

General Description

The CMN2301M is P-channel enhancement mode Power MOSFET, designed in serried ranks. With fast switching speed, low on-resistance, favorable stabilization.

Used in commercial and industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

Features

- $R_{DS(ON)} < 110\text{m}\Omega$ @ $V_{GS} = -4.5\text{V}$
- $R_{DS(ON)} < 140\text{m}\Omega$ @ $V_{GS} = -2.5\text{V}$
- Simple drive requirement
- Surface mount package

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	A
I_{DM}	Pulsed Drain Current ^b	-10	A
$P_D @ T_A = 25^\circ\text{C}$	Total Power Dissipation	1	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 ^a	---	125	$^\circ\text{C}/\text{W}$

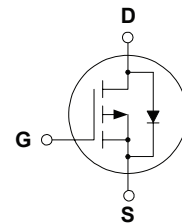
Product Summary

BVDSS	RDSON	ID
-20V	110m Ω	-3A

Applications

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

SOT-23 Pin Configuration



Type	Package	Marking
CMN2301M	SOT-23	A1SHB

P-Channel Enhancement Mode Field Effect Transistor

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	$V_{GS}=-4.5V, I_D=-1.0A$	---	---	110	m Ω
		$V_{GS}=-2.5V, I_D=-1.0A$	---	---	140	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-0.5	---	-1.2	V
I_{DSS}	Zero gate voltage drain current	$V_{DS}=-16V, V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V, I_D=-0.5A$	---	6	---	S
Q_g	Total Gate Charge	$I_D=-3A$	---	3.5	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=-10V$	---	0.8	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=-2.5V$	---	1.4	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-10V$	---	12	---	ns
T_r	Rise Time	$R_{GEN}=10\Omega$	---	36	---	
$T_{d(off)}$	Turn-Off Delay Time	$I_D=-1A$	---	31	---	
T_f	Fall Time	$V_{GS}=-4.5V$	---	11	---	
C_{iss}	Input Capacitance	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$	---	520	---	pF
C_{oss}	Output Capacitance		---	75	---	
C_{rss}	Reverse Transfer Capacitance		---	55	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=-1.0A$	---	---	-1.2	V

Notes:

- a. Surface Mounted on 1in² pad area, $t \leq 10sec.$
- b. Pulse Width<300 μs ; Duty Cycle<2.0%

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.