

General Description

The CMH20N50 uses advanced planar stripe DMOS technology and design to provide excellent RDS(ON).

These devices are well suited for high efficient switched mode power supplies and active power factor correction.

Features

- 100% avalanche tested
- Fast Switching
- Improved dv/dt capability
- RoHS Compliant

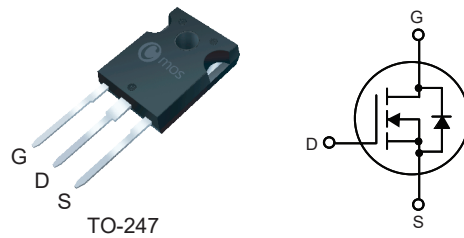
Product Summary

BVDSS	RDSON	ID
500V	0.26 Ω	20A

Applications

- Switching regulators
- UPS (Uninterruptible Power Supply)
- DC-DC converters

TO247 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	500	V
V_{GS}	Gate-Source Voltage	± 30	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	20	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	12	A
I_{DM}	Pulsed Drain Current ¹	60	A
EAS	Single Pulse Avalanche Energy ²	860	mJ
I_{AS}	Avalanche Current	20	A
$P_D@T_C=25^\circ C$	Total Power Dissipation	280	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	40	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.44	$^\circ C/W$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	500	---	---	V
ΔBV _{DSS} /ΔT _J	BVDSS Temperature Coefficient	Reference to 25°C , I _D =250uA	---	0.5	---	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =10A	---	---	0.26	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2	---	4	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =500V , V _{GS} =0V	---	---	1	uA
		V _{DS} =400V , V _{GS} =0V , TC=125°C	---	---	10	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance ³	V _{DS} =40V , I _D =10A	---	24	---	S
Q _g	Total Gate Charge	I _D =20A V _{DS} =400V V _{GS} = 10V (Note 3, 4)	---	52	69	nC
Q _{gs}	Gate-Source Charge		---	18	---	
Q _{gd}	Gate-Drain Charge		---	26	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =250V I _D =20A R _G =25Ω (Note 3, 4)	---	88	---	ns
T _r	Rise Time		---	270	---	
T _{d(off)}	Turn-Off Delay Time		---	105	---	
T _f	Fall Time		---	117	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	4000	---	pF
C _{oss}	Output Capacitance		---	380	---	
C _{rss}	Reverse Transfer Capacitance		---	35	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	20	A
I _{SM}	Pulsed Source Current		---	---	60	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =20 A , T _J =25°C	---	---	1.4	V

Note :

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature
- 2.L = 4.1mH, I_{AS} = 20A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C
- 3.Pulse Test: Pulse width≤300μs, Duty Cycle≤2%
- 4.Essentially Independent of Operating Temperature Typical Characteristics

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.