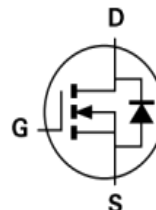


MAIN CHARACTERISTICS

I_D	120A
V_{DSS}	30V
$R_{DS(on)-typ}$ (@ $V_{GS}=10V$)	2.8m Ω



FEATURES

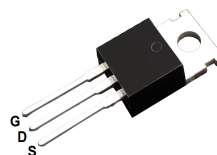
- Advanced Trench Technology
- Excellent RDS(ON) and Low Gate Charge

APPLICATIONS

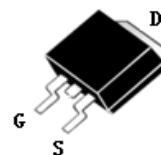
- Load Switch
- PWM Application
- Power Management

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
LT120N03AP	TO-220C	LT120N03AP	Tape
LT120N03AT	TO-263C	LT120N03AT	Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continue Drain Current	I_D	120	A
Pulsed Drain Current (Note1)	I_{DM}	400	A
Power Dissipation	P_D	3.9	W
Single Pulse Avalanche Energy	E_{AS}	156	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case(Note 2)	$R_{\theta JC}$	1.6	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	32	°C/W

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}	30	-	-	V
Drain-Source Leakage Current	$V_{DS} = 30\text{V}, V_{GS} = 0 \text{ V}$	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	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	$V_{GS(th)}$	1.2	-	2.5	V
Drain-Source On-State Resistance (Note 3)	$V_{GS} = 10 \text{ V}, I_D = 30\text{A}$	$R_{DS(on)}$	-	2.8	3.6	m Ω
	$V_{GS} = 4.5 \text{ V}, I_D = 20\text{A}$		-	4.7	6.1	m Ω
Input Capacitance	$V_{GS} = 0 \text{ V}, V_{DS} = 15 \text{ V}, f = 100\text{KHz}$	C_{iss}	-	3089	-	pF
Output Capacitance		C_{oss}	-	372	-	pF
Reverse Transfer Capacitance		C_{rss}	-	302	-	pF
Turn-on Delay Time	$V_{DS} = 15\text{V}, I_D = 30\text{A}$ $V_{GS} = 10\text{V}, R_G = 3\Omega$	$t_{d(ON)}$	-	11	-	ns
Rise Time		t_r	-	29	-	ns
Turn-Off Delay Time		$t_{d(OFF)}$	-	47	-	ns
Fall Time		t_f	-	18	-	ns
Total Gate Charge	$V_{DS} = 15\text{V}, I_D = 30\text{A}, V_{GS} = 10\text{V}$	Q_G	-	58	-	nC
Gate to Source Charge		Q_{GS}	-	12	-	nC
Gate to Drain Charge		Q_{GD}	-	13	-	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 (Note 2)		I_S	-	-	120	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	400	A
Drain to Source Diode Forward	$V_{GS} = 0\text{V}, I_S = 30\text{A}$	V_{SD}	-	-	1.2	V
Reverse Recovery Time	$I_S = I_F, I_{SD} = 30\text{A}, V_{GS} = 0 \text{ V},$	t_{rr}	-	16	-	ns
Reverse Recovery Charge	$dI / dt = 100 \text{ A}/\mu\text{s}$ (Note3)	Q_{rr}	-	7	-	nC

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

RATINGS AND CHARACTERISTIC CURVES

Figure 1: Output Characteristics

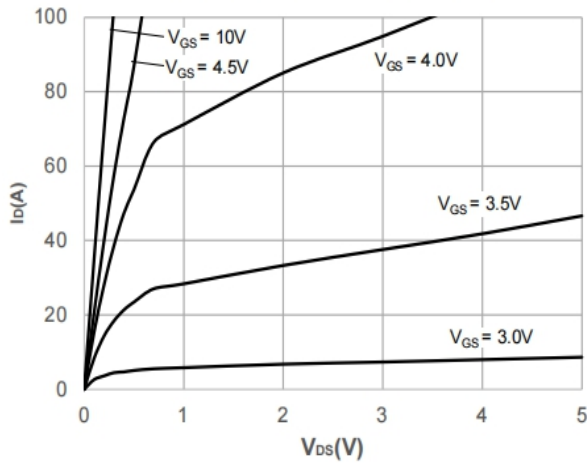


Figure 2: Typical Transfer Characteristics

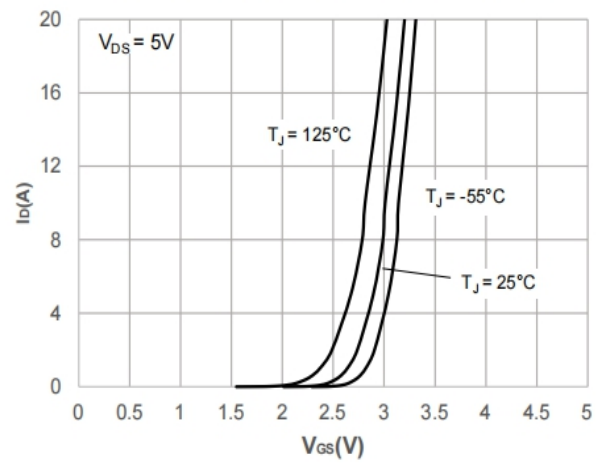


Figure 3: On-resistance vs. Drain Current

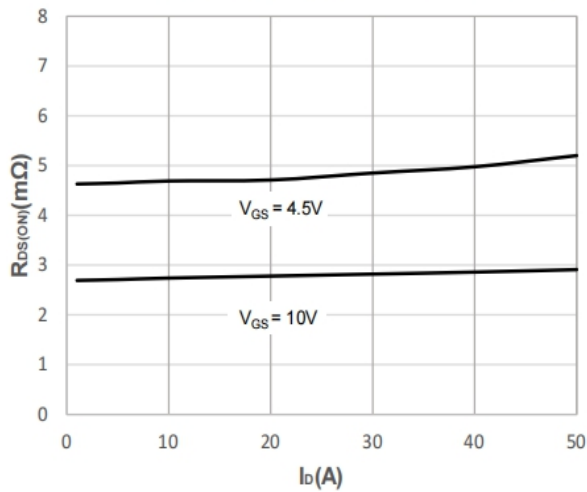


Figure 4: Body Diode Characteristics

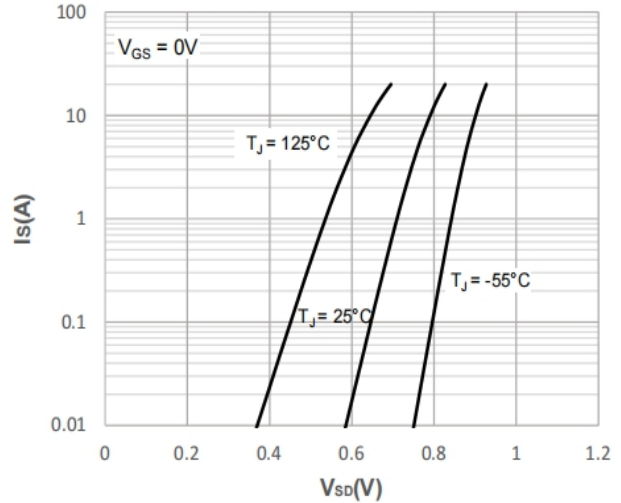


Figure 5: Gate Charge Characteristics

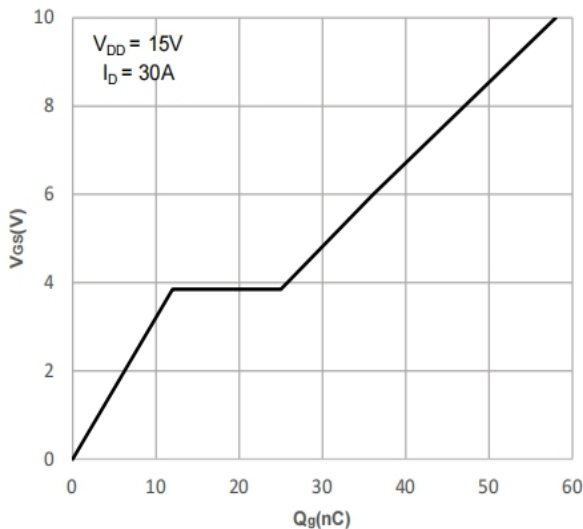
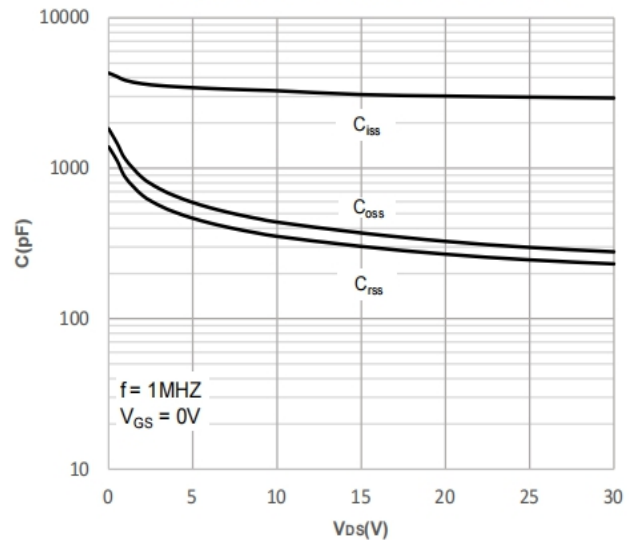


Figure 6: Capacitance Characteristics



RATINGS AND CHARACTERISTIC CURVES

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

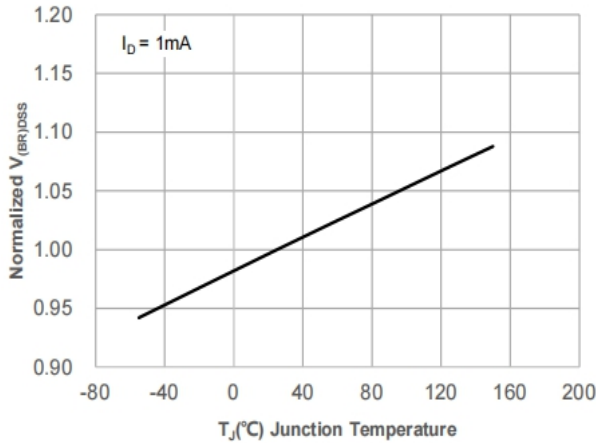


Figure 8: Normalized on Resistance vs. Junction Temperature

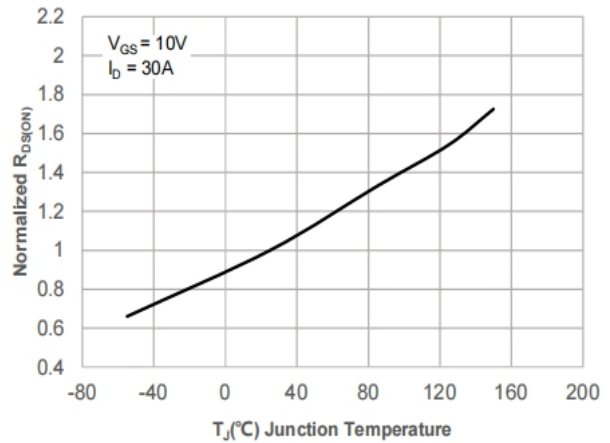


Figure 9: Maximum Safe Operating Area

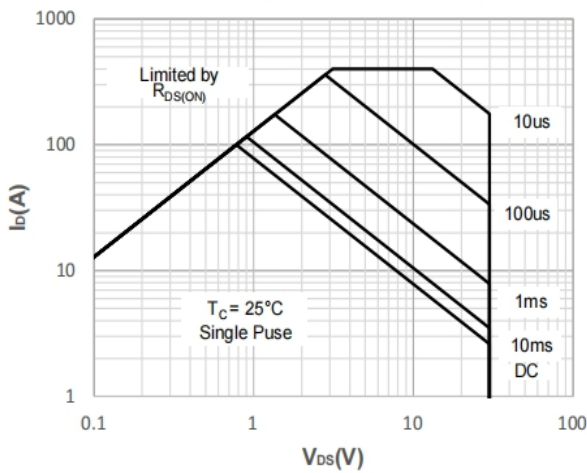


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

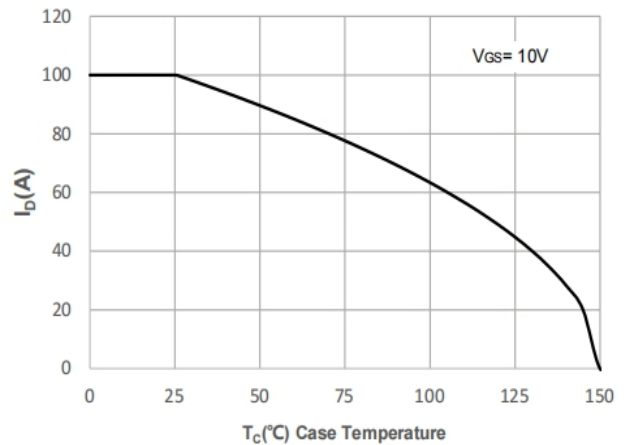


Figure 11: Normalized Maximum Transient Thermal Impedance

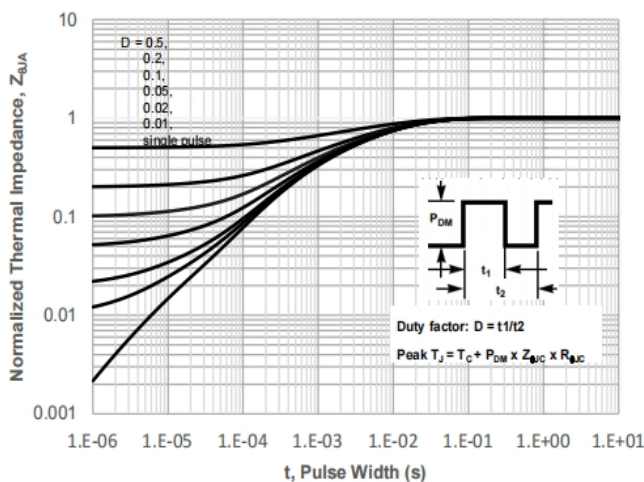
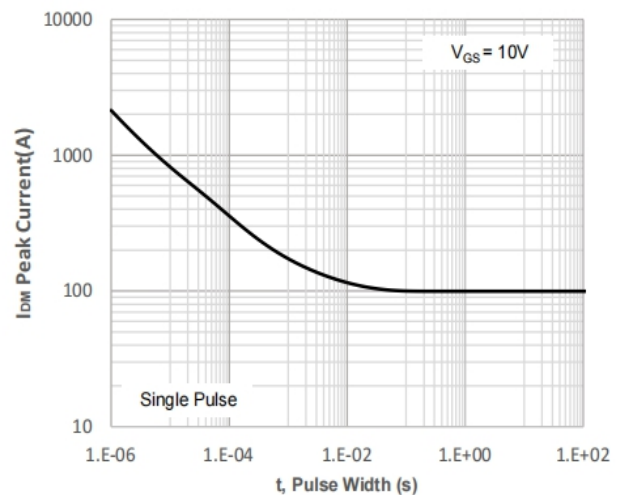
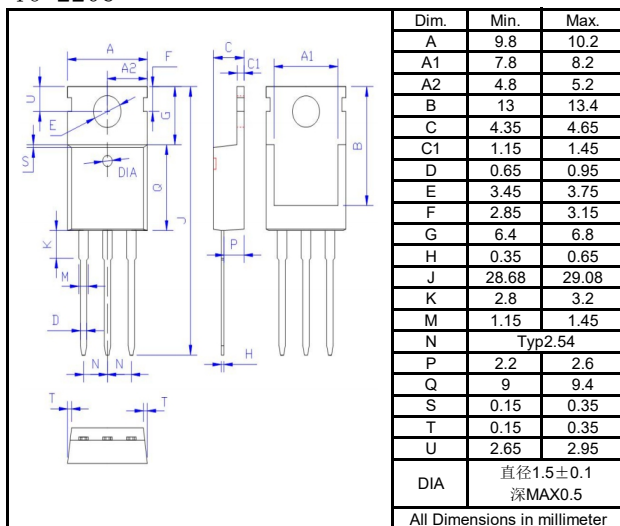


Figure 12: Peak Current Capacity

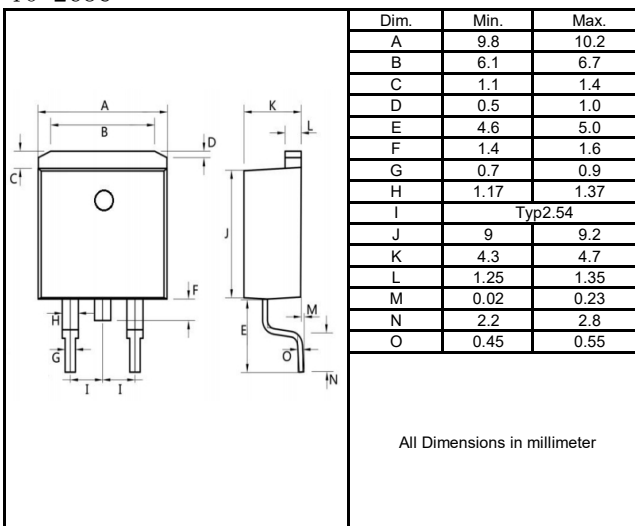


Package Outline Dimensions millimeters

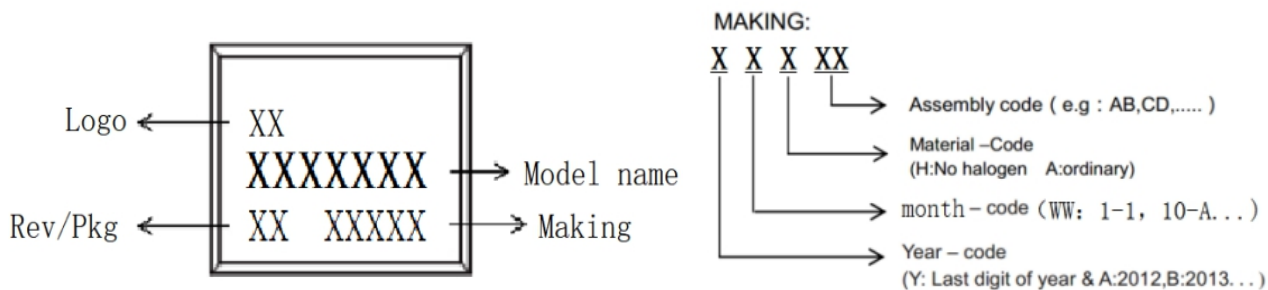
TO-220C



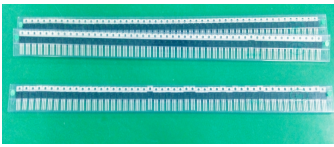
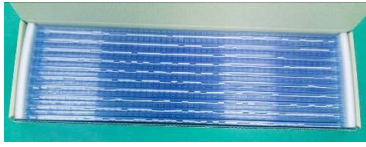
TO-263C



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.