

General Description

The CMH90N30 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

- Low on-resistance
- Fast Switching
- 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	90	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	66	A
I_{DM}	Pulsed Drain Current	360	A
EAS	Single Pulse Avalanche Energy ¹	2995	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	610	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	---	40	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.29	$^\circ\text{C/W}$

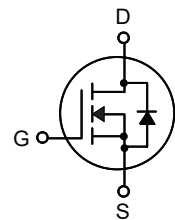
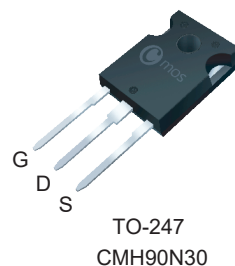
Product Summary

BVDSS	RDS(ON)	ID
300V	46m Ω	90A

Applications

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

TO-247 Pin Configuration



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	$V_{GS}=10V$, $I_D=40A$	---	41.5	46	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	3	3.9	5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=250V$, $V_{GS}=0V$	---	---	10	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=25A$	---	42	---	S
Q_g	Total Gate Charge	$I_D=82A$	---	125	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=250V$	---	45	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	50	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=125V$	---	80	---	ns
T_r	Rise Time	$I_D=82A$	---	26	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=25\Omega$	---	295	---	
T_f	Fall Time	$V_{GS}=15V$	---	80	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	7300	---	pF
C_{oss}	Output Capacitance		---	800	---	
C_{rss}	Reverse Transfer Capacitance		---	70	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	90	A
I_{SM}	Pulsed Source Current		---	---	360	A
t_{rr}	Reverse recovery time	$I_S=82A$, $V_{GS}=0V$	---	416	---	ns
Q_{rr}	Reverse recovery charge	$dI_F/dt=-100A/\mu s$	---	5.2	---	μC
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=25A$, $T_J=25^{\circ}\text{C}$	---	0.81	1.5	V

Note :

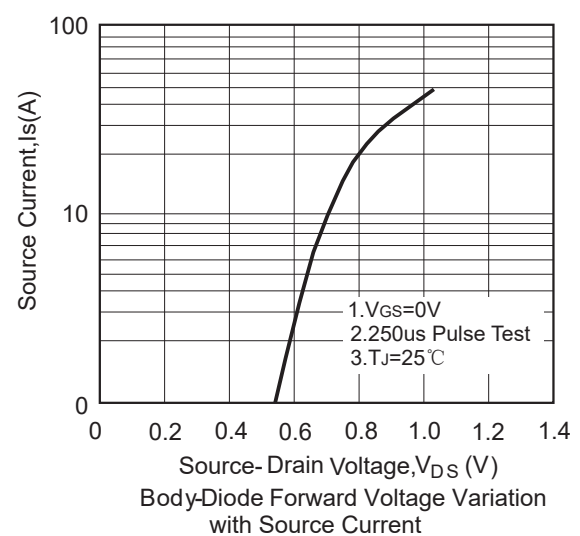
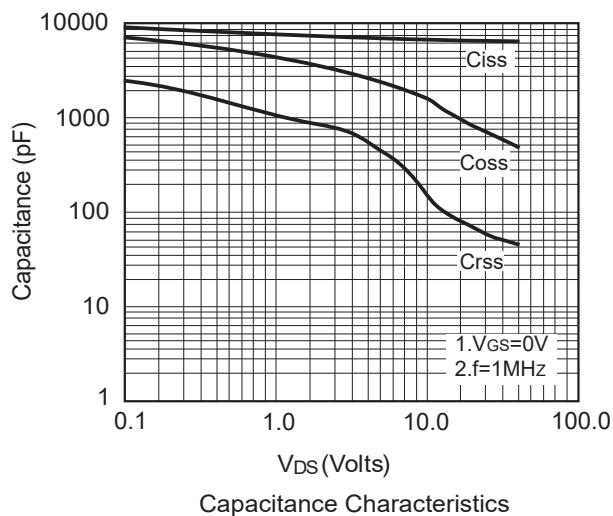
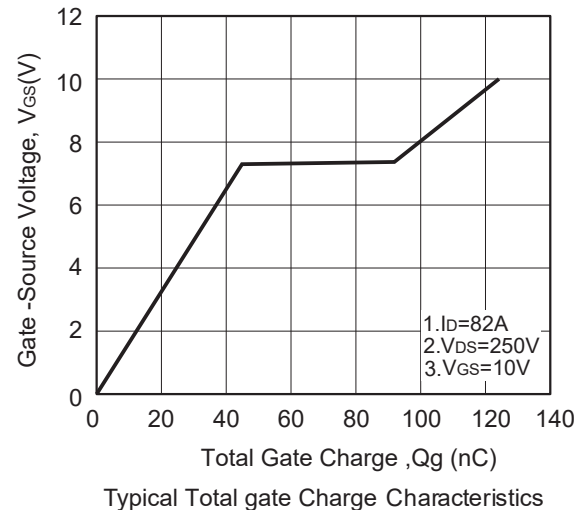
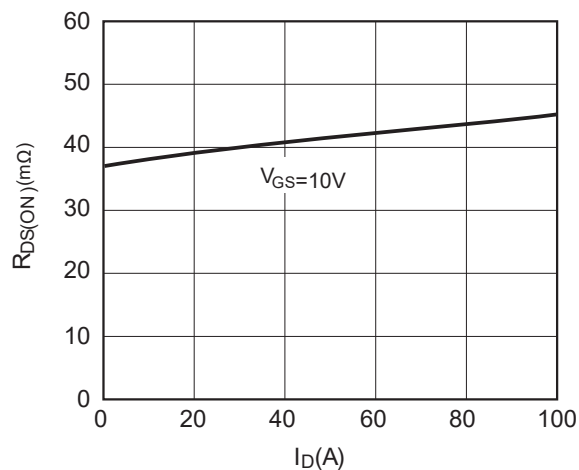
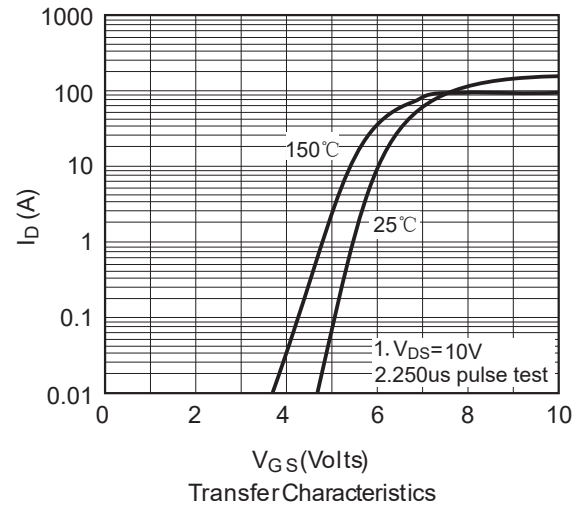
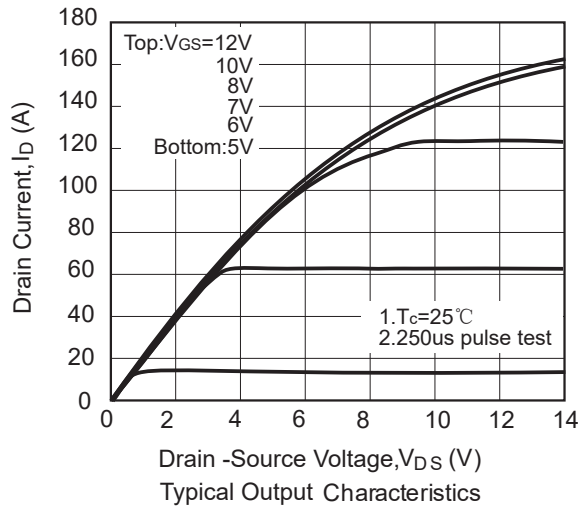
1.The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=1mH$, $I_{AS}=77.4A$.

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.

Typical Characteristics



Typical Characteristics

