

TO-220F Plastic-Encapsulate MOSFETS

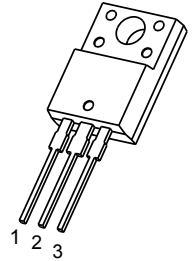
CJPF07N60

N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
600V	1.3Ω@10V	7A

TO-220F

1. GATE
2. DRAIN
3. SOURCE



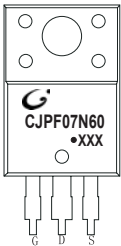
GENERAL DESCRIPTION

This advanced high voltage MOSFET is designed to stand high energy in the avalanche mode and switch efficiently. This new high energy device also offers a drain-to-source diode fast recovery time. Designed for high voltage, high speed switching applications such as power supplies, converters, power motor controls and bridge circuits.

FEATURE

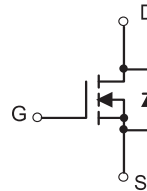
- High Current Rating
- Lower $R_{DS(on)}$
- Lower Capacitance
- Lower Total Gate Charge
- Tighter V_{SD} Specifications
- Avalanche Energy Specified

MARKING



CJPF07N60= 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}	600	V
Gate-Source Voltage	V_{GS}	±30	
Continuous Drain Current	I_D	7	A
Pulsed Drain Current	I_{DM}	30.8	
Single Pulsed Avalanche Energy (note1)	E_{AS}	580	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 ~+150	$^\circ\text{C}$
Maximum lead temperature for soldering purposes , Duration 5 seconds	T_L	260	

MOSFET ELECTRICAL CHARACTERISTICS

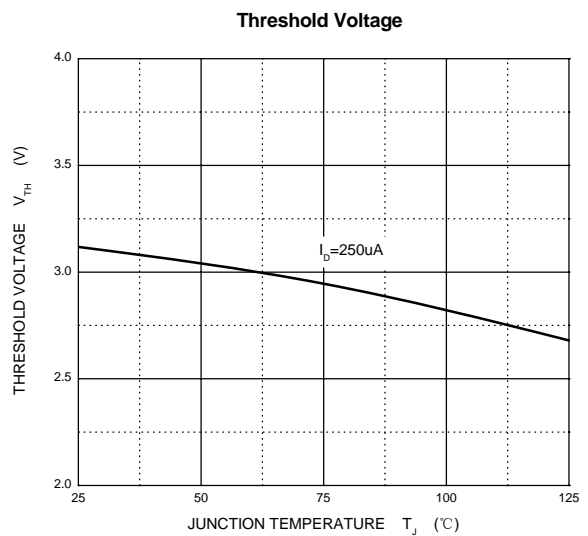
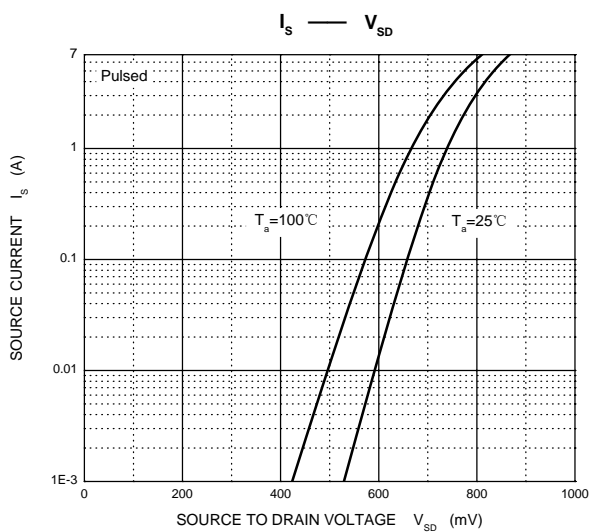
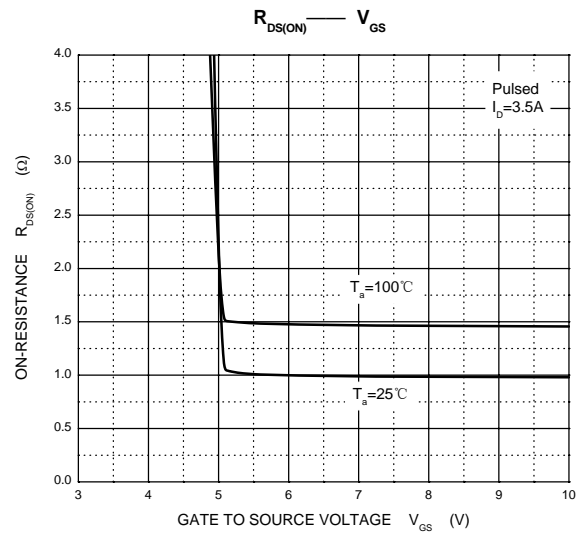
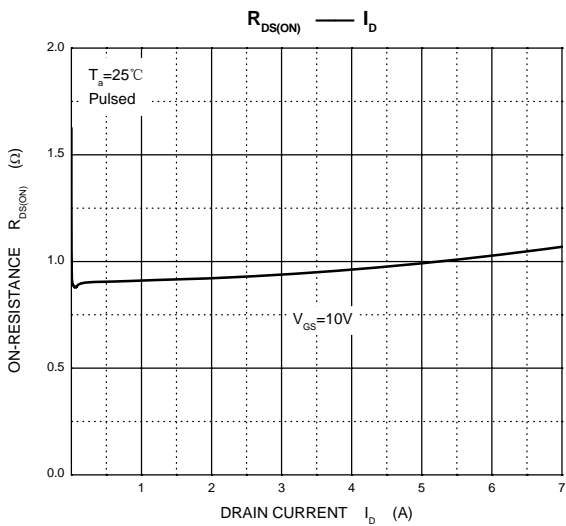
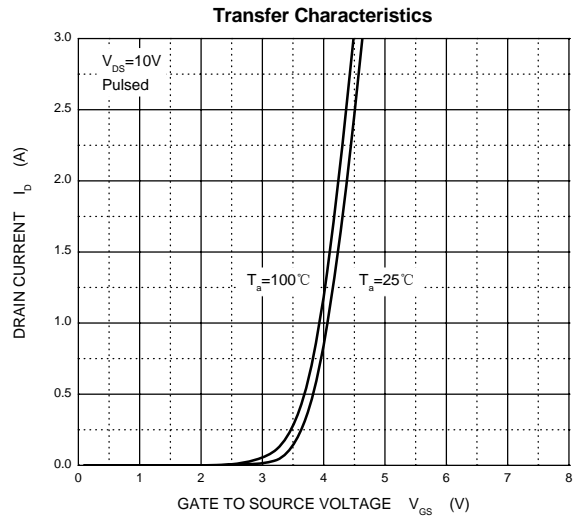
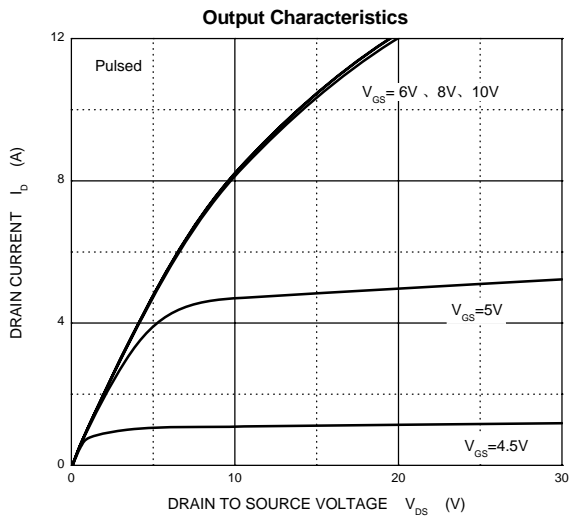
$T_a=25\text{ }^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	600			V
Drain-source diode forward voltage(note2)	V_{SD}	$V_{GS} = 0V, I_S = 7A$			1.4	
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 600V, V_{GS} = 0V$			1	μA
Gate-body leakage curren (note2)	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 30V$			± 100	nA
On characteristics (note2)						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.0	3.0	4.0	V
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 3.5A$		1.0	1.3	Ω
Forward transconductance	g_{FS}	$V_{DS} = 50V, I_D = 3.9A$	5			S
Dynamic characteristics (note 3)						
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$			1600	pF
Output capacitance	C_{oss}				190	
Reverse transfer capacitance	C_{rss}				25	
Switching characteristics (note 3)						
Turn-on delay time (note3)	$t_{d(on)}$	$V_{DD} = 300V, V_{GS} = 10V,$ $R_G = 25\Omega, I_D = 7A$			80	ns
Turn-on rise time (note3)	t_r				165	
Turn-off delay time (note3)	$t_{d(off)}$				160	
Turn-off fall time (note3)	t_f				120	

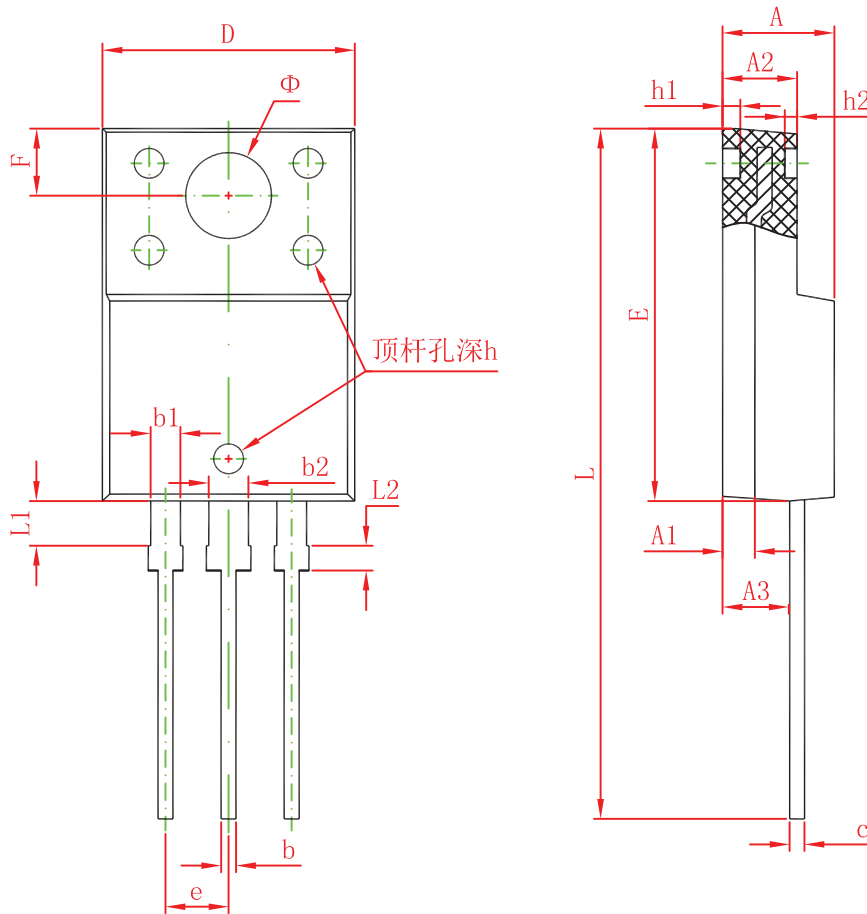
Notes :

1. $L=19.5mH, I_L=7A, V_{DD}=50V, V_{GS}=10V, R_G=0\Omega, \text{Starting } T_J=25^\circ\text{C}.$
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