

MAIN CHARACTERISTICS

I_D	300A
V_{DSS}	60V
$R_{DS(on)-typ}$ (@ $V_{GS}=10V$)	1.3m Ω

FEATURES

- 300A*, 60V, $R_{DS(on),typ}=1.3m\Omega$
- Low gate charge ($Q_g, typ = 94nC$)
- Fast switching
- 100% avalanche tested
- Low losses

APPLICATIONS

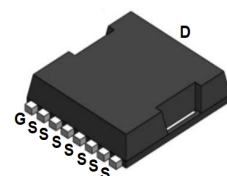
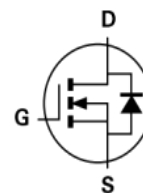
- Load Switch
- PWM Application
- Power management

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
LG300N06AL	TOLL	LG300N06AL	Tape



TOLL

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continue Drain Current	I_D	300	A
Pulsed Drain Current (Note1)	I_{DM}	1200	A
Power Dissipation	P_D	245	W
Single Pulse Avalanche Energy (Note5)	E_{AS}	675	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case(Note 2)	$R_{\theta JC}$	0.51	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	°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}	60	-	-	V
Drain-Source Leakage Current	$V_{DS} = 60\text{V}, V_{GS} = 0 \text{ V}$	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	$V_{GS} = 10 \text{ V}, I_D = 50 \text{ A}$	$R_{DS(on)}$	-	1.3	1.55	m Ω
Input Capacitance	$V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 500\text{KHz}$	C_{iss}	-	5752	-	pF
Output Capacitance		C_{oss}	-	1902	-	pF
Reverse Transfer Capacitance		C_{rss}	-	61	-	pF
Turn-on Delay Time	$V_{DS}=48\text{V}, I_D=48\text{A}$ $V_{GS}=10\text{V}, R_G=5\Omega$	$t_{d(ON)}$	-	28	-	ns
Rise Time		t_r	-	85	-	ns
Turn-Off Delay Time		$t_{d(OFF)}$	-	67	-	ns
Fall Time		t_f	-	33	-	ns
Total Gate Charge	$V_{DS}=40\text{V}, I_D=80\text{A}, V_{GS}=10\text{V}$	Q_G	-	94	-	nC
Gate to Source Charge		Q_{GS}	-	27	-	nC
Gate to Drain Charge		Q_{GD}	-	29	-	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 (Note 2)		I_S	-	-	300	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	1200	A
Drain-Source Diode Forward Voltage (Note 3)	$I_{SD} = 50\text{A}$	V_{SD}	-	-	1.2	V
Reverse Recovery Time	$I_S = I_F, I_{SD}=48\text{A}, V_{GS} = 0 \text{ V},$ $dI / dt = 100 \text{ A}/\mu\text{s}$ (Note3)	t_{rr}	-	56	-	ns
Reverse Recovery Charge		Q_{rr}	-	0.08	-	μC
Peak reverse recovery curren		I_{rrm}	-	2.7	-	A

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

RATINGS AND CHARACTERISTIC CURVES

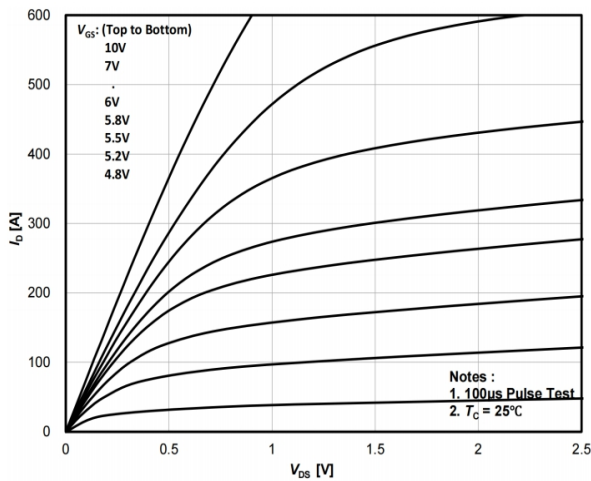


Figure 1. On-Region Characteristics

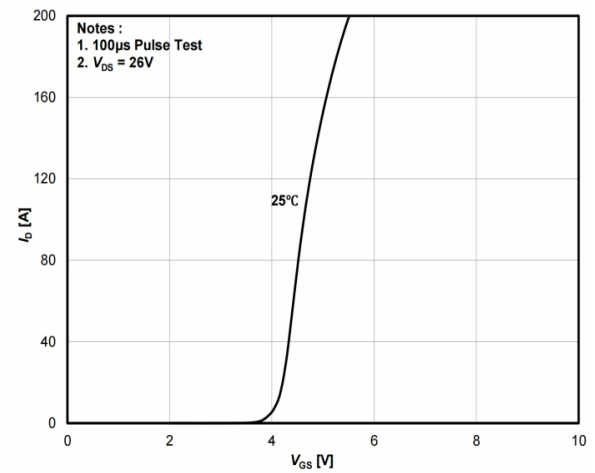


Figure 2. Transfer Characteristics

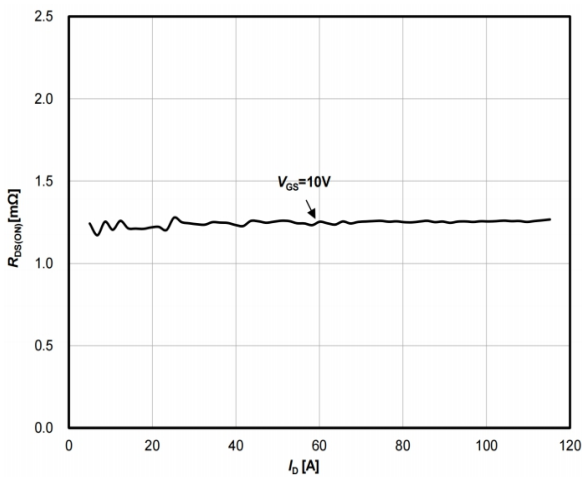


Figure 3. On Resistance vs. Drain Current

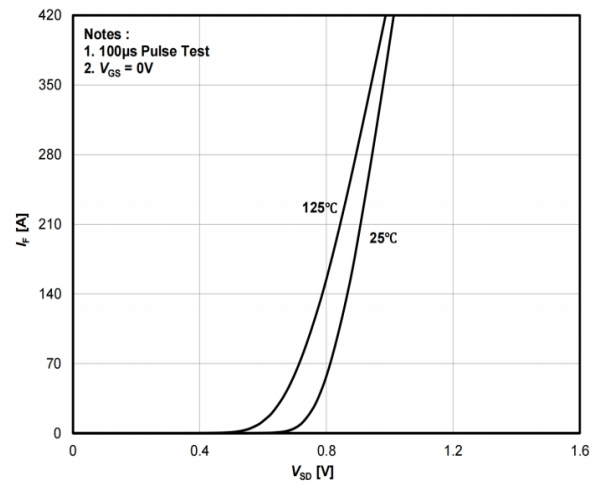


Figure 4. Diode Forward Voltage vs. Current

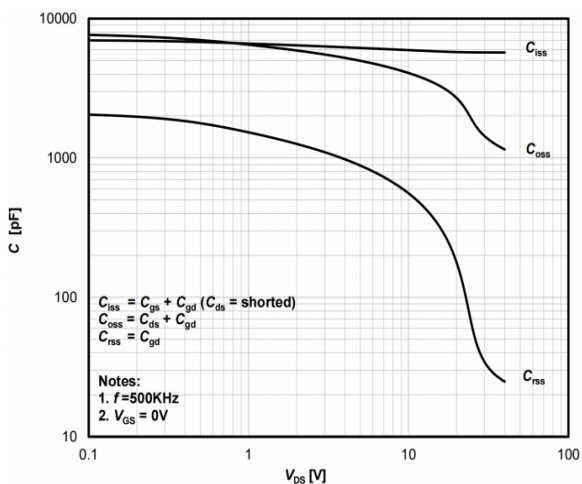


Figure 5. Capacitance Characteristics

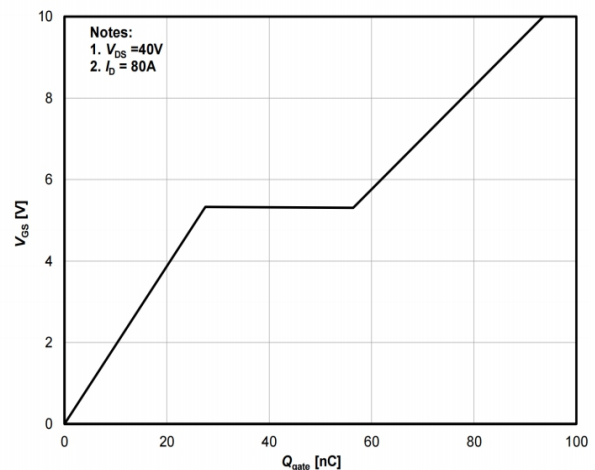


Figure 6. Gate Charge Characteristics

RATINGS AND CHARACTERISTIC CURVES

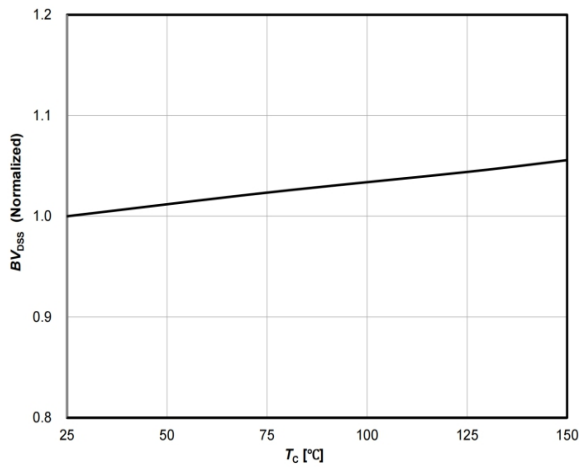


Figure 7. Normalized BV_{DSS} vs. Temperature

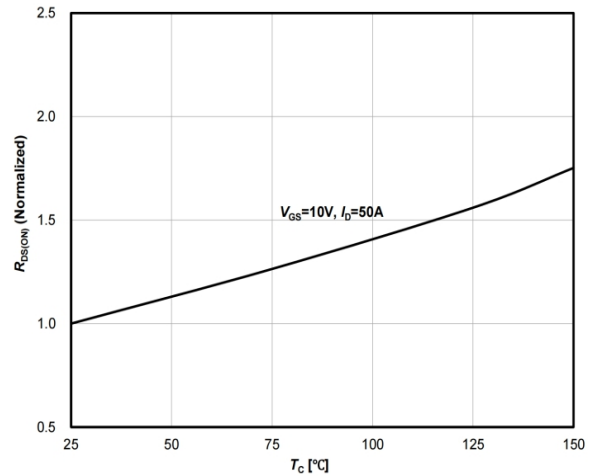


Figure 8. Normalized On-Resistance Variation vs. Temperature

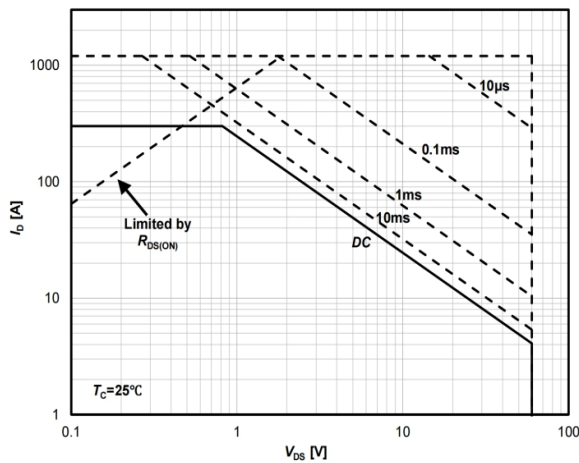


Figure 9. Safe Operating Area ³⁾

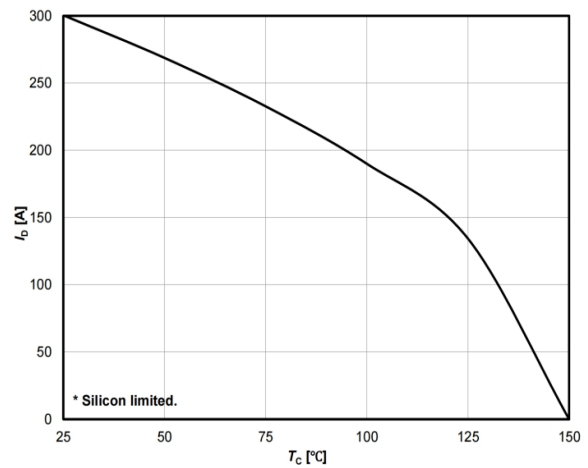


Figure 10. Drain Current vs. Temperature

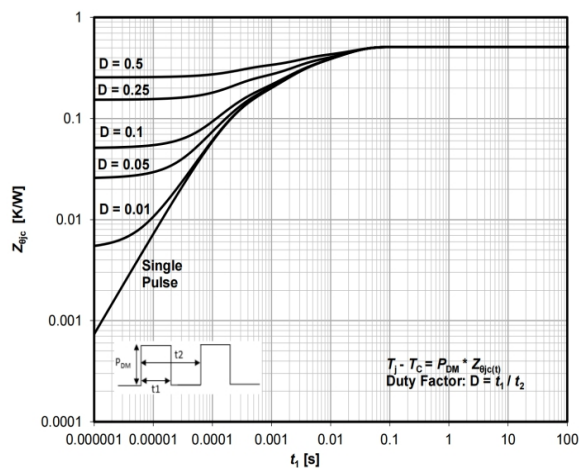
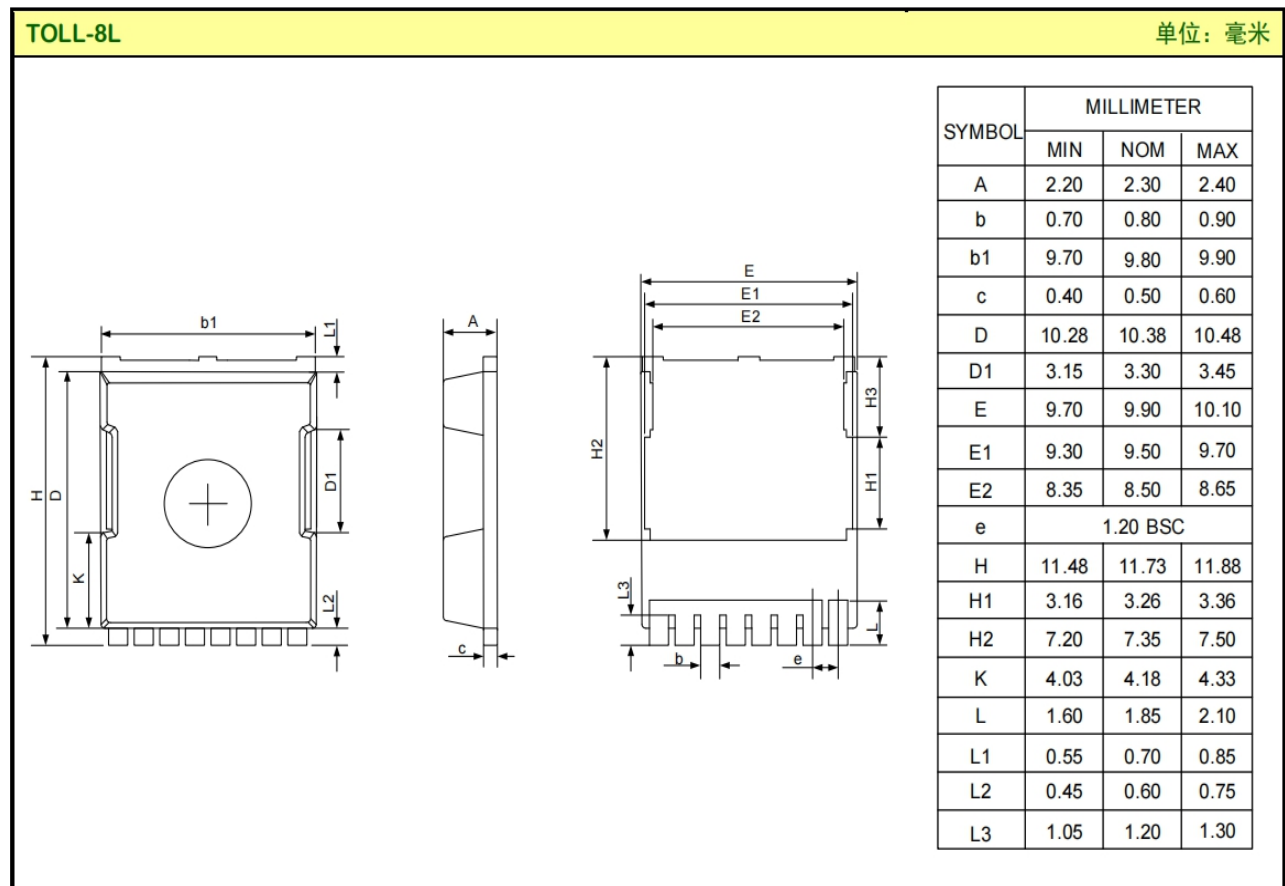
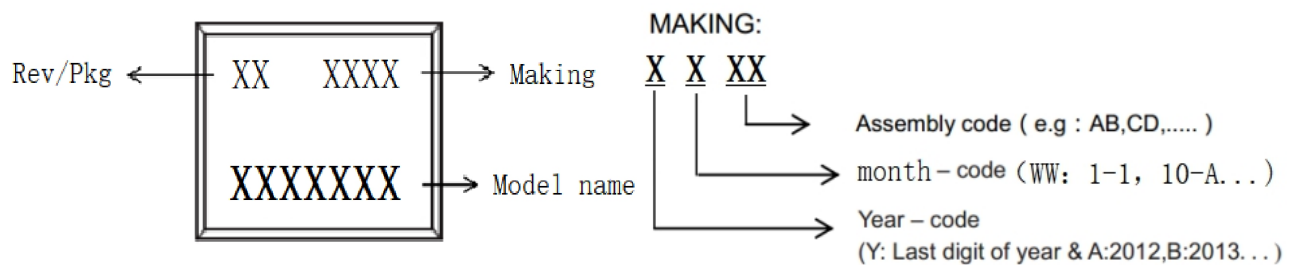


Figure 11. Transient Thermal Impedance

Package Outline Dimensions millimeters



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; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.