



## TO-220F Plastic-Encapsulate MOSFETS

### **CJPF03N80** N-Channel Power MOSFET

#### 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

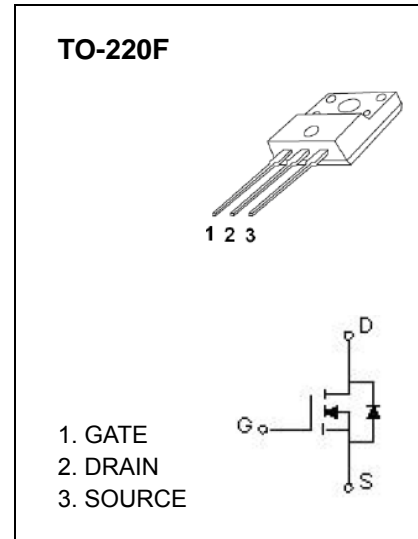
- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified

#### APPLICATION

- Power switching application

#### 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	$V_{GS}$	$\pm 30$	
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	



**Electrical characteristics (T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	800			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =800V, V <sub>GS</sub> =0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±30V			±10	μA
<b>On characteristics (note2)</b>						
Gate-threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	3		4.5	V
Static drain-source on-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =1.5A			4.2	Ω
Forward transconductance	g <sub>fs</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =1.5A		2.1		S
<b>Dynamic characteristics (note 3)</b>						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f =1MHz		485		pF
Output capacitance	C <sub>oss</sub>			57		
Reverse transfer capacitance	C <sub>rss</sub>			11		
<b>Switching characteristics (note 2,3)</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> =400V, R <sub>G</sub> =4.7Ω, I <sub>D</sub> =3A, V <sub>GS</sub> =10V		17		ns
Turn-on rise time	t <sub>r</sub>			27		
Turn-off delay time	t <sub>d(off)</sub>			36		
Turn-off fall time	t <sub>f</sub>			40		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =640V, V <sub>GS</sub> =10V, I <sub>D</sub> =3A		19		nC
Gate-Source Charge	Q <sub>gs</sub>			3.2		nC
Gate-Drain Charge	Q <sub>gd</sub>			10.8		nC
<b>Drain-Source Diode Characteristics</b>						
Drain-source diode forward voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> =3A			1.6	V
Continuous drain-source diode forward current	I <sub>S</sub>				3	A
Pulsed drain-source diode forward current	I <sub>SM</sub>				10	A

**Notes :**

1. I<sub>L</sub>=3A, V<sub>DD</sub>=50V, R<sub>G</sub>=25Ω, Starting T<sub>J</sub>=25°C.
2. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
3. Guaranteed by design, not subject to production

# Typical Characteristics

# CJPF03N80

