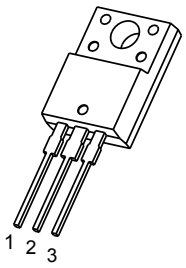
TO-220F Plastic-Encapsulate MOSFETS

CJPF05N65 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
650V	2.2Ω@10V	5A

TO-220F



1. GATE
2. DRAIN
3. SOURCE

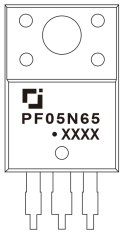
GENERAL DESCRIPTION

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

FEATURE

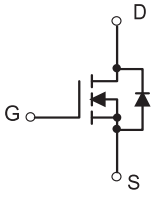
- High Current Rating
- Lower $R_{DS(on)}$
- Lower Capacitance
- Lower Total Gate Charge
- Tighter V_{SD} Specifications
- Avalanche Energy Specified
- Fast Switching Capability

MARKING



PF05N65 = Device code
Solid dot = Green molding compound device, if none, the normal device
XXXX=Code

EQUIVALENT CIRCUIT



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	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}	210	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Operating and Storage Temperature Range	$T_{J,}$ T_{STG}	-55 ~+150	℃
Maximum Lead Temperature for Soldering Purposes , Duration for 5 Seconds	T_L	260	

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

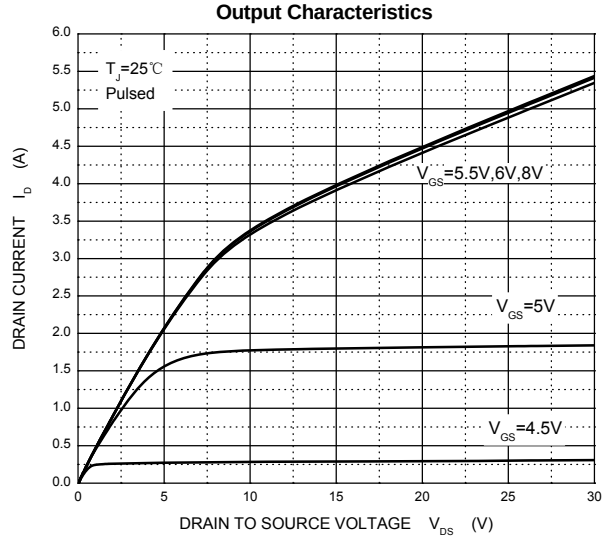
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	650			V
Drain-source diode forward voltage	V_{SD}	V_{GS} = 0V, I_S =5A			1.4	
Zero gate voltage drain current	I_{DSS}	V_{DS} =650V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±30V			±100	nA
On characteristics (note 2)						
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 =2.5A		2.2	2.4	Ω
Forward transconductance	g_{fs}	V_{DS} =50V, I_D =2.5A		4		S
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)						
Total gate charge	Q_g	V_{DS} =520V,V_{GS} =10V,I_D =5A		15	19	nC
Gate-source charge	Q_{gs}			2.5		
Gate-drain charge	Q_{gd}			6.6		
Turn-on delay time	$t_{d(on)}$	V_{DD}=325V, R_G=25Ω, I_D =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 :

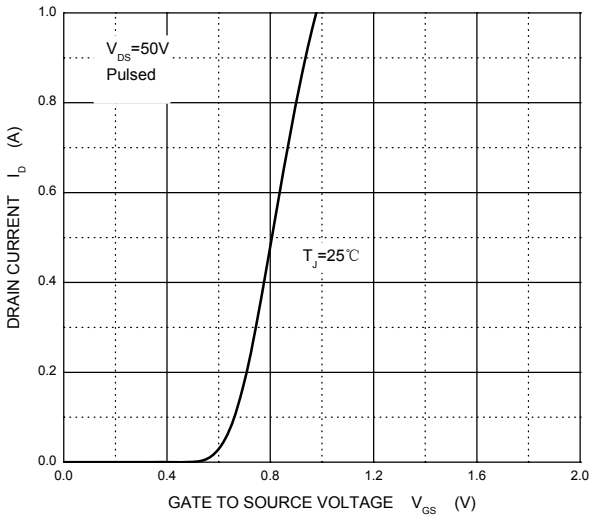
1. L=16.8mH, I_L=5A, V_{DD}=50V, R_G=25Ω, Starting T_J=25℃.
2. Pulse Test: Pulse width≤300μs, duty cycle ≤2%.
3. These parameters have no way to verify.

Typical Characteristics

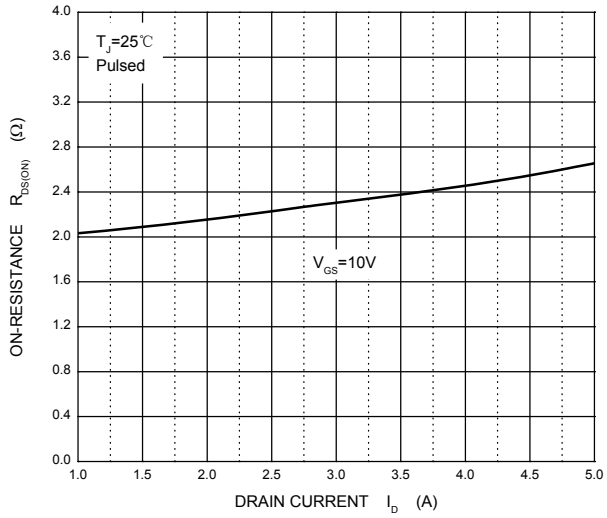
Output Characteristics



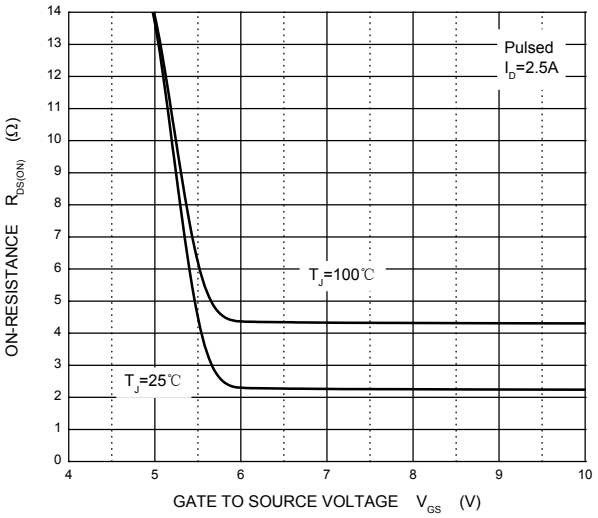
Transfer Characteristics



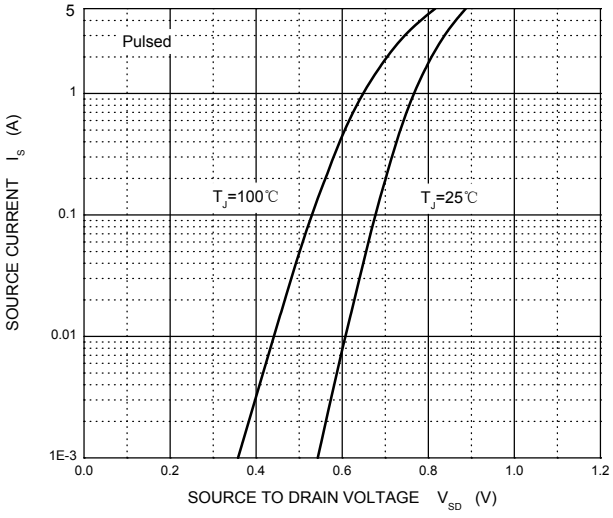
$R_{DS(ON)}$ —— I_D



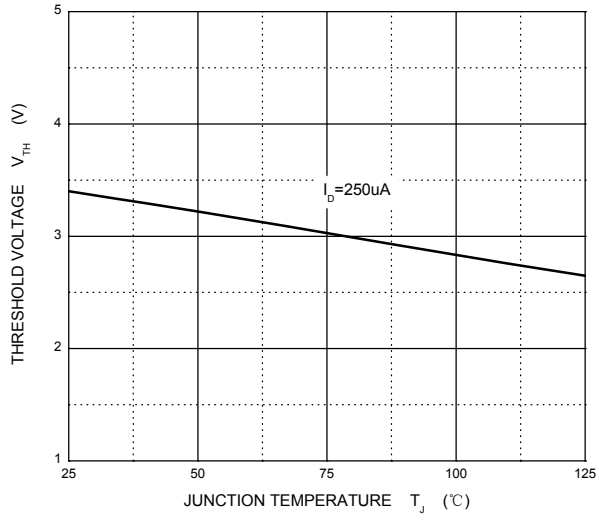
$R_{DS(ON)}$ —— V_{GS}



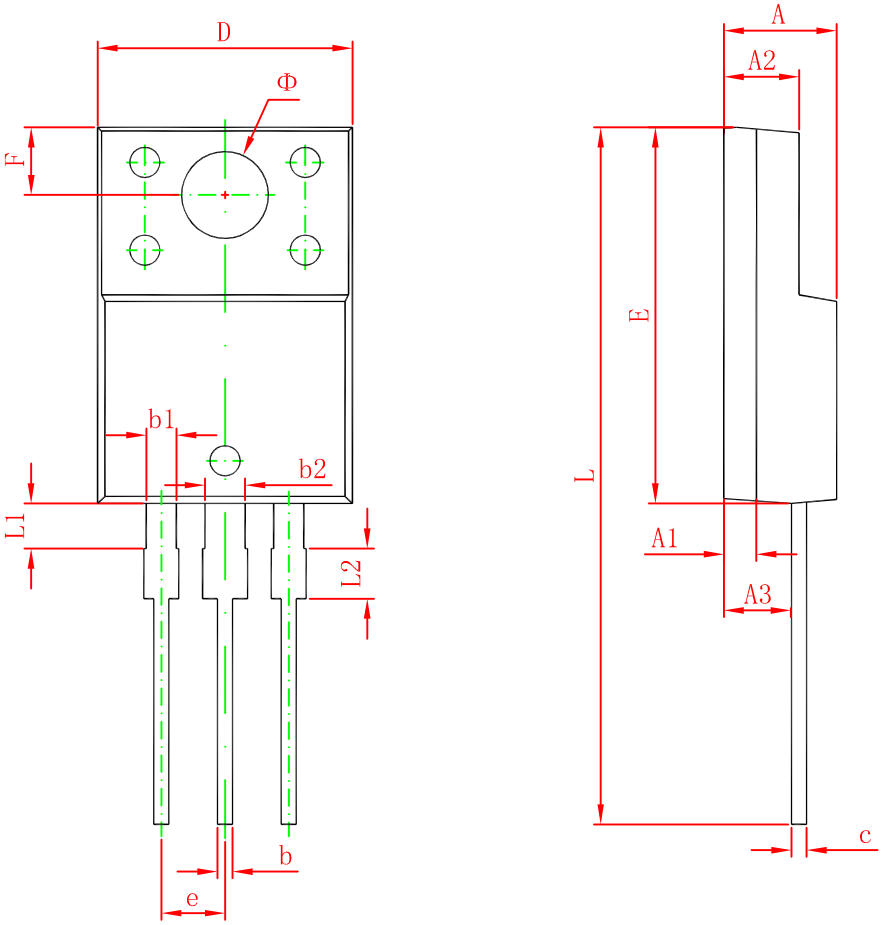
I_S —— V_{SD}



Threshold Voltage



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	3.300	3.700	0.130	0.146
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