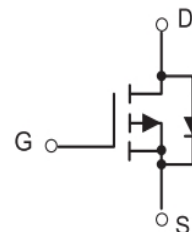


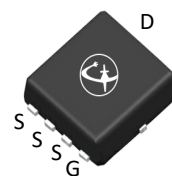
MAIN CHARACTERISTICS

I_D	30A
V_{DSS}	30V
$R_{DS(on)}$ -typ (@ $V_{GS}=-10V$) $T_c=25^{\circ}C$)	9.2m Ω



FEATURES

- Adopt advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.



PDFN3x3

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 $^{\circ}C$ maximum, 10s per JESD 22-B106

Product specification classification

Part Number	Package	Mode Name	Pack
LT30N03AQ	PDFN3x3	LT30N03AQ	Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continue Drain Current	I_D	30	A
Pulsed Drain Current (Note1)	I_{DM}	80	A
Power Dissipation	P_D	40	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	72	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.8	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	55	°C/W

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

Electrical Characteristics at Tc=25°C unless otherwise specified

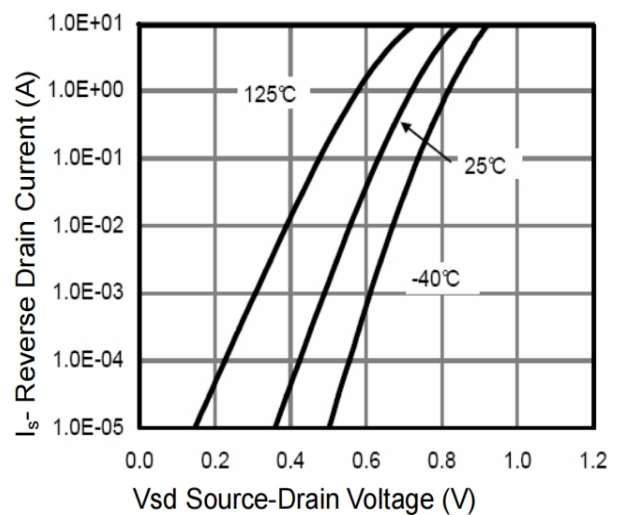
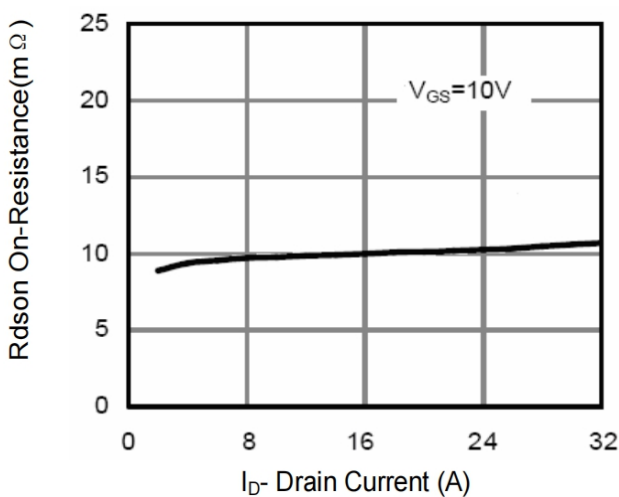
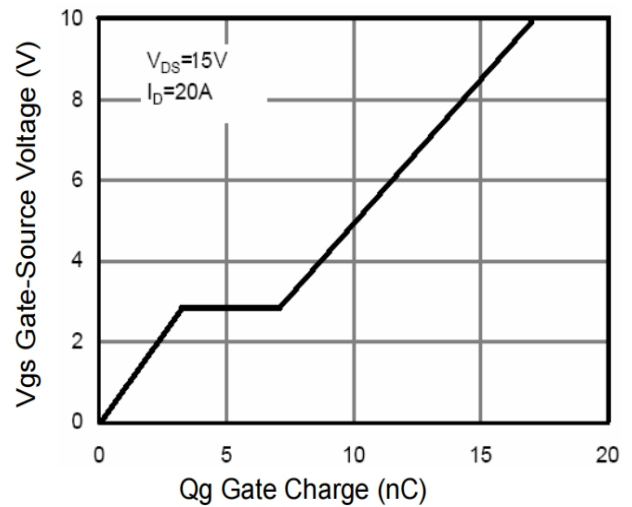
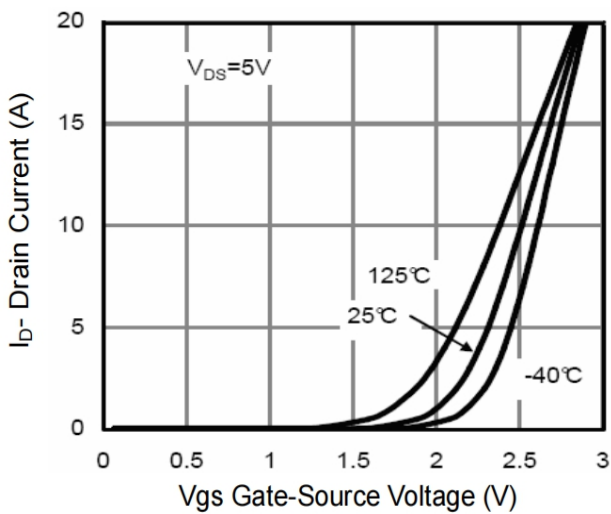
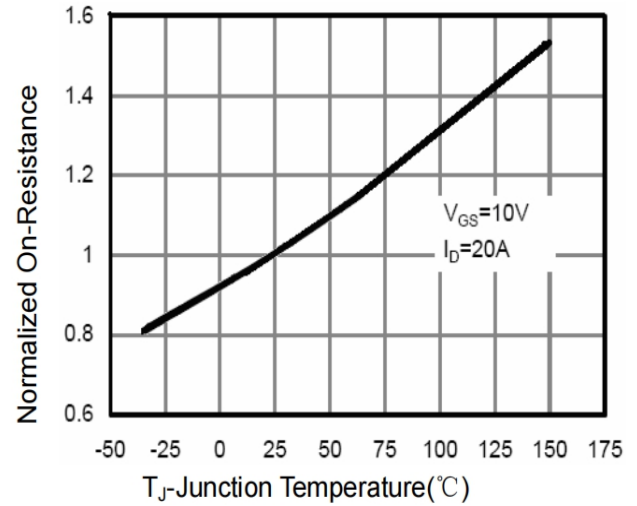
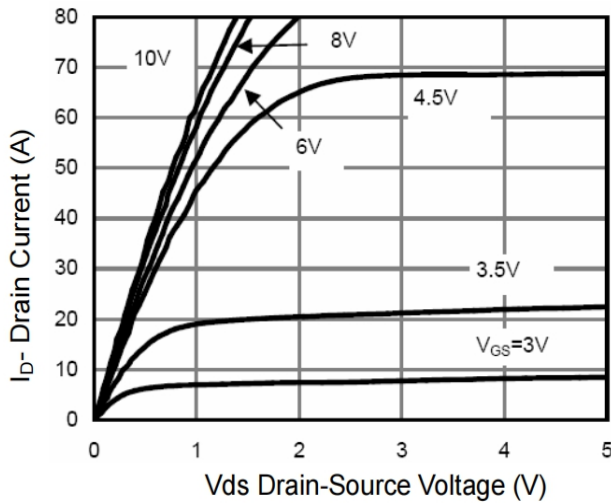
Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$	BV_{DSS}	30	-	-	V
Drain-Source Leakage Current	$V_{DS} = 30 \text{ V}, V_{GS} = 0 \text{ V}$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20 \text{ V}, V_{DS} = 0 \text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	$V_{GS(th)}$	1	-	2.5	V
Drain-Source On-State Resistance (Note 3)	$V_{GS} = 10 \text{ V}, I_D = 10 \text{ A}$	$R_{DS(on)}$	-	9.2	12	m Ω
	$V_{GS} = 4.5 \text{ V}, I_D = 5 \text{ A}$	$R_{DS(on)}$	-	15	21	m Ω
Forward Transconductance	$V_{DS} = 5 \text{ V}, I_D = 20 \text{ A}$	g_{fs}	26	-	-	S
Input Capacitance	$V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$	C_{iss}	-	938	-	pF
Output Capacitance		C_{oss}	-	142	-	pF
Reverse Transfer Capacitance		C_{rss}	-	99	-	pF
Turn-on Delay Time(Note2)	$V_{DD}=15\text{V}, V_{GS}=10\text{V}, RG=3\Omega, RL=0.75\Omega$	$t_{d(ON)}$	-	5	-	ns
Rise Time(Note2)		t_r	-	12	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	19	-	ns
Fall Time(Note2)		t_f	-	6	-	ns
Total Gate Charge(Note2)	$V_{DS}=15\text{V}, V_{GS}=10\text{V}, I_D=20\text{A}$	Q_G	-	17.5	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	3	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	4.1	-	nC

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

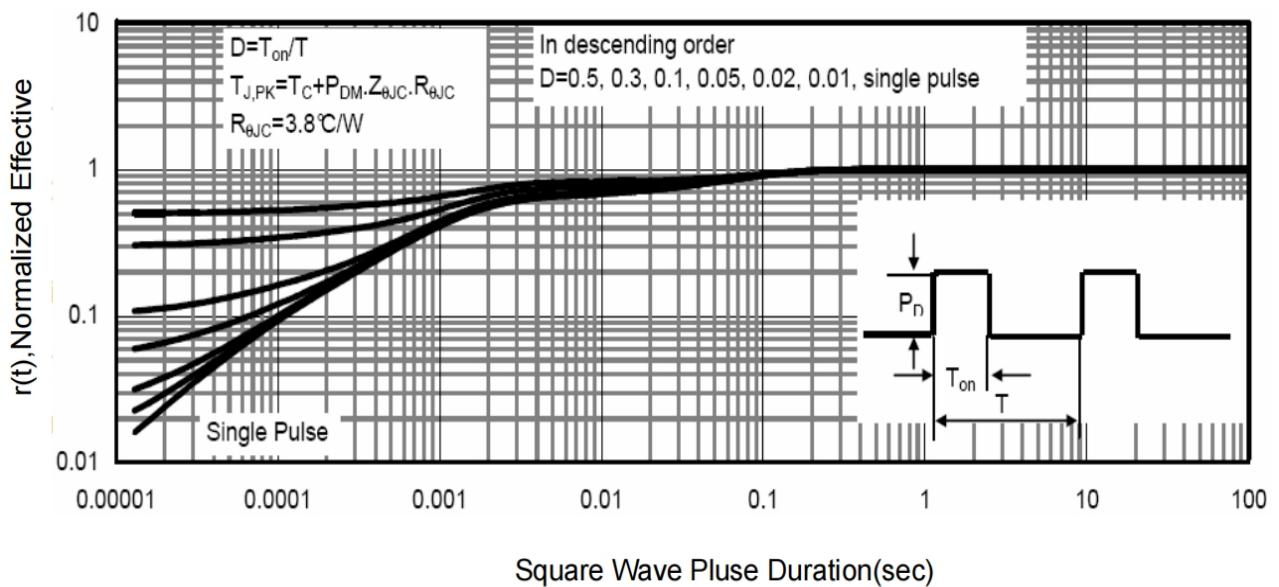
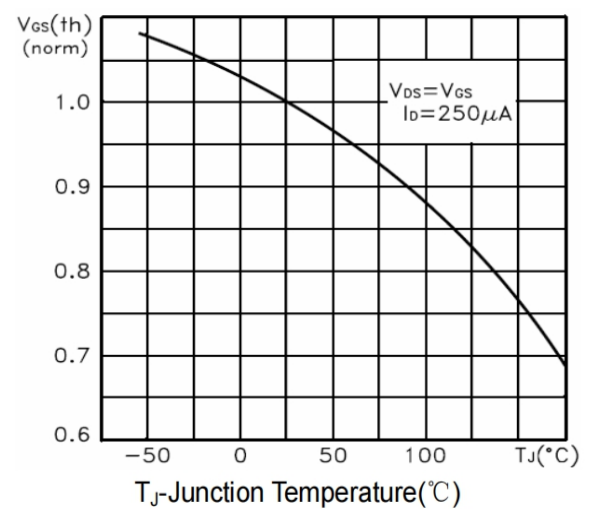
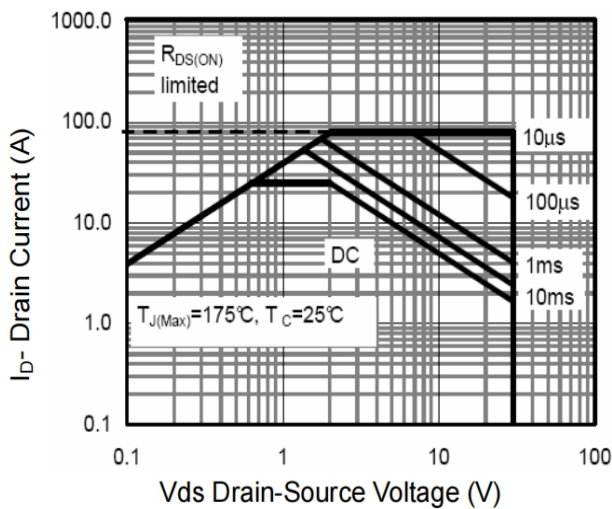
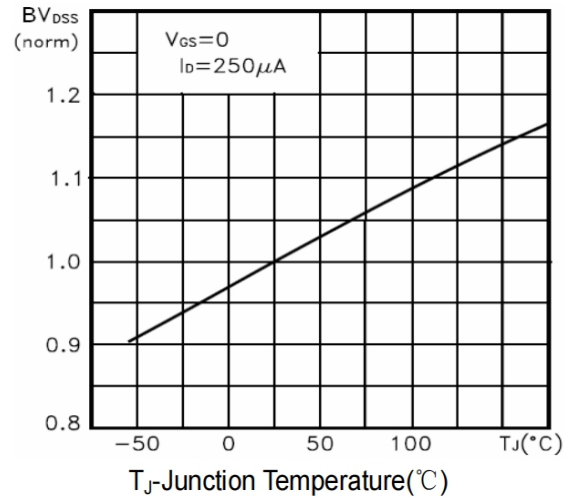
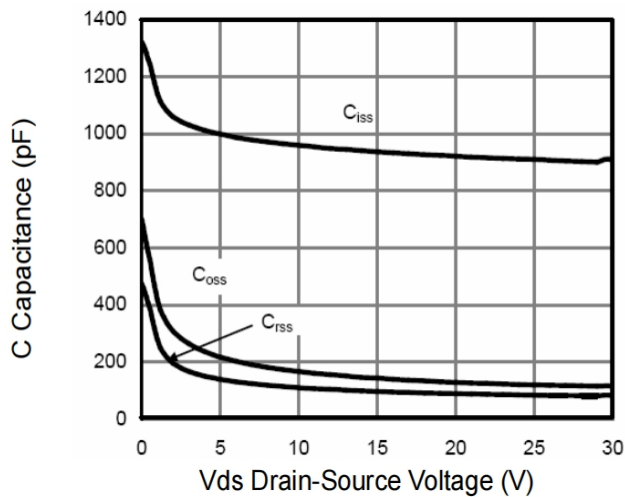
Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	30	A
Drain-Source Diode Forward Voltage	$V_{GS}=0\text{V}, I_S=20\text{A}, T_J=25^\circ\text{C}$	V_{SD}	-	-	1.2	V
Reverse Recovery Time(Note2)	$T_J = 25^\circ\text{C}, I_F = 20\text{A}$	t_{rr}	-	19	-	ns
Reverse Recovery Charge(Note2)	$di / dt = 100 \text{ A}/\mu\text{s}$	Q_{rr}	-	10	-	nC

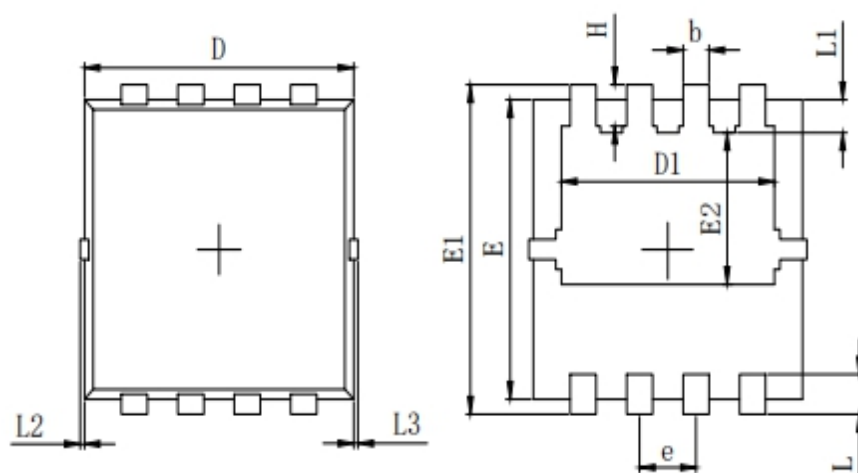
Note2:Pulse test: 300 μ s pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES

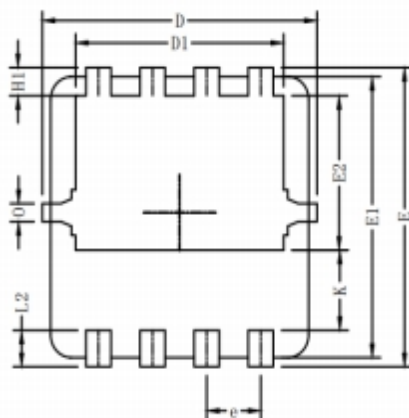
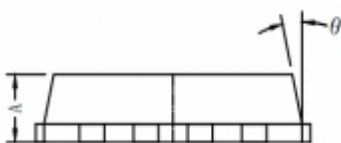
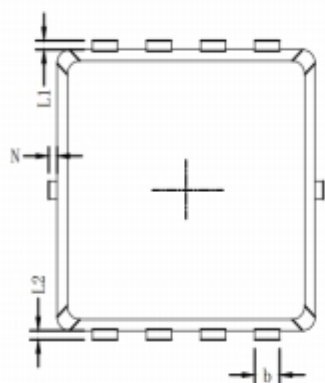
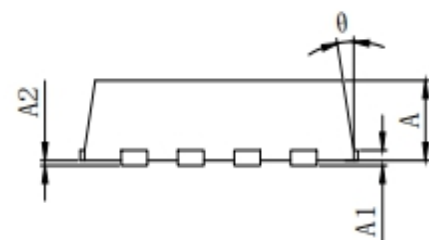


RATINGS AND CHARACTERISTIC CURVES



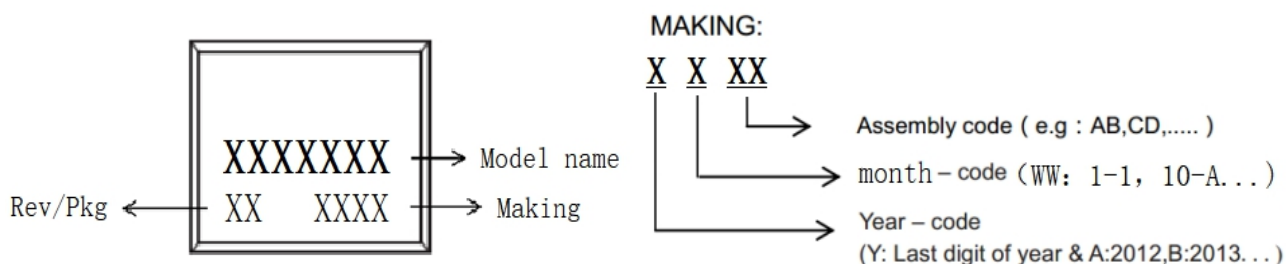


SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	0.700	0.800	0.900
A1	0.152 REF.		
A2	0°0.05		
D	3.000	3.100	3.200
D1	2.300	2.450	2.600
E	2.900	3.000	3.100
E1	3.150	3.300	3.450
E2	1.320	1.520	1.720
b	0.200	0.300	0.400
e	0.550	0.650	0.750
L	0.300	0.400	0.500
L1	0.180	0.330	0.480
L2	0°0.100		
L3	0°0.100		
H	0.315	0.415	0.515
θ	8°	10°	12°



Symbols	Millimeters		
	MIN.	NOM.	MAX.
A	0.65	0.75	0.85
b	0.25	0.30	0.35
C	0.15	0.20	0.25
D	3.00	3.10	3.20
D1	2.40	2.50	2.60
E	3.20	3.30	3.40
E1	3.00	3.10	3.20
E2	1.60	1.70	1.80
e	0.65 BSC.		
H1	0.21	0.31	0.41
H2	0.30	0.40	0.50
K	0.78	0.88	0.98
L1/L2	0.10 REF.		
θ	11°	12°	13°
N	0	-	0.15
O	0.2 REF.		

Marking on the body



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 power exceeding normal rated power; 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.

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Revision History

Rev	Changes	Date
1.0	First version	2025/6/25