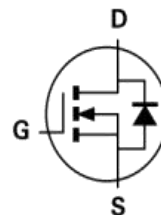


MAIN CHARACTERISTICS

I_D	180A
V_{DSS}	30V
$R_{DS(on)}$ -typ $V_{GS}=10V$	1.9m 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.



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

Product specification classification

Part Number	Package	Mode Name	Pack
LT180N03AD	TO-252	LT180N03AD	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	180	A
Pulsed Drain Current (Note1)	I_{DM}	720	A
Power Dissipation	P_D	98	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	305	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-50 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	27	°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}	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	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	$V_{GS(th)}$	1	-	2.5	V
Drain-Source On-State Resistance	VGS=10V, ID=30A	$R_{DS(on)}$	-	1.9	2.7	m Ω
	VGS=4.5V, ID=20A		-	2.7	5	m Ω
Input Capacitance	$V_{DS}=15\text{ V}, V_{GS}=0\text{ V}, f=1\text{ MHz}$	C_{iss}	-	5100	-	pF
Output Capacitance		C_{oss}	-	573	-	pF
Reverse Transfer Capacitance		C_{rss}	-	475	-	pF
Turn-on Delay Time(Note2)	$V_{DD}=15\text{ V}, V_{GS}=10\text{ V}, R_G=3\Omega, I_D=30\text{ A}$	$t_{d(ON)}$	-	17	-	ns
Rise Time(Note2)		t_r	-	30	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	55	-	ns
Fall Time(Note2)		t_f	-	20	-	ns
Total Gate Charge(Note2)	$V_{DS}=15\text{ V}, V_{GS}=10\text{ V}, I_D=30\text{ A}$	Q_G	-	95	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	20	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	21	-	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	-	-	180	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	720	A
Drain-Source Diode Forward Voltage	$V_{GS}=0\text{ V}, I_S=30\text{ A}, T_J=25^\circ\text{C}$	V_{SD}	-	-	1.2	V
Body Diode Reverse Recovery Time	$I_F = 30\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$	t_{rr}	-	23	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	14	-	nC

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

RATINGS AND CHARACTERISTIC CURVES

Figure 1: Output Characteristics

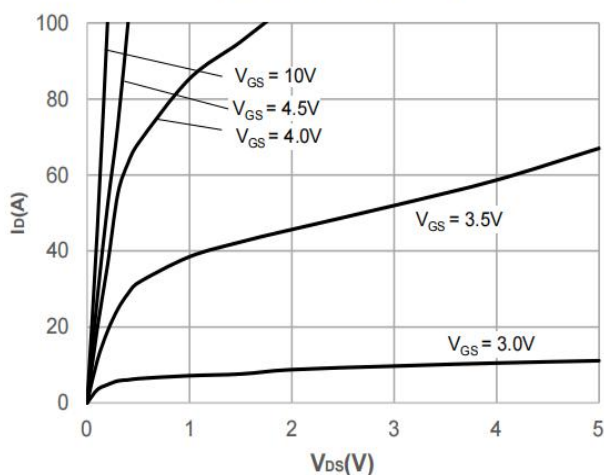


Figure 2: Typical Transfer Characteristics

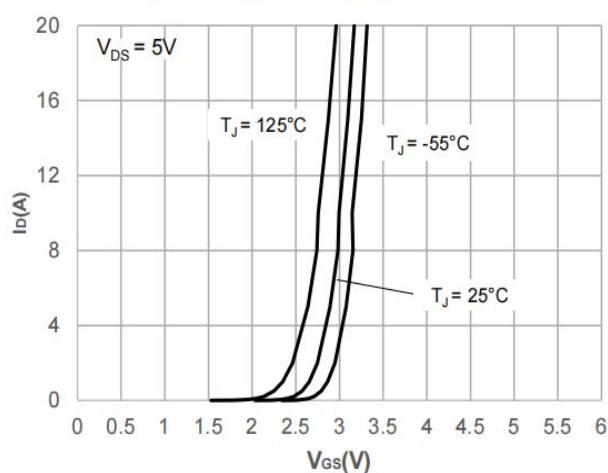


Figure 3: On-resistance vs. Drain Current

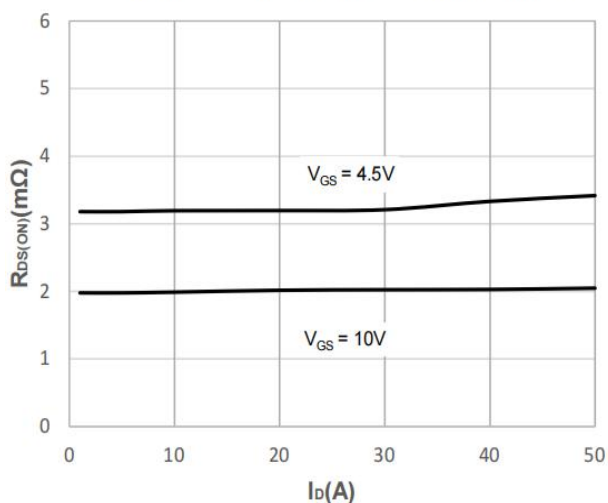


Figure 4: Body Diode Characteristics

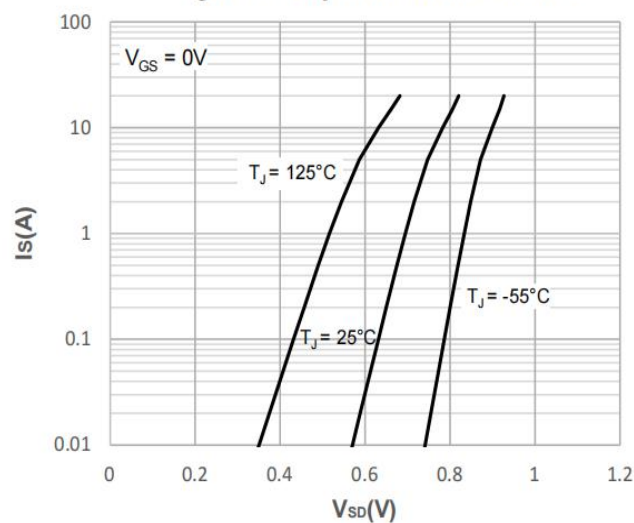


Figure 5: Gate Charge Characteristics

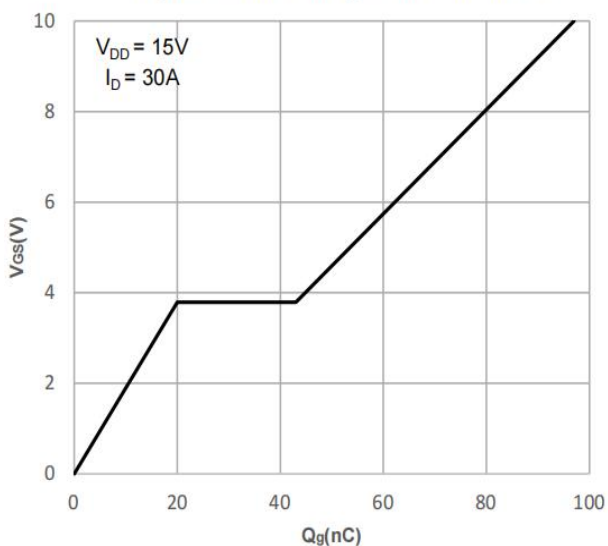
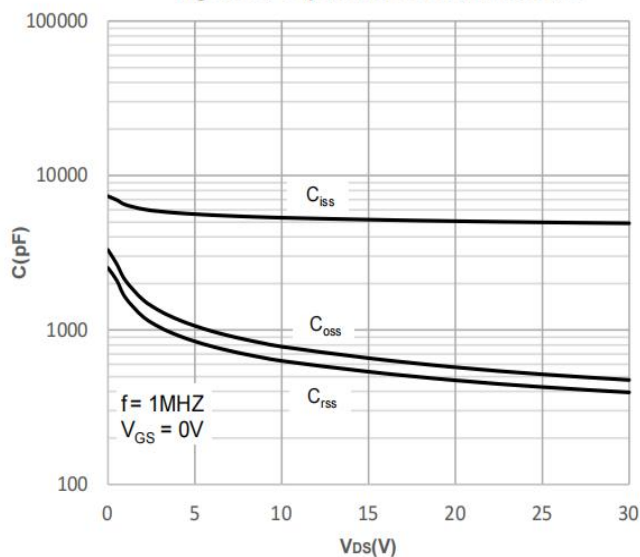


Figure 6: Capacitance Characteristics



RATINGS AND CHARACTERISTIC CURVES

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

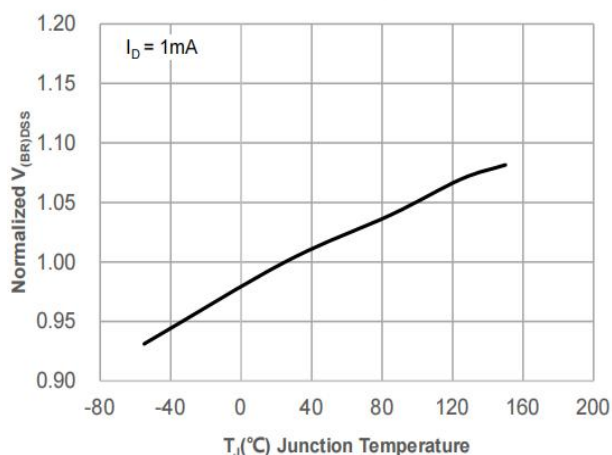


Figure 8: Normalized on Resistance vs. Junction Temperature

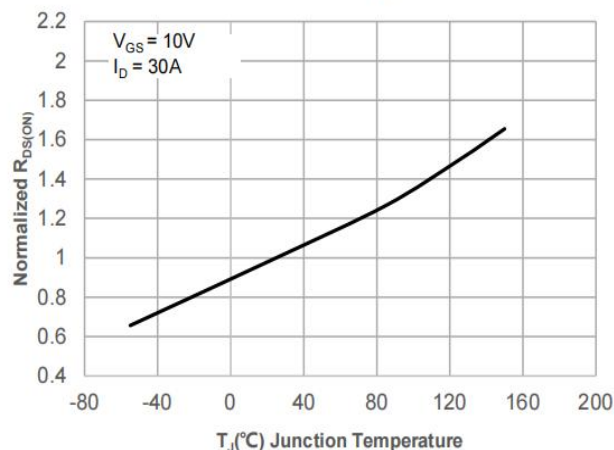


Figure 9: Maximum Safe Operating Area

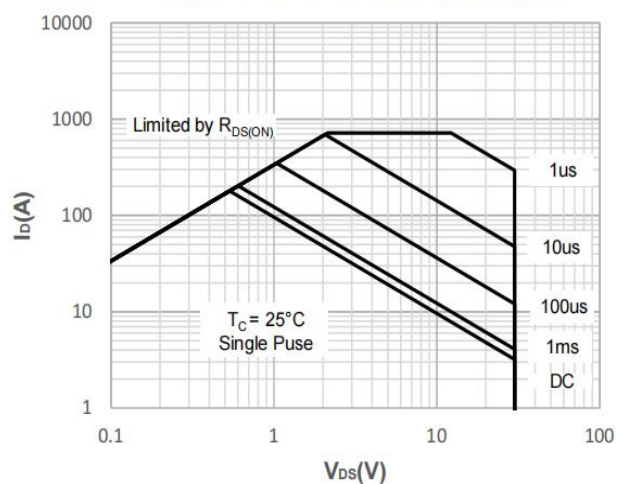


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

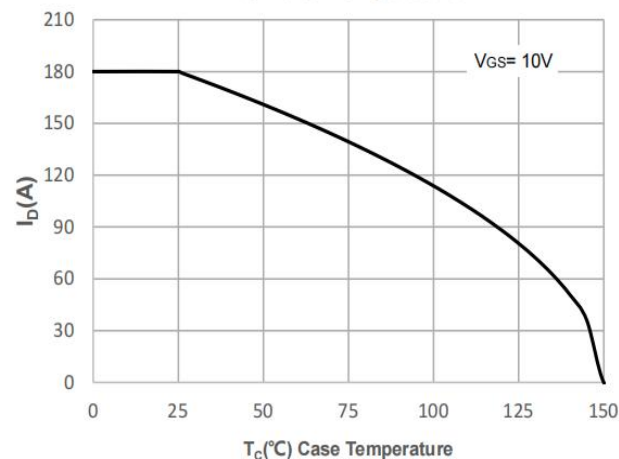


Figure 11: Normalized Maximum Transient Thermal Impedance

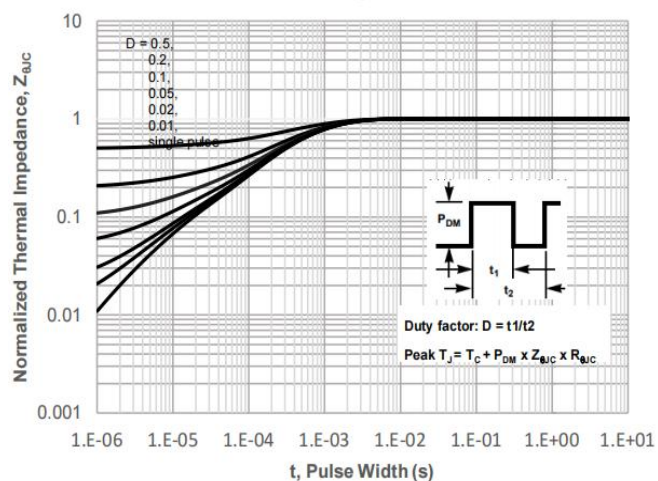
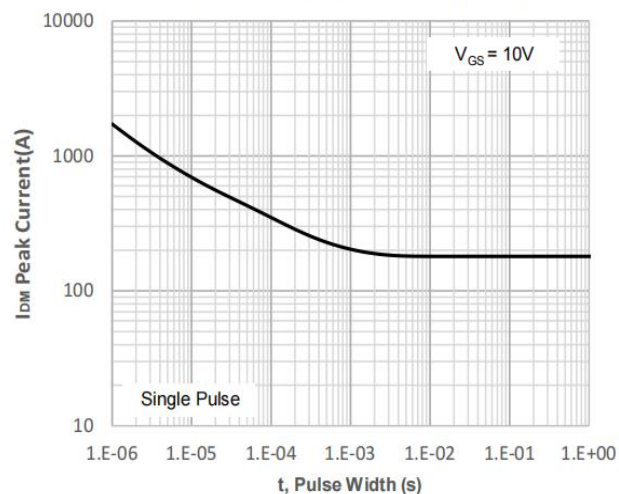
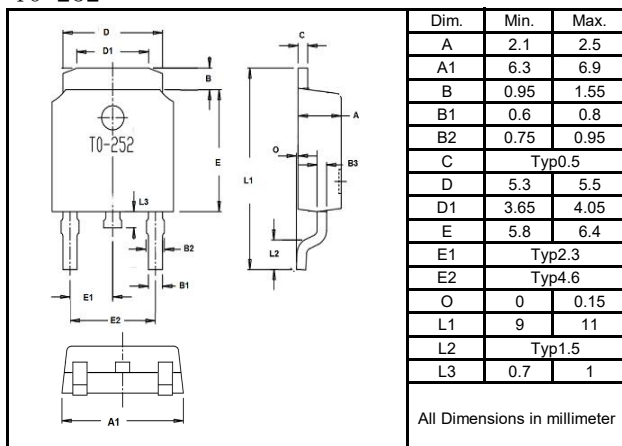


Figure 12: Peak Current Capacity

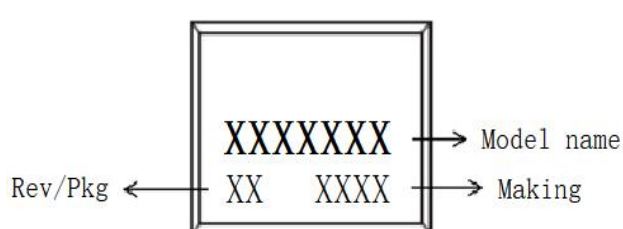


Package Outline Dimensions millimeters

TO-252



Marking on the body



MAKING:

X X XX

Assembly code (e.g : AB,CD,.....)

month-code (WW: 1-1, 10-A...)

Year-code

(Y: Last digit of year & A:2012,B:2013...)

packing instruction

PKG	最小包装	内盒	外箱
TO-252			
	2500pcs/盘	5000pcs/盒	25000pcs/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.