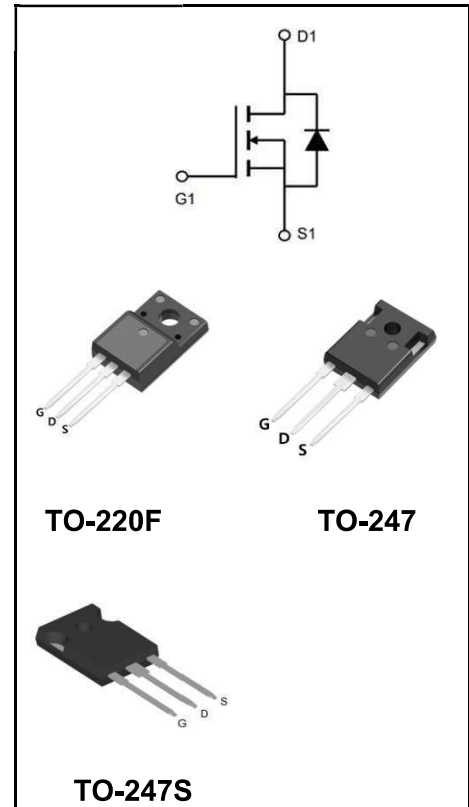
<b>I<sub>D</sub></b>	20A
<b>V<sub>DSS</sub></b>	650V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	<0.5Ω ( <b>Type:0.37 Ω</b> )

**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



**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW20N65AF	TO-220F	YFW 20N65AF XXXXX	50PCS/Tube
YFW20N65AP	TO-247	YFW 20N65AP XXXXX	30PCS/Tube
YFW20N65APS	TO-247S	YFW 20N65APS XXXXX	30PCS/Tube

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Symbols	Value		Units
		220F	247/247S	
Drain-Source Voltage	$V_{DS}$	650		V
Gate-Source Voltage	$V_{GS}$	±30		V
Continue Drain Current	$I_D$	20		A
-Continuous (TC = 100°C)		13		
Pulsed Drain Current (Note1)	$I_{DM}$	80		A
Power Dissipation	$P_D$	85	230	W
-Derate above 25°C		0.65	0.58	W/°C
Single Pulse Avalanche Energy (Note2)	$E_{AS}$	1250		mJ
Avalanche Current (Note 1)	$I_{AR}$	20		A
Repetitive Avalanche Energy (Note 1)	$E_{AS}$	37		mJ
Operating Temperature Range	$T_J$	150		°C
Storage Temperature Range	$T_{STG}$	-55 to +150		°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.47	0.5	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	48.5	°C/W

**Maximum Ratings at Tc=25°C unless otherwise specified**

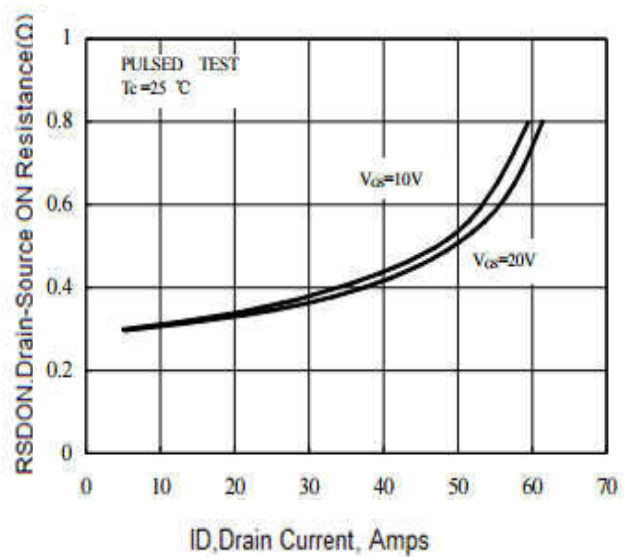
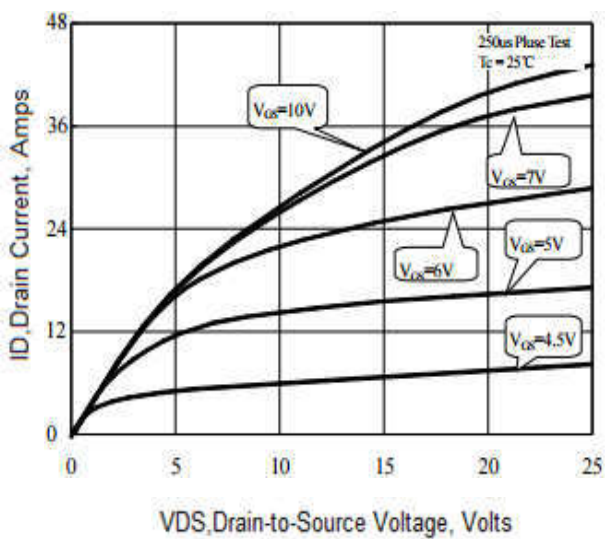
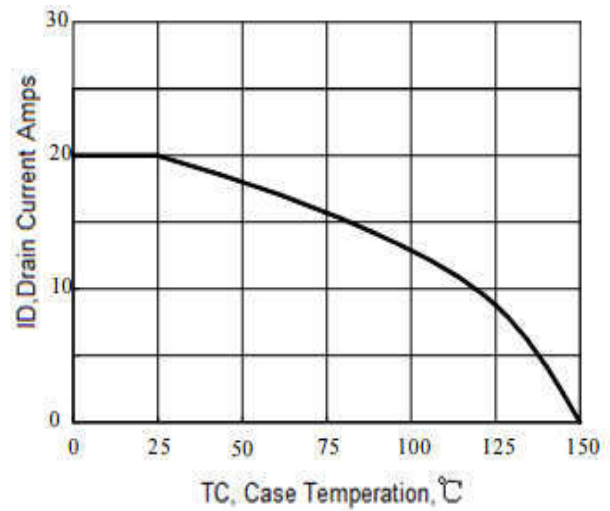
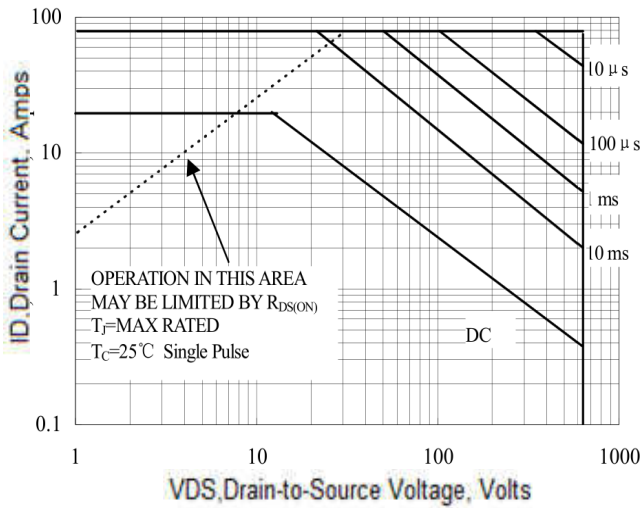
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 250 \mu A$	$BV_{DSS}$	650	-	-	V
Drain-Source Leakage Current	$V_{DS} = 650 V, V_{GS} = 0 V$	$I_{DSS}$	-	-	1	uA
	$V_{DS} = 520 V, T_c = 125^\circ C$		-	-	10	
Gate Leakage Current	$V_{GS} = \pm 30 V, V_{DS} = 0 V$	$I_{GSS}$	-	-	±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	$V_{GS} = 10 V, I_D = 10 A$	$R_{DS(on)}$	-	0.37	0.5	Ω
Forward Transconductance	$V_{DS} = 40 V, I_D = 10 A$	$g_{fs}$	-	18	-	S
Input Capacitance	$V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz$	$C_{iss}$	-	2567	-	pF
Output Capacitance		$C_{oss}$	-	290	-	
Reverse Transfer Capacitance		$C_{rss}$	-	20	-	
Turn-on Delay Time	$I_D = 20 A, V_{DD} = 325 V, R_G = 10 \Omega (Note 3,4)$	$td(ON)$	-	39	-	nS
Rise Time		$tr$	-	80	-	
Turn-Off Delay Time		$td(OFF)$	-	94	-	
Fall Time		$tf$	-	63	-	
Total Gate Charge	$I_D = 20 A, V_{DD} = 520 V, V_{GS} = 10 V (Note 3,4)$	$Q_G$	-	65	-	nC
Gate to Source Charge		$Q_{GS}$	-	14	-	
Gate to Drain Charge		$Q_{GD}$	-	24	-	

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

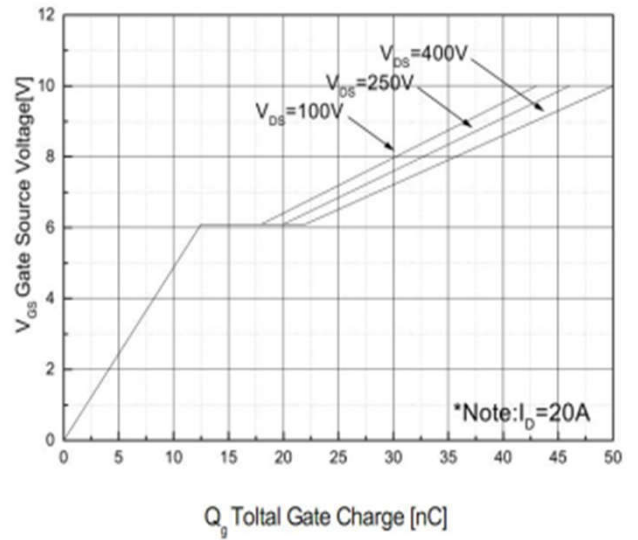
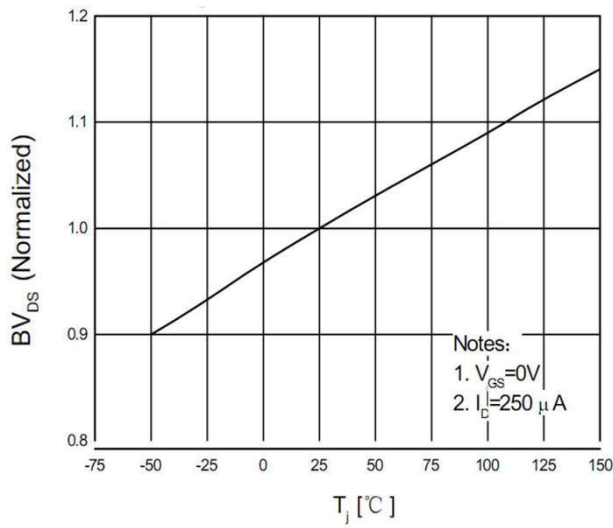
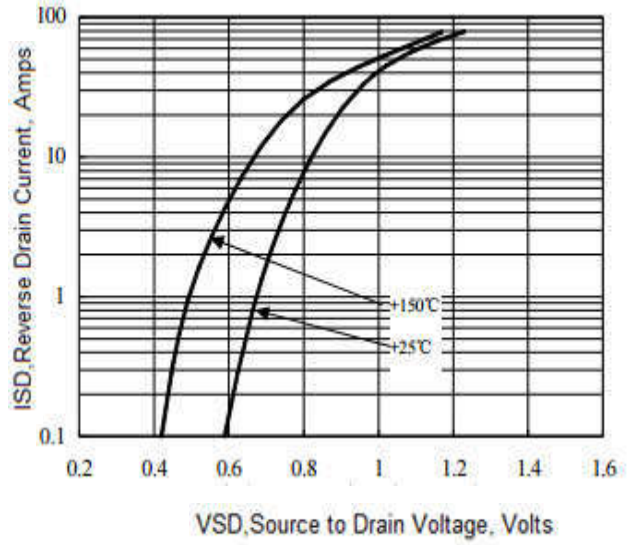
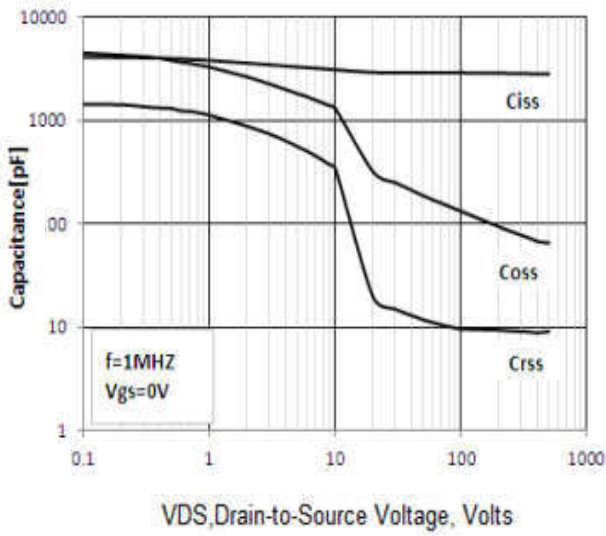
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Maximun Body-Diode Continuous Current		<b>I<sub>S</sub></b>	-	-	20	<b>A</b>
Maximun Body-Diode Pulsed Current		<b>I<sub>SM</sub></b>	-	-	80	<b>A</b>
Drain-Source Diode Forward Voltage	I <sub>SD</sub> = 20A	<b>V<sub>SD</sub></b>	-	-	1.4	<b>V</b>
Reverse Recovery Time	I <sub>SD</sub> = 20A, V <sub>GS</sub> = 0 V,	<b>trr</b>	-	630	-	<b>nS</b>
Reverse Recovery Charge	dI <sub>F</sub> / dt = 100 A/μs(Note3)	<b>Qrr</b>	-	7.4	-	<b>uC</b>

- Note:
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
  2. IAS = 20A, VDD = 50 V, L = 6mH, 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



**Ratings and Characteristic Curves**



Package Outline Dimensions Millimeters

TO-220F

	Dim.	Min.	Max.
	A	9.95	10.25
	B	2.95	3.25
	C	1.25	1.45
	D	12.95	13.25
	E	0.50	0.65
	F	3.1	3.3
	G	1.30	1.45
	H	Typ 2.54	
	I	Typ 5.08	
	J	4.60	4.75
	K	2.50	2.65
	L	6.35	6.55
	M	15.4	16.0
	N	2.75	3.05
O	0.48	0.52	
P	0.76	0.84	
All Dimensions in millimeter			

TO-247

	Dim.	Min.	Max.
	A	15	16
	B	20	21
	C	41	42
	D	5	6
	E	4	5
	F	2.5	3.5
	G	1.75	2.5
	H	3	3.5
	I	8	10
	J	4.9	5.1
	K	1.9	2.1
	L	3.5	4
	M	4.75	5.25
	N	2	3
O	0.55	0.75	
P	Typ 5.08		
Q	1.2	1.3	
All Dimensions in millimeter			

Package Outline Dimensions Millimeters

TO-247S

	Dim.	Min.	Max.
	A	15	16
	B	19.5	20.5
	C	33.5	35.5
	D	5	6
	E	3.5	4.5
	F	2.5	3.5
	G	1.75	2.5
	H	3	4
	I	9	11
	J	4.9	5.1
	K	1	1.3
	L	3.75	4.25
	M	4.75	5.25
N	1.8	2.2	
O	0.45	0.6	
P	Typ 5.08		
Q	1.2	1.3	
All Dimensions in millimeter			

单击下面可查看定价，库存，交付和生命周期等信息

[>>YFW\(佑风微\)](#)