

200V N-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

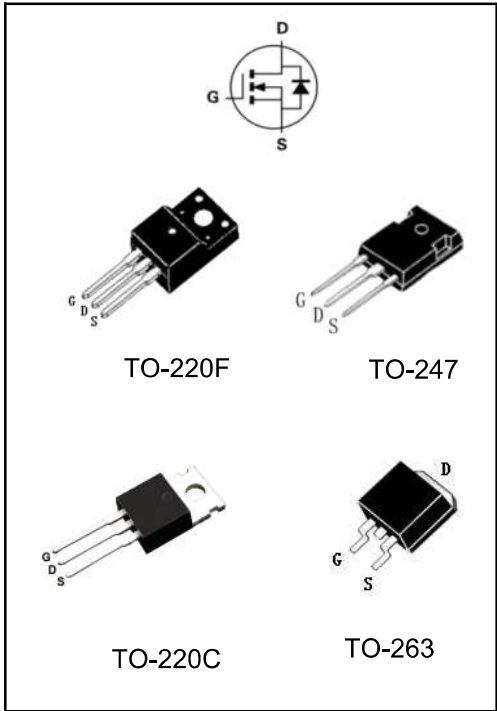
I_D	50A
V_{DSS}	200V
R_{DS(on)-typ}(@V_{GS}=10V)	<58mΩ (Type:48mΩ)

APPLICATIONS

- Battery protection
- Load switch
- Uninterruptible 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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW50N20AF	TO-220F	YFW 50N20AF XXXXX	1000PCS/box
YFW50N20AP	TO-247	YFW 50N20AP XXXXX	600PCS/box
YFW50N20AC	TO-220C	YFW 50N20AC XXXXX	1000PCS/box
YFW50N20AS	TO-263	YFW 50N20AS XXXXX	1000PCS/box

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	± 20	V
Continue Drain Current	I_D	50	A
Pulsed Drain Current (Note1)	I_{DM}	200	A
Power Dissipation	P_D	158	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	800	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.79	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	40	°C/W

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

Electrical Characteristics at Tc=25°C unless otherwise specified

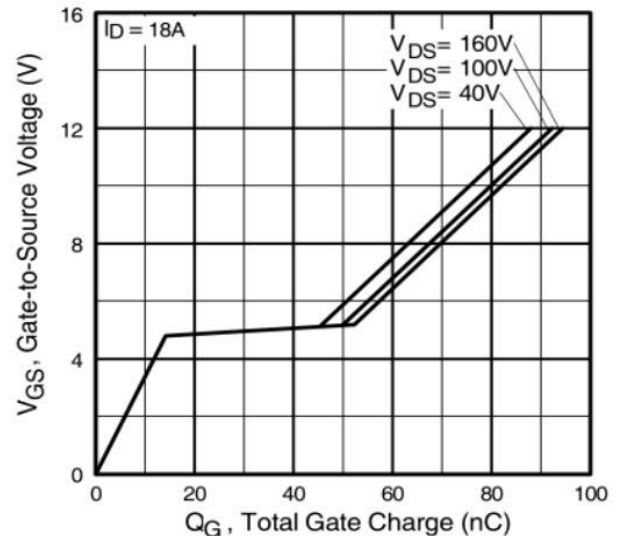
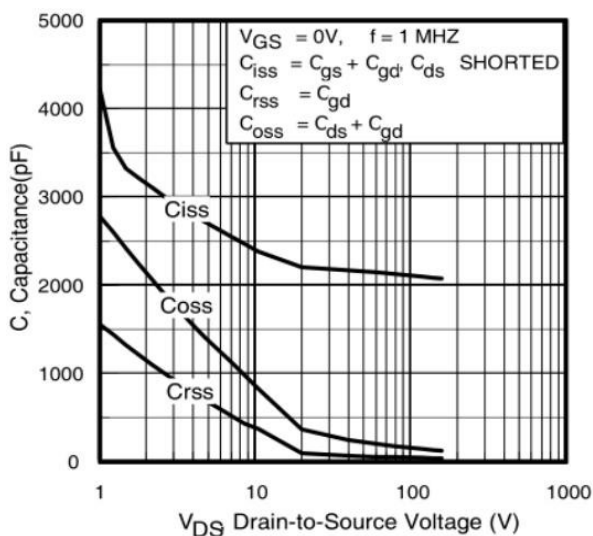
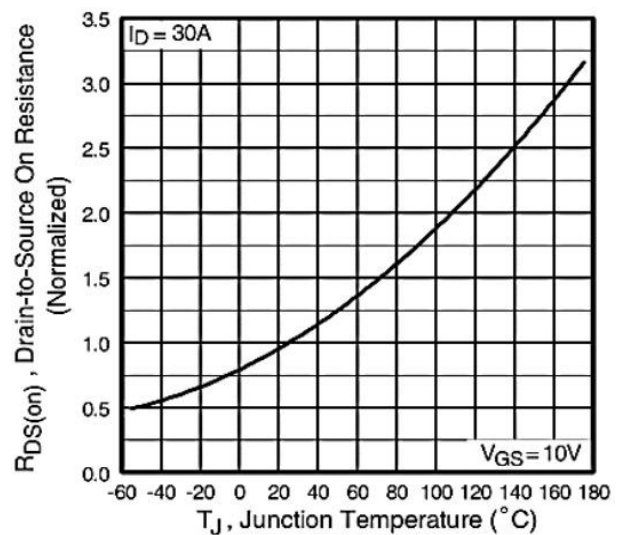
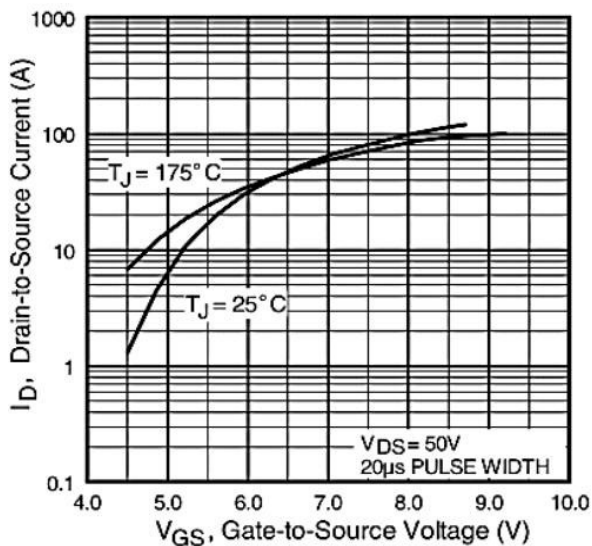
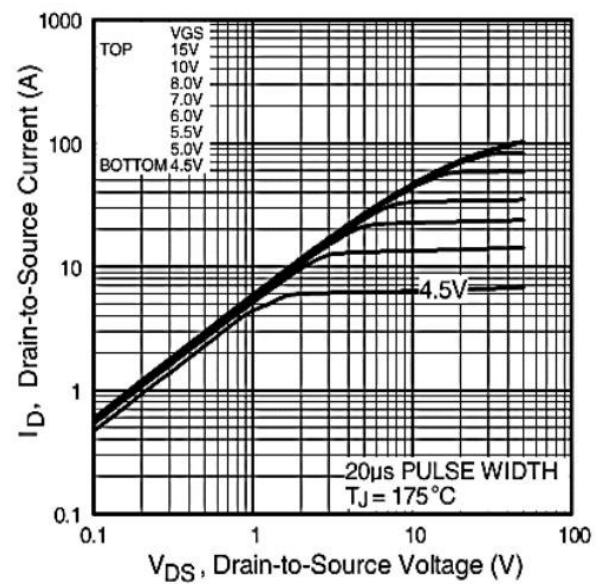
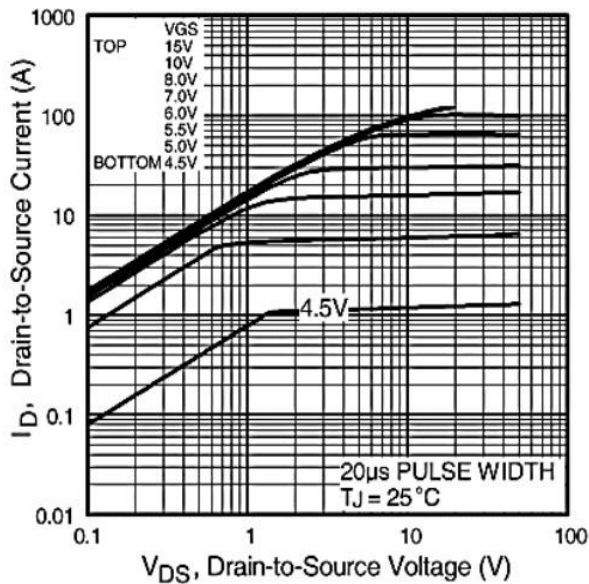
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	BV_{DSS}	200	-	-	V
Drain-Source Leakage Current	$V_{DS} = 200\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	$V_{GS} = 10\text{ V}, I_D = 26\text{ A}$	$R_{DS(on)}$	-	48	58	m Ω
Forward Transconductance	$V_{DS} = 40\text{ V}, I_D = 14\text{ A}$	g_{fs}	-	24	-	S
Input Capacitance	$V_{DS}=25\text{ V}, V_{GS}=0\text{ V}, f=1\text{ MHz}$	C_{iss}	-	2900	-	pF
Output Capacitance		C_{oss}	-	360	-	pF
Reverse Transfer Capacitance		C_{rss}	-	81	-	pF
Turn-on Delay Time(Note2)	$V_{DD}=100\text{ V}, V_{GS}=10\text{ V}, RG=25\text{ }\Omega, I_D=28\text{ A}$	$t_{d(ON)}$	-	28	-	ns
Rise Time(Note2)		t_r	-	250	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	305	-	ns
Fall Time(Note2)		t_f	-	220	-	ns
Total Gate Charge(Note2)	$V_{DS}=160\text{ V}, V_{GS}=10\text{ V}, I_D=28\text{ A}$	Q_G	-	105	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	16	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	55	-	nC

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

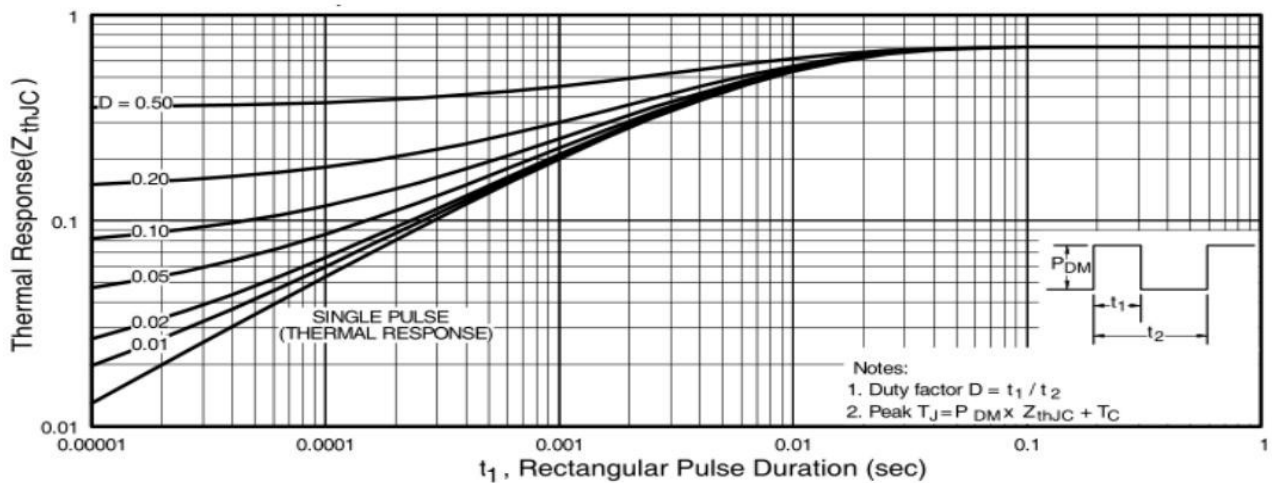
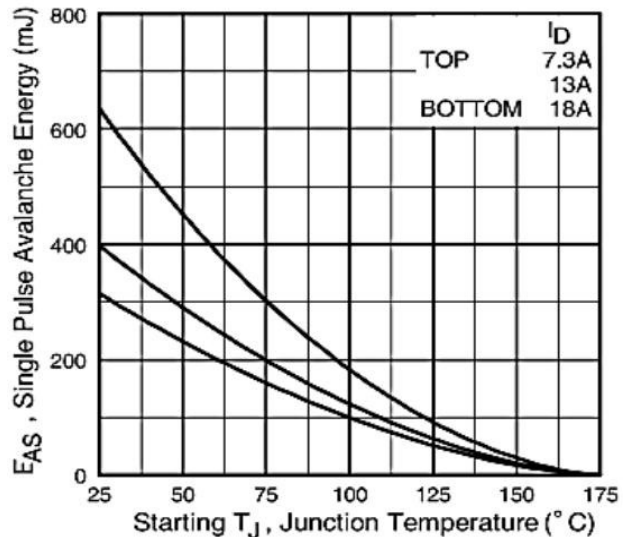
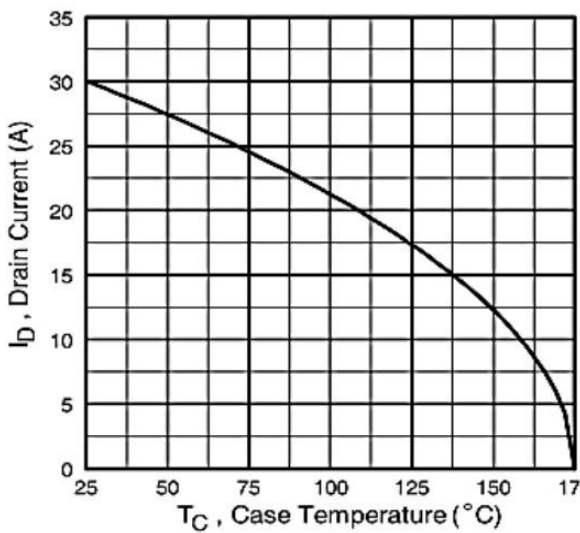
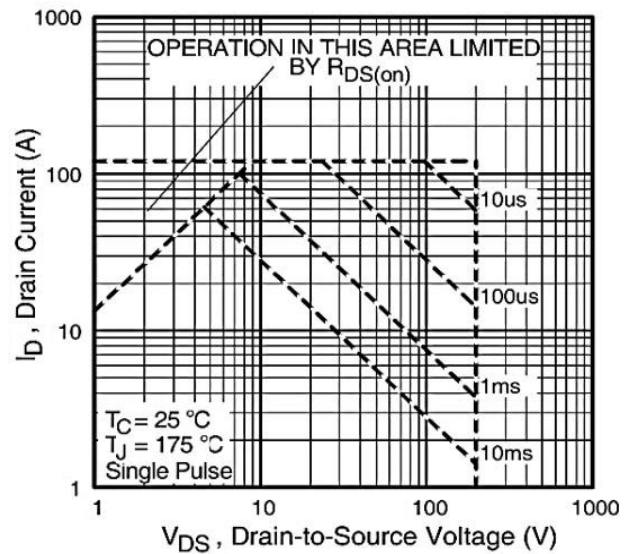
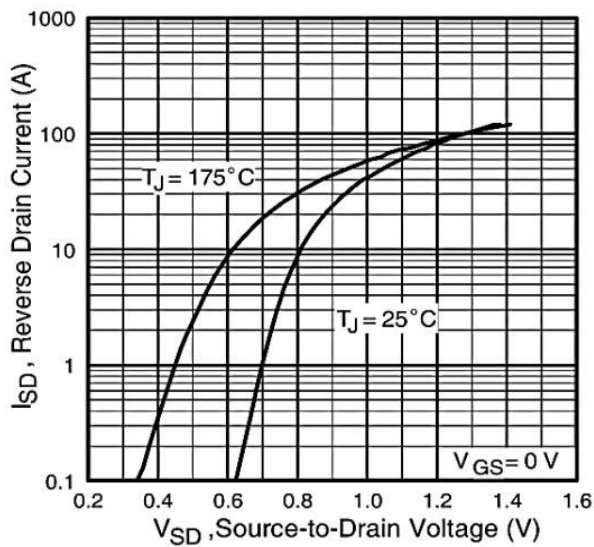
Characteristics	Test Condition	Symbo	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	50	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	200	A
Drain-Source Diode Forward Voltage	$V_{GS}=0\text{ V}, I_S=28\text{ A}, T_J=25\text{ }^\circ\text{C}$	V_{SD}	-	-	1.4	V
Reverse Recovery Time(Note2)	$T_J = 25\text{ }^\circ\text{C}, I_F = 28\text{ A}$	t_{rr}	-	215	-	ns
Reverse Recovery Charge(Note2)	$di / dt = 100\text{ A}/\mu\text{s}$	Q_{rr}	-	2	-	nC

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

Ratings And Characteristic Curves

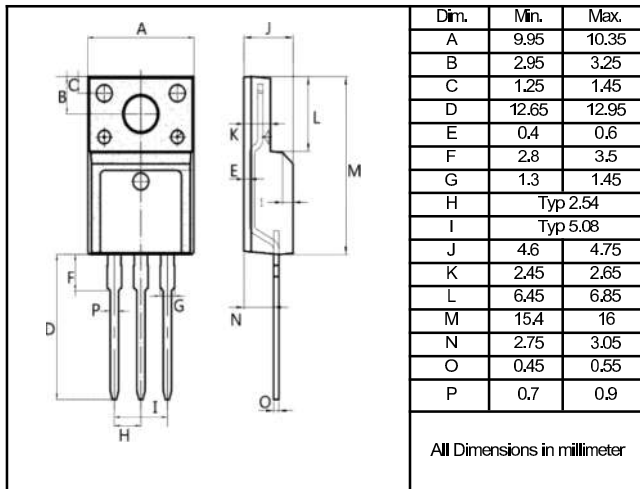


Ratings And Characteristic Curves

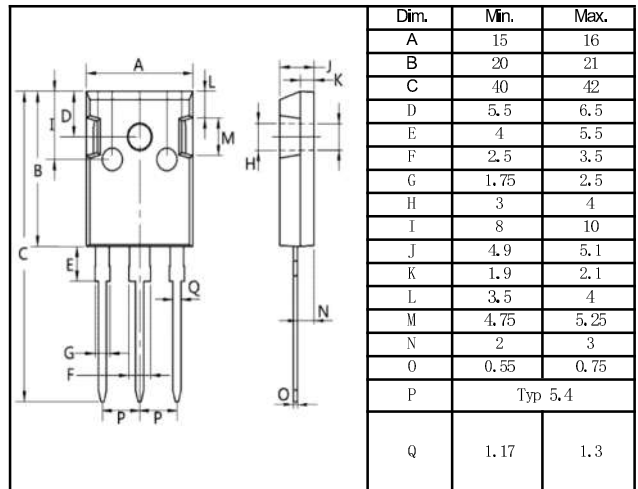


Package Outline Dimensions millimeters

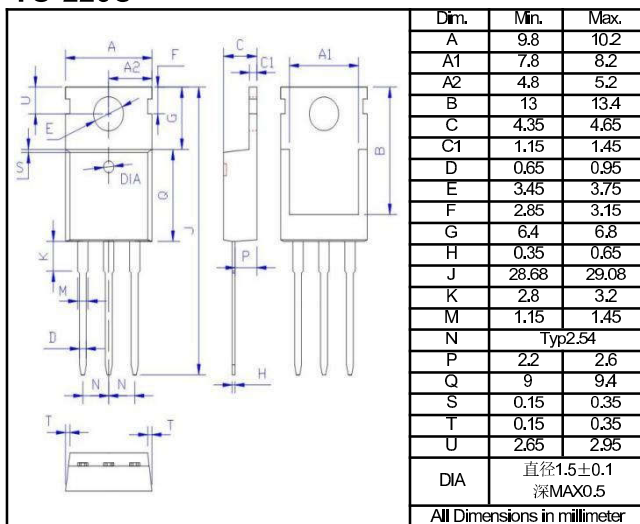
TO-220F



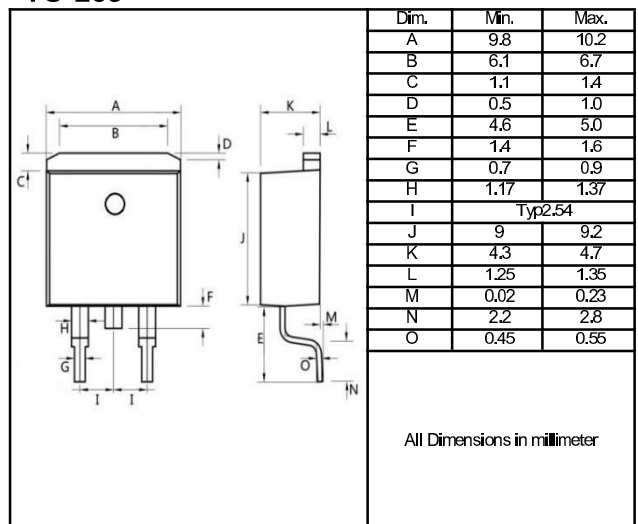
TO-247



TO-220C



TO-263



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