

500V N-Channel MOSFET

General Description

The CMH50N50 have been fabricated using an advanced high voltage MOSFET process that is designed to deliver high levels of performance and robustness in popular AC-DC applications. These parts can be adopted quickly into new and existing offline power supply designs.

Features

- Low gate input resistance
- 100% avalanche tested
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	500	V
V_{GS}	Gate-Source Voltage	± 30	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	50	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	40	A
I_{DM}	Pulsed Drain Current	200	A
EAS	Single Pulse Avalanche Energy	1800	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	625	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	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	40	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	0.2	$^\circ\text{C/W}$

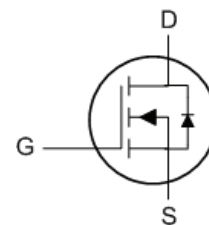
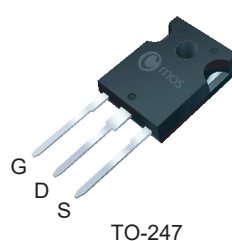
Product Summary

BVDSS	RDSON	ID
500V	0.105 Ω	50A

Applications

- Switching applications

TO-247 Pin Configuration



Type	Package	Marking
CMH50N50	TO-247	CMH50N50

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	500	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=25A$	---	---	0.105	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=500V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=25V$, $I_D=25A$	---	50	---	S
Q_g	Total Gate Charge	$I_D=48A$	---	106	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=400V$	---	34	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	46	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=250V$	---	106	---	ns
T_r	Rise Time	$I_D=48A$	---	361	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=25\Omega$	---	226	---	
T_f	Fall Time		---	231	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	9500	---	pF
C_{oss}	Output Capacitance		---	760	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	

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	$V_{GS}=0V$, $I_S=48A$	---	---	1.2	V
t_{rr}	Reverse Recovery Time	$V_{GS}=0V$, $I_S=48A$	---	580	---	ns
Q_{rr}	Reverse Recovery Charge	$dl_F/dt=100A/\mu s$	---	10	---	μC

Notes:

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.

