



Micro Commercial Components



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MCPF04N65

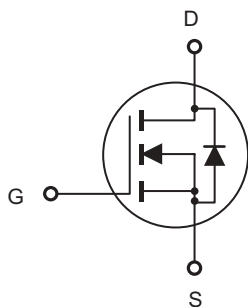
Features

- 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

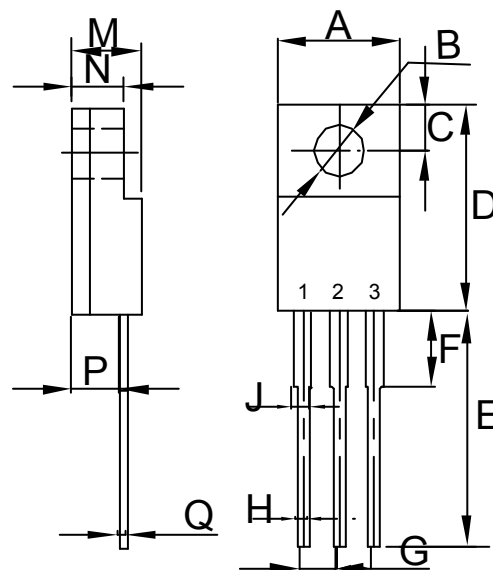
Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	650	V
I_D	Drain Current-Continuous	4.0	A
I_{DM}	Pulsed Drain Current	16	A
V_{GS}	Gate-source Voltage	± 30	V
E_{AS}	Single Pulsed Avalanche Energy(note1)	80	mJ
P_D	Total Power Dissipation	2.0	W
R_{JA}	Thermal Resistance Junction to Ambient	62.5	°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



N-Channel Enhancement Mode Field Effect Transistor

TO-220F



1.GATE
2.DRAIN
3.SOURCE

DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.392	.408	9.96	10.36	
B	.138		3.50		Φ
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	
O	.020	.030	0.50	0.75	

Electrical characteristics (T_a=25°C unless otherwise noted)

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(note2)	V _{SD}	V _{GS} = 0V, I _S =4.0A			1.5	
Zero gate voltage drain current	I _{DSS}	V _{DS} =600V, V _{GS} =0V			25	μA
Gate-body leakage current, forward(note2)	I _{GSSF}	V _{DS} =0V, V _{GS} =30V			100	nA
Gate-body leakage current, reverse(note2)	I _{GSSR}	V _{DS} =0V, V _{GS} =-30V			-100	
On characteristics (note2)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0		4.0	V
Static drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =2.0A			3.0	Ω

Dynamic characteristics (note 3)						
Input capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V,f =1MHz			760	pF
Output capacitance	C _{oss}				180	
Reverse transfer capacitance	C _{rss}				20	
Switching characteristics						
Total gate charge	Q _g	V _{DS} =480V,V _{GS} =10V,I _D =4.0A		5.0	10	nC
Gate-source charge	Q _{gs}			2.7		
Gate-drain charge	Q _{gd}			2.0		
Turn-on delay time (note3)	t _{d(on)}	V _{DD} =300V, V _{GS} =10V, R _G =9.1Ω, I _D =4.0A			20	ns
Turn-on rise time (note3)	t _r				10	
Turn-off delay time (note3)	t _{d(off)}				40	
Turn-off fall time (note3)	t _f				20	

Notes :

1. L=10mH, I_L=4 A, V_{DD}=50V, V_{GS}=10V, R_G=25Ω, Starting T_J=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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