

Silicon N-Channel Power MOSFET

Description

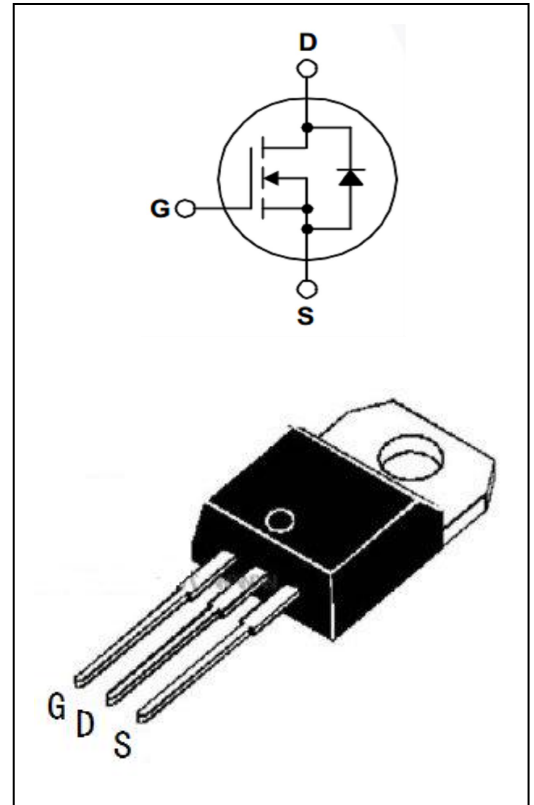
The TH18N20PM uses advanced technology and design to provide excellent $R_{DS(ON)}$. It can be used in a wide variety of applications.

General Features

- $V_{DS}=200V, I_D=18A$
- Low ON Resistance
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

Application

- Power switching application
- Adapter and charger



Electrical Characteristics @ $T_a=25^\circ\text{C}$ (unless otherwise specified)

a) Absolute Maximum Ratings:

Symbol	Parameter	Value	Units
V_{DSS}	Drain-to-Source Breakdown Voltage	200	V
I_D	Drain Current (continuous) at $T_c=25^\circ\text{C}$	18	A
I_{DM}	Drain Current (pulsed)	72	A
V_{GS}	Gate to Source Voltage	+/-30	V
P_{tot}	Total Dissipation at $T_c=25^\circ\text{C}$	125	W
T_j	Max. Operating Junction Temperature	175	$^\circ\text{C}$
E_{AS}	Single Pulse Avalanche Energy	500	mJ

b) Electrical Parameters:

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DS}	Drain-source Voltage	$V_{GS}=0V, I_D=250\mu A$	200			V
$R_{DS(on)}$	Static Drain-to-Source on-Resistance	$V_{GS}=10V, I_D=9A$		0.12	0.18	Ω
$V_{GS(th)}$	Gated Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0		4.0	V
I_{DSS}	Drain to Source leakage Current	$V_{DS}=200V, V_{GS}=0V$			1.0	μA
$I_{GSS(F)}$	Gated Body Forward Leakage	$V_{GS}=+30V$			100	nA
$I_{GSS(R)}$	Gated Body Reverse Leakage	$V_{GS}=-30V$			-100	nA
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=25V,$ $f=1.0MHz$		1136		pF
C_{oss}	Output Capacitance			183		pF
C_{rss}	Reverse Transfer Capacitance			16.4		pF

c) Switching Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=100V, I_D=18A,$ $R_G=10\Omega$		19		nS
t_r	Turn-on Rise Time			33		nS
$t_{d(off)}$	Turn-off Delay Time			35		nS
t_f	Turn-off Fall Time			8		nS
Q_g	Total Gate Charge	$V_{DS}=160V$ $I_D=18A$ $V_{GS}=10V$		20.4		nC
Q_{gs}	Gate-Source Charge			6.9		nC
Q_{gd}	Gate-Drain Charge			7.3		nC

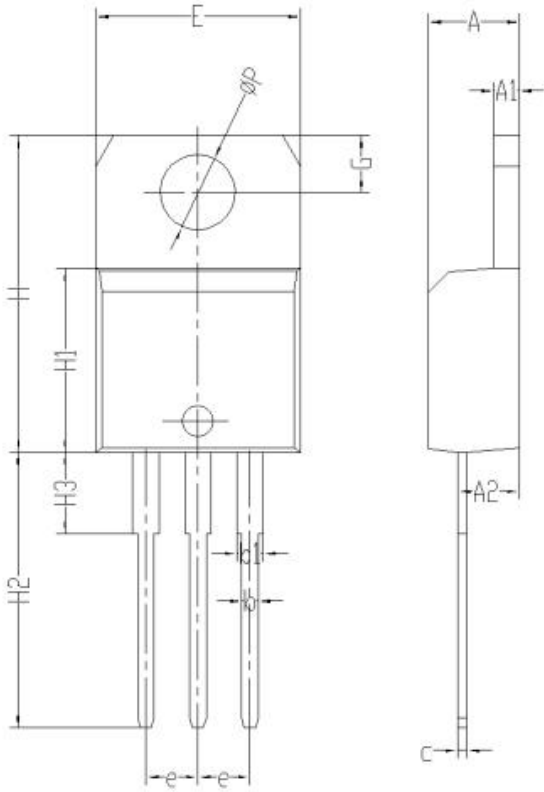
d) Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I_{SD}	S-D Current(Body Diode)				18	A
I_{SDM}	Pulsed S-D Current(Body Diode)				72	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_{DS}=18A$			1.5	V
t_{rr}	Reverse Recovery Time	$T_J=25^\circ C, I_F=18A$ $di/dt=100A/us$			187	nS
Q_{rr}	Reverse Recovery Charge				925	μC
*Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$						

Symbol	Parameter	Typ	Units
$R_{\theta JC}$	Junction-to-Case	1.2	$^\circ C/W$

Package Information

TO-220M PACKAGE



Symbol	Dimensions (millimeters)	
	Min.	Max.
A	4.05	4.45
A1	1.05	1.45
A2	2.35	2.75
b	0.60	1.00
b1	1.12	1.52
c	0.25	0.65
e	2.34	2.74
E	9.95	10.4
H	15.3	15.7
H1	8.80	9.20
H2	13.0	14.0
H3	3.80	4.20
G	2.60	3.00
ΦP	3.60	4.00

Notice

Thunder Microelectronics Incorporated Limited reserves the right to make changes without further notice to any products or specifications herein. When use the product, be sure to obtain the latest specification.

Thunder Microelectronics Incorporated Limited does not assume any liability arising out of the application or any product described herein. When using Thunder Microelectronics Incorporated Limited products in your equipment, you are requested to take adequate safety measures to prevent the equipment from causing a physical injury ,fire or other problem if any of the products become faulty.

-Headquarters

WuXi Thunder Microelectronics Incorporated Limited
 Building G2, No.200 LingHu Road, XinWu district, WuXi, China 214135
 Tel: +86-510-85160109 Fax: +86-510-85165556