

CMN2301MK

-20V, 58mΩ typ., -3.5A P-Channel MOSFET

General Description

The CMN2301MK is the high cell density trench P-channel MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

Features

- Low On-Resistance
- Simple Drive Requirements
- Surface Mount Package
- RoHS Compliant

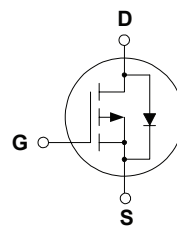
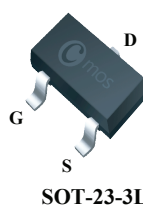
Product Summary

BVDSS	R _{DS(on)} max.	ID
-20V	72mΩ	-3.5A

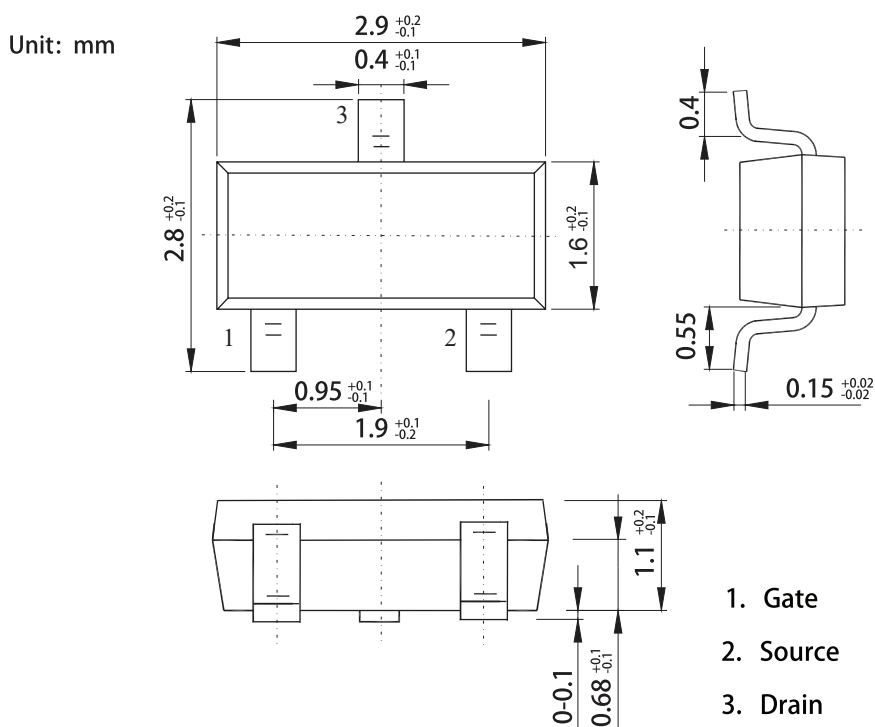
Applications

- Low power DC-to-DC converters
- Load switching
- Battery management
- Battery powered portable equipment

SOT-23-3L Pin Configuration



Type	Package	Marking
CMN2301MK	SOT-23-3L	A1SHBK



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Continuous Drain Current	-3.5	A
I_{DM}	Pulsed Drain Current	-15	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	150	$^{\circ}\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	89	$^{\circ}\text{C/W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0\text{V}$, $I_D=-250\mu\text{A}$	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5\text{V}$, $I_D=-1\text{A}$	---	58	72	mΩ
		$V_{GS}=-2.5\text{V}$, $I_D=-1\text{A}$	---	80	110	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu\text{A}$	-0.4	---	-1.2	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	$V_{GS}=\pm 12\text{V}$, $V_{DS}=0\text{V}$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5\text{V}$, $I_D=-1\text{A}$	---	4.2	---	S
R_g	Gate Resistance	$V_{DS}=0\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	---	17	---	Ω
Q_g	Total Gate Charge	$I_D=-1.6\text{A}$	---	8	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=-10\text{V}$	---	1.2	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=-4.5\text{V}$	---	2.2	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-10\text{V}$, $R_G=6\Omega$ $I_D=-1.6\text{A}$, $V_{GS}=-4.5\text{V}$	---	7.5	---	ns
T_r	Rise Time		---	12.6	---	
$T_{d(off)}$	Turn-Off Delay Time		---	30.2	---	
T_f	Fall Time		---	21	---	
C_{iss}	Input Capacitance	$V_{DS}=-20\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	---	710	---	pF
C_{oss}	Output Capacitance		---	65	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0\text{V}$, $I_S=-1\text{A}$	---	-0.83	-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. Please refer to the latest version of specification.

Typical Characteristics
