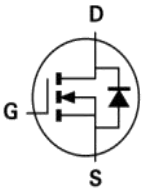
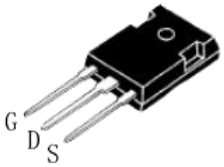
CS12N100A

N-Channel Enhancement Mode Power MOSFET

MAIN CHARACTERISTICS

I_D	12A
V_{DSS}	1000V
R_{DSON}-typ （@V_{GS}=10V）	0.88Ω





TO-247

FEATURES

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

APPLICATIONS

- LED power supplies
- Cell Phone Charger
- Standby Power

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℃ maximum,10s per JESD 22-B106

Product specification classification

Part Number	Package	Mode Name	Pack
CS12N100A6	TO-247	CS12N100A	Tube

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Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
		247	
Drain-Source Voltage	V_{DS}	1000	V
Gate-Source Voltage	V_{GS}	±30	V
Continue Drain Current	I_D	12	A
Pulsed Drain Current (Note1)	I_{DM}	48	A
Power Dissipation	P_D	310	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	1000	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.4	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	50	°C/W

Note1:Pulse test: 300 μs 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 V,I_D = 250 μA	BV_{DSS}	1000	-	-	V
Drain-Source Leakage Current	V_{DS} = 1000 V, V_{GS} = 0 V	I_{DSS}	-	-	1	μA
Gate Leakage Current	V_{GS} = ± 30 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	3	-	5	V
Drain-Source On-State Resistance	VGS = 10 V, ID = 6 A	RDS(on)	-	0.88	1.1	Ω
Input Capacitance	VGS = 0 V, VDS = 25 V, f = 1 MHz	Ciss	-	3861	-	pF
Output Capacitance		Coss	-	105	-	pF
Reverse Transfer Capacitance		Crss	-	243	-	pF
Turn-on Delay Time(Note2)	ID = 12 A, VDD = 500 V, RG= 4.7 Ω，VGS = 10 V	td(ON)	-	30	-	ns
Rise Time(Note2)		tr	-	65	-	ns
Turn-Off Delay Time(Note2)		td(OFF)	-	38	-	ns
Fall Time(Note2)		tf	-	35	-	ns
Total Gate Charge(Note2)	ID = 12 A, VDD = 500 V, VGS = 10 V	QG	-	81	-	nC
Gate to Source Charge(Note2)		QGS	-	20	-	nC
Gate to Drain Charge(Note2)		QGD	-	26	-	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		IS	-	-	12	A
Maximun Body-Diode Pulsed Current(Note2)		ISM	-	-	48	A
Drain-Source Diode Forward Voltage	ISD = 12 A	VSD	-	-	1.5	V
Reverse Recovery Time(Note2)	ISD = 12 A, VGS = 0 V, dIF / dt = 100 A/μs	trr	-	590	-	ns
Reverse Recovery Charge(Note2)		Qrr	-	5.5	-	μC

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

RATINGS AND CHARACTERISTIC CURVES

Fig. 1 Output Characteristics

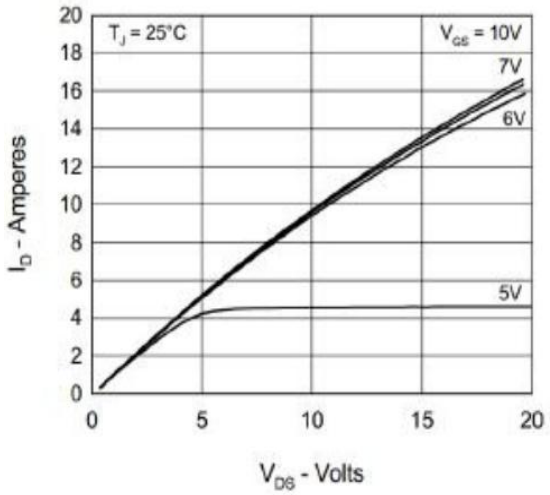


Fig. 2 Input Admittance

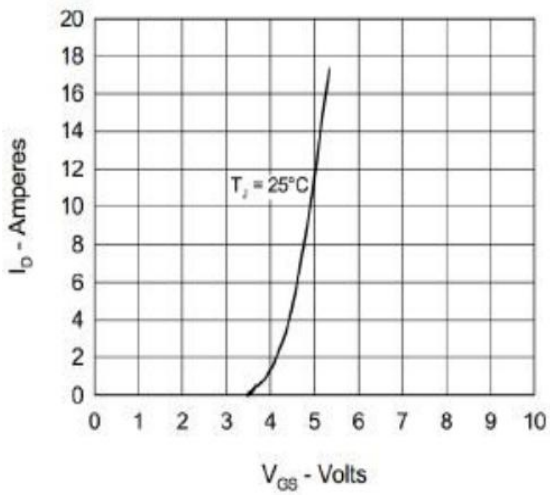


Fig. 3 $R_{DS(on)}$ vs. Drain Current

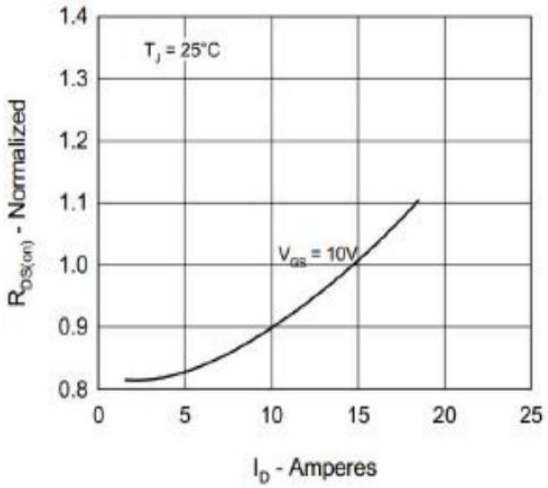


Fig. 4 Temperature Dependence of Drain to Source Resistance

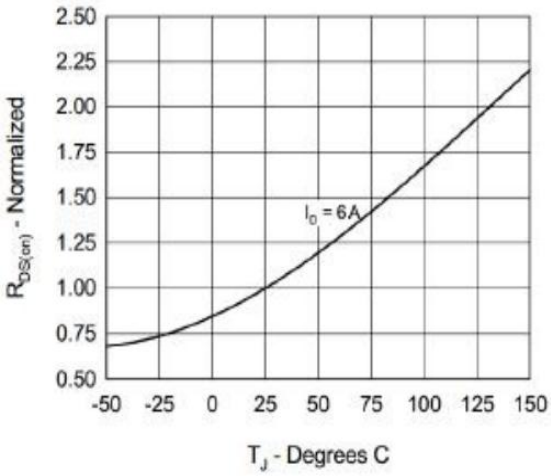


Fig. 5 Drain Current vs.Case Temperature

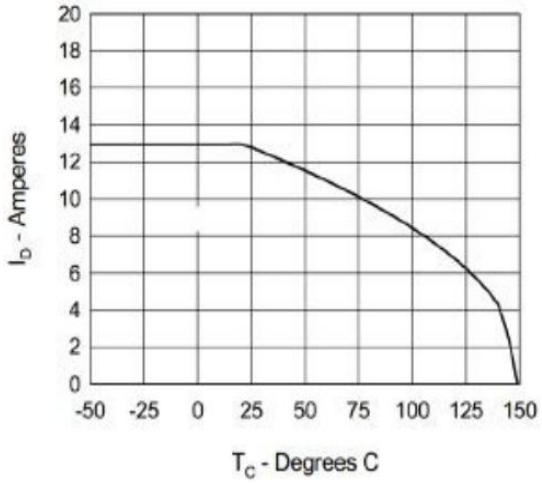
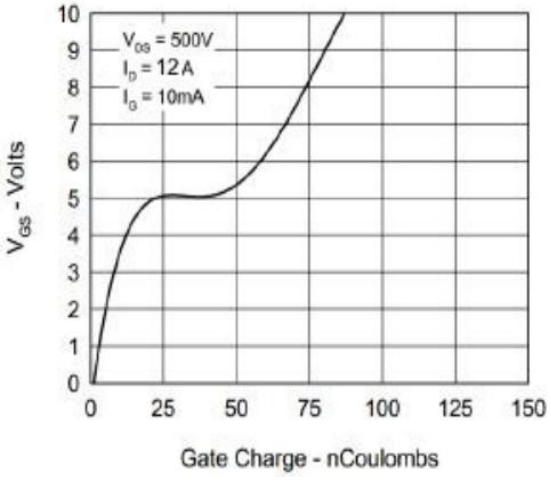


Fig.6 Gate Charge Characteristic Curve



RATINGS AND CHARACTERISTIC CURVES

Fig.7 Capacitance Curves

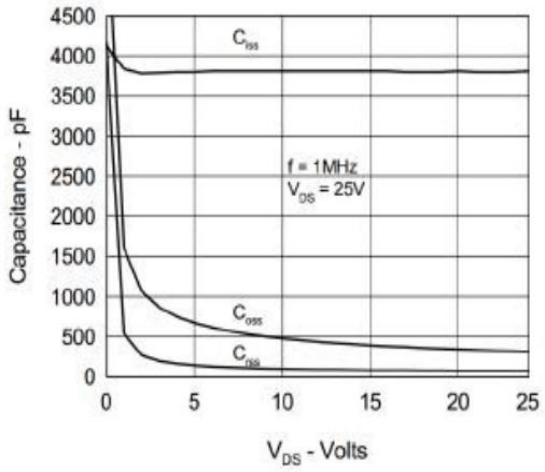


Fig.8 Source Current vs. Source to Drain Voltage

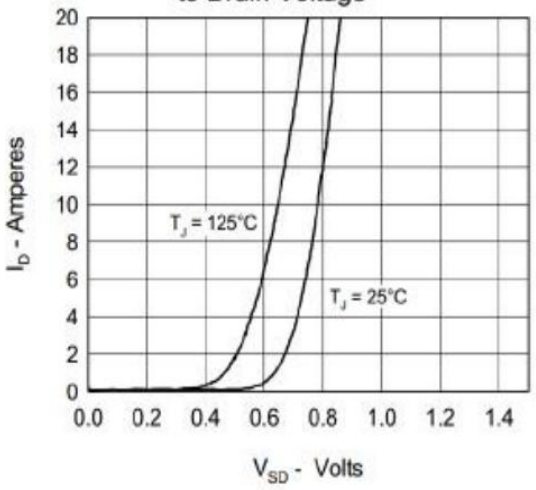
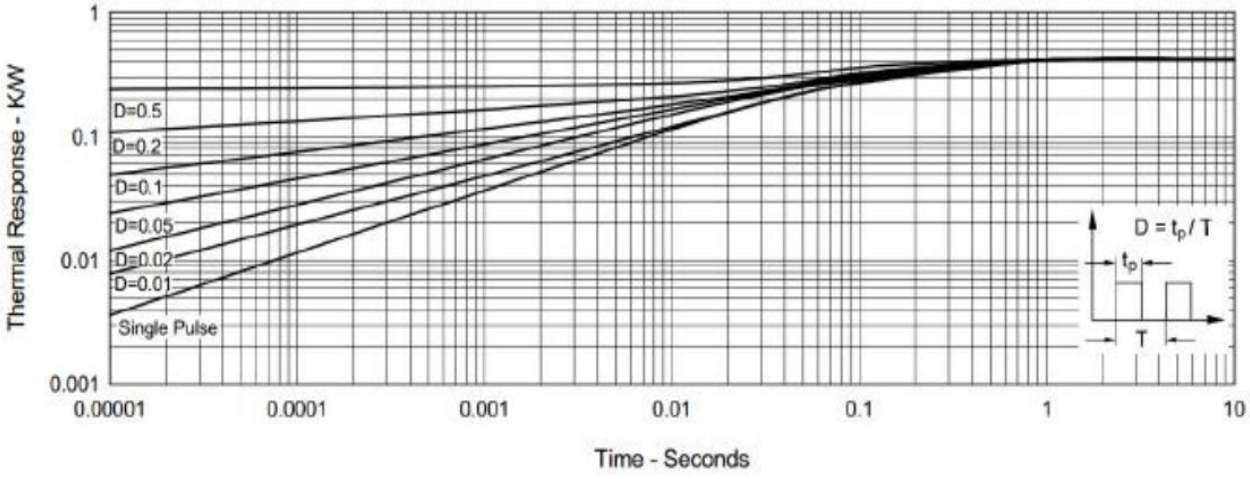


Fig.9 Transient Thermal Impedance



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Package Outline Dimensions millimeters

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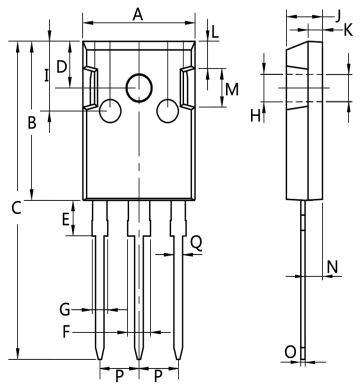
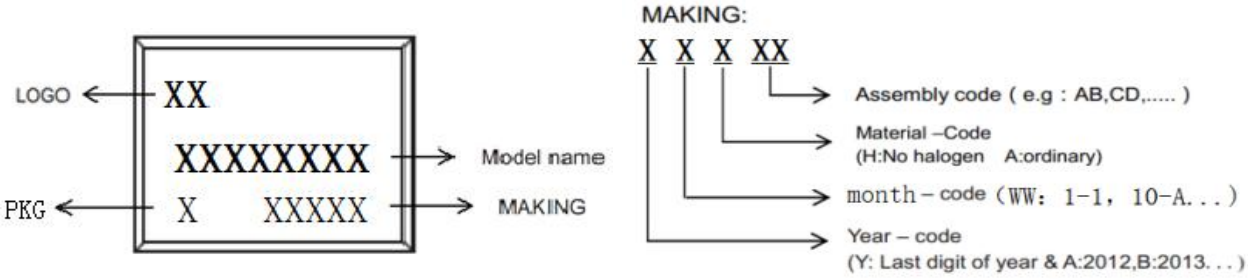
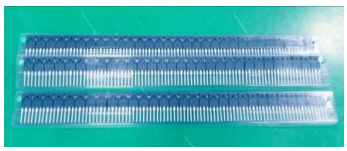


Dim.	Min.	Max.
A	15	16
B	20	21
C	40	42
D	5.5	6.5
E	4	5.5
F	2.5	3.5
G	1.75	2.5
H	3	4
I	8	10
J	4.9	5.1
K	1.9	2.1
L	3	4
M	4.75	5.25
N	2	3
O	0.55	0.65
P	Typ 5.4	
Q	1.17	1.3
All Dimensions in millimeter		

Marking on the body



packing instruction

PKG	最小包装	内盒	外箱
TO-247			
	30PCS/管	600pcs/盒	3000pcs/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 ratedpoer; 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 documentpoer; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.