

General Description

The CMN3415M uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a load switch or in PWM applications.

Features

- $R_{DS(ON)} < 38\text{m}\Omega$ @ $V_{GS} = -4.5\text{V}$
- $R_{DS(ON)} < 60\text{m}\Omega$ @ $V_{GS} = -2.5\text{V}$
- Simple drive requirement
- Surface mount package

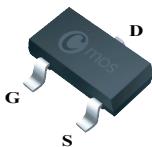
Product Summary

BVDSS	$R_{DS(ON)}$	ID
-20V	38m Ω	-4.7A

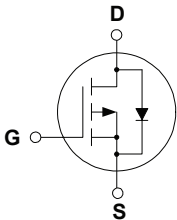
Applications

- PWM applications
- Load switch
- Power management
- PA Switch

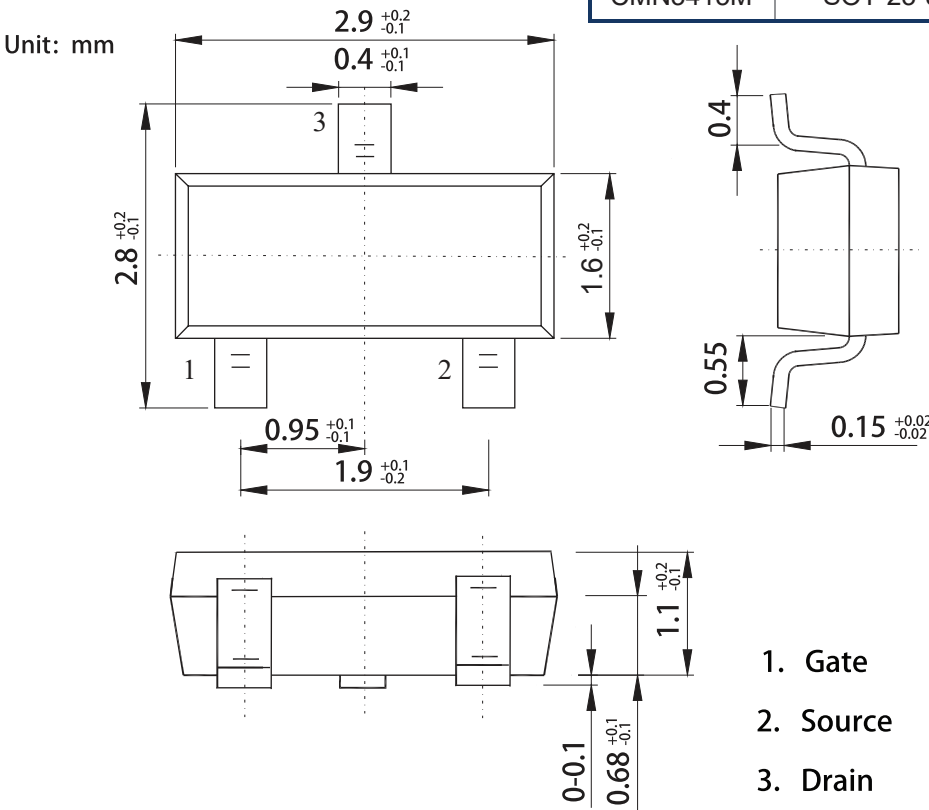
SOT-23-3L Pin Configuration



SOT-23-3L



Type	Package	Marking
CMN3415M	SOT-23-3L	3415M



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 8	V
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current	-4.7	A
I_{DM}	Pulsed Drain Current	-20	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	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient (Steady-State)	---	125	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V, I_D=-4A$	---	31	38	$m\Omega$
		$V_{GS}=-2.5V, I_D=-4A$	---	42	60	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-0.6	---	-1.5	V
I_{DSS}	Zero gate voltage drain current	$V_{DS}=-16V, V_{GS}=0V$	---	---	-1	μA
		$V_{GS}=0V, V_{DS}=-16V, T_J=55^\circ\text{C}$	---	---	-10	
I_{GSS}	Gate-Body Leakage current	$V_{GS}=\pm 8V, V_{DS}=0V$	---	---	± 100	nA
Q_g	Total Gate Charge	$V_{GS}=-4.5V$	---	13	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=-10V$	---	2	---	
Q_{gd}	Gate-Drain Charge	$I_D=-4.7A$	---	3.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{GS}=-4.5V$	---	25	---	ns
T_r	Rise Time	$V_{DS}=-10V$	---	43	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_L=10\Omega$	---	70	---	
T_f	Fall Time	$R_{GEN}=6\Omega$	---	50	---	
C_{iss}	Input Capacitance	$V_{DS}=-10V, V_{GS}=0V, f=1\text{MHz}$	---	1000	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	125	---	

Diode Characteristics

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

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 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

