

### General Description

The CMN2302BSM uses advanced trench technology to provide excellent RDS(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

- RDS(ON)<55mΩ @ VGS=4.5V
- RDS(ON)<75mΩ @ VGS=2.5V
- Simple drive requirement
- Surface mount package

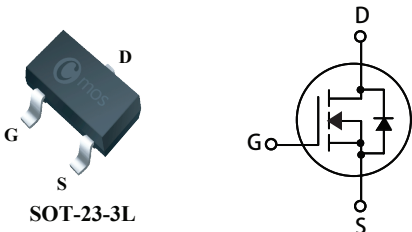
### Product Summary

BVDSS	RDSON	ID
20V	55mΩ	3A

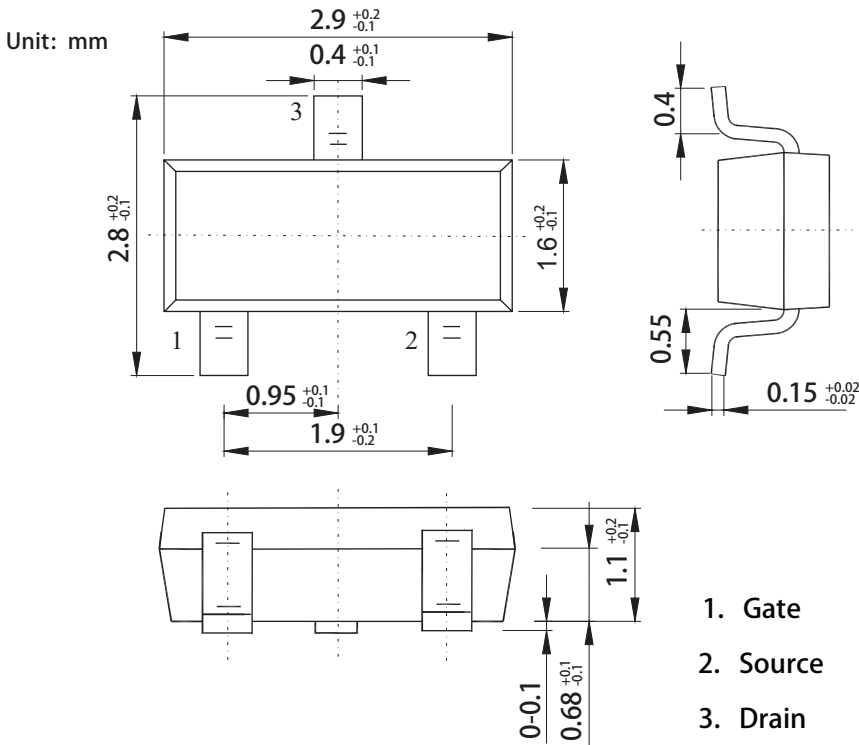
### Applications

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

### SOT-23-3L Pin Configuration



Type	Package	Marking
CMN2302BSM	SOT-23-3L	BSM



## 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	$\pm 12$	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current	3	A
$I_{DM}$	Pulsed Drain Current	9	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	1.5	W
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$T_J$	Operating Junction Temperature Range	150	$^\circ\text{C}$

## Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	250	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0\text{V}$ , $I_D=250\mu\text{A}$	20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=4.5\text{V}$ , $I_D=3\text{A}$	---	---	55	m $\Omega$
		$V_{GS}=2.5\text{V}$ , $I_D=2\text{A}$	---	---	75	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$ , $I_D=250\mu\text{A}$	0.5	---	1.0	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=20\text{V}$ , $V_{GS}=0\text{V}$	---	---	1	$\mu\text{A}$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 12\text{V}$ , $V_{DS}=0\text{V}$	---	---	$\pm 100$	nA
$g_{fs}$	Forward Transconductance	$V_{DS}=5\text{V}$ , $I_D=3\text{A}$	---	5	---	S
$Q_g$	Total Gate Charge	$I_D=2.5\text{A}$	---	3	---	nC
$Q_{gs}$	Gate-Source Charge	$V_{DD}=10\text{V}$	---	0.8	---	
$Q_{gd}$	Gate-Drain Charge	$V_{GS}=4.5\text{V}$	---	0.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=10\text{V}$	---	6	---	ns
$T_r$	Rise Time	$V_{GS}=4.5\text{V}$	---	3	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_{GEN}=6\Omega$	---	12	---	
$T_f$	Fall Time	$I_D=2.5\text{A}$	---	3	---	
$C_{iss}$	Input Capacitance	$V_{DS}=10\text{V}$ , $V_{GS}=0\text{V}$ , $f=1\text{MHz}$	---	350	---	pF
$C_{oss}$	Output Capacitance		---	115	---	
$C_{rss}$	Reverse Transfer Capacitance		---	18	---	

## Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0\text{V}$ , $I_S=3\text{A}$	---	---	1.2	V

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