CMH107N20

200V, 8.2mΩ typ., 110A N-Channel MOSFET

General Description

The CMH107N20 uses advanced SGT technology to provide excellent RDS(ON).This device is ideal for high-frequency switching and synchronous rectification.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
200V	10mΩ	110A

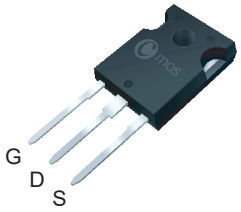
Applications

- Motor control and drive
- Battery management
- Uninterruptible Power Supply

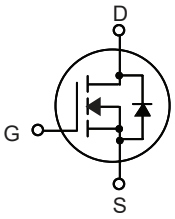
Features

- Low On-Resistance
- 100% avalanche tested
- Low Gate Charge
- RoHS Compliant

TO-247 Pin Configuration



TO-247
CMH107N20



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	110	A
I_D@T_C=100℃	Continuous Drain Current	71	A
I_{DM}	Pulsed Drain Current	440	A
EAS	Single Pulse Avalanche Energy (Note 1)	2531	mJ
P_D@T_C=25℃	Total Power Dissipation	330	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 (min. footprint)	---	45	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.38	℃/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=50A	---	8.2	10	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	2	---	4	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	---	46	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	3.2	---	Ω
Q_g	Total Gate Charge	V_{DS}=100V , I_D=60A V_{GS}=10V	---	74	---	nC
Q_{gs}	Gate-Source Charge		---	30	---	
Q_{gd}	Gate-Drain Charge		---	16	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=100V , V_{GS}=10V , I_D=50A R_G =2.7Ω	---	35	---	ns
T_r	Rise Time		---	111	---	
$T_{d(off)}$	Turn-Off Delay Time		---	84	---	
T_f	Fall Time		---	112	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	5300	---	pF
C_{oss}	Output Capacitance		---	3100	---	
C_{rss}	Reverse Transfer Capacitance		---	140	---	

Diode Characteristics

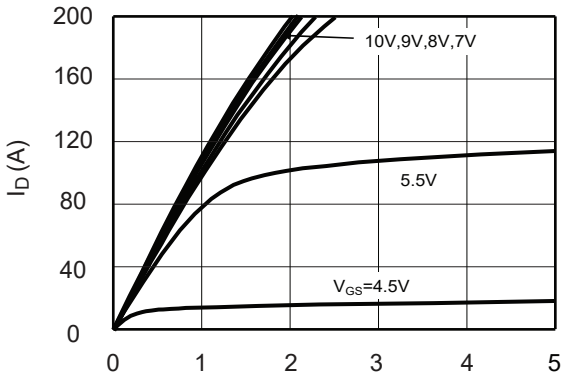
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	110	A
$I_{S,pulse}$	Diode pulse current		---	---	440	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=50A , Tj=25 ℃	---	0.82	1.4	V

Note :

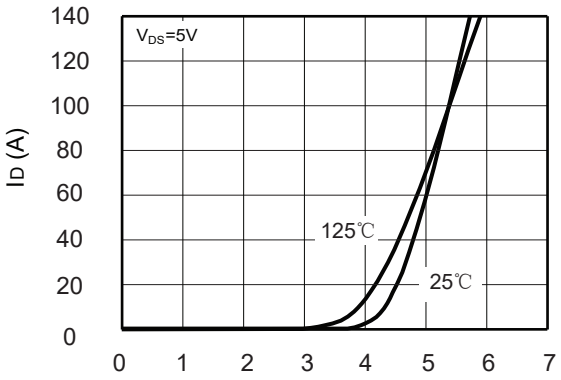
1.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=10mH , I_{AS}=22.5A.

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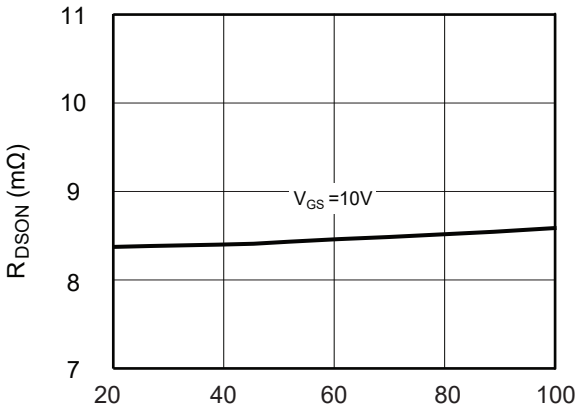
Typical Characteristics



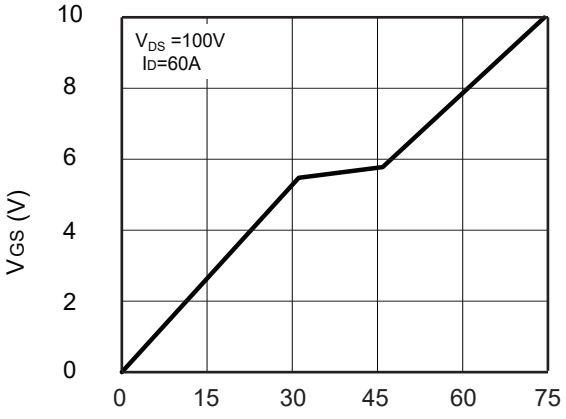
Output Characteristics



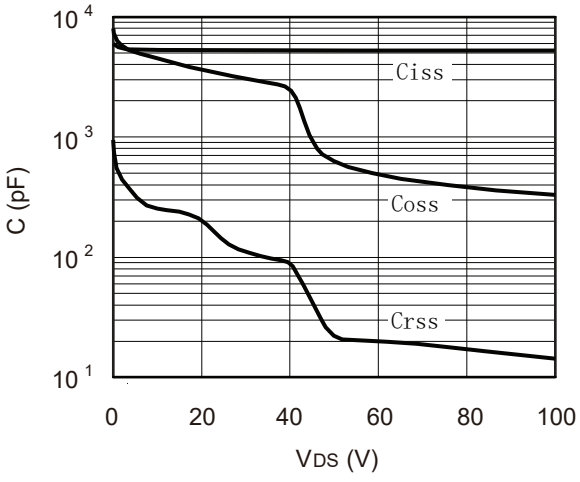
transfer characteristics



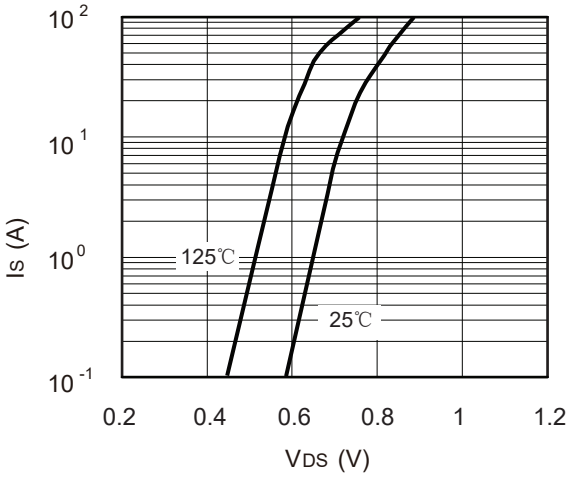
drain-source on-resistance



Gate charge vs gate-source voltage



Capacitance Characteristics



Body-Diode Characteristics