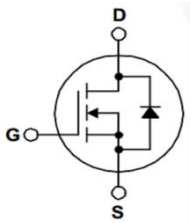
迈诺斯科技

MPG160N04

Silicon N-Channel Power MOSFET

Description

The MPG160N04 uses advanced technology and design to provide excellent RDS(ON) . It can be used in a wide variety of applications.



TO-220

General Features

① VDS=40V, Rdson<3.5mΩ @VGS=10V, ID=160A (Typ:2.5mΩ)
② Low ON Resistance
③ Low Reverse transfer capacitances
④ 100% Single Pulse avalanche energy Test

Application

① Power Switching application
② Adapter and charger

Package Marking And Ordering Information：

Ordering Codes	Package	Product Code	Packing
MPG160N04-P	TO-220	MPG160N04P	Tube

Electrical Characteristics @ Ta=25℃ (unless otherwise specified)

Limited Parameters:

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-to-Source Breakdown Voltage	40	V
I_D	Drain Current (continuous) at Tc=25℃	160	A
I_{DM}	Drain Current (Pulsed)	640	A
V_{GS}	Gate to Source Voltage	±30	V
P_{tot}	Total Dissipation at Tc=25℃	200	W
T_j	Max. Operating Junction Temperature	175	℃
Eas	Single Pulse Avalanche Energy	700	mJ

Electrical Parameters:

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DS}	Drain-source Voltage	V_{GS} =0V, I_D=250μA	40			V
$R_{DS(on)}$	Static Drain-to-Source on-Resistance	V_{GS} =10V, I_D=50A		2.5	3.5	mΩ
$V_{GS(th)}$	Gated Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	2.0	2.7	3.2	V

Electrical Parameters:

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DS}	Drain-source Voltage	V_{GS} =0V, I_D=250μA	40			V
$R_{DS(on)}$	Static Drain-to-Source on-Resistance	V_{GS} =10V, I_D=50A		2.5	3.5	mΩ
$V_{GS(th)}$	Gated Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	2.0	2.7	3.2	V
I_{DSS}	Drain to Source leakage Current	V_{DS}=40V, V_{GS} = 0V			1.0	μA
$I_{GSS(F)}$	Gated Body Foward Leakage	V_{GS} = +20V			100	nA
$I_{GSS(R)}$	Gated Body Reverse Leakage	V_{GS} = -20V			-100	nA
C_{iss}	Input Capacitance	V_{GS} =0V, V_{DS}=25V, f=1.0MHZ		3315		pF
C_{oss}	Output Capacitance			230		pF
C_{rss}	Reverse Transfer Capacitance			18		pF

Switching Characteristics

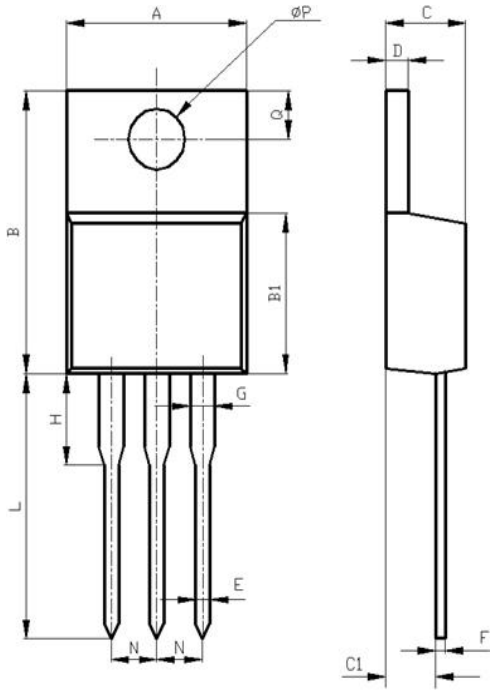
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=20V,I_D=50A, R_G=10Ω		34		nS
t_r	Turn-on Rise Time			26		nS
$t_{d(off)}$	Turn-off Delay Time			72		nS
t_f	Turn-off Fall Time			39		nS
Q_g	Total Gate Charge	V_{DS}=20V I_D=50A V_{GS}=10V		47		nC
Q_{gs}	Gate-Source Charge			11.2		nC
Q_{gd}	Gate-Drain Charge			19		nC

Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I_{SD}	S-D Current(Body Diode)				160	A
I_{SDM}	Pulsed S-D Current(Body Diode)				640	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{DS}=100A			1.5	V
t_{rr}	Reverse Recovery Time	T_J=25℃,I_F=100A di/dt=100A/us			555	nS
Q_{rr}	Reverse Recovery Charge				4550	μC
	*Pulse Test: Pulse Width <= 300μs, Duty Cycle< =2%					

Symbol	Parameter	Typ	Units
$R_{\theta JC}$	Junction-to-Case	2.5	℃/W

Package Description



Items	Values(mm)	
	MIN	MAX
A	9.60	10.6
B	15.0	16.0
B1	8.90	9.50
C	4.30	4.80
C1	2.30	3.10
D	1.20	1.40
E	0.70	0.90
F	0.30	0.60
G	1.17	1.37
H	2.70	3.80
L	12.6	14.8
N	2.34	2.74
Q	2.40	3.00
ϕp	3.50	3.90

TO-220 Package

NOTE:

1. Exceeding the maximum ratings of the device in performance may cause damage to the device, even the permanent failure, which may affect the dependability of the machine. Please do not exceed the absolute maximum ratings of the device when circuit designing.
2. When installing the heat sink, please pay attention to the torsional moment and the smoothness of the heat sink.
3. MOSFETs is the device which is sensitive to the static electricity, it is necessary to protect the device from being damaged by the static electricity when using it.
4. Shenzhen Minos reserves the right to make changes in this specification sheet and is subject to change withoutprior notice.

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