

# CME4N10M

100V, 244mΩ typ., 4A N-Channel MOSFET

## General Description

The CME4N10M uses advanced trench technology to provide excellent  $R_{DS(on)}$ . This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

## Features

- Low On-Resistance
- Simple Drive Requirements
- RoHS Compliant

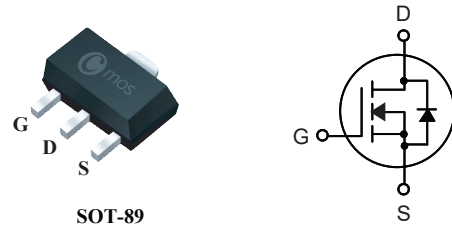
## Product Summary

| BVDSS | $R_{DS(on)}$ max. | ID |
|-------|-------------------|----|
| 100V  | 280mΩ             | 4A |

## Applications

- DC/DC converter

## SOT-89 Pin Configuration



SOT-89

| Type     | Package | Marking |
|----------|---------|---------|
| CME4N10M | SOT-89  | 4N10M   |

## Absolute Maximum Ratings

| Symbol                      | Parameter                            | Rating     | Units |
|-----------------------------|--------------------------------------|------------|-------|
| $V_{DS}$                    | Drain-Source Voltage                 | 100        | V     |
| $V_{GS}$                    | Gate-Source Voltage                  | ±20        | V     |
| $I_D@T_A=25^\circ\text{C}$  | Continuous Drain Current             | 4          | A     |
| $I_D@T_A=100^\circ\text{C}$ | Continuous Drain Current             | 2.5        | A     |
| $I_{DM}$                    | Pulsed Drain Current                 | 16         | A     |
| $P_D@T_A=25^\circ\text{C}$  | 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 | ---  | 50   | °C/W |

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

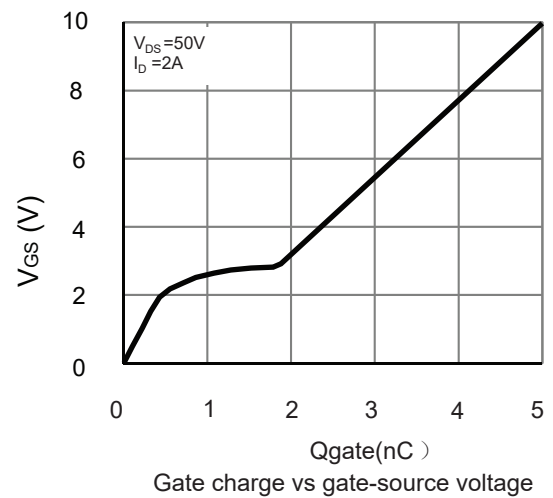
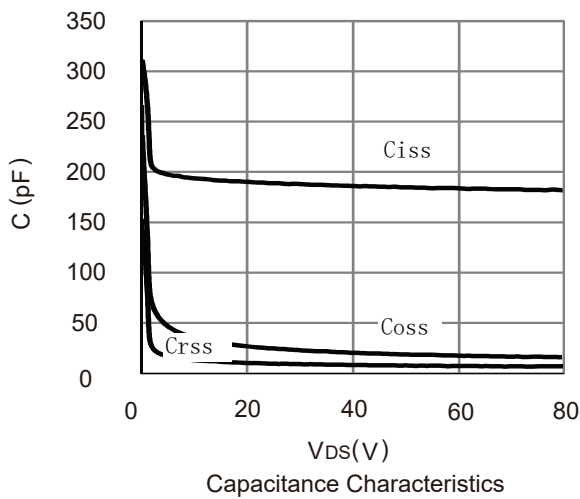
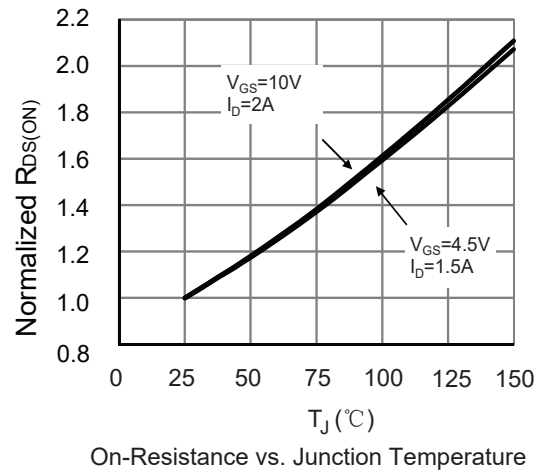
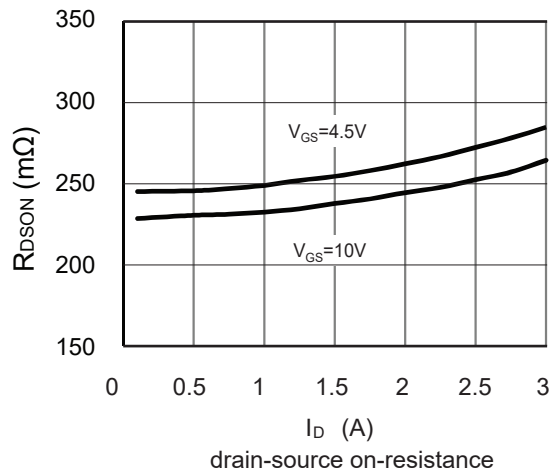
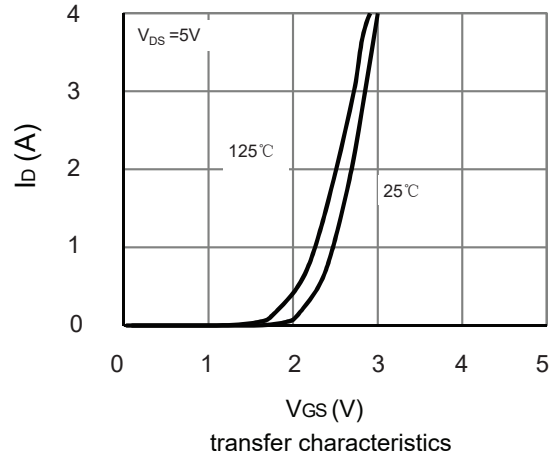
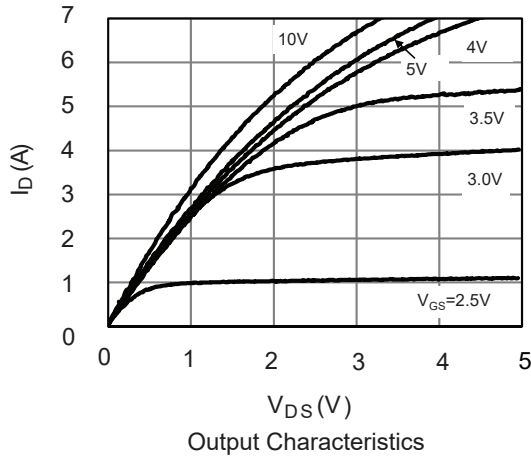
| Symbol       | Parameter                         | Conditions                                   | Min. | Typ. | Max. | Unit |
|--------------|-----------------------------------|----------------------------------------------|------|------|------|------|
| $BV_{DSS}$   | Drain-Source Breakdown Voltage    | $V_{GS}=0V$ , $I_D=250\mu A$                 | 100  | ---  | ---  | V    |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=10V$ , $I_D=2A$                      | ---  | 244  | 280  | mΩ   |
|              |                                   | $V_{GS}=4.5V$ , $I_D=2A$                     | ---  | 260  | 320  |      |
| $V_{GS(th)}$ | Gate Threshold Voltage            | $V_{GS}=V_{DS}$ , $I_D=250\mu A$             | 0.9  | ---  | 2.0  | V    |
| $I_{DSS}$    | Drain-Source Leakage Current      | $V_{DS}=100V$ , $V_{GS}=0V$                  | ---  | ---  | 1    | μA   |
| $I_{GSS}$    | Gate-Source Leakage Current       | $V_{GS}=\pm 20V$ , $V_{DS}=0V$               | ---  | ---  | ±100 | nA   |
| $g_{fs}$     | Forward Transconductance          | $V_{DS}=10V$ , $I_D=2A$                      | ---  | 3    | ---  | S    |
| $R_g$        | Gate Resistance                   | $V_{DS}=0V$ , $V_{GS}=0V$ , $f=1\text{MHz}$  | ---  | 0.6  | ---  | Ω    |
| $Q_g$        | Total Gate Charge                 | $I_D=2A$                                     | ---  | 5    | ---  | nC   |
| $Q_{gs}$     | Gate-Source Charge                | $V_{DS}=50V$                                 | ---  | 0.5  | ---  |      |
| $Q_{gd}$     | Gate-Drain Charge                 | $V_{GS}=10V$                                 | ---  | 1.4  | ---  |      |
| $T_{d(on)}$  | Turn-On Delay Time                | $V_{DS}=50V$                                 | ---  | 4    | ---  | ns   |
| $T_r$        | Rise Time                         | $V_{GS}=10V$                                 | ---  | 3    | ---  |      |
| $T_{d(off)}$ | Turn-Off Delay Time               | $R_{GEN}=3\Omega$                            | ---  | 15   | ---  |      |
| $T_f$        | Fall Time                         | $R_L=25\Omega$                               | ---  | 2.5  | ---  |      |
| $C_{iss}$    | Input Capacitance                 | $V_{DS}=25V$ , $V_{GS}=0V$ , $f=1\text{MHz}$ | ---  | 180  | ---  | pF   |
| $C_{oss}$    | Output Capacitance                |                                              | ---  | 30   | ---  |      |
| $C_{rss}$    | Reverse Transfer Capacitance      |                                              | ---  | 15   | ---  |      |

**Diode Characteristics**

| Symbol   | Parameter                 | Conditions                                        | Min. | Typ. | Max. | Unit |
|----------|---------------------------|---------------------------------------------------|------|------|------|------|
| $I_S$    | Continuous Source Current | $V_G=V_D=0V$ , Force Current                      | ---  | ---  | 4    | A    |
| $I_{SM}$ | Pulsed Source Current     |                                                   | ---  | ---  | 16   | A    |
| $V_{SD}$ | Diode Forward Voltage     | $V_{GS}=0V$ , $I_S=4A$ , $T_J=25^{\circ}\text{C}$ | ---  | 0.86 | 1.2  | V    |

Note :

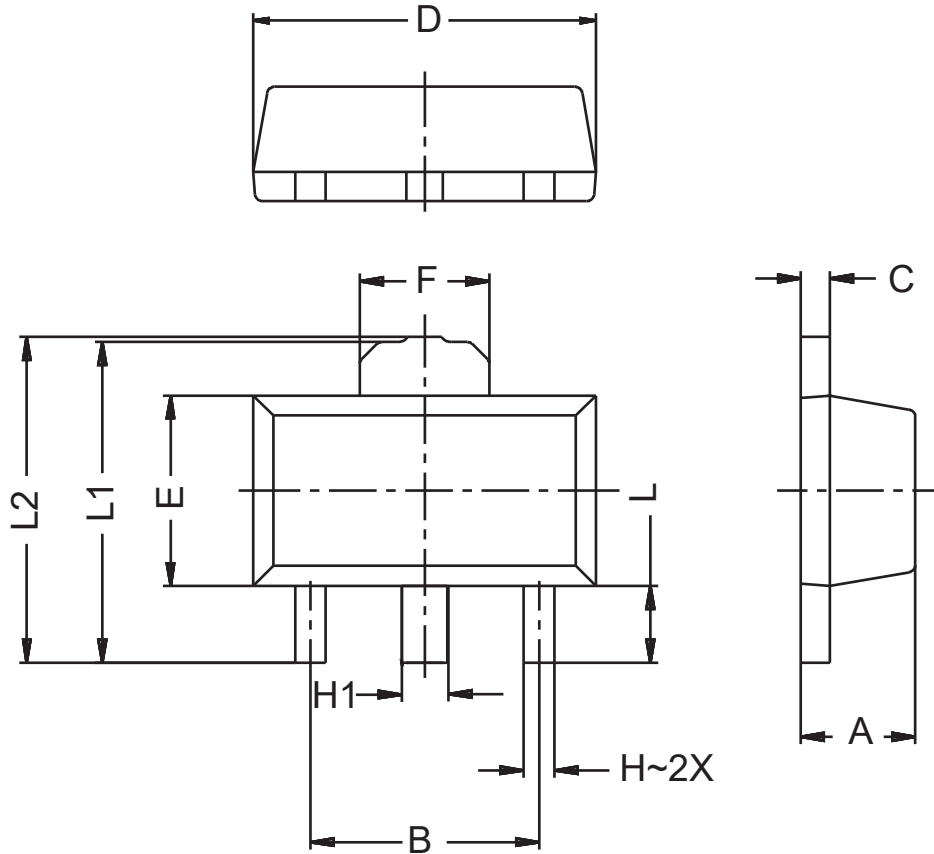
This product has been designed and qualified for the consumer market.  
 Cmos assumes no liability for customers' product design or applications.  
 Cmos reserves the right to improve product design ,functions and reliability without notice. Please refer to the latest version of specification.

**Typical Characteristics**


**Package Dimension**

SOT-89

Unit :mm



| Symbol | Dim in mm |      |      |
|--------|-----------|------|------|
|        | Min       | Nor  | Max  |
| A      | 1.45      | 1.50 | 1.55 |
| B      | 2.95      | 3.00 | 3.05 |
| C      | 0.37      | 0.38 | 0.40 |
| D      | 4.45      | 4.50 | 4.55 |
| E      | 2.45      | 2.50 | 2.55 |
| F      | 1.65      | 1.70 | 1.75 |
| H      | 0.37      | 0.40 | 0.48 |
| H1     | 0.45      | 0.48 | 0.58 |
| L      | 0.95      | 1.00 | 1.05 |
| L1     | 4.15      | 4.20 | 4.25 |
| L2     | 4.17      | 4.27 | 4.37 |