

### General Description

The 010N06 uses advanced Cmos's MOSFET Technology, which provides high performance in on-state resistance, fast switching performance and excellent quality. This device is suitable device for Synchronous Rectification For Server and general purpose applications.

### Features

- Low On-Resistance
- Simple Drive Requirement
- 100% avalanche tested
- RoHS Compliant

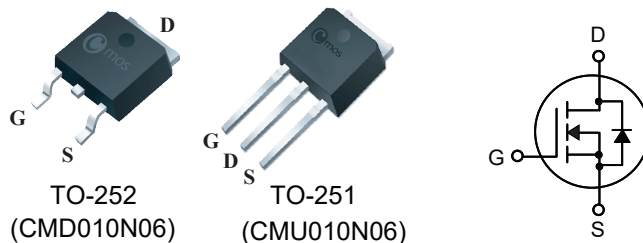
### Product Summary

| BVDSS | RDSON | ID  |
|-------|-------|-----|
| 60V   | 10mΩ  | 55A |

### Applications

- DC-DC Converters
- Power switching application

### TO-252/251 Pin Configuration



### Absolute Maximum Ratings

| Symbol                      | Parameter                                  | Rating     | Units            |
|-----------------------------|--------------------------------------------|------------|------------------|
| $V_{DS}$                    | Drain-Source Voltage                       | 60         | V                |
| $V_{GS}$                    | Gate-Source Voltage                        | $\pm 20$   | V                |
| $I_D@T_C=25^\circ\text{C}$  | Continuous Drain Current                   | 55         | A                |
| $I_D@T_C=100^\circ\text{C}$ | Continuous Drain Current                   | 35         | A                |
| $I_{DM}$                    | Pulsed Drain Current <sup>1</sup>          | 220        | A                |
| EAS                         | Single Pulse Avalanche Energy <sup>2</sup> | 64         | mJ               |
| $P_D@T_C=25^\circ\text{C}$  | Total Power Dissipation                    | 80         | W                |
| $T_{STG}$                   | Storage Temperature Range                  | -55 to 150 | $^\circ\text{C}$ |
| $T_J$                       | Operating Junction Temperature Range       | -55 to 150 | $^\circ\text{C}$ |

### Thermal Data

| Symbol          | Parameter                                        | Typ. | Max. | Unit                      |
|-----------------|--------------------------------------------------|------|------|---------------------------|
| $R_{\theta JA}$ | Thermal Resistance Junction-ambient <sup>1</sup> | ---  | 50   | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JC}$ | Thermal Resistance Junction -Case                | ---  | 2.1  | $^\circ\text{C}/\text{W}$ |

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

| Symbol       | Parameter                         | Conditions                                               | Min. | Typ. | Max.      | Unit      |
|--------------|-----------------------------------|----------------------------------------------------------|------|------|-----------|-----------|
| $BV_{DSS}$   | Drain-Source Breakdown Voltage    | $V_{GS}=0V$ , $I_D=250\mu A$                             | 60   | ---  | ---       | V         |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=10V$ , $I_D=20A$                                 | ---  | 8.5  | 10        | $m\Omega$ |
|              |                                   | $V_{GS}=4.5V$ , $I_D=15A$                                | ---  | 15   | 18        |           |
| $V_{GS(th)}$ | Gate Threshold Voltage            | $V_{GS}=V_{DS}$ , $I_D=60\mu A$                          | 1    | ---  | 3         | V         |
| $I_{DSS}$    | Drain-Source Leakage Current      | $V_{DS}=60V$ , $V_{GS}=0V$ , $T_J=25^{\circ}\text{C}$    | ---  | ---  | 1         | $\mu A$   |
| $I_{GSS}$    | Gate-Source Leakage Current       | $V_{GS}=\pm 20V$ , $V_{DS}=0V$                           | ---  | ---  | $\pm 100$ | nA        |
| $g_{fs}$     | Forward Transconductance          | $V_{DS}=10V$ , $I_D=10A$                                 | ---  | 13   | ---       | S         |
| $R_g$        | Gate Resistance                   | $V_{DS}=10V$ , $V_{GS}=0V$ , $f=1\text{MHz}$             | ---  | 2    | ---       | $\Omega$  |
| $Q_g$        | Total Gate Charge                 | $V_{DD}=30V$ , $I_D=50A$<br>$V_{GS}=10V$                 | ---  | 32   | ---       | nC        |
| $Q_{gs}$     | Gate-Source Charge                |                                                          | ---  | 13   | ---       |           |
| $Q_{gd}$     | Gate-Drain Charge                 |                                                          | ---  | 5    | ---       |           |
| $T_{d(on)}$  | Turn-On Delay Time                | $V_{DD}=30V$ , $V_{GS}=10V$ , $I_D=50A$<br>$R_G=3\Omega$ | ---  | 17   | ---       | ns        |
| $T_r$        | Rise Time                         |                                                          | ---  | 19   | ---       |           |
| $T_{d(off)}$ | Turn-Off Delay Time               |                                                          | ---  | 31   | ---       |           |
| $T_f$        | Fall Time                         |                                                          | ---  | 8    | ---       |           |
| $C_{iss}$    | Input Capacitance                 | $V_{DS}=20V$ , $V_{GS}=0V$ , $f=1\text{MHz}$             | ---  | 900  | ---       | pF        |
| $C_{oss}$    | Output Capacitance                |                                                          | ---  | 450  | ---       |           |
| $C_{rss}$    | Reverse Transfer Capacitance      |                                                          | ---  | 60   | ---       |           |

### Diode Characteristics

| Symbol   | Parameter                 | Conditions                                         | Min. | Typ. | Max. | Unit |
|----------|---------------------------|----------------------------------------------------|------|------|------|------|
| $I_S$    | Continuous Source Current | $V_G=V_D=0V$ , Force Current                       | ---  | ---  | 55   | A    |
| $V_{SD}$ | Diode Forward Voltage     | $V_{GS}=0V$ , $I_F=15A$ , $T_J=25^{\circ}\text{C}$ | ---  | ---  | 1.2  | V    |

#### Notes:

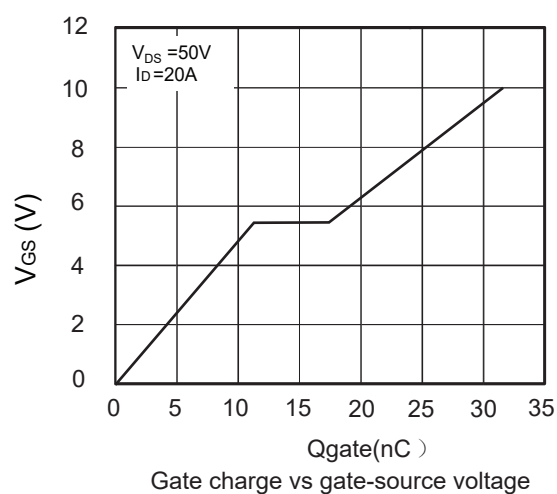
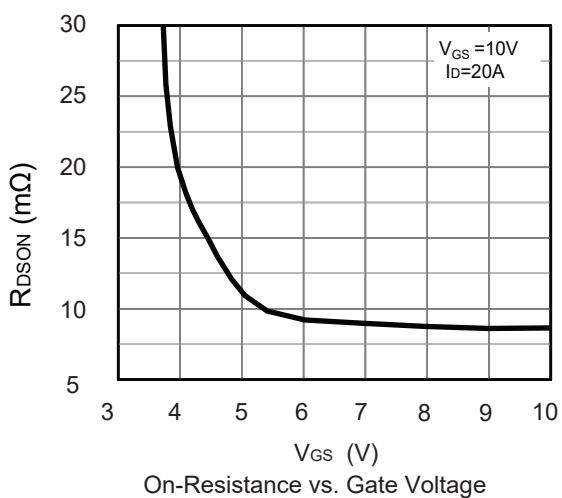
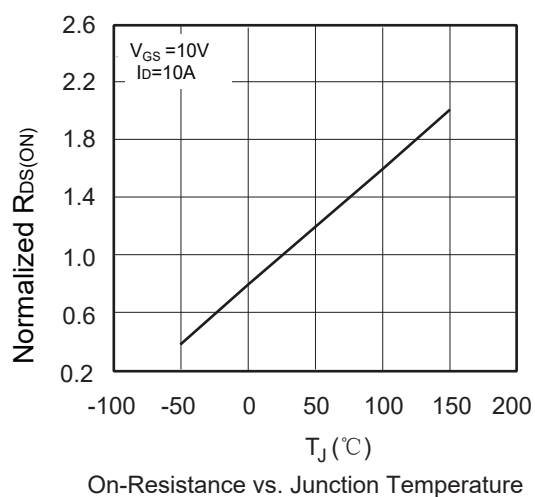
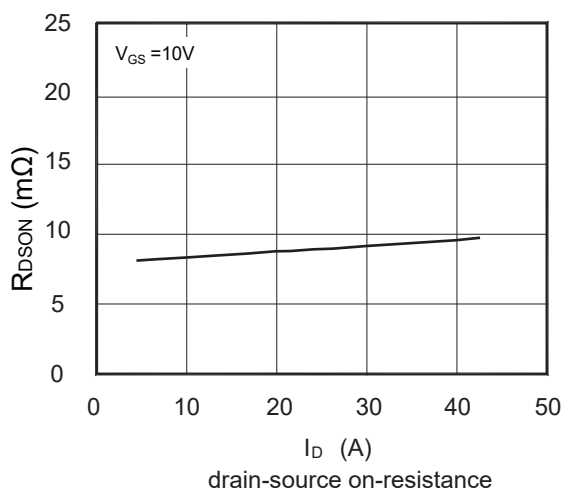
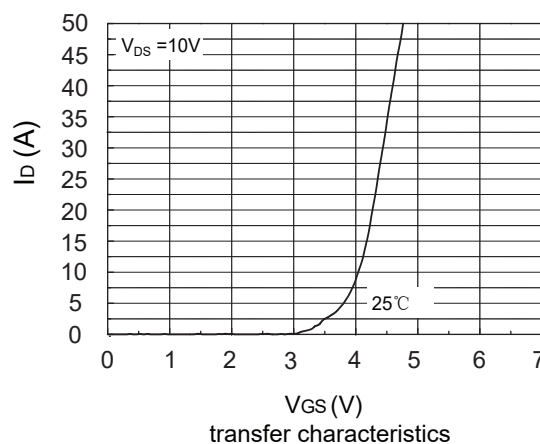
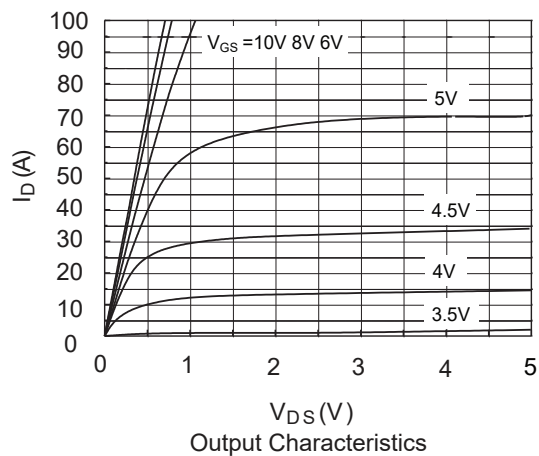
1. Surface mounted FR-4 board by JEDEC (jesd51-7). Continuous current at  $TC=25^{\circ}\text{C}$  is silicon limited
2. The EAS data shows Max. rating . The test condition is  $V_{DD}=30V$  ,  $V_{GS}=10V$  ,  $L=0.5\text{mH}$  ,  $I_{AS}=16A$  .

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.

Typical Characteristics



Typical Characteristics

