

**TO-220F Plastic-Encapsulate MOSFETS****CJPF03N80** N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$ TYP	I_D
800V	$3.2\Omega@10V$	3A

GENERAL DESCRIPTION

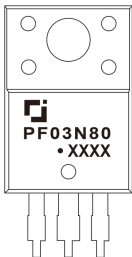
The CJPF03N80 provide excellent $R_{DS(on)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURE

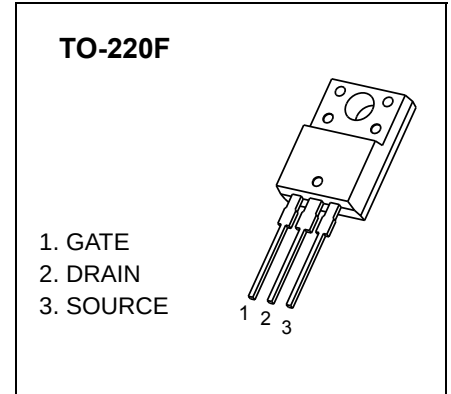
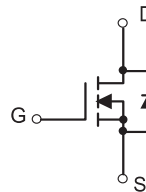
- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified

APPLICATION

- Power switching application

MARKING

PF03N80= Device code
Solid dot = Green molding compound device,
if none, the normal device
XXXX=Code

EQUIVALENT CIRCUIT**Maximum ratings ($T_a=25^\circ\text{C}$ 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	3	A
Pulsed Drain Current	I_{DM}	10	
Single Pulsed Avalanche Energy (note1)	E_{AS}	170	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
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

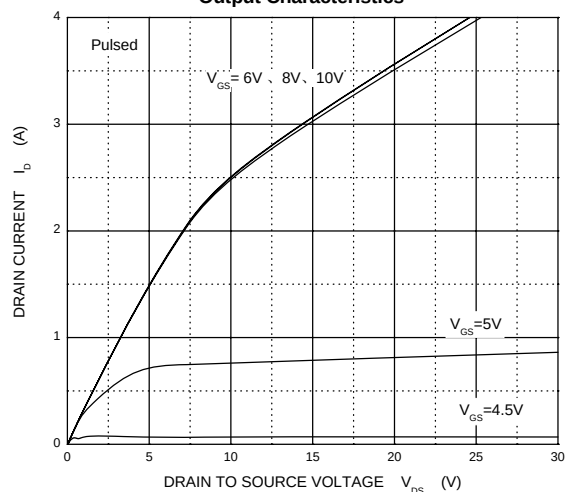
$T_a=25^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	800			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 800V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 30V$			± 10	μA
On characteristics (note2)						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	3	3.7	4.5	V
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 1.5A$		3.2	4.2	Ω
Forward transconductance	g_{fs}	$V_{DS} = 15V, I_D = 1.5A$		2.1		S
Dynamic characteristics (note 3)						
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		485		pF
Output capacitance	C_{oss}			57		
Reverse transfer capacitance	C_{rss}			11		
Switching characteristics (note 2,3)						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 400V, R_G = 4.7\Omega, I_D = 3A, V_{GS} = 10V$		17		ns
Turn-on rise time	t_r			27		
Turn-off delay time	$t_{d(off)}$			36		
Turn-off fall time	t_f			40		
Total Gate Charge	Q_g	$V_{DS} = 640V, V_{GS} = 10V, I_D = 3A$		19		nC
Gate-Source Charge	Q_{gs}			3.2		nC
Gate-Drain Charge	Q_{gd}			10.8		nC
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD}	$V_{GS} = 0V, I_S = 3A$			1.6	V
Continuous drain-source diode forward current	I_S				3	A
Pulsed drain-source diode forward current	I_{SM}				10	A

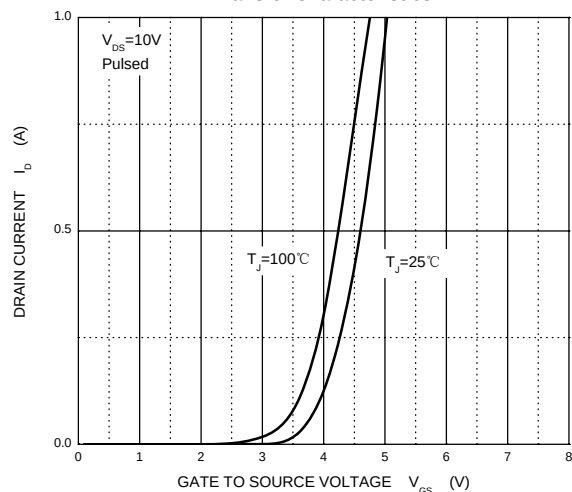
Notes :

- $I_L = 3A, V_{DD} = 50V, R_G = 25\Omega, \text{Starting } T_J = 25^{\circ}\text{C}.$
- Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production

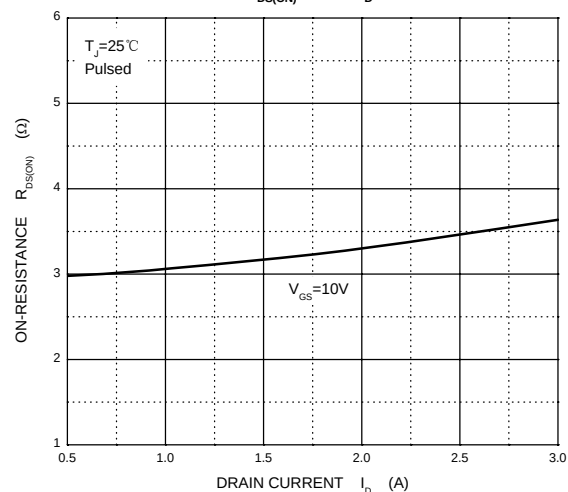
Output Characteristics



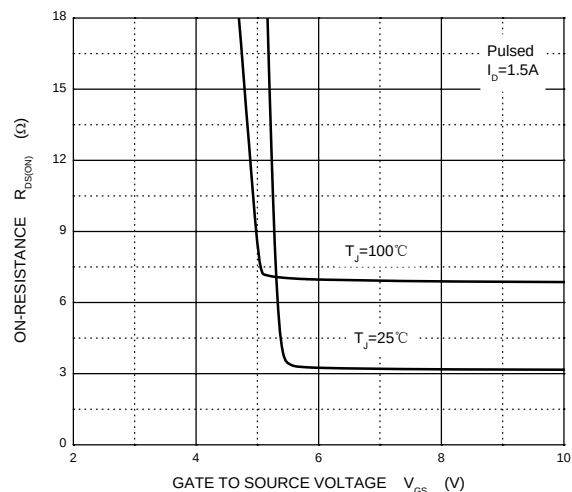
Transfer Characteristics



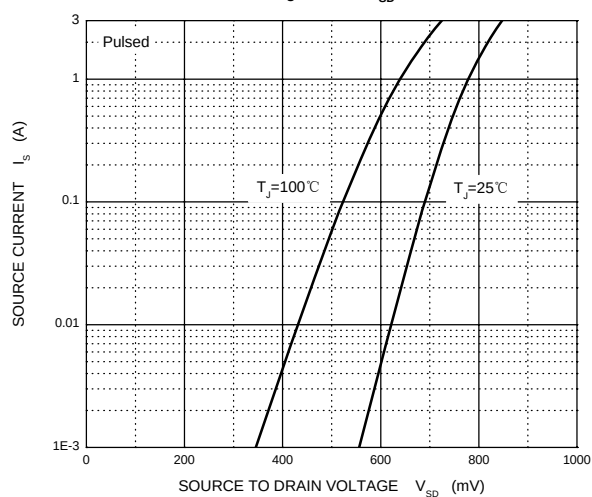
$R_{DS(ON)}$ — I_D



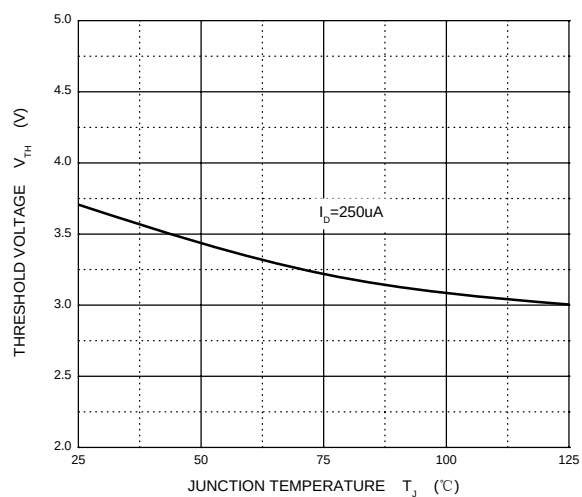
$R_{DS(ON)}$ — V_{GS}



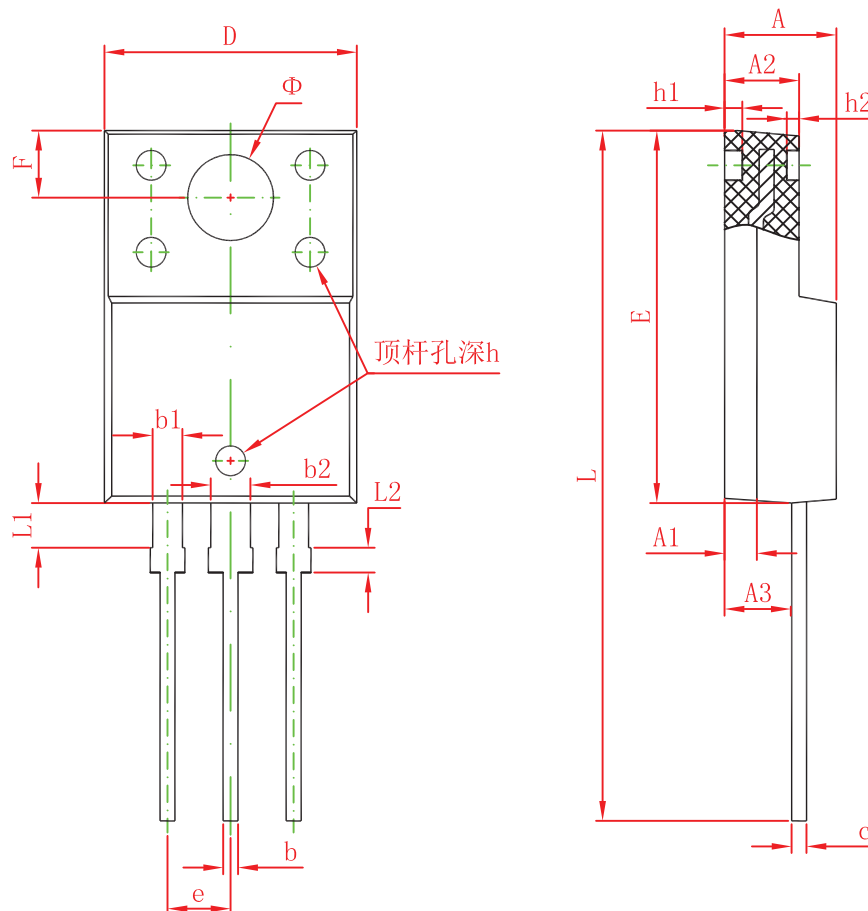
I_S — V_{SD}



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