

CMH029N10

100V, 2.4mΩ typ., 200A N-Channel MOSFET

General Description

The CMH029N10 uses advanced SGT technology to provide excellent RDS(ON). This device is ideal for high-frequency switching and synchronous rectification.

Features

- Low on-resistance
- Fast Switching
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	200	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	140	A
I_{DM}	Pulsed Drain Current	800	A
EAS	Single Pulse Avalanche Energy ¹	3240	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	500	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(Steady-State)	---	40	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-case(Steady-State)	---	0.3	$^\circ\text{C}/\text{W}$

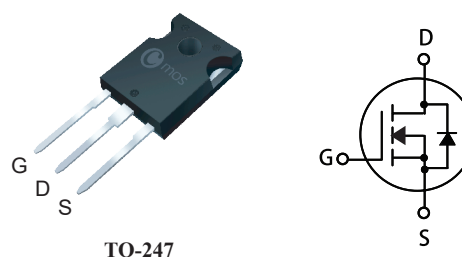
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
100V	2.9mΩ	200A

Applications

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

TO-247 Pin Configuration



Type	Package	Marking
CMH029N10	TO-247	CMH029N10

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=28A$	---	2.4	2.9	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	$V_{DS}=100V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=25A$	---	60	---	S
Q_g	Total Gate Charge	$I_D=50A$	---	150	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=50V$	---	42	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	30	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=50V$	---	35	---	ns
T_r	Rise Time	$I_D=50A$	---	20	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=3\Omega$	---	125	---	
T_f	Fall Time	$V_{GS}=10V$	---	50	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	15000	---	pF
C_{oss}	Output Capacitance		---	4000	---	
C_{rss}	Reverse Transfer Capacitance		---	850	---	

Diode Characteristics

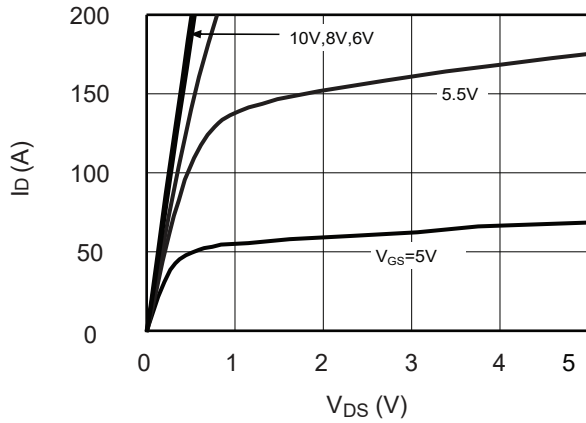
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	200	A
I_{SM}	Pulsed Source Current		---	---	800	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=28A$, $T_J=25^{\circ}\text{C}$	---	0.81	1.2	V

Notes:

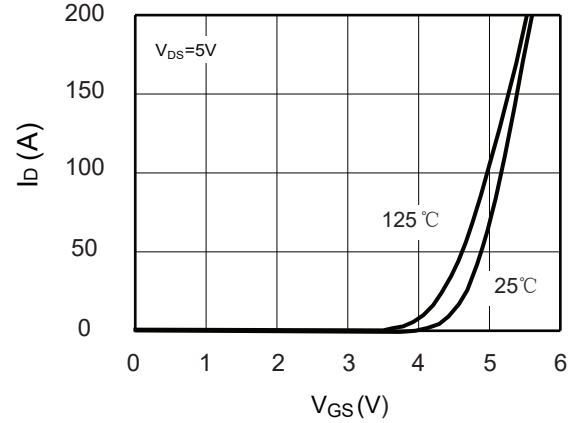
1.The EAS data shows Max. rating .The test condition is $V_{DS}=80V$, $V_{GS}=10V$, $L=20\text{mH}$, $I_{AS}=18A$.

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.

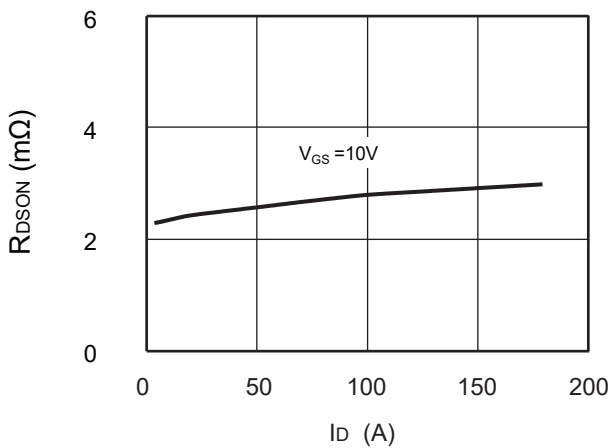
Typical Characteristics



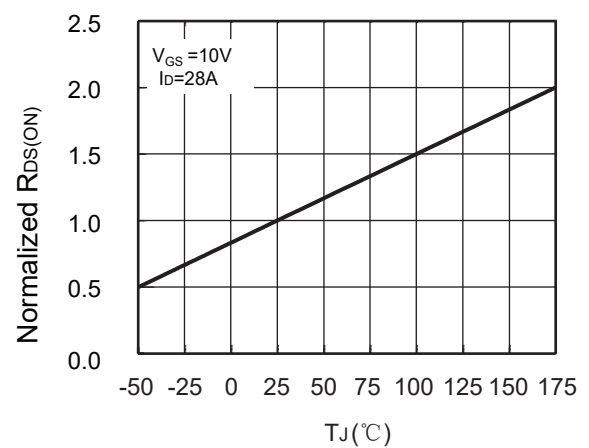
Output Characteristics



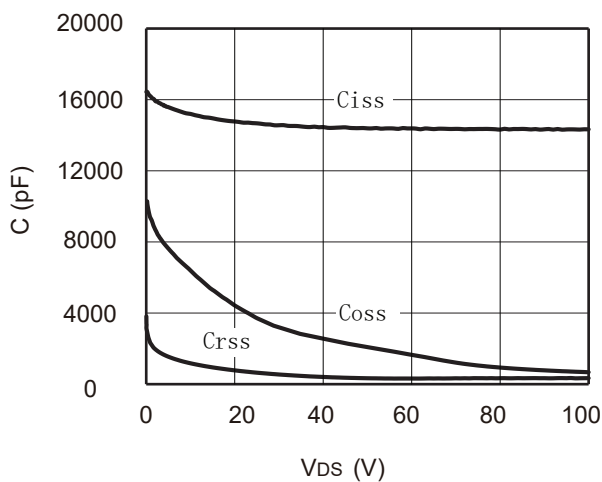
transfer characteristics



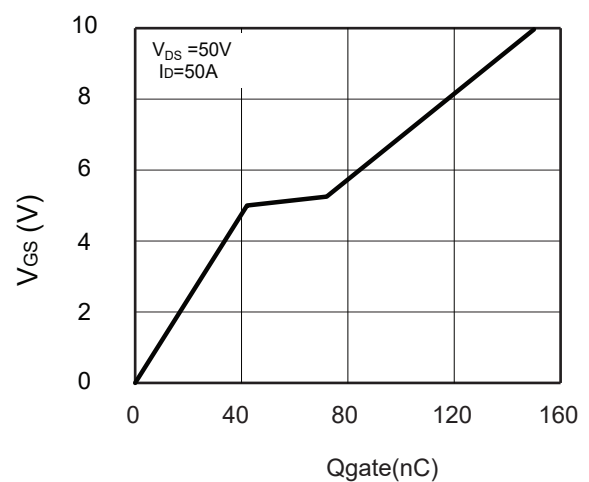
drain-source on-resistance



On-Resistance vs. Junction Temperature



Capacitance Characteristics

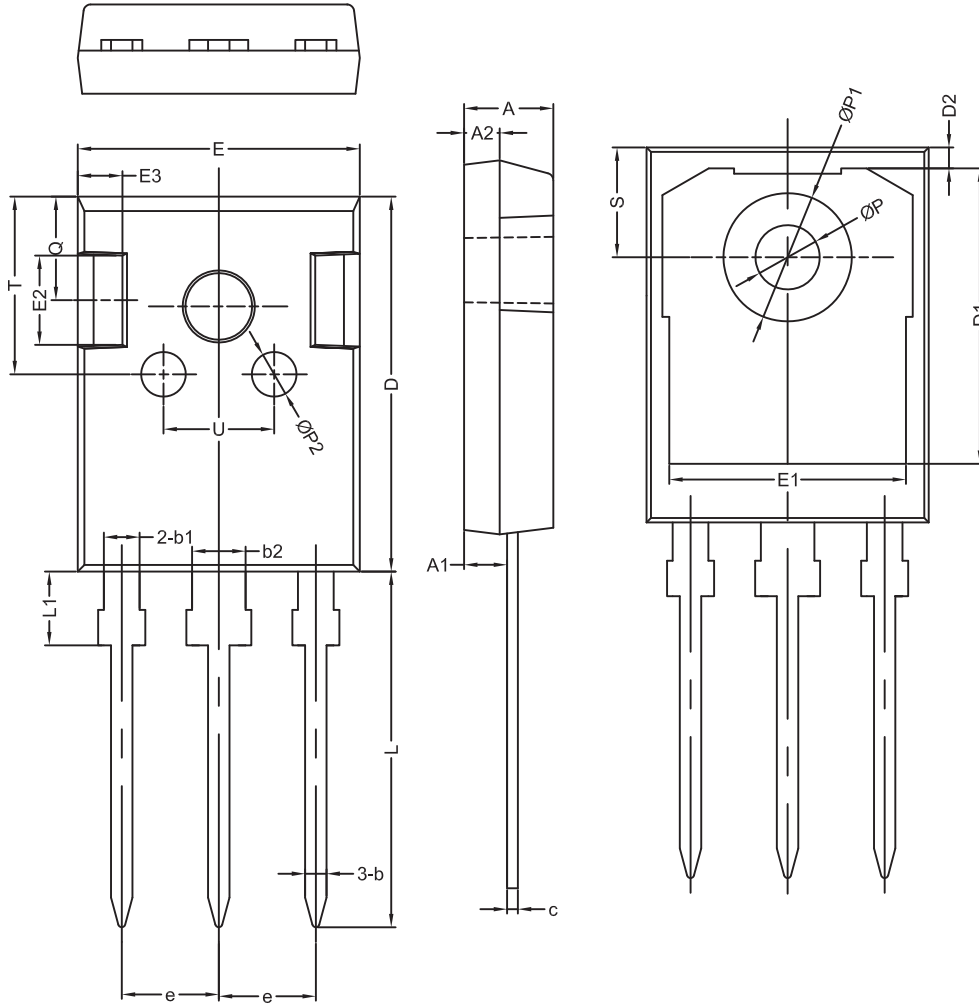


Gate charge vs gate-source voltage

Package Dimension

TO-247

Unit :mm



符号	机械尺寸/mm			符号	机械尺寸/mm		
	最小值	典型值	最大值		最小值	典型值	最大值
A	4.80	5.00	5.20	E2		5.00	
A1	2.21	2.41	2.61	E3		2.50	
A2	1.90	2.00	2.10	e		5.44	
b	1.10	1.20	1.35	L	19.42	19.92	20.42
b1		2.00		L1		4.13	
b2		3.00		P	3.50	3.60	3.70
c	0.55	0.60	0.75	P1		7.19	
D	20.80	21.00	21.20	P2		2.50	
D1		16.55		Q		5.80	
D2		1.20		S	6.05	6.15	6.25
E	15.60	15.80	16.0	T		10.00	
E1		13.30		U		6.20	