

General Description

The MY40N20P is N-channel Enhanced Mode MOSFET. Fast switching speed, High input impedance and low level drive, Avalanche energy tested, Improved dv/dt capability, high ruggedness

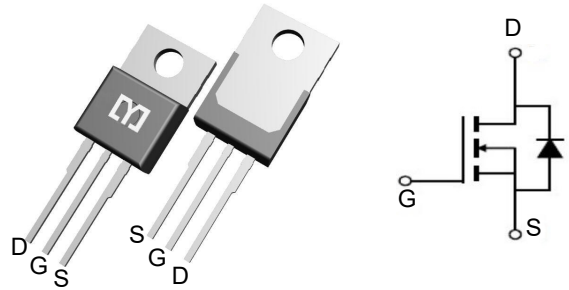


Features

V_{DSS}	200	V
I_D	40	A
$P_D(T_C=25\text{ }^\circ\text{C})$	249	W
$R_{DS(ON)}(at\ V_{GS}=10\text{V})$	< 72	m Ω

Application

- High efficiency switch mode power supplies
- Power factor correction
- Electronic lamp ballast



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY40N20P	TO-220	MY40N20P	1000

Absolute Maximum Ratings ($T_C=25\text{ }^\circ\text{C}$ unless otherwise noted)

Symbol	Parameters	Ratings	Unit
V_{DSS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage-Continuous	± 20	V
I_D	Drain Current-Continuous (Note 2)	40	A
I_{DM}	Drain Current-Single Plused (Note 1)	160	A
P_D	Power Dissipation (Note 2)	249	W
T_j	Max.Operating junction temperature	150	$^\circ\text{C/W}$

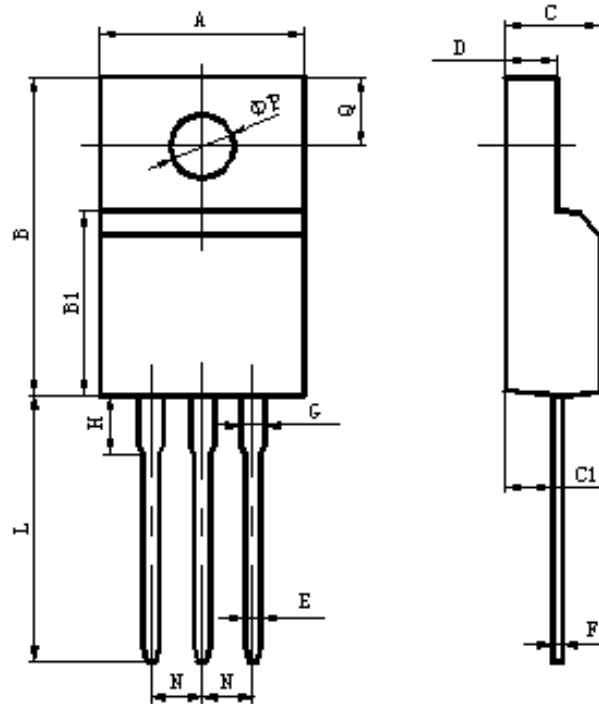
Electrical Characteristics ($T_c=25\text{ }^\circ\text{C}$, unless otherwise noted)

Symbol	Parameters	Min	Typ	Max	Units	Conditions
Static Characteristics						
B_{VDSS}	Drain-Source Breakdown Voltage Current (Note 1)	200	--	--	V	$I_D=250\mu\text{A}$ $V_{GS}=0\text{V}$, $T_J=25^\circ\text{C}$
$V_{GS(th)}$	Gate Threshold Voltage	2.0	--	4.0	V	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$
$R_{DS(on)}$	Drain-Source On-Resistance	--	--	72	m Ω	$V_{GS}=10\text{V}$, $I_D=16\text{A}$
I_{GSS}	Gate-Body Leakage Current	--	--	± 100	nA	$V_{GS}=\pm 20\text{V}$, $V_{DS}=0$
I_{DSS}	Zero Gate Voltage Drain Current	--	--	1	μA	$V_{DS}=200\text{V}$, $V_{GS}=0$
Switching Characteristics						
$T_{d(on)}$	Turn-On Delay Time	--	28	--	ns	$V_{DS}=100\text{V}$, $I_D=30\text{A}$, $R_G=25\Omega$, $V_{GS}=10\text{V}$ (Note 2)
T_r	Rise Time	--	36	--	ns	
$T_{d(off)}$	Turn-Off Delay Time	--	153	--	ns	
T_f	Fall Time	--	88	--	ns	
Q_g	Total Gate Charge	--	55	--	nC	$V_{DS}=160\text{V}$, $V_{GS}=10\text{V}$ $I_D=30\text{A}$ (Note 2)
Q_{gs}	Gate-Source Charge	--	11	--	nC	
Q_{gd}	Gate-Drain Charge	--	18	--	nC	
Dynamic Characteristics						
C_{iss}	Input Capacitance	--	1450	--	pF	$V_{DS}=25\text{V}$, $V_{GS}=0$, $f=1\text{MHz}$
C_{oss}	Output Capacitance	--	350	--	pF	
C_{rSS}	Reverse Transfer Capacitance	--	38	--	pF	
I_S	Continuous Drain-Source Diode Forward Current (Note 2)	--	--	40	A	
V_{SD}	Diode Forward On-Voltage	--	--	1.4	V	$I_S=30\text{A}$, $V_{GS}=0$
$R_{th(j-c)}$	Thermal Resistance, Junction to Case	--	--	0.5	C/ W	

Note 1: Repetitive Rating : Pulse width limited by maximum junction temperature

Note 2: Pulse test: PW \leq 300us , duty cycle \leq 2%.

Package Mechanical Data-TO-220 Single



Items	Values(mm)	
	MIN	MAX
A	9.60	10.4
B	15.4	16.2
B1	8.90	9.50
C	4.30	4.90
C1	2.10	3.00
D	2.40	3.00
E	0.60	1.00
F	0.30	0.60
G	1.12	1.42
H	3.40	3.80
	2.40	2.90
L*	12.0	14.0
N	2.34	2.74
Q	3.15	3.55
ϕP	2.90	3.30