

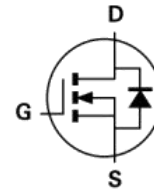


LT50N06AD

N- Channel Advanced Power MOSFET

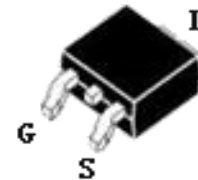
MAIN CHARACTERISTICS

I_D	50A
V_{DSS}	60V
$R_{DS(on)-typ}$ (@ $V_{GS}=10V$)	12m Ω



FEATURES

- Fast Switching
- Low ON Resistance
- Low Gate Charge
- 100% Single Pulse avalanche energy Test



TO-252

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
LT50N06AD	TO-252	LT50N06AD	Tape



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N- Channel Advanced Power MOSFET

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	50	A
Pulsed Drain Current (Note1)	I_{DM}	200	A
Power Dissipation	P_D	75	W
Single Pulse Avalanche Energy (Note5)	E_{AS}	80	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case(Note 2)	$R_{\theta JC}$	2	°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	$V_{GS} = 0V, I_D = 250 \mu A$	BV_{DSS}	60	-	-	V
Drain-Source Leakage Current	$V_{DS} = 60V, V_{GS} = 0V$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu A$	$V_{GS(th)}$	1	-	2.5	V
Drain-Source On-State Resistance (Note 3)	$V_{GS} = 10V, I_D = 30A$	$R_{DS(on)}$	-	12	17	m Ω
	$V_{GS} = 4.5V, I_D = 20A$	$R_{DS(on)}$	-	16	25	m Ω
Input Capacitance	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$	C_{iss}	-	2030	-	pF
Output Capacitance		C_{oss}	-	130	-	pF
Reverse Transfer Capacitance		C_{rss}	-	115	-	pF
Turn-on Delay Time	$V_{DD}=30V, V_{GS}=10V, R_G=1.8\Omega, I_D=30A$	$t_{d(ON)}$	-	11	-	ns
Rise Time		t_r	-	79	-	ns
Turn-Off Delay Time		$t_{d(OFF)}$	-	33	-	ns
Fall Time		t_f	-	105	-	ns
Total Gate Charge	$V_{DS}=30V, V_{GS}=10V, I_D=30A$	Q_G	-	45	-	nC
Gate to Source Charge		Q_{GS}	-	8	-	nC
Gate to Drain Charge		Q_{GD}	-	11	-	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	-	-	50	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	200	A
Drain-Source Diode Forward Voltage (Note 3)	$I_{SD} = 30A$	V_{SD}	-	-	1.2	V
Reverse Recovery Time	$I_S = I_F, I_{SD}=30A, V_{GS} = 0V,$	t_{rr}	-	14	-	ns
Reverse Recovery Charge	$di/dt = 100 A/\mu s$ (Note3)	Q_{rr}	-	10	-	μC

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



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RATINGS AND CHARACTERISTIC CURVES

Figure1: Output Characteristics

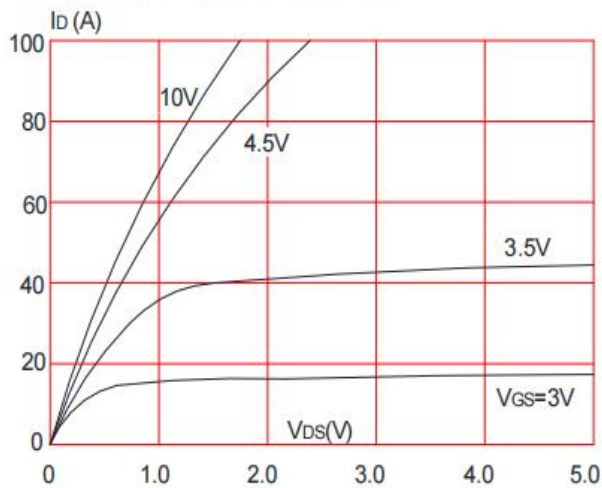


Figure 2: Typical Transfer Characteristics

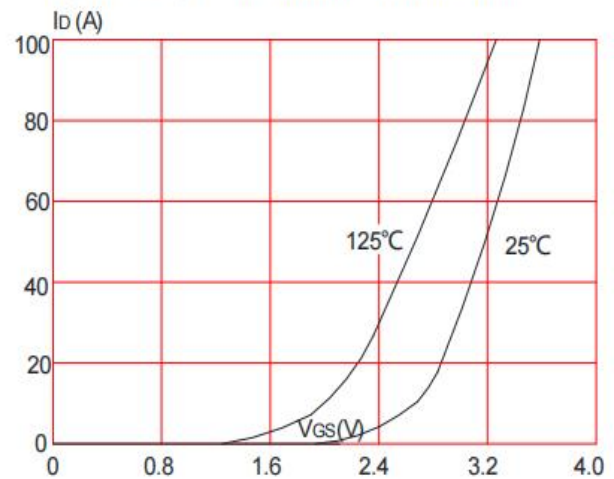


Figure 3: On-resistance vs. Drain Current

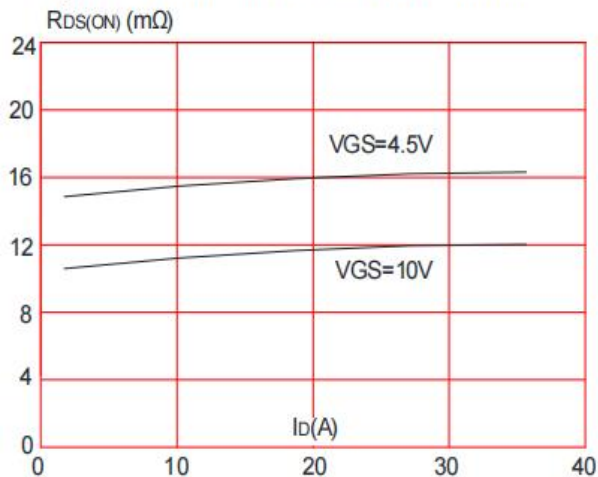


Figure 4: Body Diode Characteristics

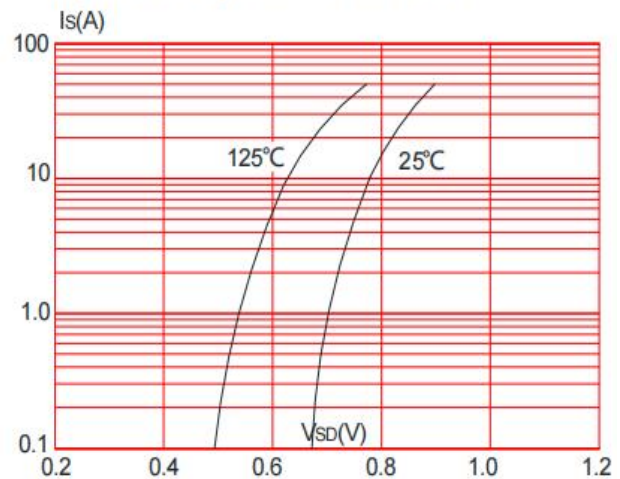


Figure 5: Gate Charge Characteristics

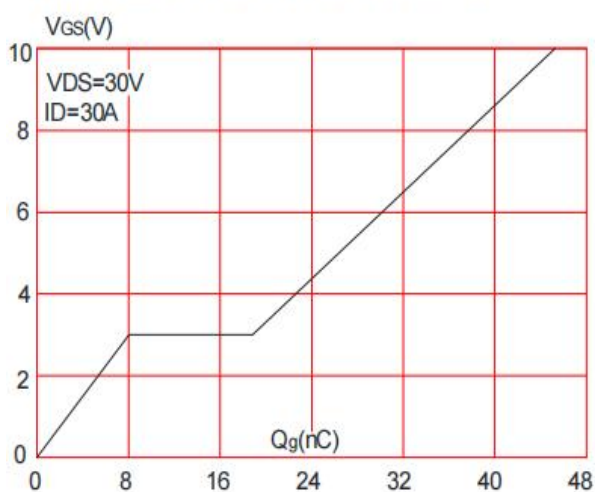
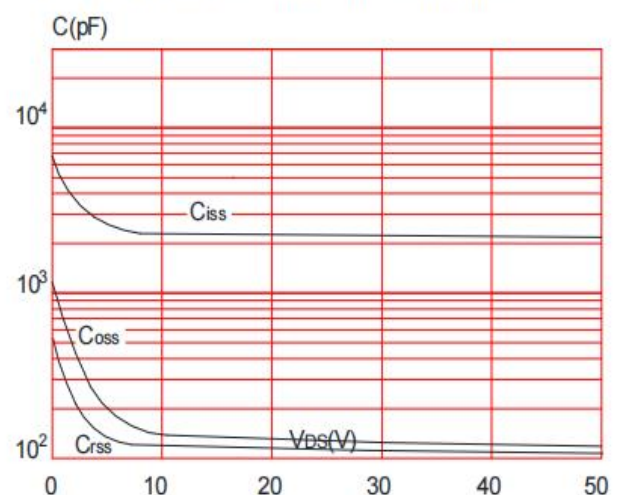


Figure 6: Capacitance Characteristics





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RATINGS AND CHARACTERISTIC CURVES

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

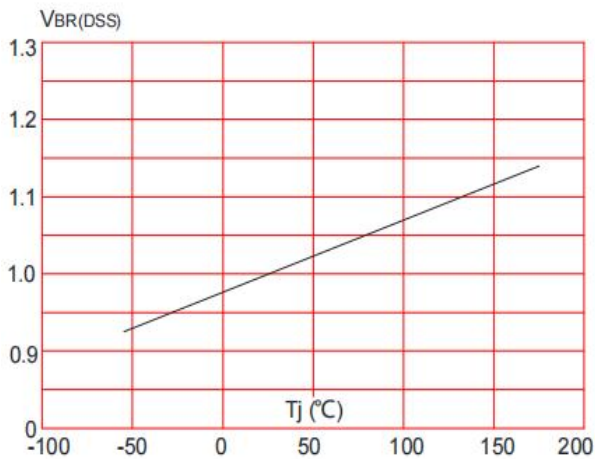


Figure 8: Normalized on Resistance vs. Junction Temperature

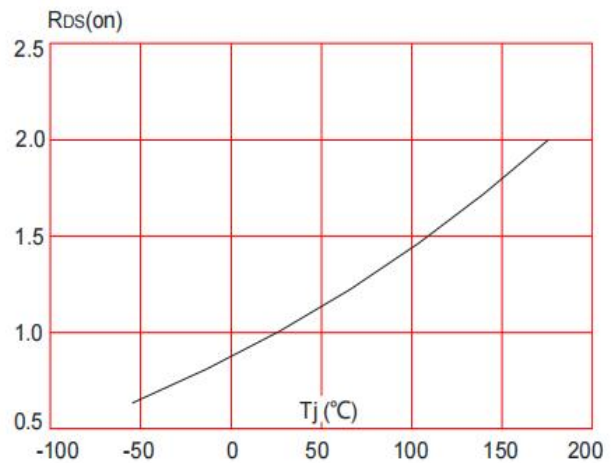


Figure 9: Maximum Safe Operating Area

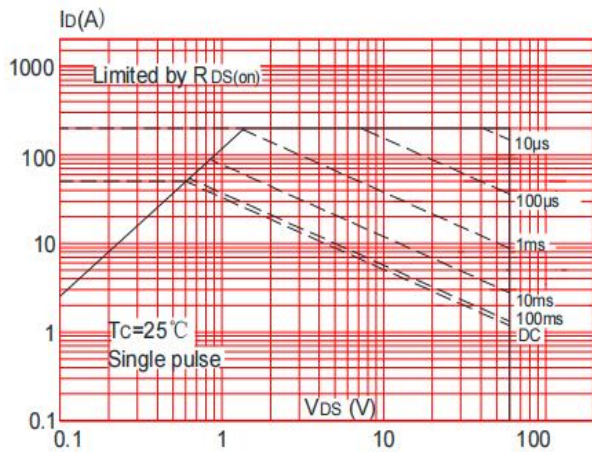


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

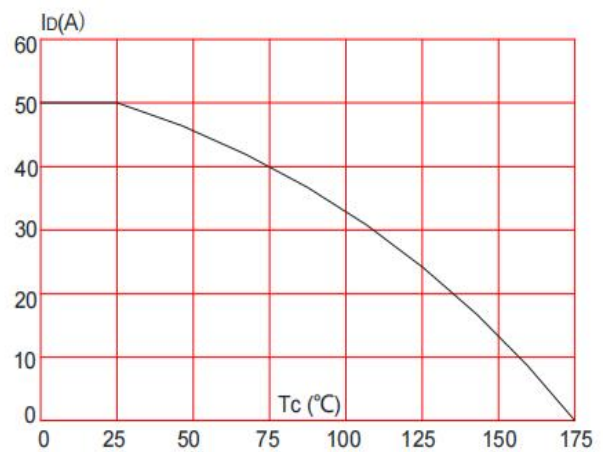
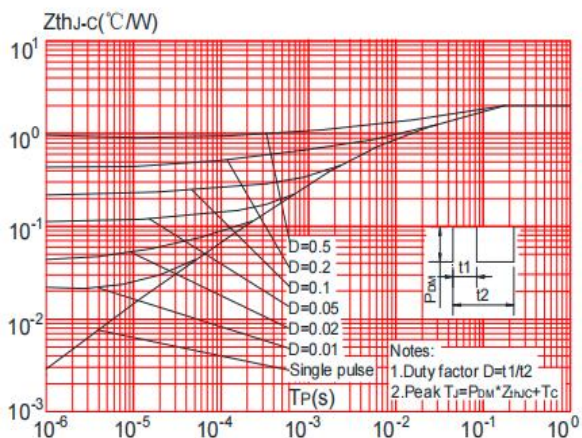


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



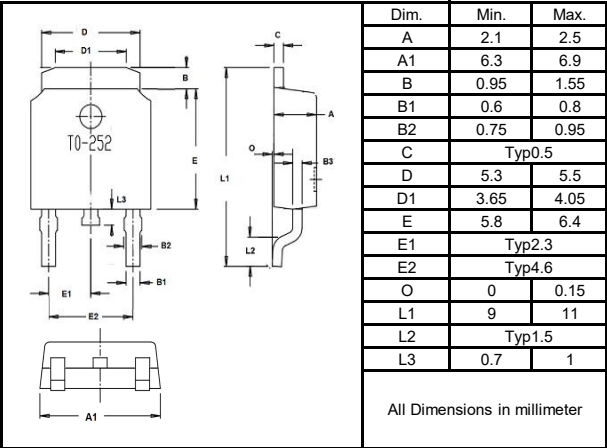


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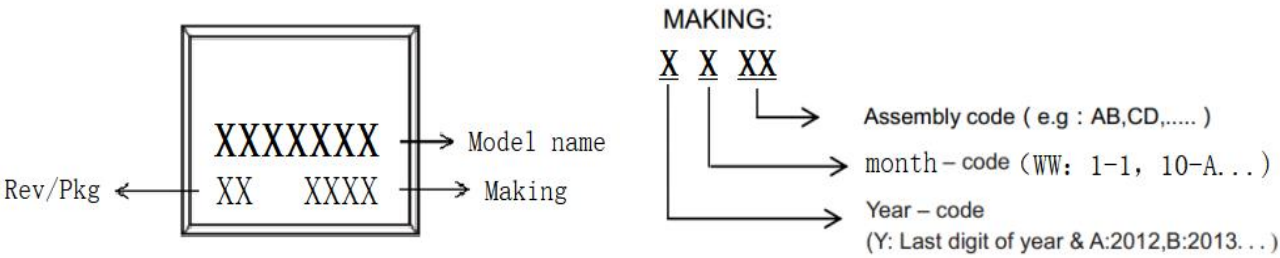
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Package Outline Dimensions millimeters

T0-252



Marking on the body



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.