

TO-220F Plastic-Encapsulate MOSFETS

CJPF08N80

N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
800V	1.45Ω@10V	8A

GENERAL DESCRIPTION

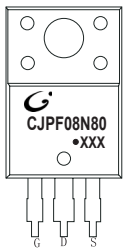
The CJPF8N80 is an N-channel mode power MOSFET, it uses UTC's advanced technology to provide costumers planar stripe and DMOS technology. This technology allows a minimum on-state resistance, superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode.

The CJPF8N80 is generally applied in high efficiency switch mode power supplies.

FEATURE

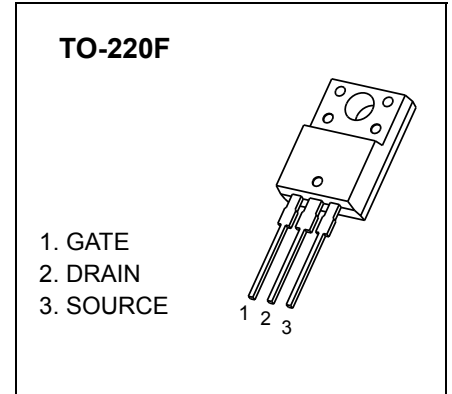
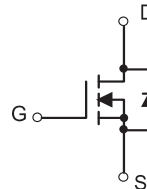
- Low gate charge
- Low C_{rss}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product

MARKING



CJPF08N80= Device code
Solid dot = Green molding compound device,
if none, the normal device
XXX=Date 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	8	A
Pulsed Drain Current	I_{DM}	32	
Single Pulsed Avalanche Energy (note1)	E_{AS}	850	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	°C/W
Junction Temperature	T_J	150	°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

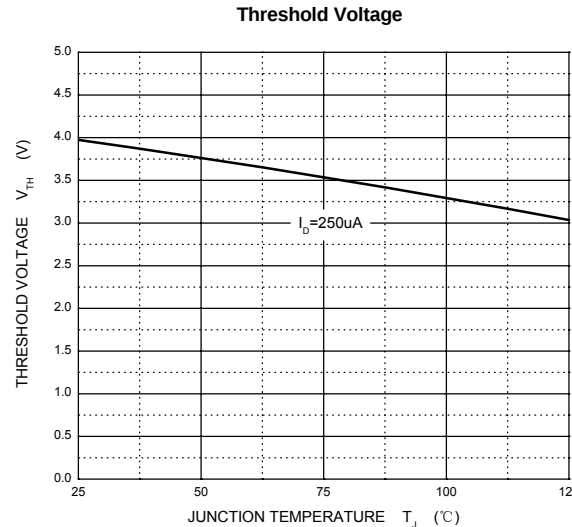
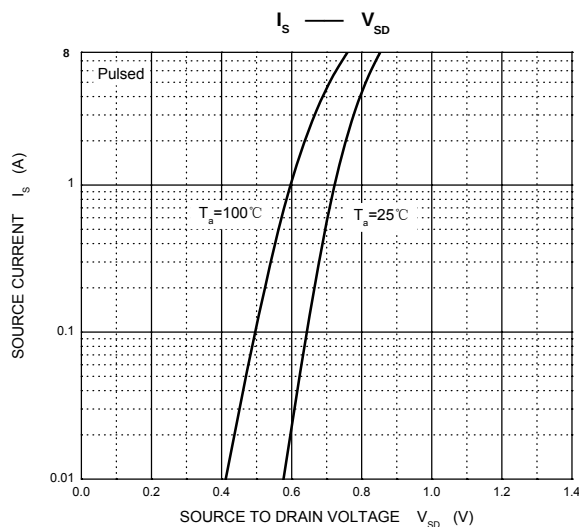
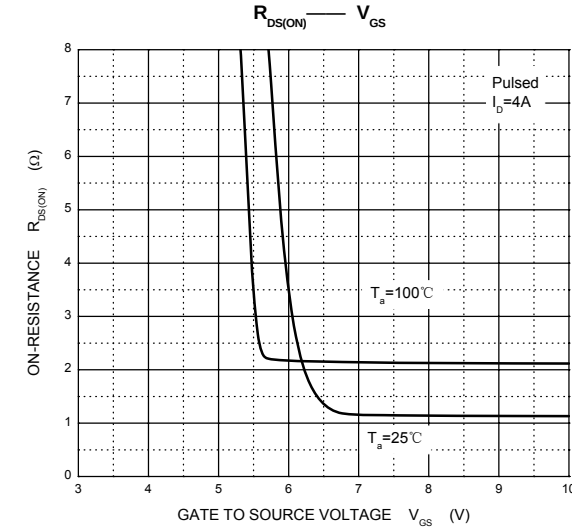
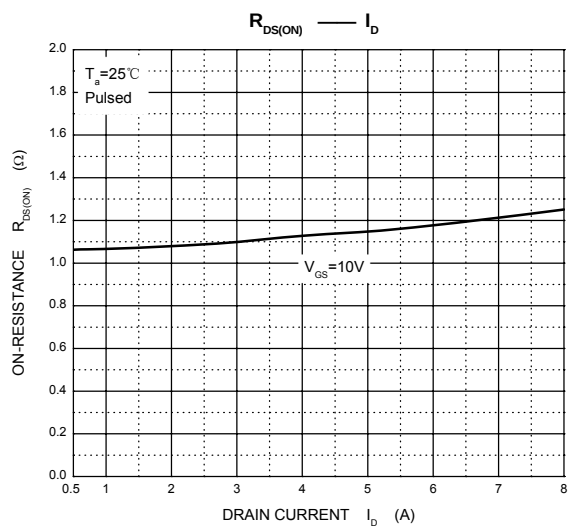
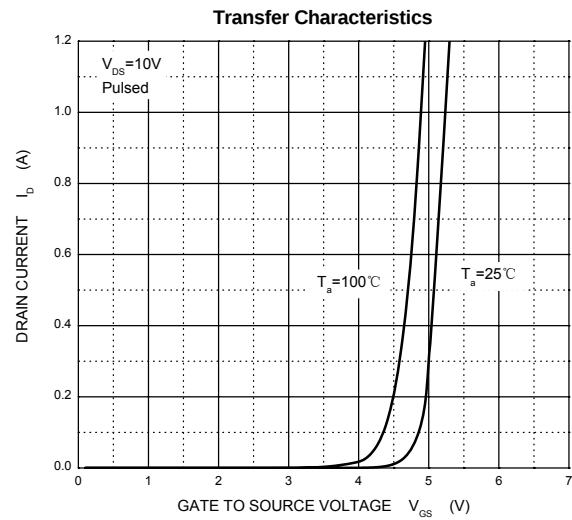
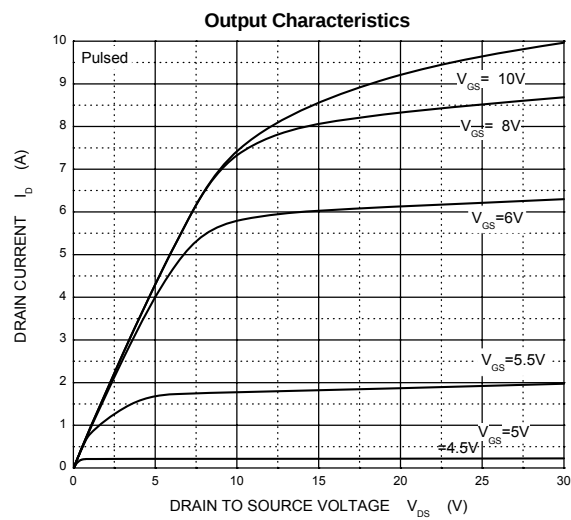
$T_a = 25^\circ\text{C}$ unless otherwise specified

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}	$V_{DS} = 800V, V_{GS} = 0V$			10	μA
		$V_{DS} = 640V, V_{GS} = 0V, T_J = 125^{\circ}C$			100	μA
Gate-body leakage current (note2)	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 30V$			± 100	nA
On characteristics						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	3	4	5	V
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 4A$		1.18	1.45	Ω
Forward transconductance	g_{fs}	$V_{DS} = 50V, I_D = 4A$		5.6		S
Dynamic characteristics (note 3)						
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		1580	2050	pF
Output capacitance	C_{oss}			135	175	
Reverse transfer capacitance	C_{rss}			13	17	
Switching characteristics (note 2,3)						
Total gate charge	Q_g	$V_{DS} = 640V, V_{GS} = 10V, I_D = 8A$		35	45	nC
Gate-source charge	Q_{gs}			10		
Gate-drain charge	Q_{gd}			14		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 400V, R_G = 25V, I_D = 8A$		40	90	ns
Turn-on rise time	t_r			110	230	
Turn-off delay time	$t_{d(off)}$			65	140	
Turn-off fall time	t_f			70	150	
Source-drain diode characteristics						
Maximum diode forward continuous current	I_S				8	A
Maximum diode forward pulse current	I_{SM}				32	A
Diode forward voltage	V_{SD}	$I_S = 8A, V_{GS} = 0V$			1.4	V

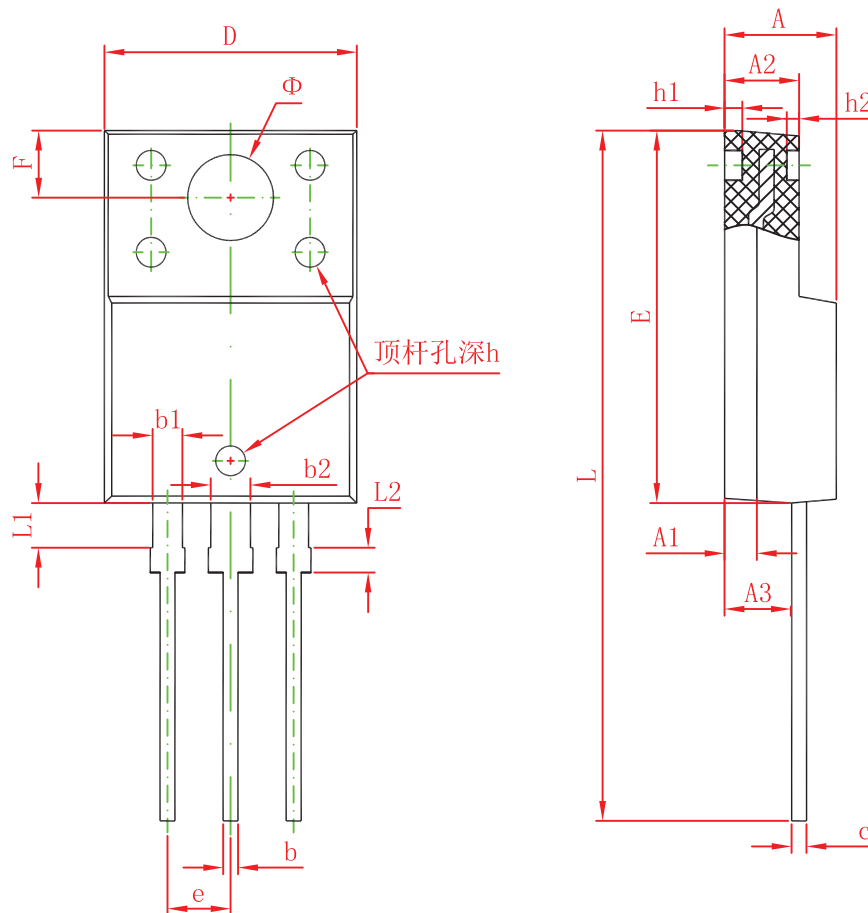
Notes :

1. $L = 25\text{mH}, V_{DD} = 50V, V_{GS} = 10V, R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$.
2. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. These parameters have no way to verify.

Typical Characteristics



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