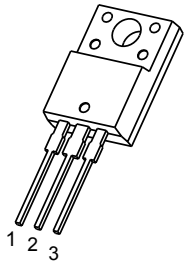
JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-220F Plastic-Encapsulate MOSFETS

CJPF04N70 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
700V	2.8Ω@10V	4.4A

TO-220F



1. GATE
2. DRAIN
3. SOURCE

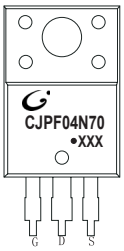
GENERAL DESCRIPTION

This is a high voltage power MOSFET and is designed to have better characteristics, such as fast switching time, low gate charge, low on-state resistance and high rugged avalanche. This high speed switching power MOSFET is usually used in power supplies, PWM motor controls, high efficient DC to DC converters and bridge circuits.

FEATURE

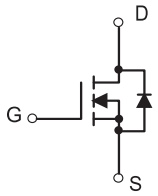
- High Current Rating
- Lower $R_{DS(on)}$
- Lower Reverse Transfer Capacitance
- Ultra Low Gate Charge
- Avalanche Energy Specified
- High Switching Speed

MARKING



CJPF04N70= Device code
Solid dot = Green molding compound device, if none, the normal device
XXX=Date Code

EQUIVALENT CIRCUIT



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	700	V
Gate-Source Voltage	V_{GS}	±30	
Continuous Drain Current	I_D	4.4	A
Pulsed Drain Current	I_{DM}	17.6	
Single Pulsed Avalanche Energy (note1)	E_{AS}	260	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{STG}	-55 ~+150	
Maximum Lead Temperature for Soldering Purposes , 1/8"from Case for 5 Seconds	T_L	260	

MOSFET ELECTRICAL CHARACTERISTICS

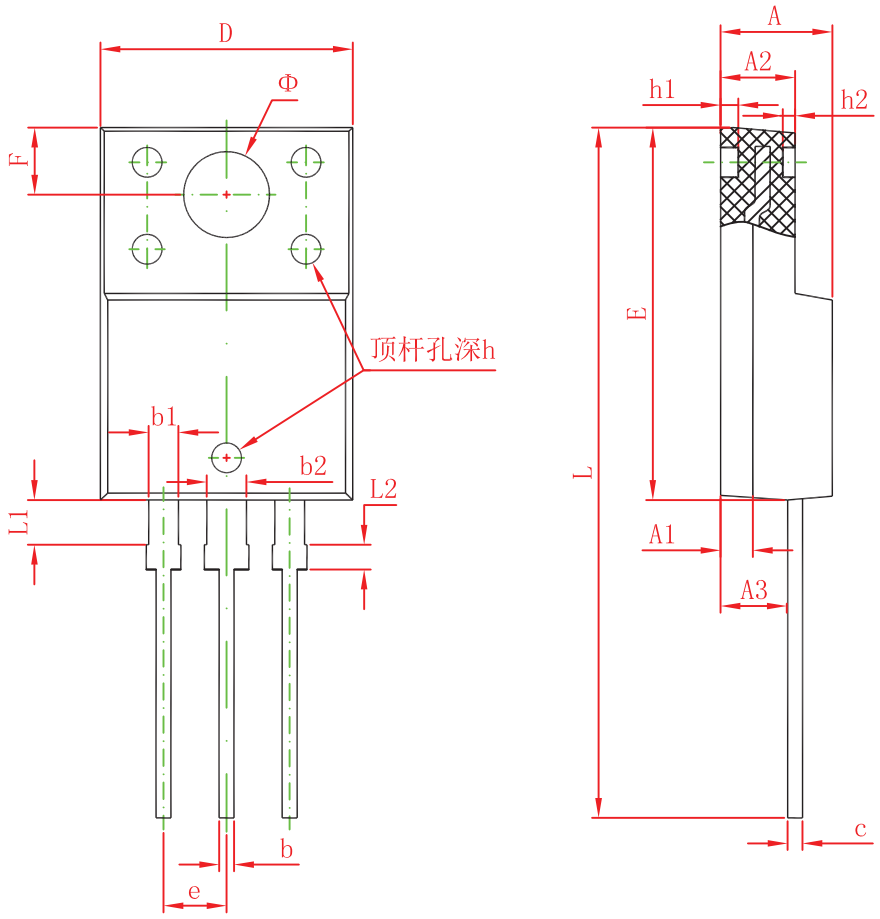
T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	700			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =700V, V_{GS} =0V			10	μA
Gate-body leakage current (note2)	I_{GSS}	V_{DS} =0V, V_{GS} =±30V			±100	nA
On characteristics (note 2)						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2		4	V
Static drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =2.2A			2.8	Ω
Dynamic characteristics (note 3)						
Input capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz			670	pF
Output capacitance	C_{oss}				90	
Reverse transfer capacitance	C_{rss}				11	
Switching characteristics (note 2,3)						
Total gate charge	Q_g	V_{DS} =560V,V_{GS} =10V,I_D =4.4A			20	nC
Gate-source charge	Q_{gs}			3.4		
Gate-drain charge	Q_{gd}			7.1		
Turn-on delay time	$t_{d(on)}$	V_{DD}=350V, V_{GS}=10V, R_G=25Ω, I_D =4.4A			35	ns
Turn-on rise time	t_r				100	
Turn-off delay time	$t_{d(off)}$				60	
Turn-off fall time	t_f				80	
Sourceource-drain diode characteristics						
Maximum diode forward continuous current	I_S				4.4	A
Maximum diode forward pulse current	I_{SM}				17.6	A
Diode forward voltage	V_{SD}	I_S=4.4A,V_{GS}=0V			1.4	V

Notes :

1. I_L=4 .4A, V_{DD}=50V, V_{GS}=10V,R_G=25Ω,Starting T_J=25℃.
2. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
3. These parameters have no way to verify.

TO-220F Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
A1	1.300 REF.		0.051 REF.	
A2	2.800	3.200	0.110	0.126
A3	2.500	2.900	0.098	0.114
b	0.500	0.750	0.020	0.030
b1	1.100	1.350	0.043	0.053
b2	1.500	1.750	0.059	0.069
c	0.500	0.750	0.020	0.030
D	9.960	10.360	0.392	0.408
E	14.800	15.200	0.583	0.598
e	2.540 TYP.		0.100 TYP.	
F	2.700 REF.		0.106 REF.	
Φ	3.500 REF.		0.138 REF.	
h	0.000	0.300	0.000	0.012
h1	0.800 REF.		0.031 REF.	
h2	0.500 REF.		0.020 REF.	
L	28.000	28.400	1.102	1.118
L1	1.700	1.900	0.067	0.075
L2	0.900	1.100	0.035	0.043