

General Description

The CMN3416MD uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. This device is suitable for use as a load switch or in PWM applications. It is ESD protected.

Features

- $R_{DS(ON)} < 22m\Omega$ @ $V_{GS} = 4.5V$
- $R_{DS(ON)} < 26m\Omega$ @ $V_{GS} = 2.5V$
- SOT-23-3L Package
- ESD Protected: 2000V

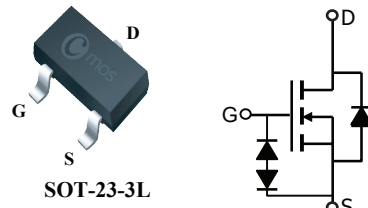
Product Summary

BVDSS	RDSON	ID
20V	22mΩ	6.5A

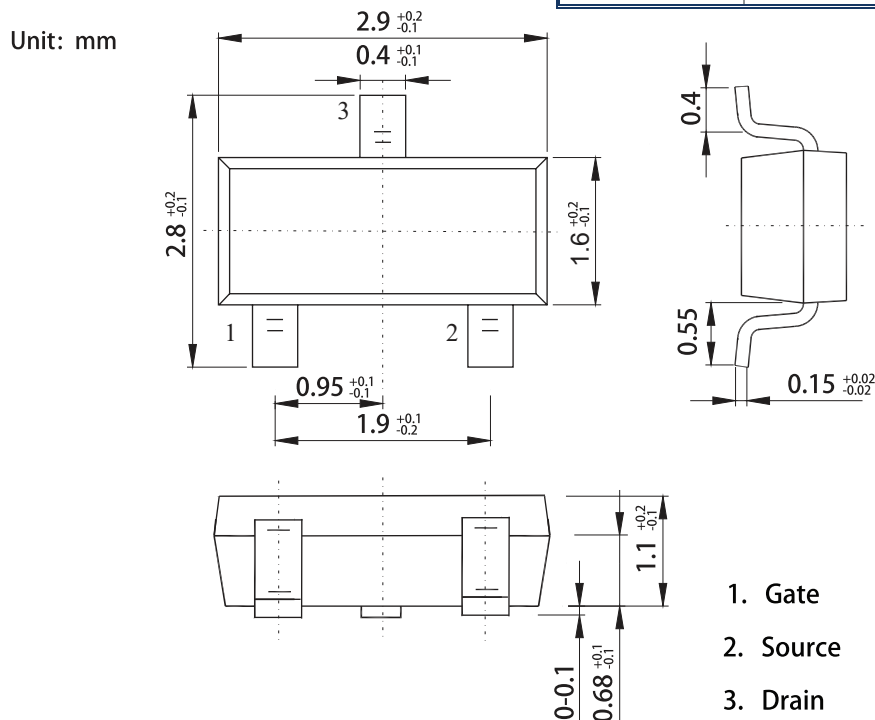
Applications

- PWM applications
- Load Switch
- Power Management
- PA Switch

SOT-23-3L Pin Configuration



Type	Package	Marking
CMN3416MD	SOT-23-3L	AGSAM



N-Channel Enhancement Mode Field Effect Transistor

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 8	V
I_D	Continuous Drain Current	6.5	A
I_{DM}	Pulsed Drain Current	30	A
$P_D @ T_A=25^\circ\text{C}$	Total Power Dissipation	1.4	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 ($t \leq 10\text{s}$)	90	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0\text{V}$, $I_D=250\mu\text{A}$	20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=4.5\text{V}$, $I_D=6.5\text{A}$	---	---	22	m Ω
		$V_{GS}=2.5\text{V}$, $I_D=5.5\text{A}$	---	---	26	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu\text{A}$	0.4	---	1.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=16\text{V}$, $V_{GS}=0\text{V}$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0\text{V}$	---	---	± 10	μA
R_g	Gate Resistance	$V_{DS}=0\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	---	3	---	Ω
Q_g	Total Gate Charge	$I_D=6.5\text{A}$	---	16	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=10\text{V}$	---	1	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=4.5\text{V}$	---	4	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=10\text{V}$	---	6.2	---	ns
T_r	Rise Time	$R_L=1.5\Omega$	---	12.7	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_{GEN}=3\Omega$	---	51.7	---	
T_f	Fall Time	$V_{GS}=5\text{V}$	---	16	---	
C_{iss}	Input Capacitance	$V_{DS}=10\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	---	1300	---	pF
C_{oss}	Output Capacitance		---	170	---	
C_{rss}	Reverse Transfer Capacitance		---	150	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0\text{V}$, $I_S=1\text{A}$	---	0.75	1.2	V

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.

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Typical Characteristics

