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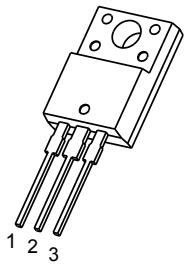
Shenzhen Changji Semiconductor Co., LTD.

TO-220F Plastic-Encapsulate MOSFETS

CJPF10N65 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
650V	0.75Ω@10V	10A

TO-220F



1. GATE
2. DRAIN
3. SOURCE

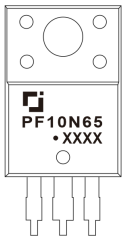
GENERAL DESCRIPTION

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

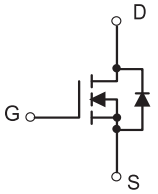
- High Current Rating
- Low Gate Charge
- Lower $R_{DS(on)}$
- Low Reverse Transfer Capacitance
- Fast Switching Capability
- Tighter V_{SD} Specifications
- Avalanche Energy Specified

MARKING



PF10N65= 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	Limit	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D ①	10	A
Pulsed Drain Current	I_{DM} ②	40	A
Single Pulsed Avalanche Energy	E_{AS} ③	380	mJ
Power Dissipation	P_D ①	50	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	62.5	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	2.5	℃/W
Operating Junction and Storage Temperature Range	T_J ,T_{stg}	-55~+150	℃

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
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 characteristics④						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0	3.0	4.0	V
Static drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =5A		0.75	1	Ω
Dynamic characteristics④⑤						
Input capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz		1570	2040	pF
Output capacitance	C_{oss}			166	215	
Reverse transfer capacitance	C_{rss}			18	24	
Switching characteristics④⑤						
Total gate charge	Q_g	V_{DS} =520V,V_{GS} =10V,I_D =10A		44	57	nC
Gate-source charge	Q_{gs}			6.7		
Gate-drain charge	Q_{gd}			18.5		
Turn-on delay time	$t_{d(on)}$	V_{DD}=325V, V_{GS}=10V, R_G=25Ω, I_D =10A		23	55	ns
Turn-on rise time	t_r			69	150	
Turn-off delay time	$t_{d(off)}$			144	300	
Turn-off fall time	t_f			77	165	
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD}④	V_{GS} = 0V, I_S =10A			1.4	V
Maximum continuous drain-source diode forward current	I_S①				10	A
Maximum pulsed drain-source diode forward current	I_{SM}②				38	A

Notes :

1.T_C=25℃ Limited only by maximum temperature allowed.

2.P_W≤10μs, Duty cycle≤1%.

3.EAS condition: VDD=50V,VGS=10V, L=10mH, Rg=25Ω Starting T_J = 25°℃.

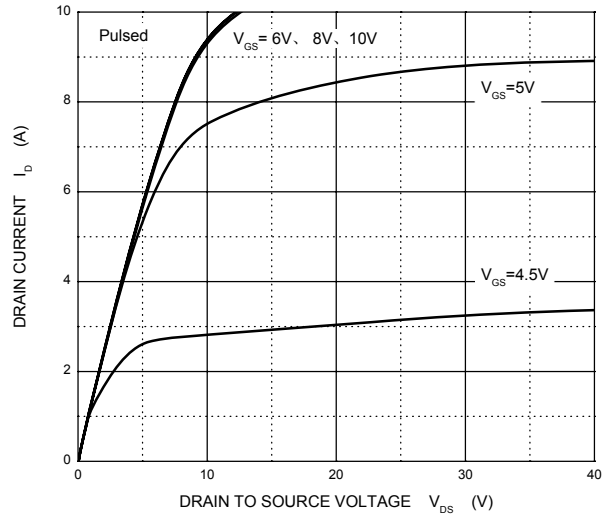
4.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

5.Guaranteed by design, not subject to production.

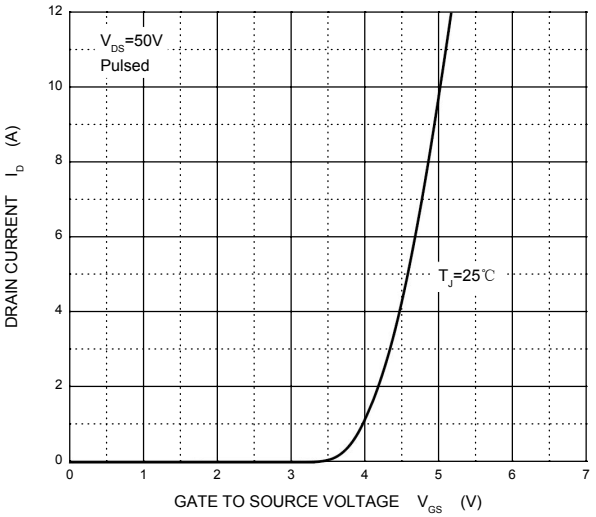
6.The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25℃

Typical Characteristics

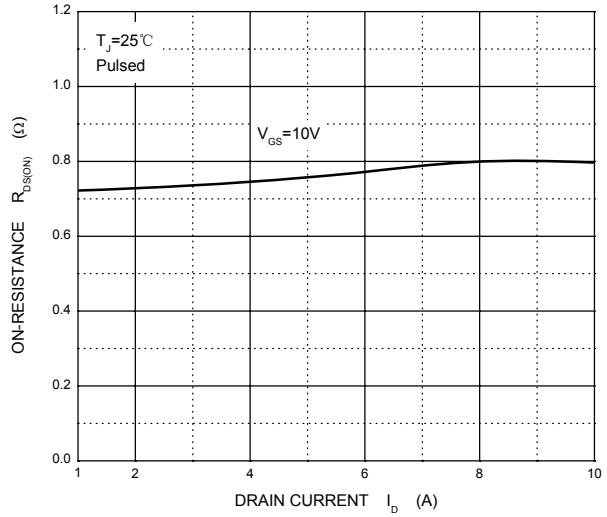
Output Characteristics



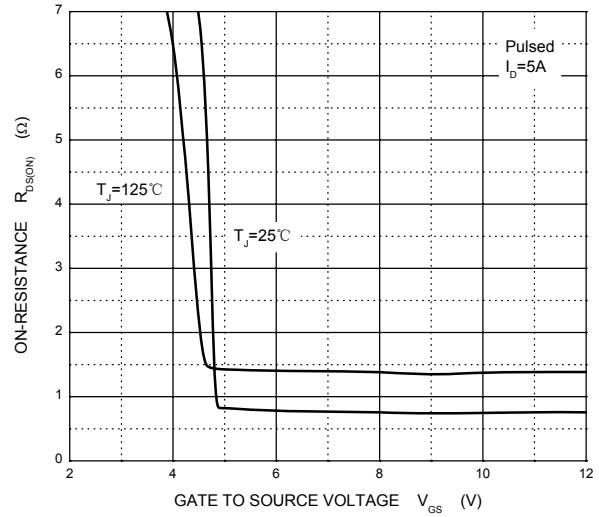
Transfer Characteristics



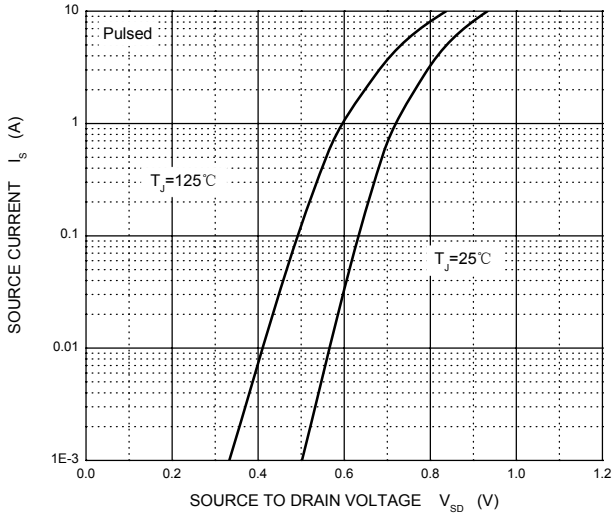
$R_{DS(ON)}$ —— I_D



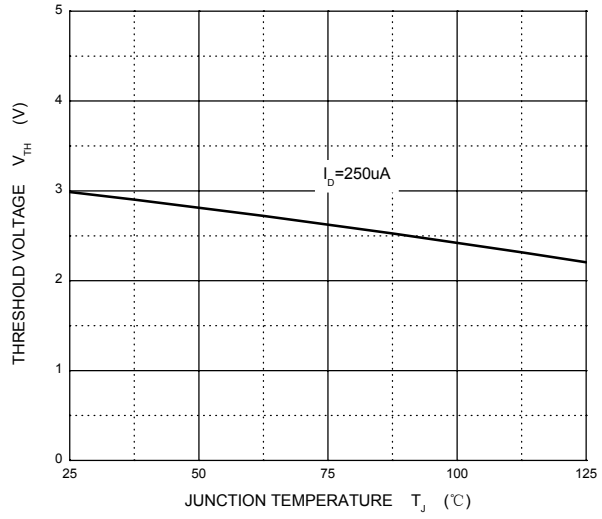
$R_{DS(ON)}$—— V_{GS}



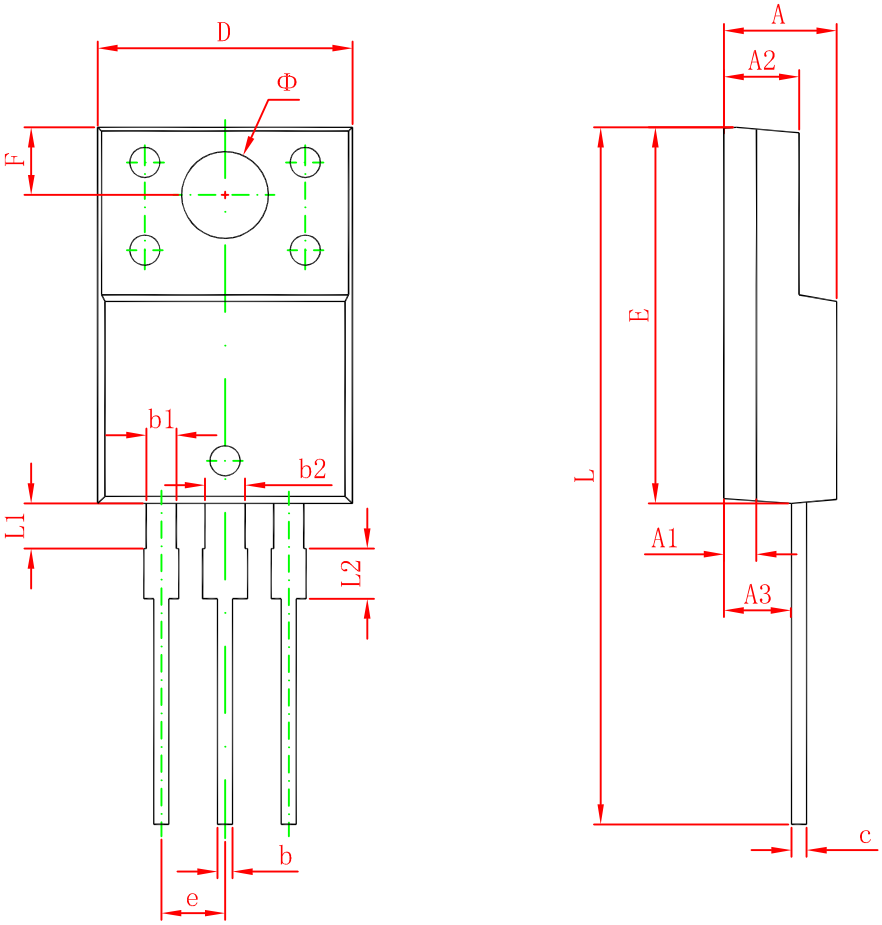
I_S —— V_{SD}



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