

TO-220F Plastic-Encapsulate MOSFETS

CJPF55P30 P-Channel Power MOSFET

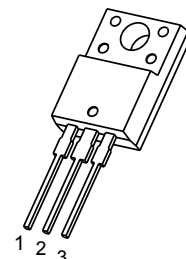
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-55V	33mΩ@-10V	-30A

GENERAL DESCRIPTION

The CJPF55P30 uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. It can be used in a wide variety of applications.

TO-220F

1. GATE
2. DRAIN
3. SOURCE



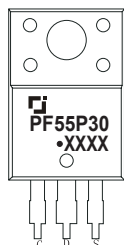
FEATURE

- Advanced trench process technology
- Reliable and rugged
- High density cell design for ultra low On-Resistance

APPLICATION

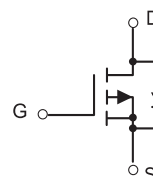
- Power management in notebook computer
- Portable equipment and battery powered systems

MARKING



PF55P30= Device code
Solid dot = Green molding compound device,
if none, the normal device
XXXX=Date Code

EQUIVALENT CIRCUIT



MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-55	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D ①	-30	A
Pulsed Drain Current	I_{DM} ②	-120	A
Single Pulsed Avalanche Energy	E_{AS} ③	225	mJ
Power Dissipation	P_D ①	90	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	62.5	°C/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	1.38	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	°C

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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$		-55			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -44V, V_{GS} = 0V$	$T_J = 25^{\circ}C$			1.0	μA
			$T_J = 125^{\circ}C$			100	
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$				± 100	nA
On characteristics ^④							
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$		-2.0	-2.8	-4.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -15A$			33	40	mΩ
Dynamic characteristics ^{④ ⑤}							
Input capacitance	C_{iss}	$V_{DS} = -30V, V_{GS} = 0V, f = 1MHz$			3500	7000	pF
Output capacitance	C_{oss}				240	480	
Reverse transfer capacitance	C_{rss}				153	300	
Switching characteristics ^{④ ⑤}							
Total gate charge	Q_g	$V_{GS} = -10V, V_{DS} = -30V, I_D = -15A$			56	112	nC
Gate-source charge	Q_{gs}				11	22	
Gate-drain charge	Q_{gd}				24	48	
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -30V, R_G = 3\Omega, I_D = -15A, V_{GS} = -10V,$			12	24	ns
Turn-on rise time	t_r				15	30	
Turn-off delay time	$t_{d(off)}$				38	76	
Turn-off fall time	t_f				15	30	
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ^④	$V_{GS} = 0V, I_S = -24A$				-1.2	V
Continuous drain-source diode forward current	I_S ^①					-30	A
Pulsed drain-source diode forward current	I_{SM} ^②					-120	A

Notes:

1. $T_C = 25^{\circ}\text{C}$ Limited only by maximum temperature allowed.

2. $P_W \leq 10\mu s$, Duty cycle $\leq 1\%$.

3. EAS condition: $V_{DD} = -25V, V_{GS} = -10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^{\circ}\text{C}$.

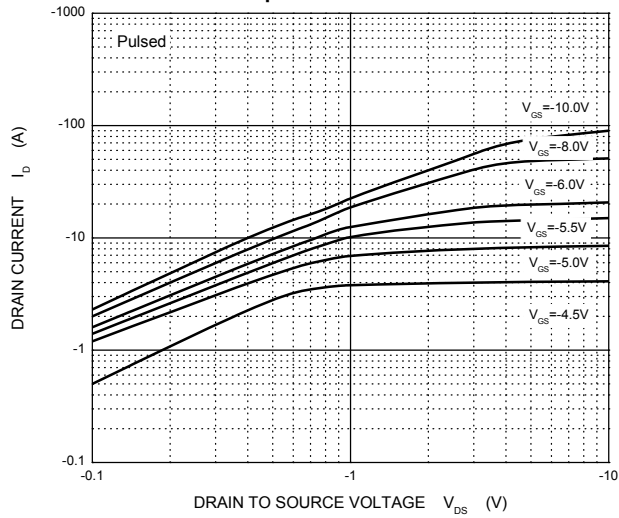
4. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.

5. Guaranteed by design, not subject to production.

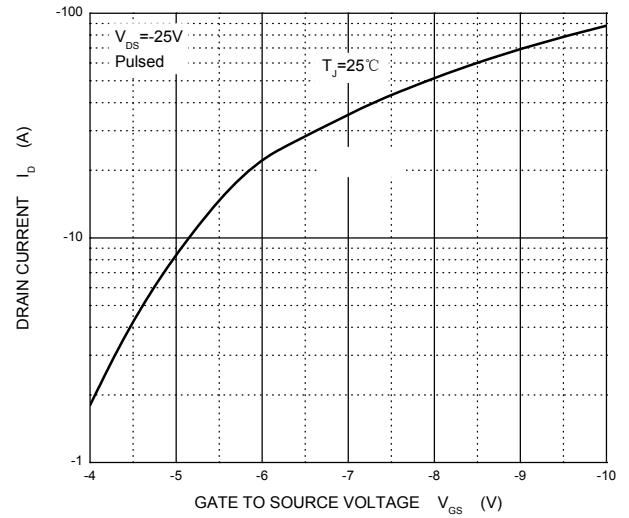
6. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_a = 25^{\circ}\text{C}$.

Typical Characteristics

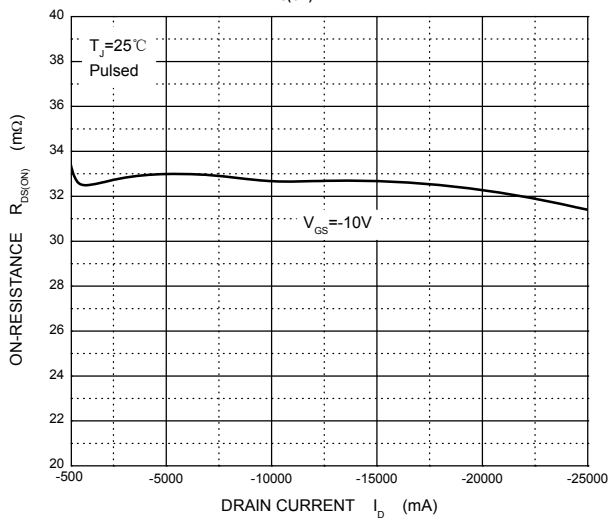
Output Characteristics



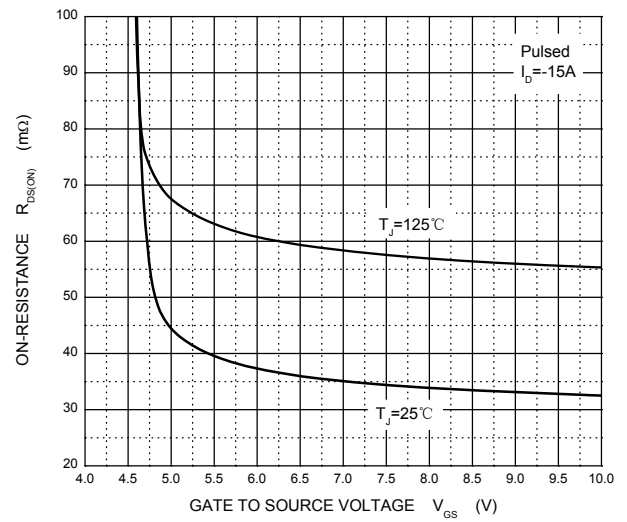
Transfer Characteristics



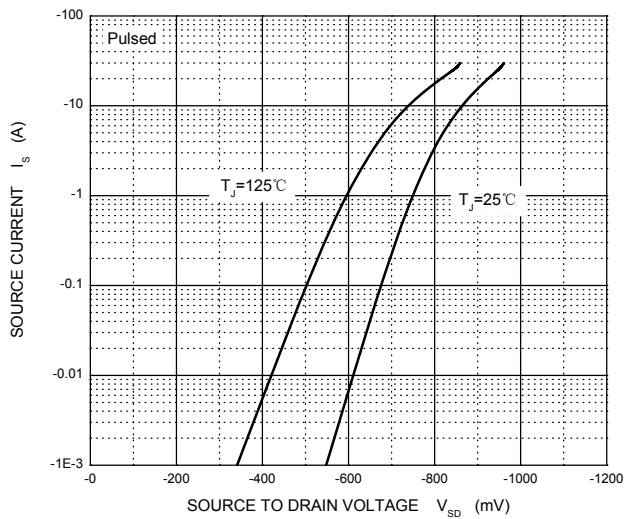
$R_{DS(ON)}$ — I_D



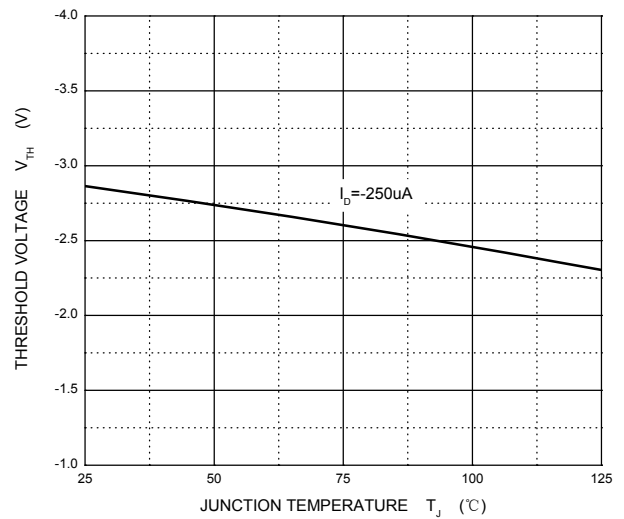
$R_{DS(ON)}$ — V_{GS}



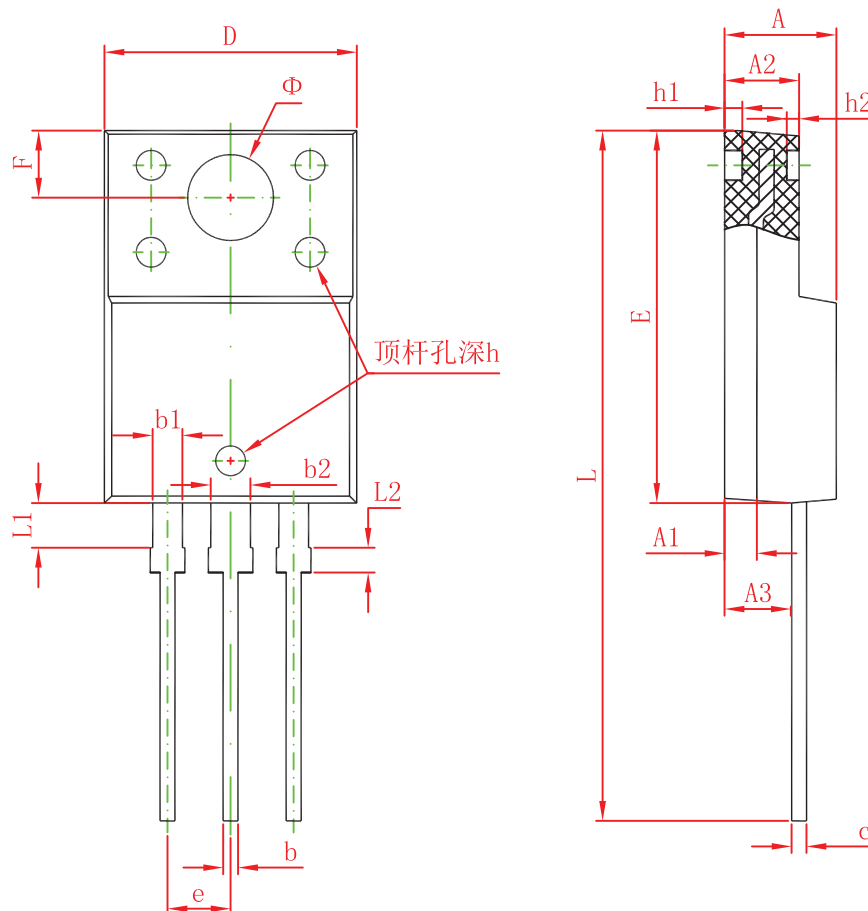
I_S — V_{SD}



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	3.500 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