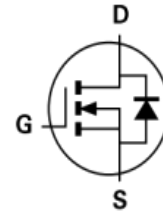


MAIN CHARACTERISTICS

I_D	90A
V_{DSS}	200V
$R_{DS(on)-typ}$ (@ $V_{GS}=10V$)	19m Ω



FEATURES

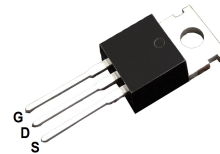
- Proprietary New Trench Technology
- Low Gate Charge Minimize Switching Loss
- Fast Recovery Body Diode

APPLICATIONS

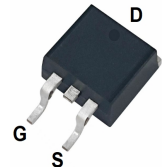
- Synchronous Rectification in SMPS
- Motor Control
- Hard Switching and High Speed Circuit

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



TO-220C



TO-263C

Product specification classification

Part Number	Package	Mode Name	Pack
LG90N20AP	TO-220C	LG90N20AP	Tape
LG90N20AT	TO-263C	LG90N20AT	Tape

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	90	A
Pulsed Drain Current (Note1)	I_{DM}	360	A
Power Dissipation	P_D	335	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	1100	mJ
Operating Temperature Range	T_J	175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.45	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	°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	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	$V_{GS(th)}$	2.5	-	4.5	V
Drain-Source On-State Resistance	$V_{GS} = 10 \text{ V}, I_D = 35 \text{ A}$	$R_{DS(on)}$	-	19	23	m Ω
Input Capacitance	$V_{GS} = 0 \text{ V}, V_{DS} = 100 \text{ V}, f = 1 \text{ MHz}$	C_{iss}	-	3328	-	pF
Output Capacitance		C_{oss}	-	207	-	pF
Reverse Transfer Capacitance		C_{rss}	-	12.8	-	pF
Turn-on Delay Time(Note2)	$V_{GS}=10\text{V}, V_{DD}=100 \text{ V}, R_G=10 \Omega, I_D=35 \text{ A}$	$t_{d(ON)}$	-	26.4	-	ns
Rise Time(Note2)		t_r	-	15.5	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	39.6	-	ns
Fall Time(Note2)		t_f	-	10.5	-	ns
Total Gate Charge(Note2)	$I_D = 35 \text{ A}, V_{DD} = 100 \text{ V}, V_{GS} = 10 \text{ V}$	Q_G	-	40	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	17	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	6	-	nC

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

Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	90	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	360	A
Drain-Source Diode Forward Voltage	$I_{SD} = 35 \text{ A}$	V_{SD}	-	-	1.2	V
Reverse Recovery Time(Note2)	$I_{SD} = 35 \text{ A}, V_{GS} = 0 \text{ V}, dI_F / dt = 100 \text{ A}/\mu\text{s}$	t_{rr}	-	161	-	ns
Reverse Recovery Charge(Note2)		Q_{rr}	-	458	-	nC

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

RATINGS AND CHARACTERISTIC CURVES

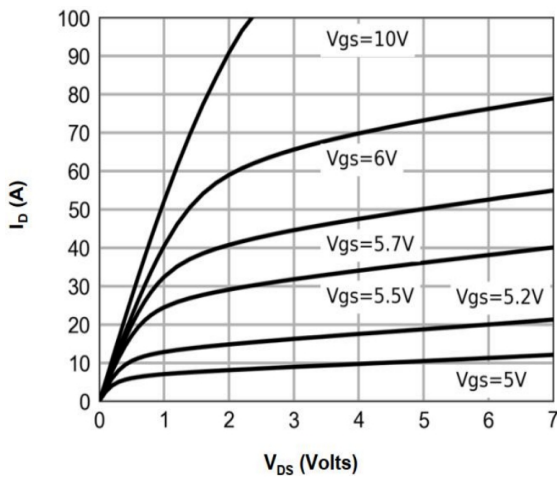


Figure 1: On-Region Characteristics

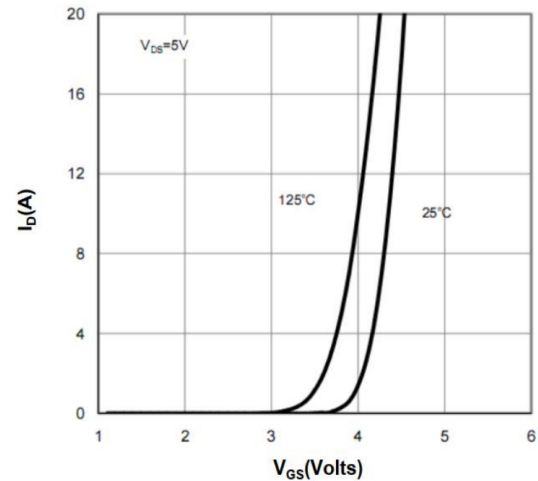


Figure 2: Transfer Characteristics

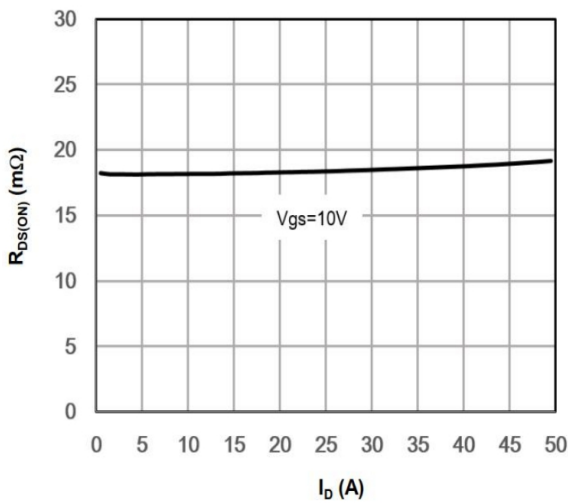


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

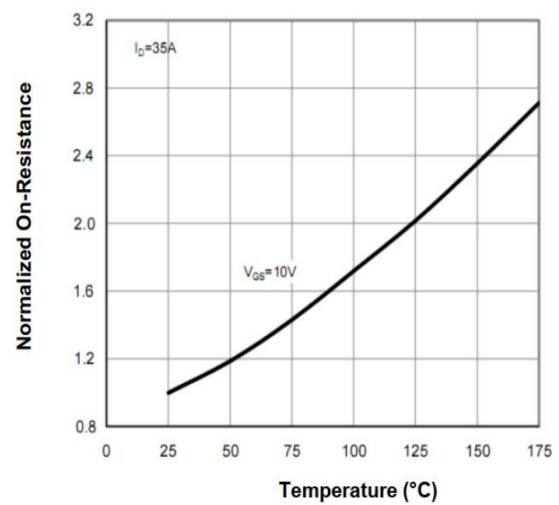


Figure 4: On-Resistance vs. Junction Temperature

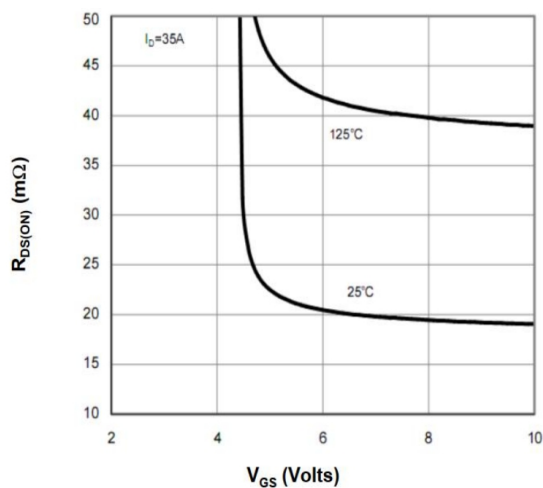


Figure 5: On-Resistance vs. Gate-Source Voltage

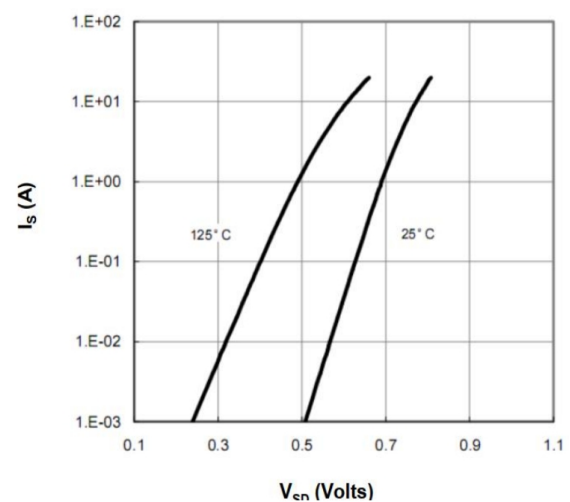


Figure 6: Body-Diode Characteristics

RATINGS AND CHARACTERISTIC CURVES

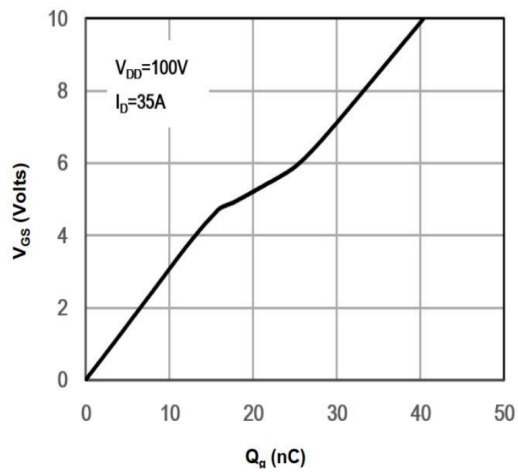


Figure 7: Gate-Charge Characteristics

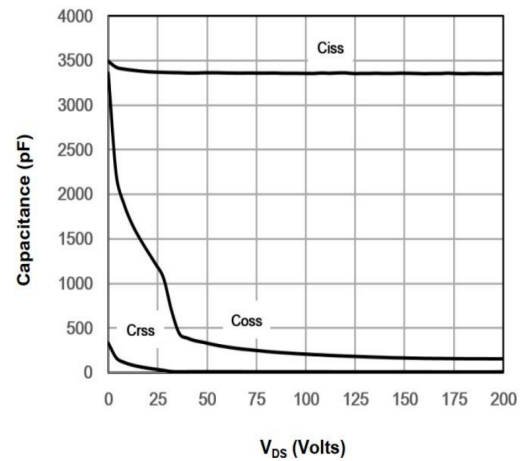


Figure 8: Capacitance Characteristics

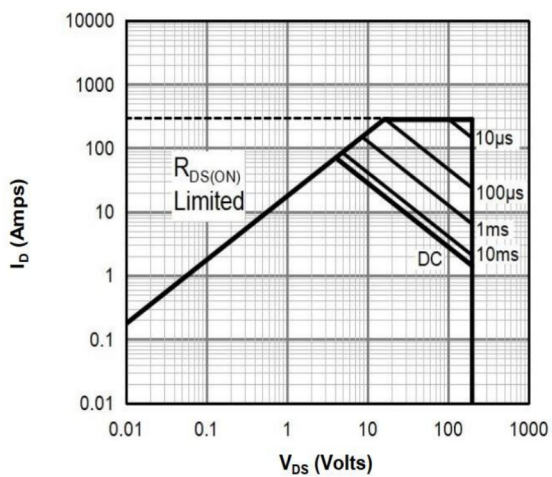
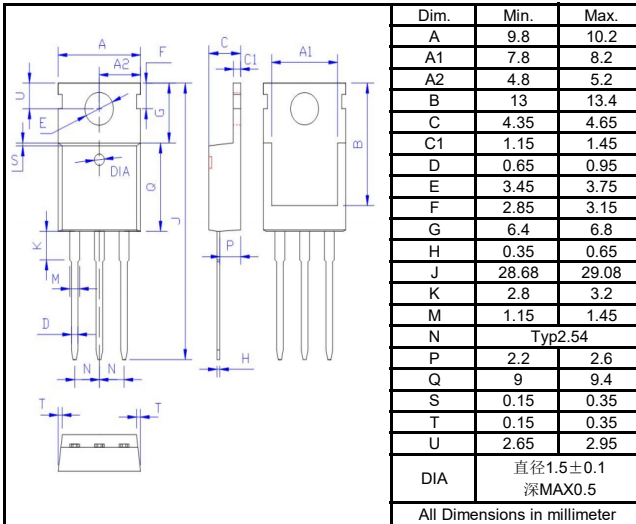


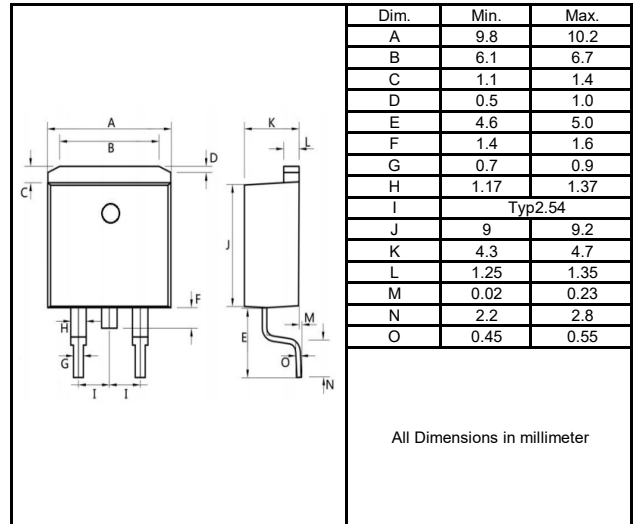
Figure 9: Maximum Forward Biased Safe Operating Area

Package Outline Dimensions millimeters

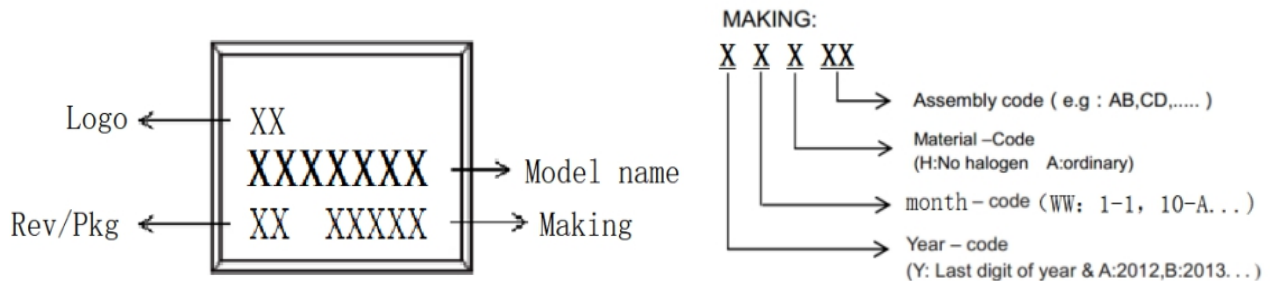
TO-220C



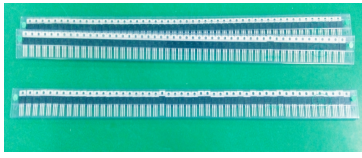
TO-263C



Marking on the body



packing instruction

PKG	最小包装	内盒	外箱
TO-220C TO-263C			
	50PCS/管	1000pcs/盒	5000pcs/箱
TO-263C			
	800pcs/盘	1600pcs/盒	8000pcs/箱

Notice

All product,product specifications and data are subject to change without notice to improve.The right to explain is owned by LINGXUN electronics company.

Confirm that operation temperature is within the specified range described in the product specification. Avoid applying poer exceeding normal rated poer; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.

LINGXUN electronics shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.