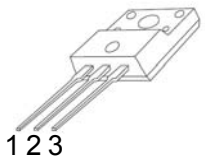
TO-220F Plastic-Encapsulate MOSFETS

CJPF05N60 N-Channel Power MOSFET

TO-220F



1. GATE
2. DRAIN
3. SOURCE

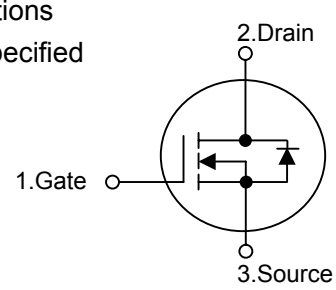
Description

This advanced high voltage MOSFET is designed to withstand high energy in the avalanche mode and switch efficiently. This new high energy device also offers a drain-to-source diode with fast recovery time.

Designed for high voltage, high speed switching applications such as power suplies, converters, power motor controls and bridge circuits.

FEATURES

- Low $R_{DS(on)}$
- Lower Capacitances
- Lower Total Gate Charge
- Tighter V_{SD} Specifications
- Avalanche Energy Specified



Maximum ratings (T_a=25℃ 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	4.5	A
Single Pulsed Avalanche Energy (note1)	E_{AS}	250	mJ
Power Dissipation (note2,T_a=25℃)	P_D	2	W
Maximum Power Dissipation (note3,T_c=25℃)		120	
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-50 ~+150	

Electrical characteristics (T_a=25℃ unless otherwise noted)

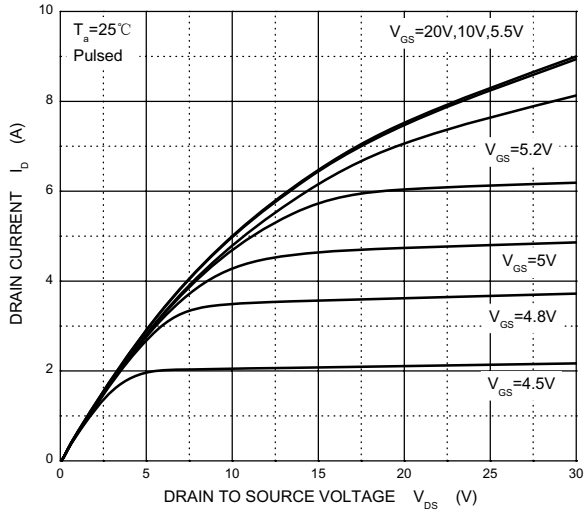
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Gate-Body Leakage Current (note 4)	I_{GSS}	V_{DS} =0V, V_{GS} =±30V			±100	nA
Drain-Source Breakdown Voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =250μA	600			V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0		4.0	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =600V, V_{GS} =0V			1	μA
Forward transconductance	g_{fs}	V_{DS} =40V, I_D =2.25A	2.9			S
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =2.25A			2.5	Ω
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	
Turn-On Delay Time (note 4)	$t_{d(on)}$	V_{DD}=300V,I_D=4.5A, R_G=25Ω			30	ns
Rise Time (note 4)	t_r				90	
Turn-Off Delay Time (note 4)	$t_{d(off)}$				85	
Fall Time (note 4)	t_f				100	
Forward on Voltage (note 4)	V_{SD}	V_{GS} =0V, I_S=4.5A			1.4	V

Notes:

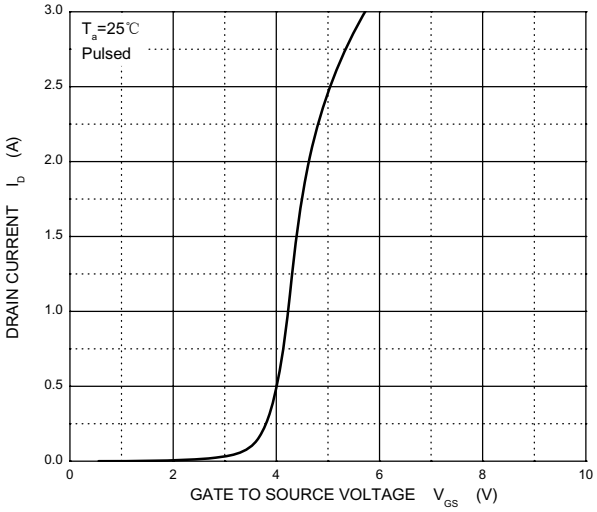
1. E_{AS} condition: T_j=25℃ , V_{DD}=50V,R_G=25Ω,L=16mH,I_{AS}=5A
2. This test is performed with no heat sink at T_a=25℃.
3. This test is performed with infinite heat sink at T_c=25℃.
4. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤2%.

CJPF05N60

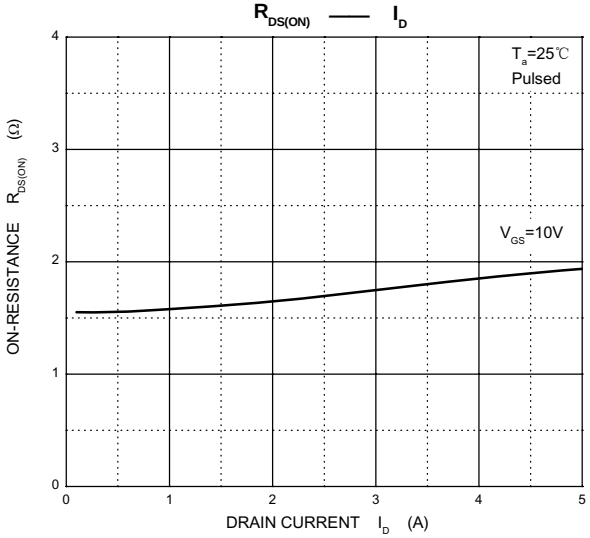
Output Characteristics



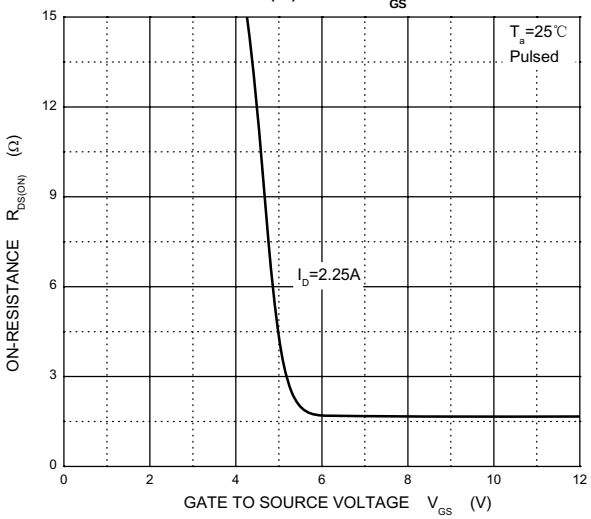
Transfer Characteristics



$R_{DS(ON)}$ —— I_D



$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}