

### General Description

The 044N10 is N-Channel MOSFET, It has specifically been designed to minimize input capacitance and gate charge. The device is therefore suitable in advanced high-efficiency switching applications.

### Features

- Minimize input capacitance and gate charge
- 100% avalanche tested
- Low On-Resistance

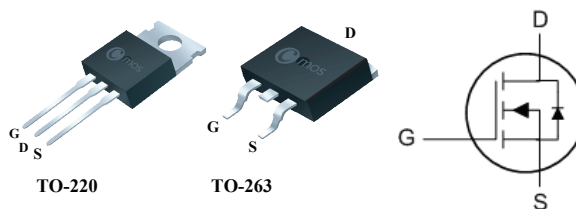
### Product Summary

| BVDSS | RDSON | ID   |
|-------|-------|------|
| 100V  | 4.5mΩ | 100A |

### Applications

- Motor Control
- DC-DC converters
- Switching applications

### TO-220/263 Pin Configuration



| Type      | Package | Marking   |
|-----------|---------|-----------|
| CMP044N10 | TO-220  | CMP044N10 |
| CMB044N10 | TO-263  | CMB044N10 |

### Absolute Maximum Ratings

| Symbol                      | Parameter                            | Rating     | Units            |
|-----------------------------|--------------------------------------|------------|------------------|
| $V_{DS}$                    | Drain-Source Voltage                 | 100        | V                |
| $V_{GS}$                    | Gate-Source Voltage                  | $\pm 20$   | V                |
| $I_D@T_C=25^\circ\text{C}$  | Continuous Drain Current             | 100        | A                |
| $I_D@T_C=100^\circ\text{C}$ | Continuous Drain Current             | 80         | A                |
| $I_{DM}$                    | Pulsed Drain Current                 | 400        | A                |
| EAS                         | Single Pulse Avalanche Energy        | 1330       | mJ               |
| $P_D@T_C=25^\circ\text{C}$  | Total Power Dissipation              | 150        | W                |
| $T_{STG}$                   | Storage Temperature Range            | -55 to 175 | $^\circ\text{C}$ |
| $T_J$                       | Operating Junction Temperature Range | -55 to 175 | $^\circ\text{C}$ |

### Thermal Data

| Symbol          | Parameter                           | Typ. | Max. | Unit                      |
|-----------------|-------------------------------------|------|------|---------------------------|
| $R_{\theta JA}$ | Thermal Resistance Junction-ambient | ---  | 62.5 | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JC}$ | Thermal Resistance Junction-case    | ---  | 1.0  | $^\circ\text{C}/\text{W}$ |

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 | $V_{GS}=10V$ , $I_D=20A$                     | ---  | ---  | 4.5       | m $\Omega$ |
| $V_{GS(th)}$ | Gate Threshold Voltage            | $V_{GS}=V_{DS}$ , $I_D=250\mu A$             | 2    | ---  | 4         | V          |
| $I_{DSS}$    | Drain-Source Leakage Current      | $V_{DS}=100V$ , $V_{GS}=0V$                  | ---  | ---  | 1         | $\mu A$    |
| $I_{GSS}$    | Gate-Source Leakage Current       | $V_{GS}=\pm 20V$ , $V_{DS}=0V$               | ---  | ---  | $\pm 100$ | nA         |
| $g_{fs}$     | Forward Transconductance          | $V_{DS}=10V$ , $I_D=20A$                     | ---  | 32   | ---       | S          |
| $R_g$        | Gate Resistance                   | $V_{DS}=0V$ , $V_{GS}=0V$ , $f=1\text{MHz}$  | ---  | 4.2  | ---       | $\Omega$   |
| $Q_g$        | Total Gate Charge                 | $I_D=100A$                                   | ---  | 49   | ---       | nC         |
| $Q_{gs}$     | Gate-Source Charge                | $V_{DD}=50V$                                 | ---  | 20   | ---       |            |
| $Q_{gd}$     | Gate-Drain Charge                 | $V_{GS}=10V$                                 | ---  | 10   | ---       |            |
| $T_{d(on)}$  | Turn-On Delay Time                | $V_{DD}=50V$                                 | ---  | 30   | ---       | ns         |
| $T_r$        | Rise Time                         | $I_D=100A$                                   | ---  | 50   | ---       |            |
| $T_{d(off)}$ | Turn-Off Delay Time               | $R_G=6\Omega$                                | ---  | 42   | ---       |            |
| $T_f$        | Fall Time                         | $V_{GS}=10V$                                 | ---  | 14   | ---       |            |
| $C_{iss}$    | Input Capacitance                 | $V_{DS}=50V$ , $V_{GS}=0V$ , $f=1\text{MHz}$ | ---  | 6700 | ---       | pF         |
| $C_{oss}$    | Output Capacitance                |                                              | ---  | 2300 | ---       |            |
| $C_{rss}$    | Reverse Transfer Capacitance      |                                              | ---  | 19   | ---       |            |

## Diode Characteristics

| Symbol   | Parameter                 | Conditions                                         | Min. | Typ. | Max. | Unit |
|----------|---------------------------|----------------------------------------------------|------|------|------|------|
| $I_S$    | Continuous Source Current | $V_G=V_D=0V$ , Force Current                       | ---  | ---  | 100  | A    |
| $I_{SM}$ | Pulsed Source Current     |                                                    | ---  | ---  | 400  | A    |
| $V_{SD}$ | Diode Forward Voltage     | $V_{GS}=0V$ , $I_S=50A$ , $T_J=25^{\circ}\text{C}$ | ---  | ---  | 1.2  | V    |

Note :

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