

General Description

The CMH50N30 uses advanced planar stripe DMOS technology and design to provide excellent RDS(ON).

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

Features

- Low on-resistance
- 100% avalanche tested
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	300	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	50	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	32	A
I_{DM}	Pulsed Drain Current	200	A
EAS	Single Pulse Avalanche Energy ¹	3150	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	280	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.63	$^\circ\text{C}/\text{W}$

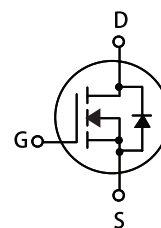
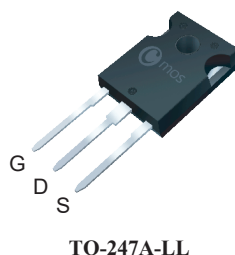
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
300V	55mΩ	50A

Applications

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

TO-247 Pin Configuration



Type	Package	Marking
CMH50N30	TO-247	CMH50N30

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	300	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=25A$	---	51	55	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	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	$V_{DS}=10V$, $I_D=25A$	---	48	---	S
Q_g	Total Gate Charge	$I_D=50A$ $V_{DS}=240V$ $V_{GS}=10V$ (note 2,3)	---	122	---	nC
Q_{gs}	Gate-Source Charge		---	28	---	
Q_{gd}	Gate-Drain Charge		---	42	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=150V$ $I_D=50A$ $R_G=25\Omega$ (note 2,3)	---	71	---	ns
T_r	Rise Time		---	35	---	
$T_{d(off)}$	Turn-Off Delay Time		---	324	---	
T_f	Fall Time		---	51	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	6200	---	pF
C_{oss}	Output Capacitance		---	620	---	
C_{rss}	Reverse Transfer Capacitance		---	60	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	50	A
I_{SM}	Pulsed Source Current		---	---	200	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=25A$	---	0.84	1.5	V
t_{rr}	Reverse Recovery Time	$I_S=50A$, $V_{GS}=0V$ $di/dt=100A/\mu s$ (note 2,3)	---	318	---	ns
Q_{rr}	Reverse Recovery Charge		---	3.4	---	μC

Note :

1. The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=5mH$, $I_{AS}=35.5A$.
2. Pulse test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.
3. 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. Please refer to the latest version of specification.