

General Description

The CMN3160M is fabricated using an advanced high voltage MOSFET process that is designed to deliver high levels of performance and robustness in popular AC-DC applications.

Features

- $R_{DS(ON)} \leq 45\Omega$ @ $V_{GS}=10V$
- SOT-23-3L Package

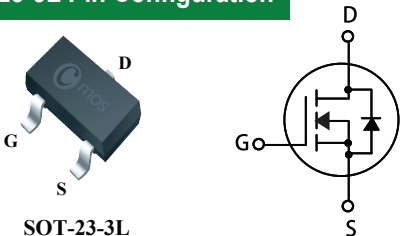
Product Summary

BVDSS	RDSON	ID
600V	45Ω	0.2A

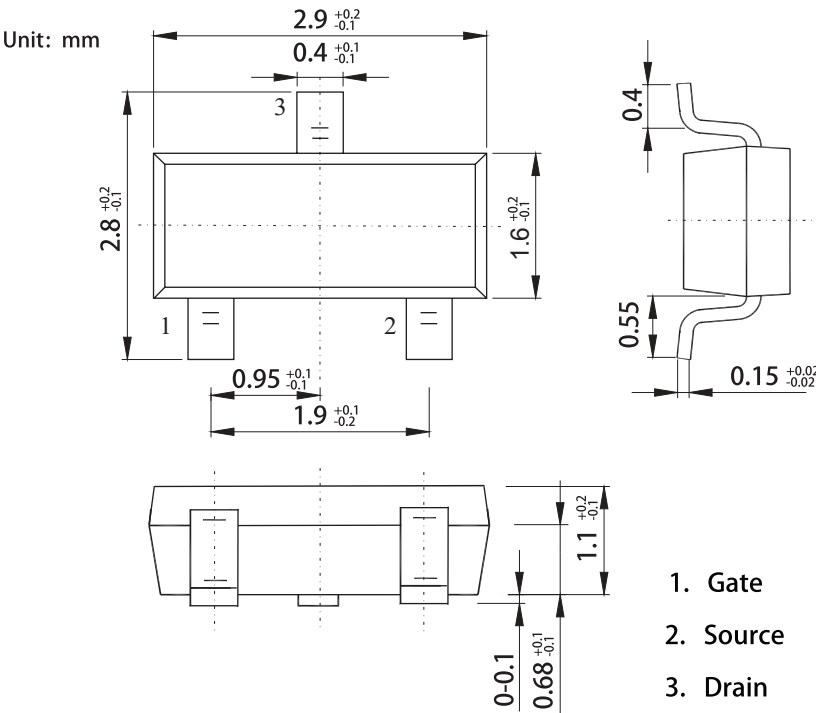
Applications

- DC-DC converters
- Motor Control
- Power Management Functions

SOT-23-3L Pin Configuration



Type	Package	Marking
CMN3160M	SOT-23-3L	3160M



N-Channel Enhancement Mode Field Effect Transistor

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	600	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current ^{1,2}	0.2	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current ^{1,2}	0.14	A
I_{DM}	Pulsed Drain Current	0.8	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	1.8	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) ¹	---	125	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu\text{A}$	600	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=0.025A$	---	31.5	45	Ω
		$V_{GS}=4.5V, I_D=0.025A$	---	32	60	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu\text{A}$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=600V, V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=30V, I_D=0.025A$	---	0.004	---	S
Q_g	Total Gate Charge	$I_D=0.01A$	---	1	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=400V$	---	0.1	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	0.52	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=300V$	---	4	---	ns
T_r	Rise Time	$R_G=6\Omega$	---	5.5	---	
$T_{d(off)}$	Turn-Off Delay Time	$I_D=0.01A$	---	13	---	
T_f	Fall Time	$V_{GS}=10V$	---	55	---	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	17	---	pF
C_{oss}	Output Capacitance		---	2.5	---	
C_{rss}	Reverse Transfer Capacitance		---	0.75	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=0.05A$	---	0.81	1.2	V

Notes:

1. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$. The value in any given application depends on the user's specific board design.

2. The current rating is based on the $t \leq 10s$ thermal resistance rating.

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.

N-Channel Enhancement Mode Field Effect Transistor

Typical Characteristics

