

**M·C·C·**

Micro Commercial Components



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**MCPF04N65**

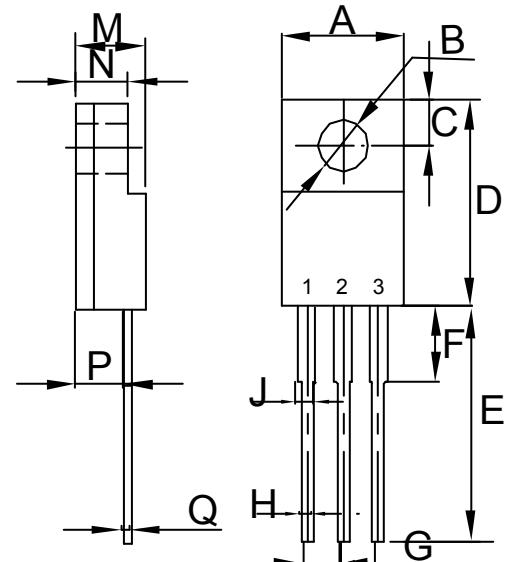
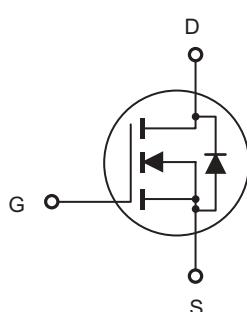
## Features

- High Current Rating
- Lower Capacitance
- Halogen free available upon request by adding suffix "-HF"
- Lower  $R_{dS(ON)}$
- Lower Total Gate Charge
- Tighter VSD Specifications
- Avalanche Energy Specified
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

## Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
$V_{DS}$	Drain-source Voltage	650	V
$I_D$	Drain Current-Continuous	4.0	A
$I_{DM}$	Pulsed Drain Current	16	A
$V_{GSS}$	Gate-source Voltage	$\pm 30$	V
$E_{AS}$	Single Pulsed Avalanche Energy(note1)	80	mJ
$P_D$	Total Power Dissipation	2.0	W
$R_{iJA}$	Thermal Resistance Junction to Ambient	62.5	°C/W
$T_J$	Operating Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C
$T_L$	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	260	°C

## Internal Block Diagram



DIM	DIMENSIONS			
	INCHES		MM	
	MIN	MAX	MIN	MAX
A	.392	.408	9.96	10.36
B	.138		3.50	
C	.106		2.70	
D	.583	.598	14.80	15.20
E	.520		13.20	
F	.142	.158	3.60	4.00
G	.100		2.54	
H	.020	.030	0.50	0.75
J	.043	.053	1.10	1.35
M	.169	.185	4.30	4.70
N	.110	.126	2.80	3.20
P	.098	.114	2.50	2.90
Q	.020	.030	0.50	0.75

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**Electrical characteristics (T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	650			V
Drain-source diode forward voltage(note2)	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 4.0A			1.5	
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 600V, V <sub>GS</sub> = 0V			25	μA
Gate-body leakage current, forward(note2)	I <sub>GSSF</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 30V			100	nA
Gate-body leakage current, reverse(note2)	I <sub>GSSR</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = -30V			-100	
<b>On characteristics (note2)</b>						
Gate-threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2.0		4.0	V
Static drain-source on-resistance	R <sub>D(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 2.0A			3.0	Ω

<b>Dynamic characteristics (note 3)</b>						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V, f = 1MHz			760	pF
Output capacitance	C <sub>oss</sub>				180	
Reverse transfer capacitance	C <sub>rss</sub>				20	
<b>Switching characteristics</b>						
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> = 480V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 4.0A		5.0	10	nC
Gate-source charge	Q <sub>gs</sub>			2.7		
Gate-drain charge	Q <sub>gd</sub>			2.0		
Turn-on delay time (note3)	t <sub>d(on)</sub>	V <sub>DD</sub> = 300V, V <sub>GS</sub> = 10V, R <sub>G</sub> = 9.1Ω, I <sub>D</sub> = 4.0A			20	ns
Turn-on rise time (note3)	t <sub>r</sub>				10	
Turn-off delay time (note3)	t <sub>d(off)</sub>				40	
Turn-off fall time (note3)	t <sub>f</sub>				20	

**Notes :**

1. L=10mH, I<sub>L</sub>=4 A, V<sub>DD</sub>=50V, V<sub>GS</sub>=10V, R<sub>G</sub>=25Ω, Starting T<sub>J</sub>=25°C.
2. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
3. These parameters have no way to verify.

## Ordering Information :

Device	Packing
Part Number-BP	Bulk;4 Kpcs/Box

Note : Adding "-HF" suffix for halogen free, eg. Part Number-BP-HF

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