

# CMD11N45/CMU11N45

450V, 570mΩ typ., 11A N-Channel MOSFET

## General Description

These Power MOSFETs are produced using Cmos's proprietary, planar stripe, DMOS technology. These devices are well suited for high efficient switching mode power supplies and active power factor correction.

## Features

- Fast switching
- 100% avalanche tested
- RoHS compliant

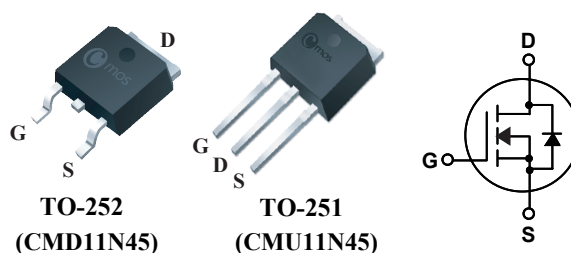
## Product Summary

| BVDSS | R <sub>DS(on)</sub> max. | ID  |
|-------|--------------------------|-----|
| 450V  | 650mΩ                    | 11A |

## Applications

- Adapter
- Uninterruptible Power Supply
- Switched Mode Power Supplies

## TO-252/251 Pin Configuration



## Absolute Maximum Ratings

| Symbol                                | Parameter                                  | Rating     | Units |
|---------------------------------------|--------------------------------------------|------------|-------|
| V <sub>DS</sub>                       | Drain-Source Voltage                       | 450        | V     |
| V <sub>GS</sub>                       | Gate-Source Voltage                        | ±30        | V     |
| I <sub>D</sub> @T <sub>C</sub> =25°C  | Continuous Drain Current                   | 11         | A     |
| I <sub>D</sub> @T <sub>C</sub> =100°C | Continuous Drain Current                   | 7          | A     |
| I <sub>DM</sub>                       | Pulsed Drain Current                       | 44         | A     |
| EAS                                   | Single Pulse Avalanche Energy <sup>1</sup> | 490        | mJ    |
| P <sub>D</sub> @T <sub>C</sub> =25°C  | Total Power Dissipation                    | 80         | W     |
| T <sub>STG</sub>                      | Storage Temperature Range                  | -55 to 150 | °C    |
| T <sub>J</sub>                        | Operating Junction Temperature Range       | -55 to 150 | °C    |

## Thermal Data

| Symbol           | Parameter                           | Typ. | Max. | Unit |
|------------------|-------------------------------------|------|------|------|
| R <sub>θJA</sub> | Thermal Resistance Junction-ambient | ---  | 62.5 | °C/W |
| R <sub>θJC</sub> | Thermal Resistance Junction-case    | ---  | 0.96 | °C/W |

## Electrical Characteristics(T<sub>J</sub>=25°C, unless otherwise noted)

| Symbol              | Parameter                         | Conditions                                               | Min. | Typ. | Max. | Unit |
|---------------------|-----------------------------------|----------------------------------------------------------|------|------|------|------|
| BV <sub>DSS</sub>   | Drain-Source Breakdown Voltage    | V <sub>GS</sub> =0V, I <sub>D</sub> =250uA               | 450  | ---  | ---  | V    |
| R <sub>DS(ON)</sub> | Static Drain-Source On-Resistance | V <sub>GS</sub> =10V, I <sub>D</sub> =15A                | ---  | 570  | 650  | mΩ   |
| V <sub>GS(th)</sub> | Gate Threshold Voltage            | V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA | 2    | ---  | 4    | V    |
| I <sub>DSS</sub>    | Drain-Source Leakage Current      | V <sub>DS</sub> =450V, V <sub>GS</sub> =0V               | ---  | ---  | 1    | μA   |
| I <sub>GSS</sub>    | Gate-Source Leakage Current       | V <sub>GS</sub> =±30V, V <sub>DS</sub> =0V               | ---  | ---  | ±100 | nA   |
| g <sub>fs</sub>     | Forward Transconductance          | V <sub>DS</sub> =20V, I <sub>D</sub> =5.5A               | ---  | 9    | ---  | S    |
| R <sub>g</sub>      | Gate Resistance                   | V <sub>DS</sub> =0V, V <sub>GS</sub> =0V, f=1MHz         | ---  | 1    | ---  | Ω    |
| Q <sub>g</sub>      | Total Gate Charge                 | I <sub>D</sub> =11A                                      | ---  | 44   | ---  | nC   |
| Q <sub>gs</sub>     | Gate-Source Charge                | V <sub>DS</sub> =360V                                    | ---  | 9    | ---  |      |
| Q <sub>gd</sub>     | Gate-Drain Charge                 | V <sub>GS</sub> =10V                                     | ---  | 16   | ---  |      |
| T <sub>d(on)</sub>  | Turn-On Delay Time                | V <sub>DS</sub> =225V                                    | ---  | 35   | ---  | ns   |
| T <sub>r</sub>      | Rise Time                         | V <sub>GS</sub> =10V                                     | ---  | 30   | ---  |      |
| T <sub>d(off)</sub> | Turn-Off Delay Time               | R <sub>G</sub> =25Ω                                      | ---  | 75   | ---  |      |
| T <sub>f</sub>      | Fall Time                         | I <sub>D</sub> =11A                                      | ---  | 30   | ---  |      |
| C <sub>iss</sub>    | Input Capacitance                 | V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz        | ---  | 1450 | ---  | pF   |
| C <sub>oss</sub>    | Output Capacitance                |                                                          | ---  | 100  | ---  |      |
| C <sub>rss</sub>    | Reverse Transfer Capacitance      |                                                          | ---  | 6    | ---  |      |

## Diode Characteristics

| Symbol          | Parameter                 | Conditions                                                | Min. | Typ. | Max. | Unit |
|-----------------|---------------------------|-----------------------------------------------------------|------|------|------|------|
| I <sub>S</sub>  | Continuous Source Current | V <sub>G</sub> =V <sub>D</sub> =0V, Force Current         | ---  | ---  | 11   | A    |
| I <sub>SM</sub> | Pulsed Source Current     |                                                           | ---  | ---  | 44   | A    |
| V <sub>SD</sub> | Diode Forward Voltage     | V <sub>GS</sub> =0V, I <sub>S</sub> =11A                  | ---  | 0.88 | 1.5  | V    |
| t <sub>rr</sub> | Reverse Recovery Time     | I <sub>S</sub> =11A, V <sub>GS</sub> =0V<br>di/dt=100A/μs | ---  | 274  | ---  | ns   |
| Q <sub>rr</sub> | Reverse Recovery Charge   |                                                           | ---  | 1.9  | ---  | μC   |

Note :

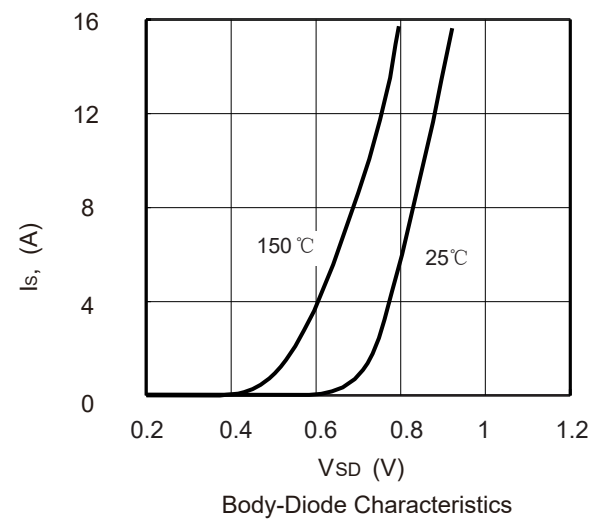
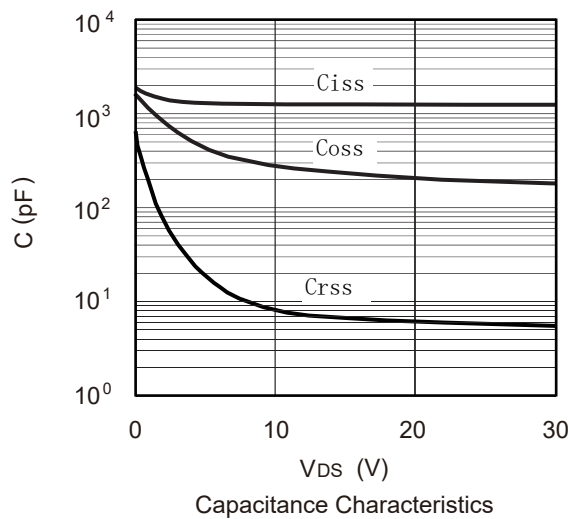
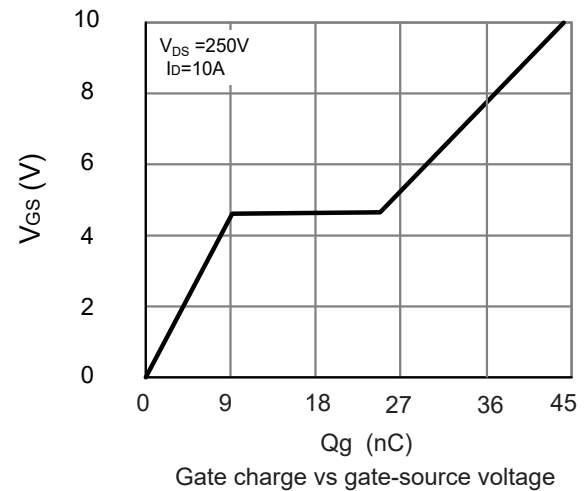
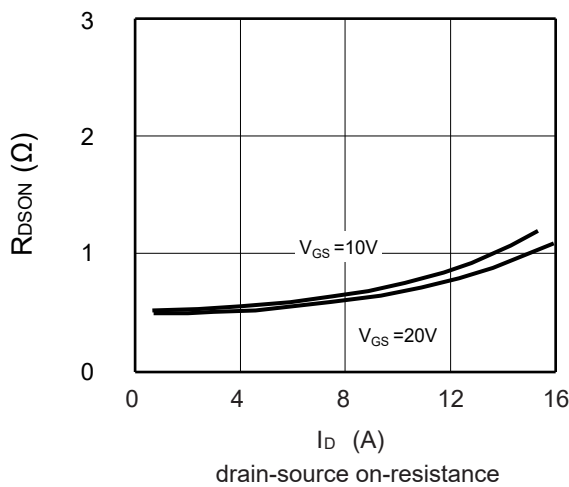
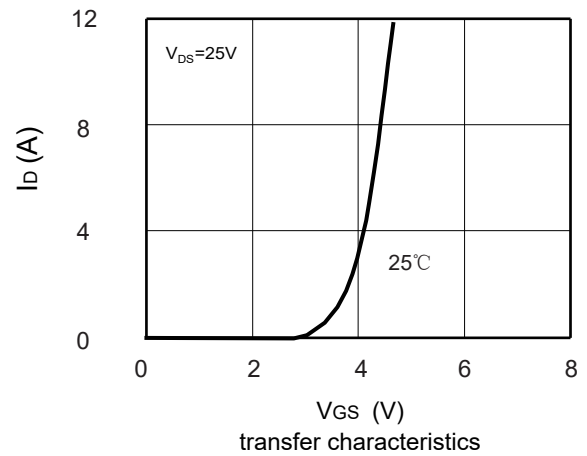
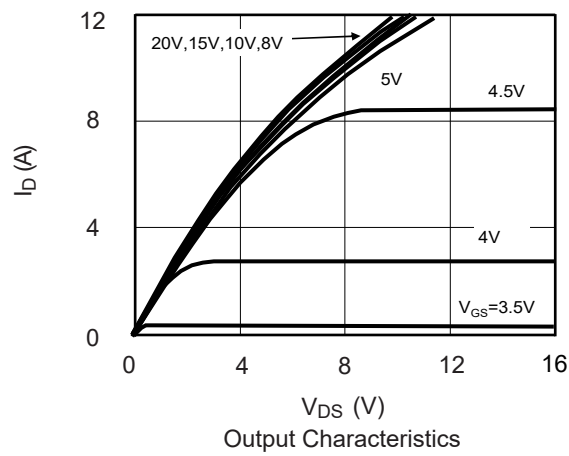
1.The EAS data shows Max. rating . The test condition is V<sub>DD</sub>=80V, V<sub>GS</sub>=10V, L=5mH, I<sub>AS</sub>=14A.

This product has been designed and qualified for the counsumer market.

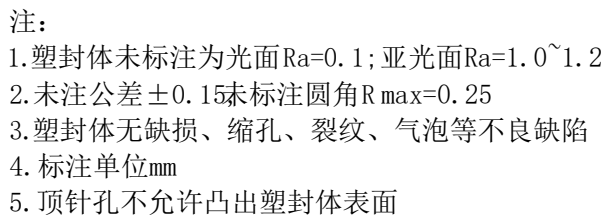
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Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

## Typical Characteristics



Unit :mm



## Package Dimension

TO-251A

Unit :mm

