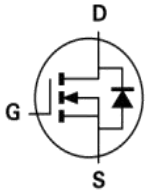
CS3N50A

N-Channel Enhancement Mode Power MOSFET

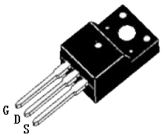
MAIN CHARACTERISTICS

I_D	3A
V_{DSS}	500V
R_{DSON}-typ （@V_{GS}=10V）	2.8Ω

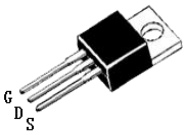


FEATURES

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



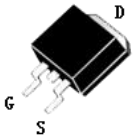
TO-220F



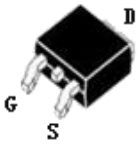
TO-220AB

APPLICATIONS

- Power switch circuit of adaptor and charger.



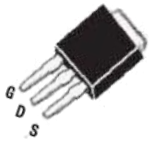
TO-263



TO-252

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



TO-251

Product specification classification

Part Number	Package	Mode Name	Pack
CS3N50A2	TO-220F(0.5mm)	CS3N50A	Tube
CS3N50A1	TO-220AB	CS3N50A	Tube
CS3N50A3	TO-263	CS3N50A	Tube
CS3N50A3-R	TO-263	CS3N50A	Tape
CS3N50A5-R	TO-252	CS3N50A	Tape
CS3N50A3	TO-251	CS3N50A	Tube

CS3N50A

N-Channel Enhancement Mode Power MOSFET

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value			Unit
		220AB/263	220F	251/252	
Drain-Source Voltage	V_{DS}	500			V
Gate-Source Voltage	V_{GS}	±30			V
Continue Drain Current	I_D	3			A
Pulsed Drain Current (Note1)	I_{DM}	16			A
Power Dissipation	P_D	35	20	35	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	95			mJ
Operating Temperature Range	T_J	150			°C
Storage Temperature Range	T_{STG}	-55 to +150			°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.67	4.17	3.6	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	62.5	100	°C/W

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

Electrical Characteristics at Tc=25°C unless otherwise specified

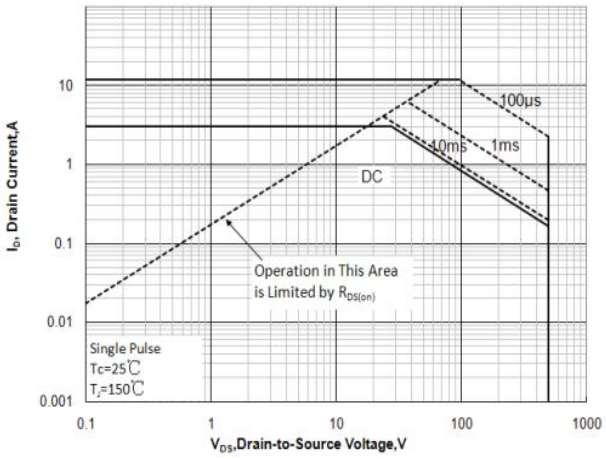
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = 250 μA	BV_{DSS}	500	550	-	V
Drain-Source Leakage Current	V_{DS} = 500 V, V_{GS} = 0 V	I_{DSS}	-	-	1	μA
Gate Leakage Current	V_{GS} = ± 30 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	3	-	4	V
Drain-Source On-State Resistance	V_{GS} = 10 V, I_D = 1.5 A	$R_{DS(on)}$	-	2.8	3.2	Ω
Forward Transconductance	V_{DS} = 15 V, I_D = 3 A	gfs	-	3.5	-	S
Input Capacitance	V_{GS} = 0 V, V_{DS} = 2 V, f = 200KHz	C_{iss}	-	305	-	pF
Output Capacitance		C_{oss}	-	36	-	pF
Reverse Transfer Capacitance		C_{rss}	-	2.6	-	pF
Turn-on Delay Time(Note2)	I_D = 3 A, V_{DD} = 250 V, R_G= 10 Ω	$t_{d(ON)}$	-	10.3	-	ns
Rise Time(Note2)		t_r	-	13.8	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	28	-	ns
Fall Time(Note2)		t_f	-	9.5	-	ns
Total Gate Charge(Note2)	I_D = 3 A, V_{DD} = 400 V, V_{GS} = 10 V	Q_G	-	9	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	1.7	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	4.2	-	nC

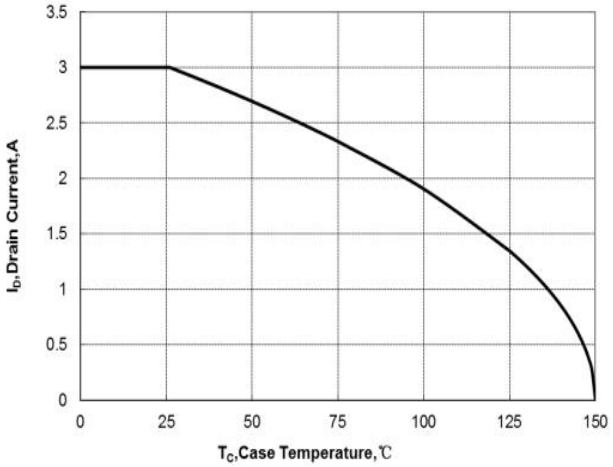
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

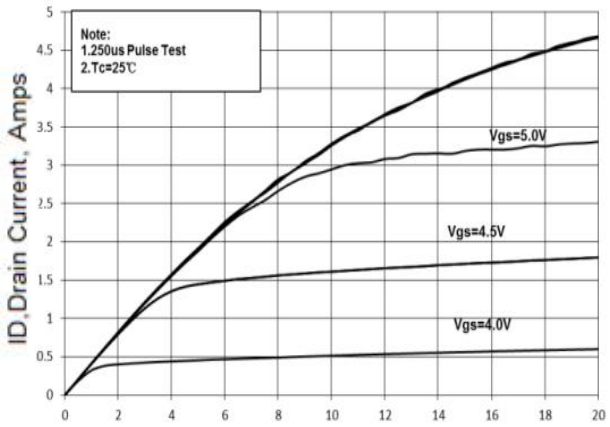
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	3	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	12	A
Drain-Source Diode Forward Voltage	I_{SD} = 3 A	V_{SD}	-	-	1.4	V
Reverse Recovery Time(Note2)	I_{SD} = 3 A, V_{GS} = 0 V, dIF / dt = 100 A/μs	trr	-	180	-	ns
Reverse Recovery Charge(Note2)		Qrr	-	0.57	-	μC

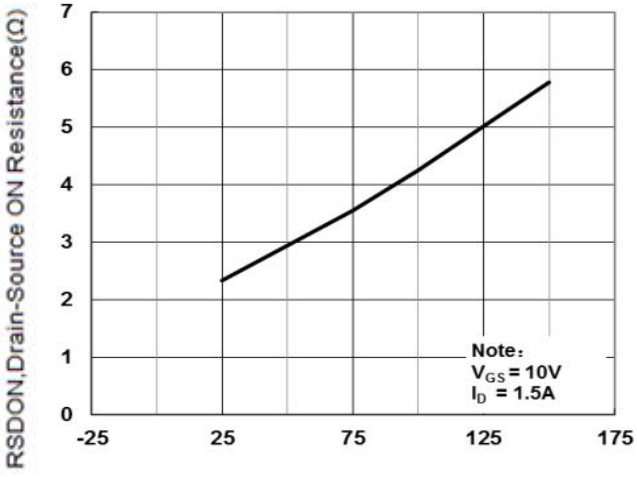
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

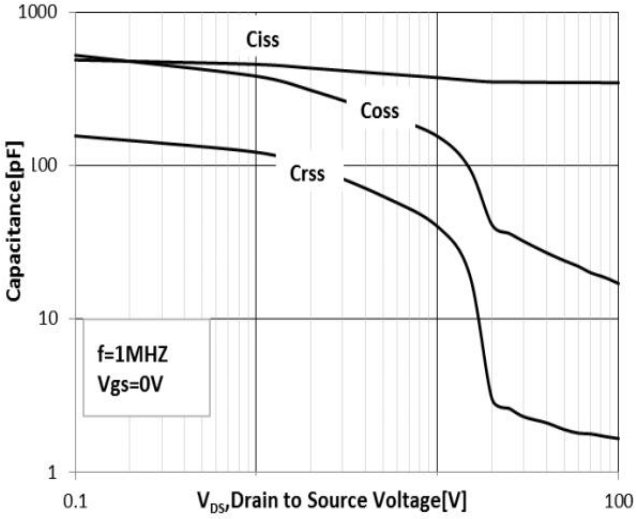
RATINGS AND CHARACTERISTIC CURVES

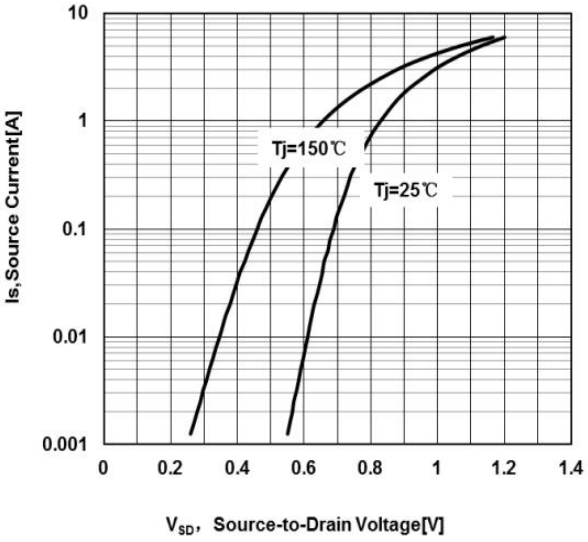






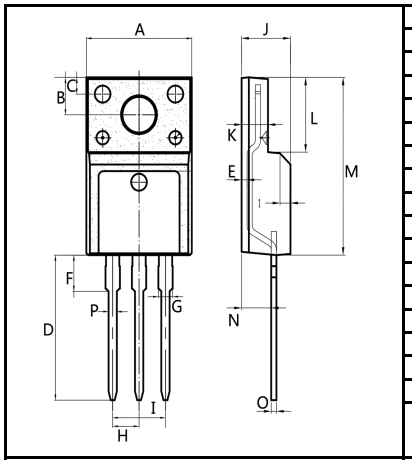






Package Outline Dimensions millimeters

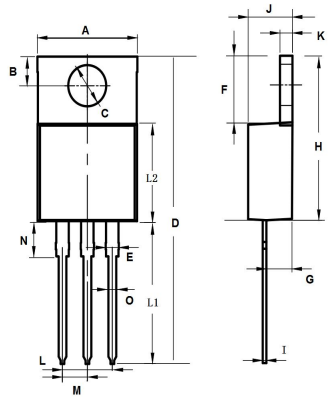
TO-220F



Dim.	Min.	Max.
A	9.95	10.25
B	2.95	3.25
C	1.25	1.45
D	12.8	13.2
E	0.4	0.6
F	2.8	3.5
G	1.3	1.45
H	Typ 2.54	
I	Typ 5.08	
J	4.5	5
K	2.45	2.65
L	6.5	6.8
M	15.4	16
N	2.75	3.05
O	0.45	0.55
P	0.7	0.9

All Dimensions in millimeter

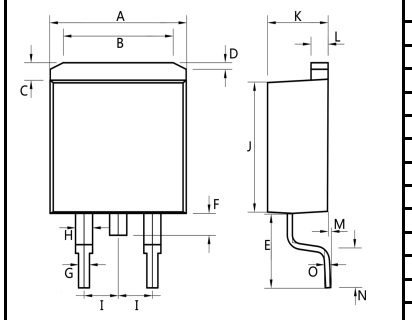
TO-220AB



Dim.	Min.	Max.
A	10.15	10.35
B	2.5	2.95
C	3.7	3.9
D	28.5	29.5
E	1.2	1.4
F	6.2	6.55
G	2.85	3.25
H	15	16
I	0.35	0.42
J	4.3	4.55
K	1.2	1.4
L	Typ5.08	
L1	13	14
L2	8.5	9.5
M	Typ2.54	
N	2.8	3.5
O	0.7	0.9

All Dimensions in millimeter

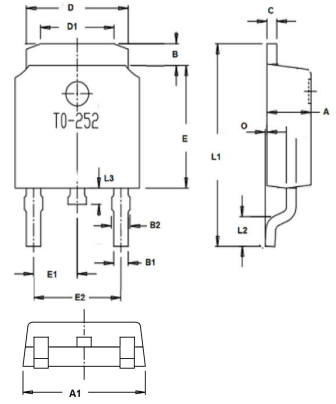
TO-263



Dim.	Min.	Max.
A	10.1	10.35
B	6	8
C	1.2	1.5
D	0.55	1
E	4.3	5.3
F	1.4	1.6
G	0.75	0.85
H	1.2	1.5
I	Typ2.54	
J	8.5	9.5
K	4.3	4.55
L	1.25	1.35
M	0.02	0.23
N	2.2	2.8
O	0.3	0.4

All Dimensions in millimeter

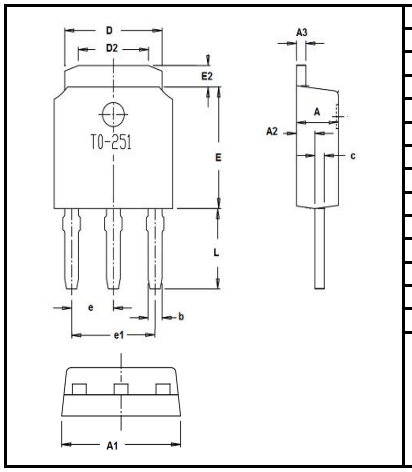
TO-252



Dim.	Min.	Max.
A	2.1	2.5
A1	6.3	6.9
B	0.95	1.55
B1	0.6	0.8
B2	0.75	0.95
C	Typ0.5	
D	5.3	5.5
D1	3.65	4.05
E	5.8	6.4
E1	Typ2.3	
E2	Typ4.6	
O	0	0.15
L1	9	11
L2	Typ1.5	
L3	0.7	1

All Dimensions in millimeter

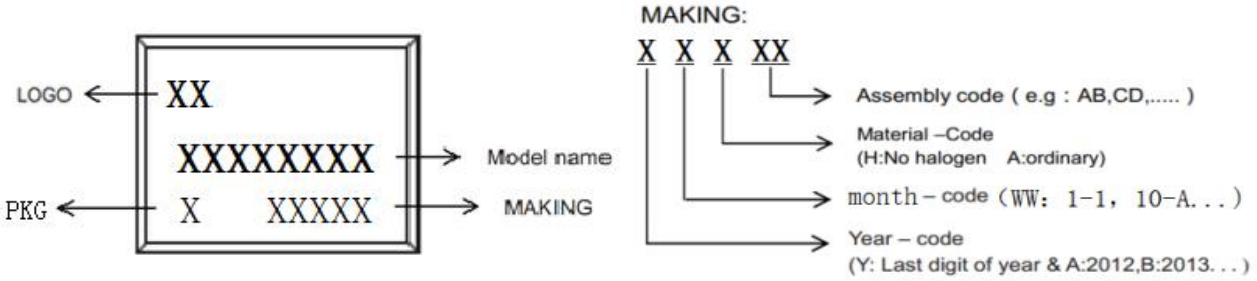
TO-251



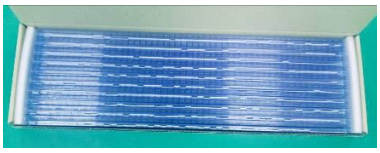
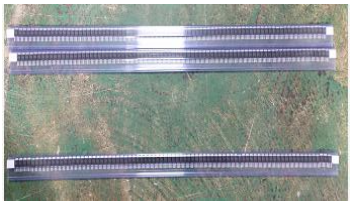
Dim.	Min.	Max.
A	2.1	2.5
A1	6.3	6.9
A2	0.9	1.1
A3	Typ0.5	
b	0.6	0.8
c	0.4	0.5
D	5.3	5.5
D2	3.65	4.05
E	5.8	6.4
E2	0.9	1.4
e	Typ2.29	
e1	Typ4.58	
L	3.7	4.3

All Dimensions in millimeter

Marking on the body



packing instruction

PKG	最小包装	内盒	外箱
TO-220F TO-220AB TO-263			
	50pcs/管	1000pcs/盒	5000pcs/箱
TO-252			
	2500pcs/盘	5000pcs/盒	25000pcs/箱
TO-263-R			
	800pcs/盘	1600pcs/盒	8000pcs/箱
TO-251			
	80pcs/管	4000pcs/盒	24000pcs/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.