

General Description

The CMN5N20 combines advanced trench MOSFET technology with a low resistance package to provide extremely low RDS(ON). This device is suitable for use as a Battery protection or in other Switching application.

Features

- RDS(ON)<590mΩ @ VGS=10V
- SOT-23-3L Package

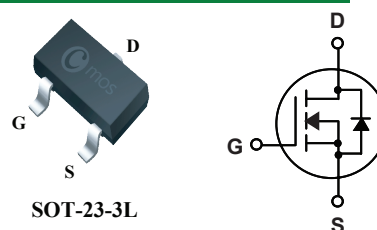
Product Summary

BVDSS	RDS(on) max.	ID
200V	590mΩ	4A

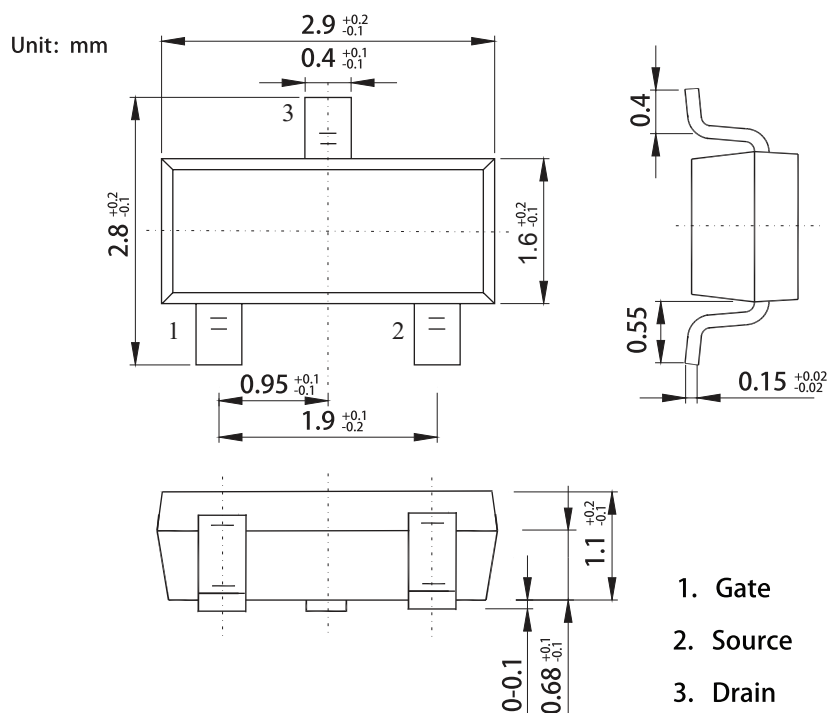
Applications

- DC-DC converters
- Load switch
- Uninterruptible power supply

SOT-23-3L Pin Configuration



Type	Package	Marking
CMN5N20	SOT-23-3L	5N20



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_A=25^{\circ}\text{C}$	Continuous Drain Current	4	A
I_{DM}	Pulsed Drain Current	12	A
$P_D@T_A=25^{\circ}\text{C}$	Total Power Dissipation	2	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	---	85	°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	$V_{GS}=0V, I_D=250\mu A$	200	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=2.5A$	---	530	590	mΩ
		$V_{GS}=4.5V, I_D=2.5A$	---	550	640	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	---	3.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=200V, V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=2A$	---	4	---	S
Q_g	Total Gate Charge	$I_D=1A$	---	15	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=160V$	---	3	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	5.2	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=100V$	---	22	---	ns
T_r	Rise Time	$R_G=3\Omega$	---	35	---	
$T_{d(off)}$	Turn-Off Delay Time	$I_D=1A$	---	45	---	
T_f	Fall Time	$V_{GS}=10V$	---	11	---	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	700	---	pF
C_{oss}	Output Capacitance		---	25	---	
C_{rss}	Reverse Transfer Capacitance		---	12	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=4A$	---	0.88	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

