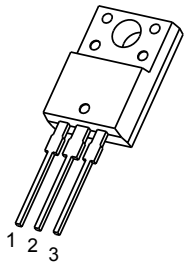
JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-220F Plastic-Encapsulate MOSFETS

CJPF04N80 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
800V	3.0Ω@10V	4A

TO-220F



1. GATE
2. DRAIN
3. SOURCE

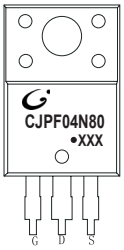
GENERAL DESCRIPTION

This is a N-channel mode power MOSFET using advanced technology to provide planar stripe and DMOS technology. This technology is specialized in allowing a minimum on-state resistance, and superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode. It is universally applied in high efficiency switch mode power supply.

FEATURE

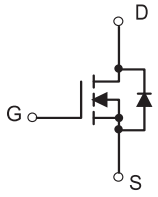
- High Current Rating
- Lower $R_{DS(on)}$
- Lower Capacitance
- Lower Total Gate Charge
- Avalanche Energy Specified
- High Switching Speed

MARKING



CJPF04N80= 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}	800	V
Gate-Source Voltage	V_{GS}	±30	
Continuous Drain Current	I_D	4.0	A
Pulsed Drain Current	I_{DM}	16	
Single Pulsed Avalanche Energy (note1)	E_{AS}	170	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

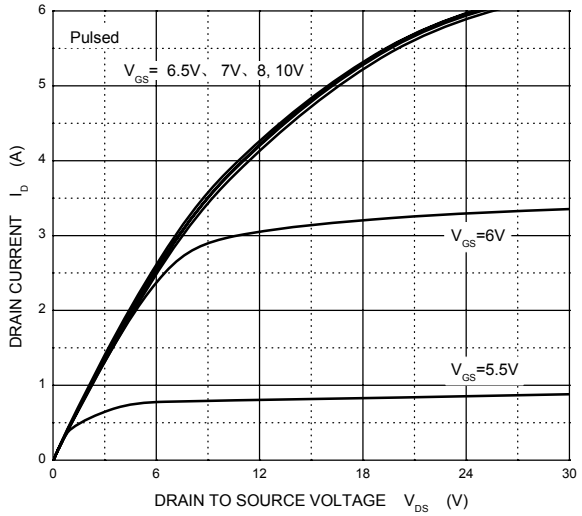
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	800			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =800V, V_{GS} =0V			10	μA
Gate-body leakage current (note2)	I_{GSS}	V_{DS} =0V, V_{GS} =±30V			±100	nA
On characteristics (note2)						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	3	4	5	V
Static drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =2.0A		2.1	3.0	Ω
Dynamic characteristics (note 3)						
Input capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz			880	pF
Output capacitance	C_{oss}				100	
Reverse transfer capacitance	C_{rss}				12	
Switching characteristics (note 2,3)						
Total gate charge	Q_g	V_{DS} =640V,V_{GS} =10V,I_D =4.0A			25	nC
Gate-source charge	Q_{gs}			4.2		
Gate-drain charge	Q_{gd}			9.1		
Turn-on delay time	$t_{d(on)}$	V_{DD}=400V, V_{GS}=10V, R_G=25Ω, I_D =4.0A			40	ns
Turn-on rise time	t_r				100	
Turn-off delay time	$t_{d(off)}$				80	
Turn-off fall time	t_f				80	
Sourceource-drain diode characteristics						
Maximum diode forward continuous current	I_S				4	A
Maximum diode forward pulse current	I_{SM}				16	A
Diode forward voltage	V_{SD}	I_S=4A,V_{GS}=0V			1.4	V

Notes :

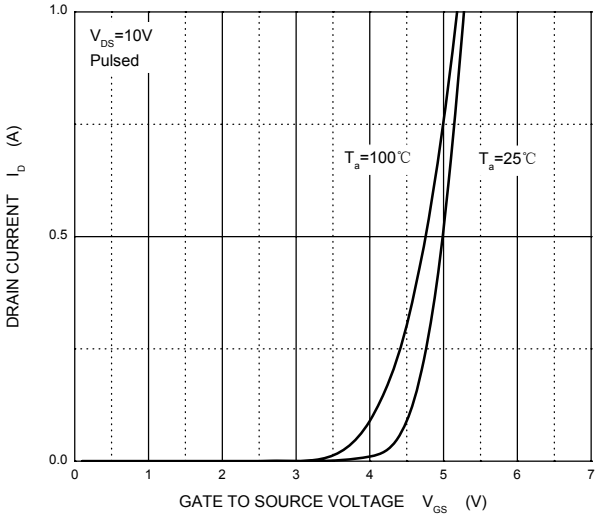
1. L=20mH, I_L=4 A, V_{DD}=50V, V_{GS}=10V,R_G=25Ω,Starting T_J=25℃.
2. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
3. These parameters have no way to verify.

Typical Characteristics

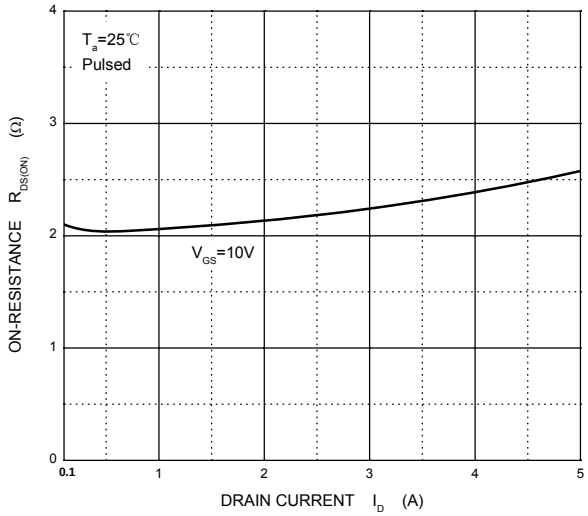
Output Characteristics



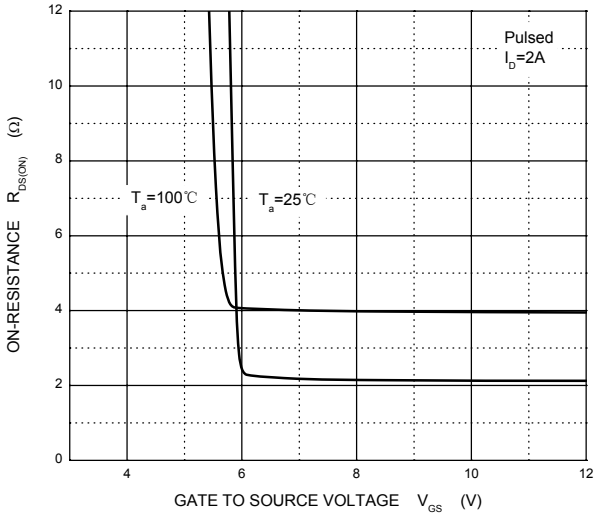
Transfer Characteristics



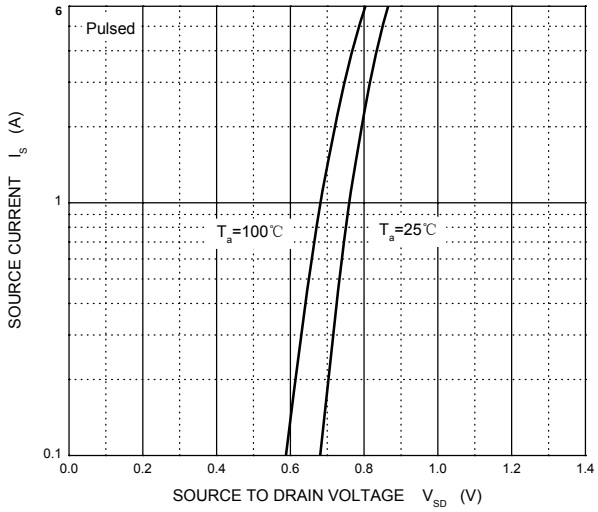
$R_{DS(ON)}$ —— I_D



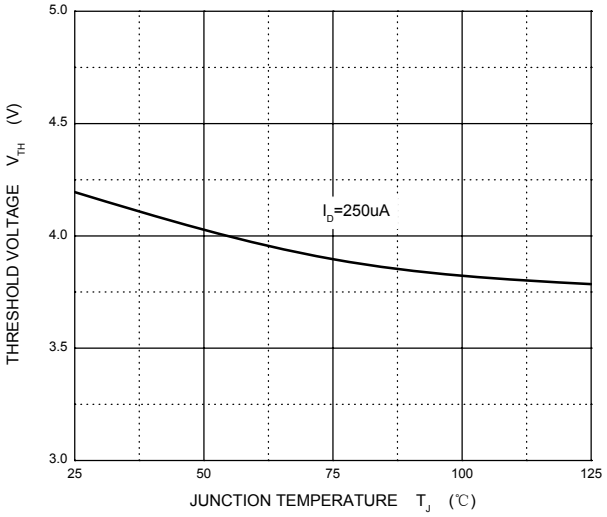
$R_{DS(ON)}$ —— V_{GS}



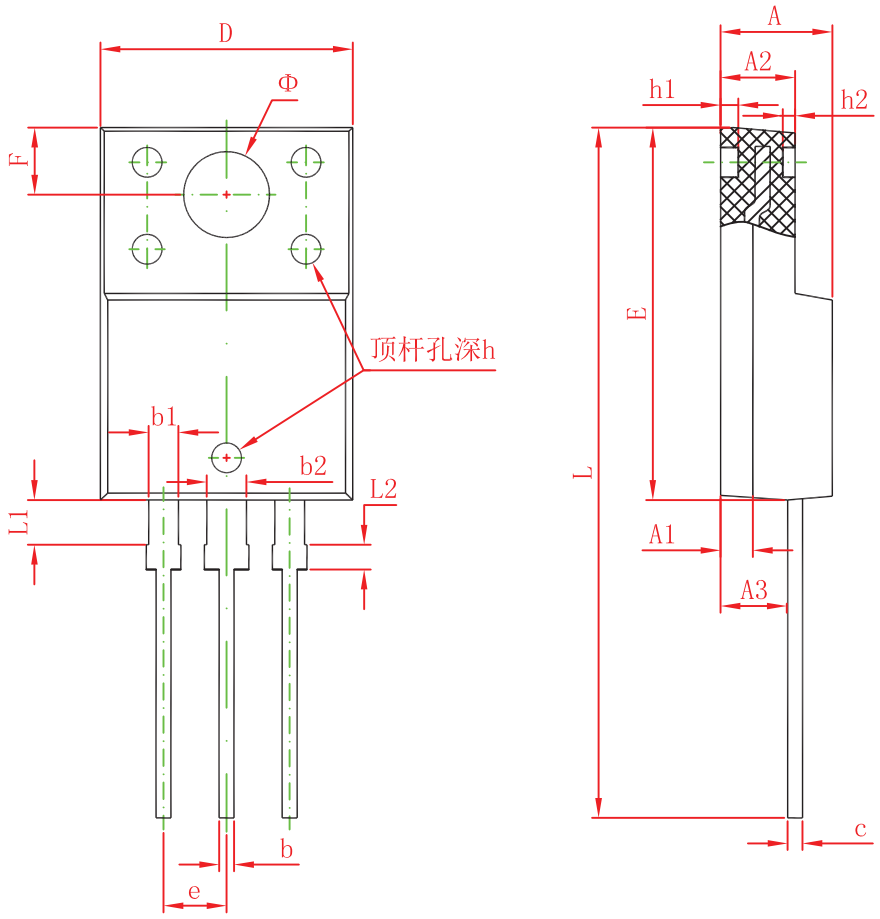
I_S —— V_{SD}



Threshold Voltage



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