

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

Absolute Maximum Ratings

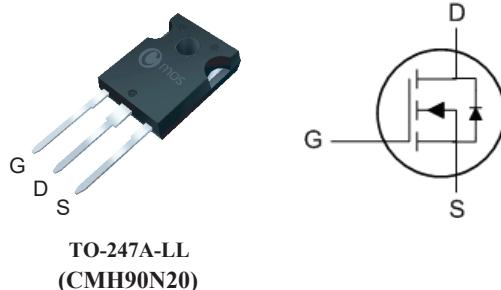
Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current	100	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current	70.5	A
I_{DM}	Pulsed Drain Current	400	A
EAS	Single Pulse Avalanche Energy ¹	3240	mJ
$P_D @ T_C = 25^\circ C$	Total Power Dissipation	550	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Product Summary

BVDSS	RDSON	ID
200V	25mΩ	100A

Applications

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

TO-247A-LL Pin ConfigurationTO-247A-LL
(CMH90N20)**Thermal Data**

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.38	°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	$V_{\text{GS}}=0\text{V}$, $I_D=250\mu\text{A}$	200	---	---	V
$R_{\text{DS(ON)}}$	Static Drain-Source On-Resistance	$V_{\text{GS}}=10\text{V}$, $I_D=40\text{A}$	---	18	25	$\text{m}\Omega$
$V_{\text{GS(th)}}$	Gate Threshold Voltage	$V_{\text{GS}}=V_{\text{DS}}$, $I_D =250\mu\text{A}$	3	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{\text{DS}}=200\text{V}$, $V_{\text{GS}}=0\text{V}$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{\text{GS}}=\pm 20\text{V}$, $V_{\text{DS}}=0\text{V}$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{\text{DS}}=10\text{V}$, $I_D=20\text{A}$	---	42	---	S
Q_g	Total Gate Charge	$I_D =50\text{A}$	---	150	---	nC
Q_{gs}	Gate-Source Charge	$V_{\text{DS}}=100\text{V}$	---	37	---	
Q_{gd}	Gate-Drain Charge	$V_{\text{GS}}=10\text{V}$	---	53	---	
$T_{\text{d(on)}}$	Turn-On Delay Time	$V_{\text{DD}}=100\text{ V}$	---	35	---	ns
T_r	Rise Time	$R_L=15\Omega$	---	30	---	
$T_{\text{d(off)}}$	Turn-Off Delay Time	$R_G=2.5\Omega$	---	55	---	
T_f	Fall Time	$V_{\text{GS}}=10\text{V}$	---	25	---	
C_{iss}	Input Capacitance	$V_{\text{DS}}=50\text{V}$, $V_{\text{GS}}=0\text{V}$, $f=1\text{MHz}$	---	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	$V_G=V_D=0\text{V}$, Force Current	---	---	100	A
I_{SM}	Pulsed Source Current		---	---	400	A
V_{SD}	Diode Forward Voltage	$V_{\text{GS}}=0\text{V}$, $I_s=40\text{ A}$, $T_J=25^\circ\text{C}$	---	---	1.2	V

Note :

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

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