

General Description

The CMN5P04AM uses advanced trench technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a load switch or in PWM applications.

Features

- RDS(ON)<70mΩ @ VGS=-10V
- RDS(ON)<100mΩ @ VGS=-4.5V
- Simple drive requirement
- Surface mount package
- RoHS Compliant

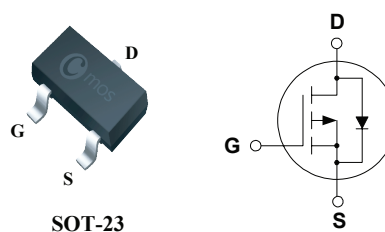
Product Summary

BVDSS	RDS(ON)	ID
-40V	70mΩ	-5A

Applications

- Load Switch
- Battery Charging
- Portable Power Adaptors
- DC/DC Converter

SOT-23-3L Pin Configuration



Type	Package	Marking
CMN5P04AM	SOT-23-3L	5P04AM

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-40	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	-5	A
$I_D@T_C=70^{\circ}C$	Continuous Drain Current	-3.5	A
I_{DM}	Pulsed Drain Current	-20	A
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	2.5	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient($t \leq 5s$)	---	100	°C/W
$R_{\theta JF}$	Thermal Resistance Junction-Foot (Drain)(Steady State)	---	50	°C/W

P-Channel Enhancement Mode Field Effect Transistor

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-2.5A$	---	60	70	$m\Omega$
		$V_{GS}=-4.5V$, $I_D=-2A$	---	83	100	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1.0	---	-2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-40V$, $V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-2A$	---	6	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1MHz$	---	22	---	Ω
Q_g	Total Gate Charge	$I_D=-3.1A$	---	7	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=-20V$	---	2.5	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=-4.5V$	---	3.2	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-20V$, $I_D\cong -2.5A$ $R_G=1\Omega$, $R_L=8\Omega$ $V_{GEN}=-10V$	---	8	---	ns
T_r	Rise Time		---	9	---	
$T_{d(off)}$	Turn-Off Delay Time		---	20	---	
T_f	Fall Time		---	8	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1MHz$	---	600	---	pF
C_{oss}	Output Capacitance		---	60	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-2.1	A
I_{SM}	Pulsed Source Current		---	---	-20	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=-1A$, $T_J=25^{\circ}\text{C}$	---	-0.8	-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.

Typical Characteristics

