CMH90N20

200V, 18mΩ typ., 100A N-Channel MOSFET

General Description

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

These devices are well suited foHigh power inverter, cutting machine.

Product Summary

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

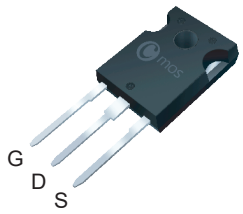
Applications

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

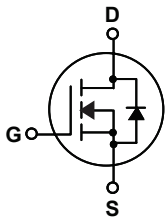
Features

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

TO-247A-LL Pin Configuration



TO-247A-LL
(CMH90N20)



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℃	Continuous Drain Current	100	A
I_D@T_C=100℃	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℃	Total Power Dissipation	550	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	150	℃

Thermal Data

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

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Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	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 =250uA	3	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=200V, V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D=20A	---	42	---	S
Q_g	Total Gate Charge	I_D =50A V_{DS} =100V V_{GS} =10V	---	150	---	nC
Q_{gs}	Gate-Source Charge		---	37	---	
Q_{gd}	Gate-Drain Charge		---	53	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD} = 100 V R_L =15Ω R_G=2.5Ω V_{GS} =10V	---	35	---	ns
T_r	Rise Time		---	30	---	
$T_{d(off)}$	Turn-Off Delay Time		---	55	---	
T_f	Fall Time		---	25	---	
C_{iss}	Input Capacitance	V_{DS}=50V , V_{GS}=0V , f=1MHz	---	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 di/dt =100A/μs	---	245	---	ns
Q_{rr}	Reverse Recovery Charge		---	19	---	μC

Note :

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