

General Description

The CMH90N20 uses advanced planar stripe DMOS technology and design to provide excellent RDS(ON).

These devices are well suited for High power inverter, cutting machine.

Features

- $V_{DS} = 200V, I_D = 100A$
 $R_{DS(ON)} = 25m\Omega @ V_{GS} = 10V$
- Low on-resistance
- Fast Switching
- RoHS Compliant

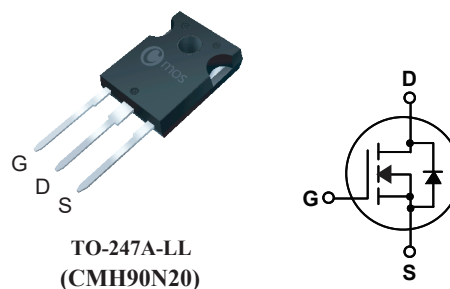
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
200V	25mΩ	100A

Applications

- DC-AC converters
- SMPS Power
- UPS (Uninterruptible Power Supply)

TO-247A-LL Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current	100	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current	70.5	A
I_{DM}	Pulsed Drain Current	400	A
EAS	Single Pulse Avalanche Energy ¹	3240	mJ
$P_D @ T_C = 25^\circ C$	Total Power Dissipation	550	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.23	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	200	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=40A$	---	18	25	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	3	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=200V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=20A$	---	42	---	S
Q_g	Total Gate Charge	$I_D=50A$	---	150	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=100V$	---	37	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	53	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=100V$	---	35	---	ns
T_r	Rise Time	$R_L=15\Omega$	---	30	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=2.5\Omega$	---	55	---	
T_f	Fall Time	$V_{GS}=10V$	---	25	---	
C_{iss}	Input Capacitance	$V_{DS}=50V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	6800	---	pF
C_{oss}	Output Capacitance		---	530	---	
C_{rss}	Reverse Transfer Capacitance		---	210	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	100	A
I_{SM}	Pulsed Source Current		---	---	400	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=40A$	---	---	1.4	V
t_{rr}	Reverse Recovery Time	$V_{GS}=0V$, $I_S=80A$	---	245	---	ns
Q_{rr}	Reverse Recovery Charge	$di/dt=100A/\mu s$	---	19	---	μC

Note :

1.The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=80.5A$.

This product has been designed and qualified for the consumer market.

Cmos assumes no liability for customers' product design or applications.

Cmos reserves the right to improve product design ,functions and reliability without notice.

