



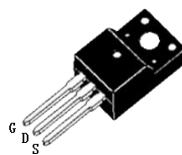
DONGGUAN NANJING ELECTRONICS LTD.,

Plastic-Encapsulate MOSFETS

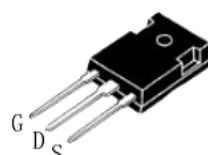
NJ50N20 N-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

I_D	50A
V_{DSS}	200V
$R_{DS(on)-typ}$ (@ $V_{GS}=10V$)	48m Ω



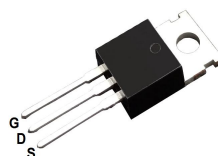
TO-220F



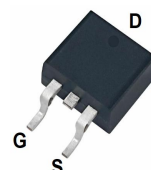
TO-247

FEATURES

This device is suitable for use as a
Battery protection or in other Switching application.



TO-220



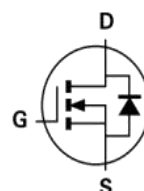
TO-263

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°C maximum, 10s per JESD 22-B106



Product specification classification

Part Number	Package	Mode Name	Pack
NJ50N20F	TO-220F (1.3mm)	NJ50N20F	Tube
NJ50N20C	TO-247	NJ50N20C	Tube
NJ50N20	TO-220	NJ50N20	Tube
NJ50N20B	TO-263	NJ50N20B	Tube

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

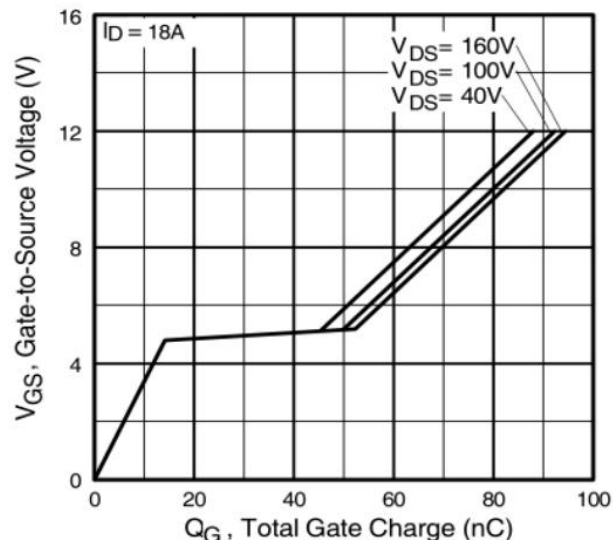
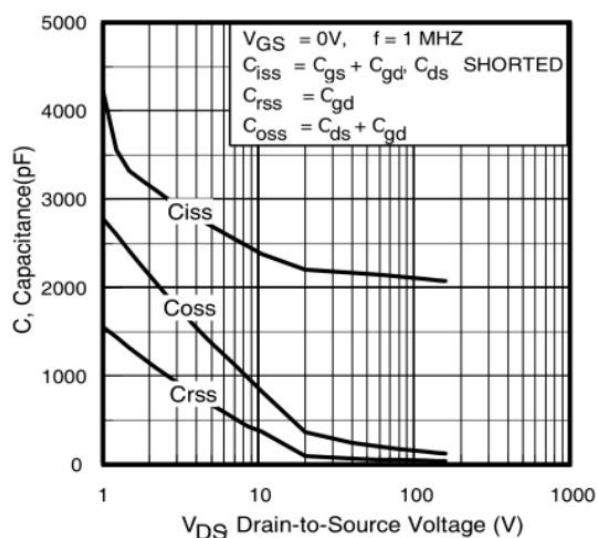
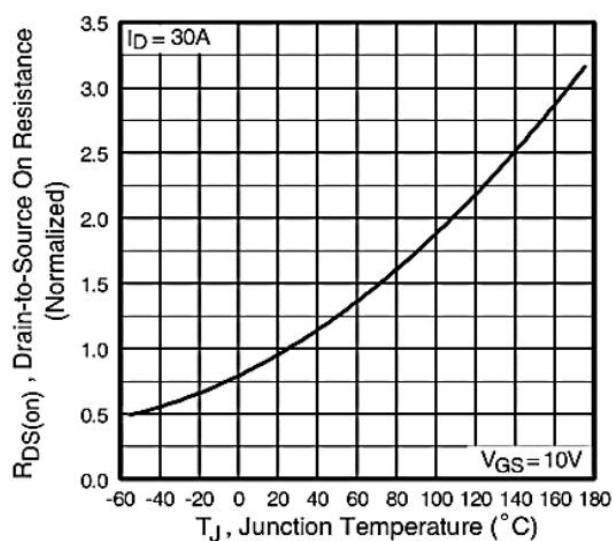
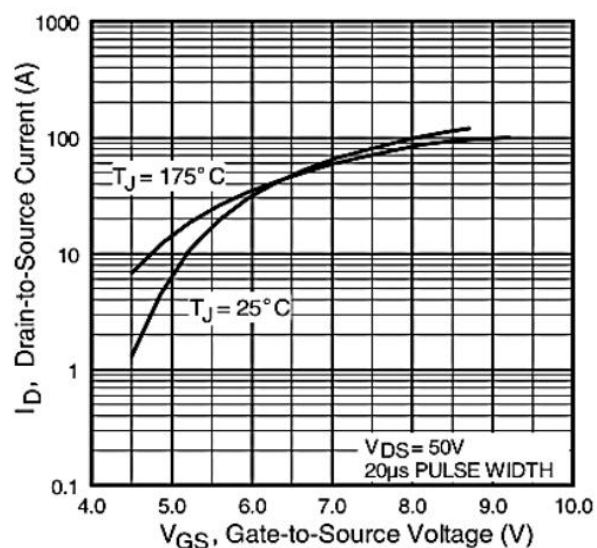
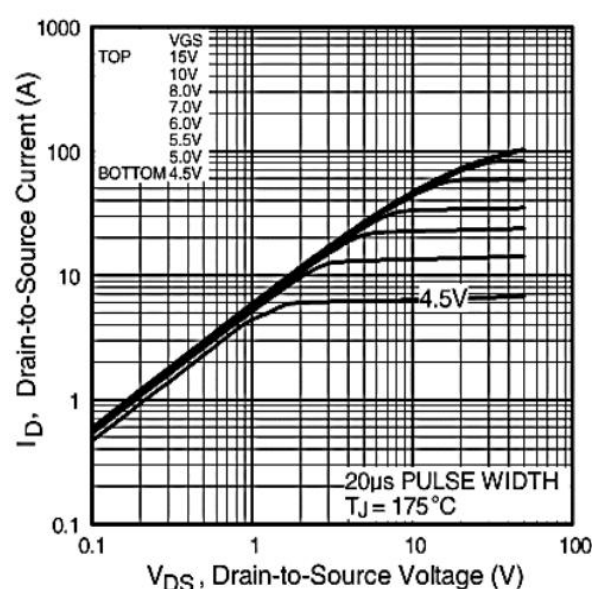
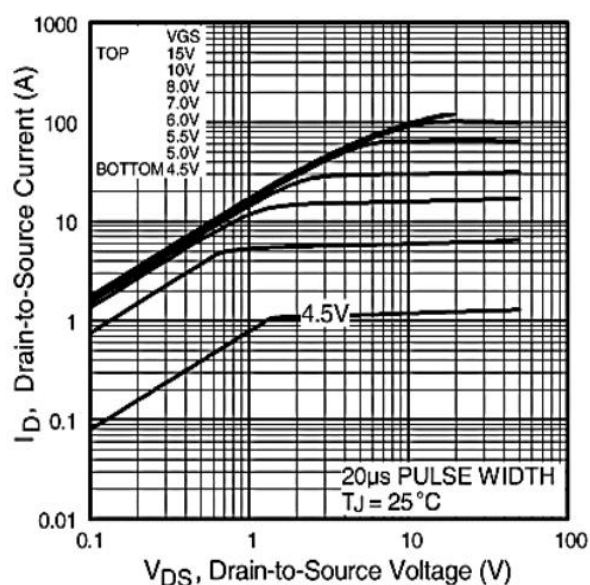
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$	BV_{DSS}	200	-	-	V
Drain-Source Leakage Current	$V_{DS} = 200 \text{ V}, V_{GS} = 0 \text{ V}$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20 \text{ V}, V_{DS} = 0 \text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	$V_{GS(th)}$	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	$V_{DS} = 40 \text{ V}, I_D = 14 \text{ A}$	gfs	-	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)	$V_{DD}=100\text{V}, V_{GS}=10\text{V}, R_G=25\Omega, I_D=28\text{A}$	$t_{d(ON)}$	-	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

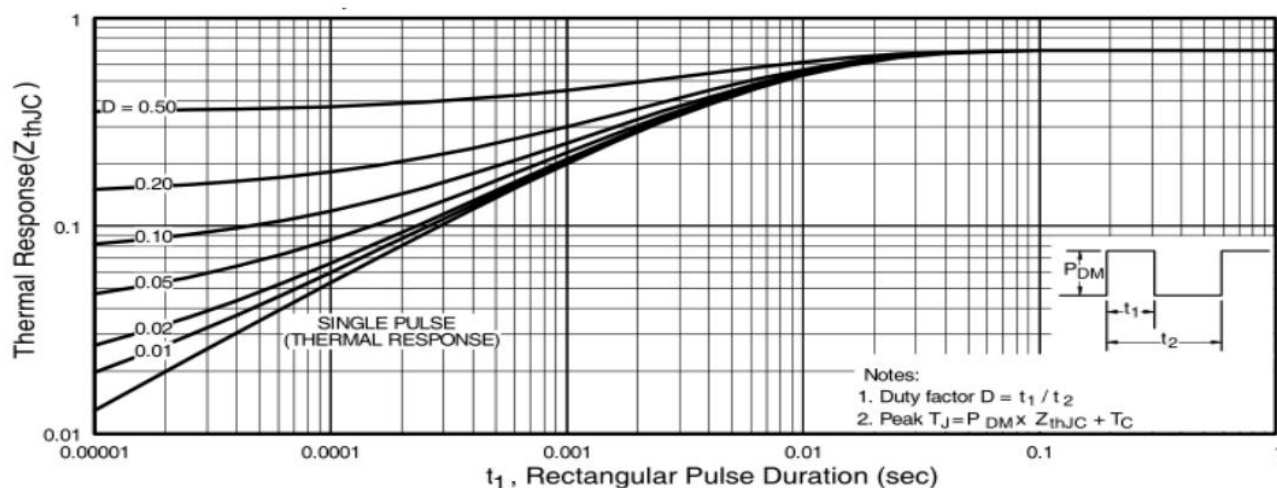
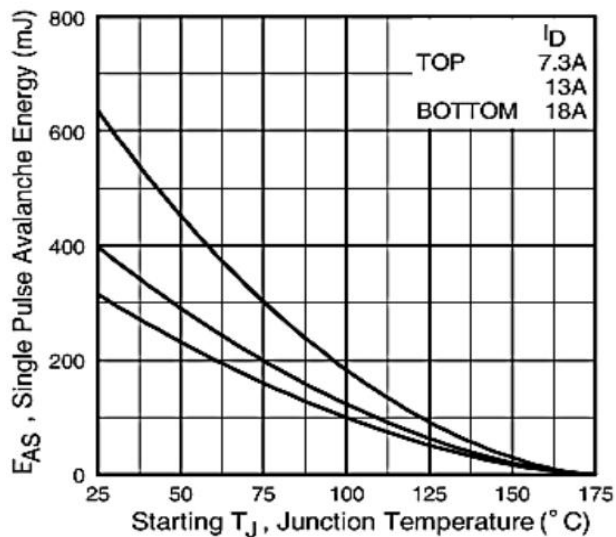
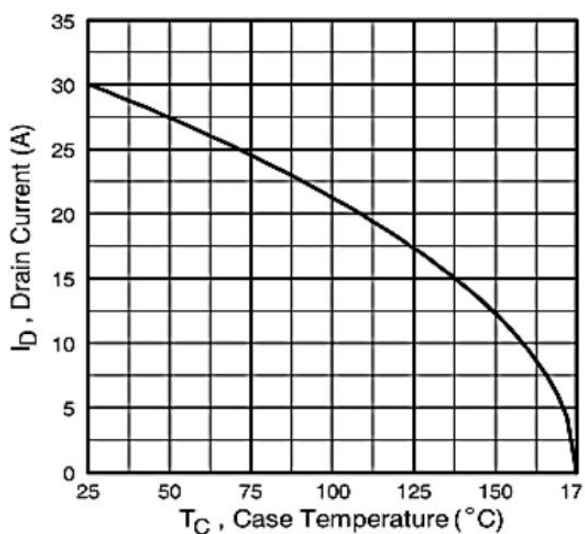
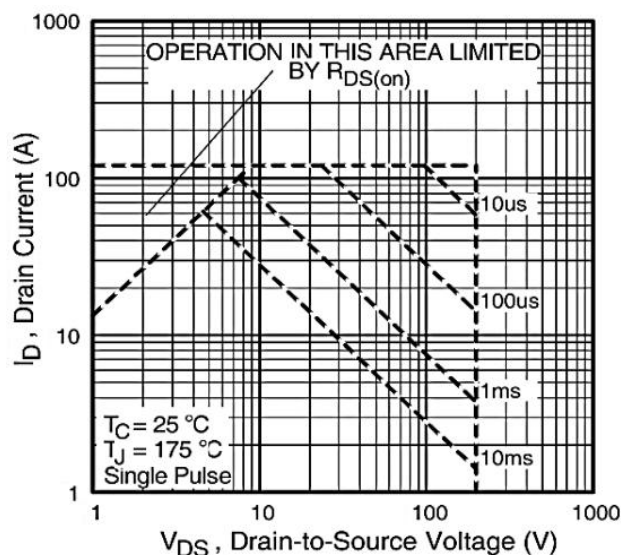
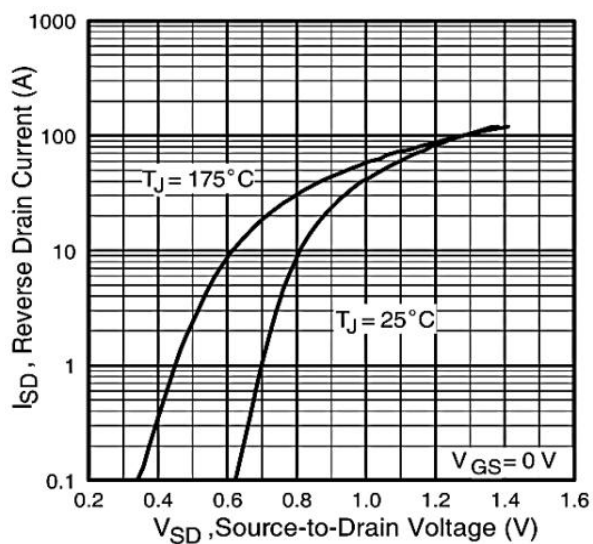
Characteristics	Test Condition	Symbo	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	50	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	200	A
Drain-Source Diode Forward Voltage	$V_{GS}=0\text{V}, I_S=28\text{A}, T_J=25^\circ\text{C}$	V_{SD}	-	-	1.4	V
Reverse Recovery Time(Note2)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

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

RATINGS AND CHARACTERISTIC CURVES

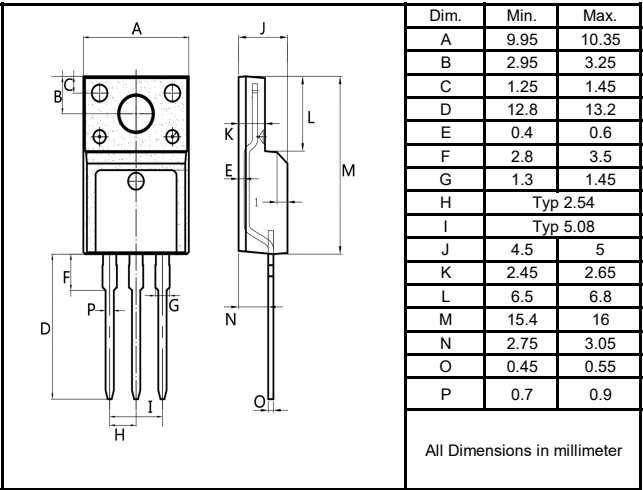


RATINGS AND CHARACTERISTIC CURVES

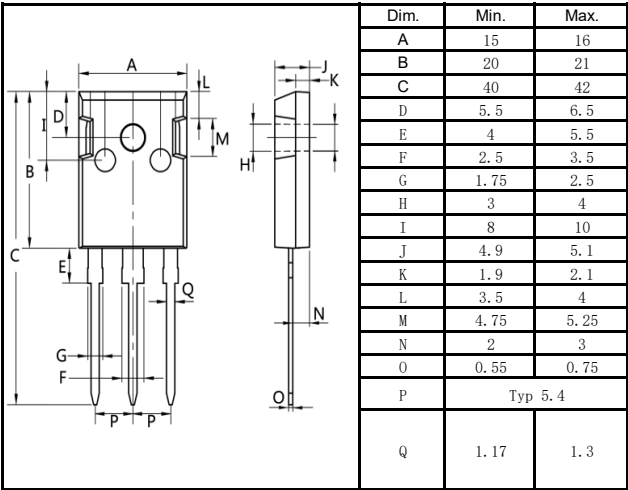


Package Outline Dimensions millimeters

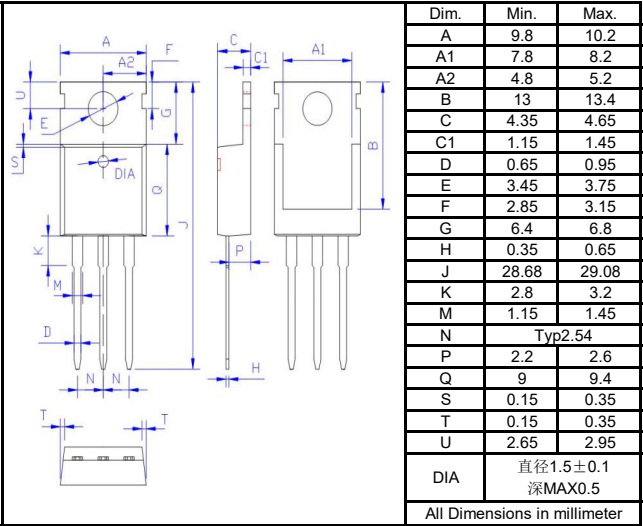
T0-220F



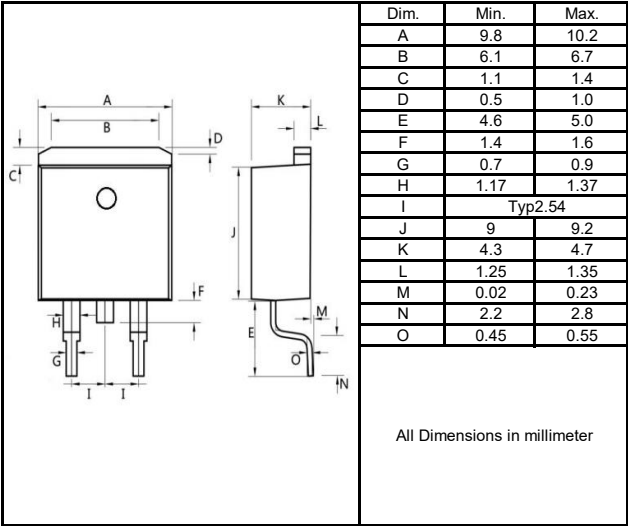
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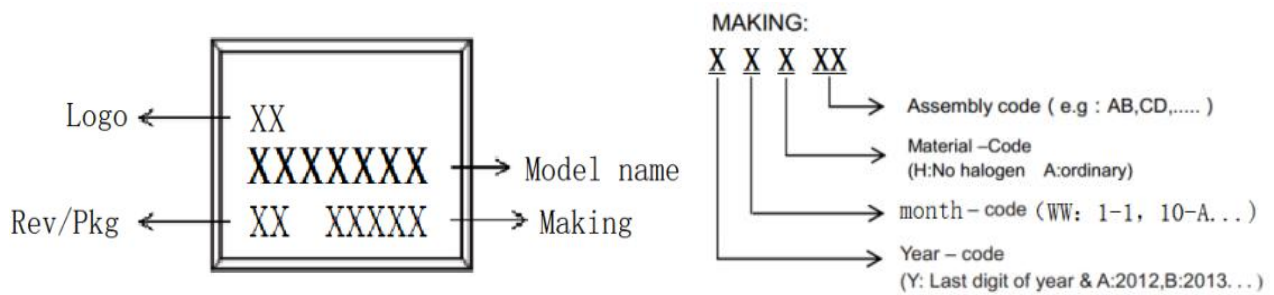
T0-220



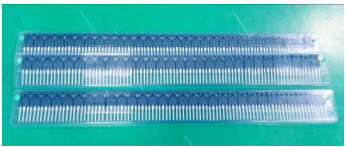
T0-263



Marking on the body



packing instruction

PKG	最小包装	内盒	外箱
TO-220F TO-220 TO-263			
	50pcs/管	1000pcs/盒	5000pcs/箱
TO-247			
	30PCS/管	600pcs/盒	3000pcs/箱
TO-263			
	800pcs/盘	1600pcs/盒	8000pcs/箱