

TO-220F Plastic-Encapsulate MOSFETS

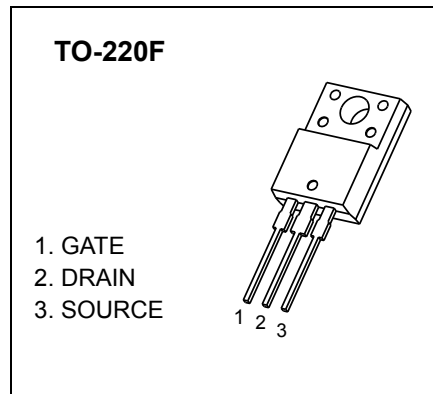
CJPF05N60B

N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
600V	$2.5\Omega@10V$	5A

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

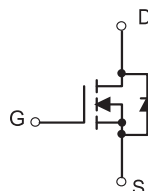
- High Current Rating
- Lower $R_{DS(on)}$
- Lower Capacitance
- Lower Total Gate Charge
- Tighter V_{SD} Specifications
- Avalanche Energy Specified

MARKING



CJPF05N60B= 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	5	A
Pulsed Drain Current	I_{DM}	20	
Single Pulsed Avalanche Energy (note1)	E_{AS}	250	mJ
Power Dissipation	P_D	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
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

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

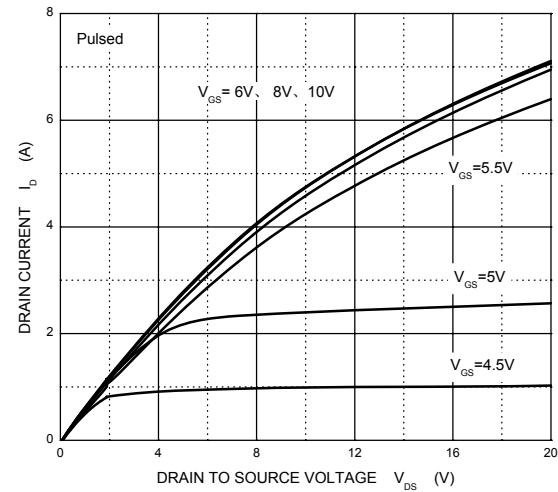
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	600			V
Drain-source diode forward voltage(note2)	V _{SD}	V _{GS} = 0V, I _S =4.5A			1.4	
Zero gate voltage drain current	I _{DSS}	V _{DS} =600V, V _{GS} =0V			1	μA
Gate-body leakage curren (note2)	I _{GSS}	V _{DS} =0V, V _{GS} =± 30V			± 100	nA
On characteristics (note2)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	3.5	4.0	V
Static drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =2.25A		2.0	2.5	Ω
Dynamic characteristics (note 3)						
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1MHz			670	pF
Output capacitance	C _{OSS}				72	
Reverse transfer capacitance	C _{rss}				8.5	
Switching characteristics (note 3)						
Turn-on delay time	t _{d(on)}	V _{DD} =300V, V _{GS} =10V, R _G =25Ω, I _D =4.5A			30	ns
Turn-on rise time	t _r				90	
Turn-off delay time	t _{d(off)}				85	
Turn-off fall time	t _f				100	

Notes :

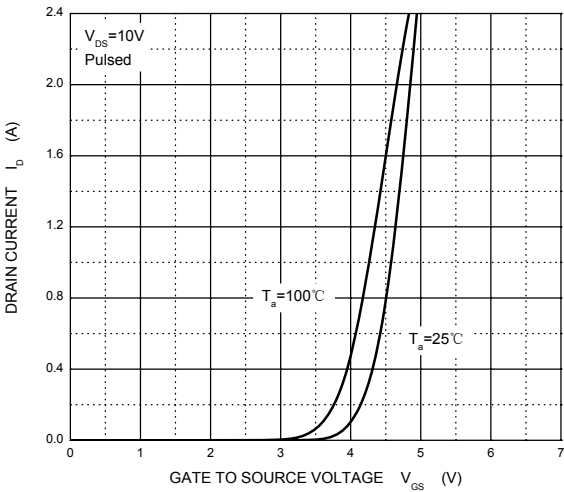
1. $L=16mH, I_L=5A, V_{DD}=50V, R_G=25\Omega$, Starting $T_J=25^{\circ}\text{C}$.
2. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. These parameters have no way to verify.

Typical Characteristics

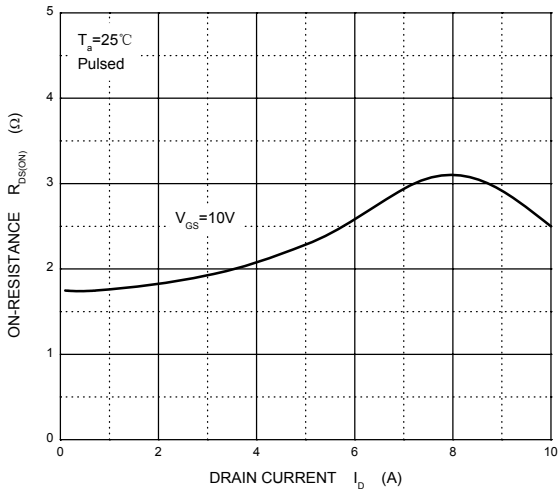
Output Characteristics



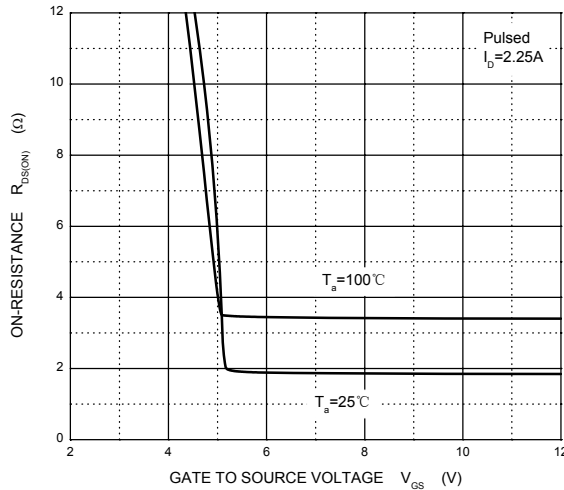
Transfer Characteristics



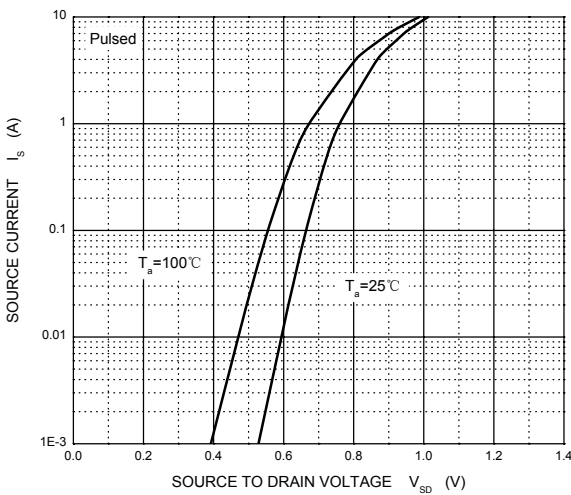
$R_{DS(ON)}$ — I_D



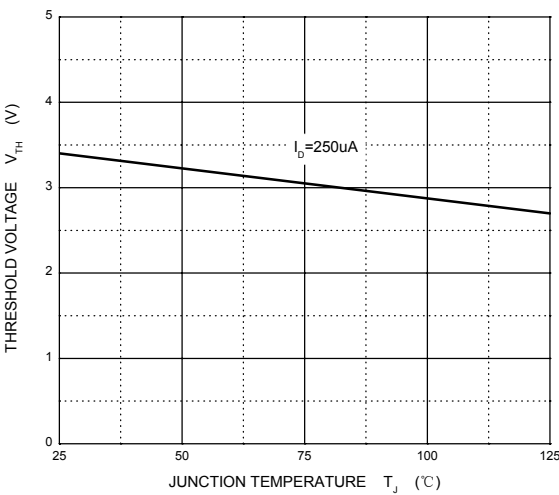
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage



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