

### General Description

The CMN1052M combines advanced trench MOSFET technology with a low resistance package to provide extremely low RDS(ON). This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

### Features

- RDS(ON)<480mΩ @ VGS=10V
- RDS(ON)<600mΩ @ VGS=4.5V
- SOT-23-3L Package

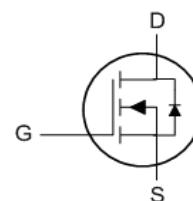
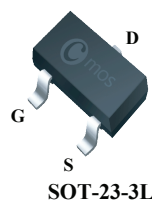
### Product Summary

| BVDSS | RDSON | ID   |
|-------|-------|------|
| 100V  | 480mΩ | 1.2A |

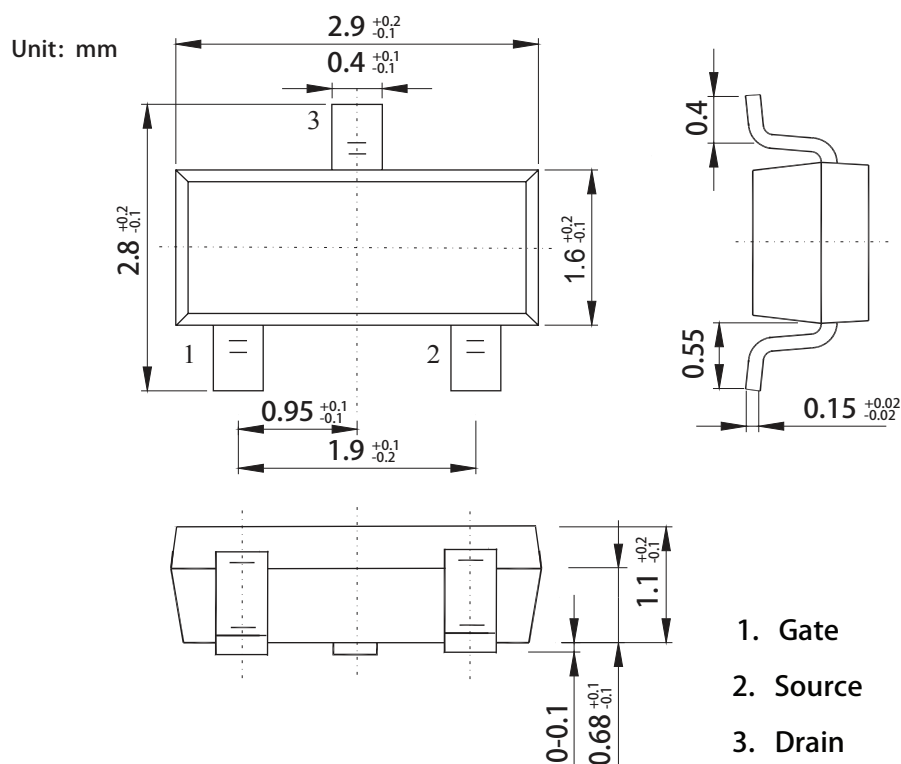
### Applications

- DC-DC converters
- Load Switch
- System Switch

### SOT-23-3L Pin Configuration



| Type     | Package   | Marking |
|----------|-----------|---------|
| CMN1052M | SOT-23-3L | 1052    |



## N-Channel Enhancement Mode Field Effect Transistor

## Absolute Maximum Ratings

| Symbol                 | Parameter                            | Rating     | Units      |
|------------------------|--------------------------------------|------------|------------|
| $V_{DS}$               | Drain-Source Voltage                 | 100        | V          |
| $V_{GS}$               | Gate-Source Voltage                  | $\pm 20$   | V          |
| $I_{D@T_C=25^\circ C}$ | Continuous Drain Current             | 1.2        | A          |
| $I_{DM}$               | Pulsed Drain Current                 | 3.6        | A          |
| $P_{D@T_C=25^\circ C}$ | Total Power Dissipation              | 1.25       | W          |
| $T_{STG}$              | Storage Temperature Range            | -55 to 150 | $^\circ C$ |
| $T_J$                  | Operating Junction Temperature Range | -55 to 150 | $^\circ C$ |

## Thermal Data

| Symbol          | Parameter                           | Typ. | Max. | Unit         |
|-----------------|-------------------------------------|------|------|--------------|
| $R_{\theta JA}$ | Thermal Resistance Junction-ambient | ---  | 100  | $^\circ C/W$ |

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

| Symbol       | Parameter                         | Conditions                                                | Min. | Typ. | Max.      | Unit       |
|--------------|-----------------------------------|-----------------------------------------------------------|------|------|-----------|------------|
| $BV_{DSS}$   | Drain-Source Breakdown Voltage    | $V_{GS}=0V, I_D=250\mu A$                                 | 100  | ---  | ---       | V          |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=10V, I_D=2.5A$                                    | ---  | ---  | 480       | m $\Omega$ |
|              |                                   | $V_{GS}=4.5V, I_D=2A$                                     | ---  | ---  | 600       |            |
| $V_{GS(th)}$ | Gate Threshold Voltage            | $V_{GS}=V_{DS}, I_D=250\mu A$                             | 1.5  | ---  | 3.5       | V          |
| $I_{DSS}$    | Drain-Source Leakage Current      | $V_{DS}=80V, V_{GS}=0V$                                   | ---  | ---  | 1         | $\mu A$    |
| $I_{GSS}$    | Gate-Source Leakage Current       | $V_{GS}=\pm 20V, V_{DS}=0V$                               | ---  | ---  | $\pm 100$ | nA         |
| $g_{fs}$     | Forward Transconductance          | $V_{DS}=5V, I_D=2A$                                       | ---  | 4    | ---       | S          |
| $Q_g$        | Total Gate Charge                 | $V_{DS}=50V, I_D=1.2A$<br>$V_{GS}=10V$                    | ---  | 6    | ---       | nC         |
| $Q_{gs}$     | Gate-Source Charge                |                                                           | ---  | 1    | ---       |            |
| $Q_{gd}$     | Gate-Drain Charge                 |                                                           | ---  | 2    | ---       |            |
| $T_{d(on)}$  | Turn-On Delay Time                | $V_{DS}=50V, V_{GS}=10V, R_{GEN}=2.5\Omega$<br>$I_D=1.2A$ | ---  | 12   | ---       | ns         |
| $T_r$        | Rise Time                         |                                                           | ---  | 10   | ---       |            |
| $T_{d(off)}$ | Turn-Off Delay Time               |                                                           | ---  | 30   | ---       |            |
| $T_f$        | Fall Time                         |                                                           | ---  | 9    | ---       |            |
| $C_{iss}$    | Input Capacitance                 | $V_{DS}=25V, V_{GS}=0V, f=1MHz$                           | ---  | 300  | ---       | pF         |
| $C_{oss}$    | Output Capacitance                |                                                           | ---  | 120  | ---       |            |
| $C_{rss}$    | Reverse Transfer Capacitance      |                                                           | ---  | 90   | ---       |            |

## Diode Characteristics

| Symbol   | Parameter             | Conditions          | Min. | Typ. | Max. | Unit |
|----------|-----------------------|---------------------|------|------|------|------|
| $V_{SD}$ | Diode Forward Voltage | $V_{GS}=0V, I_S=1A$ | ---  | ---  | 1.2  | V    |

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