

### 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

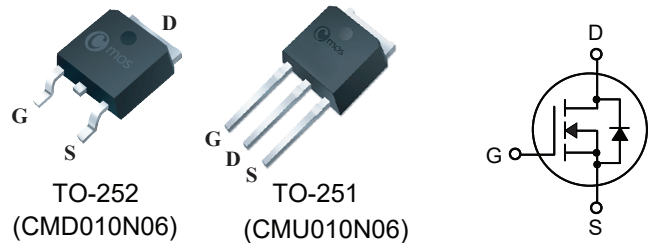
### Product Summary

| BVDSS | R <sub>DS(on)</sub> max. | ID  |
|-------|--------------------------|-----|
| 60V   | 10mΩ                     | 55A |

### Applications

- DC-DC Converters
- Power switching application

### TO-252/251 Pin Configuration



### Absolute Maximum Ratings

| Symbol                                | Parameter                                  | Rating     | Units |
|---------------------------------------|--------------------------------------------|------------|-------|
| V <sub>DS</sub>                       | Drain-Source Voltage                       | 60         | V     |
| V <sub>GS</sub>                       | Gate-Source Voltage                        | ±20        | V     |
| I <sub>D</sub> @T <sub>C</sub> =25°C  | Continuous Drain Current                   | 55         | A     |
| I <sub>D</sub> @T <sub>C</sub> =100°C | Continuous Drain Current                   | 35         | A     |
| I <sub>DM</sub>                       | Pulsed Drain Current <sup>1</sup>          | 220        | A     |
| EAS                                   | Single Pulse Avalanche Energy <sup>2</sup> | 64         | 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 <sup>1</sup> | ---  | 50   | °C/W |
| R <sub>θJC</sub> | Thermal Resistance Junction -Case                | ---  | 1.56 | °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> =250μA                                             | 60   | ---  | ---  | V    |
| R <sub>DS(ON)</sub> | Static Drain-Source On-Resistance | V <sub>GS</sub> =10V , I <sub>D</sub> =20A                                              | ---  | 8.5  | 10   | mΩ   |
|                     |                                   | V <sub>GS</sub> =4.5V , I <sub>D</sub> =15A                                             | ---  | 15   | 18   |      |
| V <sub>GS(th)</sub> | Gate Threshold Voltage            | V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =60uA                                 | 1    | ---  | 3    | V    |
| I <sub>DSS</sub>    | Drain-Source Leakage Current      | V <sub>DS</sub> = 60V , V <sub>GS</sub> =0V , T <sub>J</sub> =25°C                      | ---  | ---  | 1    | uA   |
| I <sub>GSS</sub>    | Gate-Source Leakage Current       | V <sub>GS</sub> =±20V , V <sub>DS</sub> =0V                                             | ---  | ---  | ±100 | nA   |
| g <sub>fs</sub>     | Forward Transconductance          | V <sub>DS</sub> =10V , I <sub>D</sub> =10A                                              | ---  | 13   | ---  | S    |
| R <sub>g</sub>      | Gate Resistance                   | V <sub>DS</sub> =10V , V <sub>GS</sub> =0V , f=1MHz                                     | ---  | 2    | ---  | Ω    |
| Q <sub>g</sub>      | Total Gate Charge                 | V <sub>DD</sub> =30V , I <sub>D</sub> =20A<br>V <sub>GS</sub> =10V                      | ---  | 15   | ---  | nC   |
| Q <sub>gs</sub>     | Gate-Source Charge                |                                                                                         | ---  | 3    | ---  |      |
| Q <sub>gd</sub>     | Gate-Drain Charge                 |                                                                                         | ---  | 4    | ---  |      |
| T <sub>d(on)</sub>  | Turn-On Delay Time                | V <sub>DD</sub> =30V , V <sub>GS</sub> =10V , I <sub>D</sub> =50A<br>R <sub>G</sub> =3Ω | ---  | 17   | ---  | ns   |
| T <sub>r</sub>      | Rise Time                         |                                                                                         | ---  | 19   | ---  |      |
| T <sub>d(off)</sub> | Turn-Off Delay Time               |                                                                                         | ---  | 31   | ---  |      |
| T <sub>f</sub>      | Fall Time                         |                                                                                         | ---  | 8    | ---  |      |
| C <sub>iss</sub>    | Input Capacitance                 | V <sub>DS</sub> =20V , V <sub>GS</sub> =0V , f=1MHz                                     | ---  | 900  | ---  | pF   |
| C <sub>oss</sub>    | Output Capacitance                |                                                                                         | ---  | 450  | ---  |      |
| C <sub>rss</sub>    | Reverse Transfer Capacitance      |                                                                                         | ---  | 60   | ---  |      |

### 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               | ---  | ---  | 55   | A    |
| V <sub>SD</sub> | Diode Forward Voltage     | V <sub>GS</sub> =0V , I <sub>F</sub> =15A , T <sub>J</sub> =25°C | ---  | ---  | 1.2  | V    |

#### Notes:

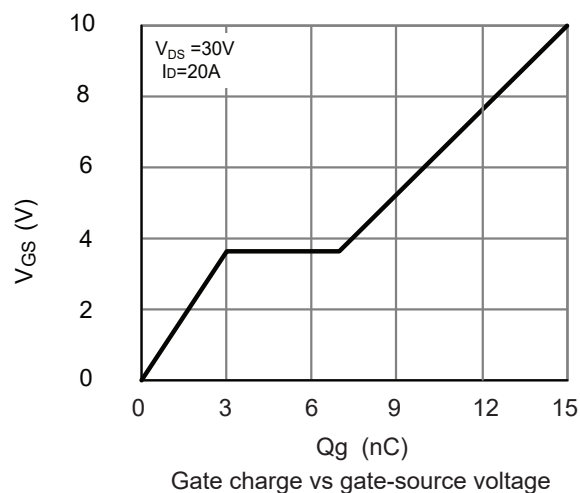
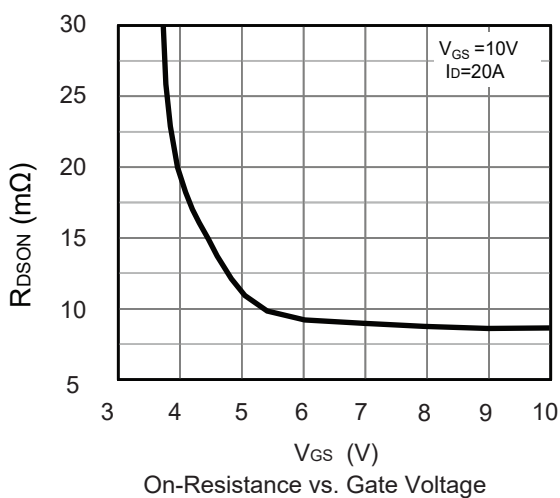
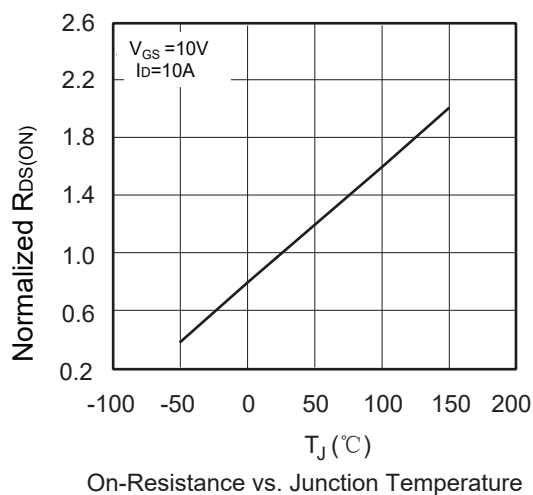
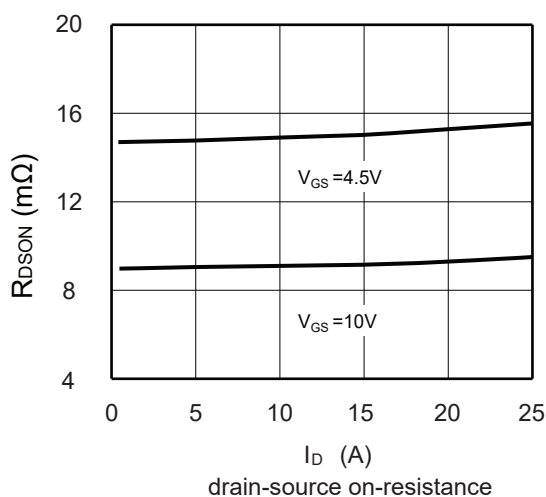
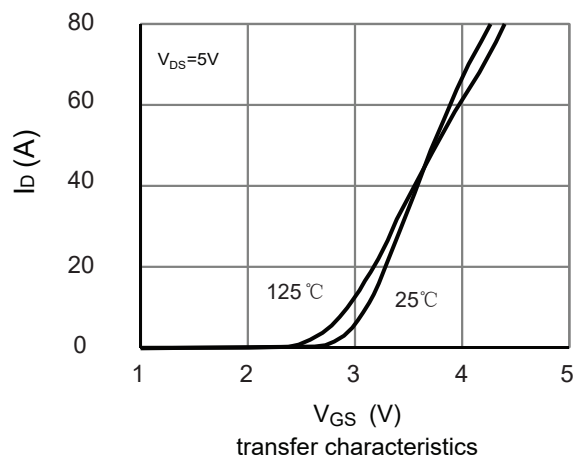
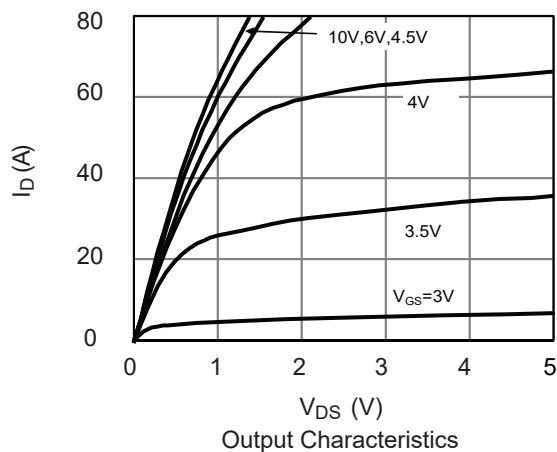
1. Surface mounted FR-4 board by JEDEC (jesd51-7). Continuous current at TC=25°C is silicon limited
2. The EAS data shows Max. rating . The test condition is V<sub>DD</sub>=30V , V<sub>GS</sub>=10V , L=0.5mH , I<sub>AS</sub>=16A .

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

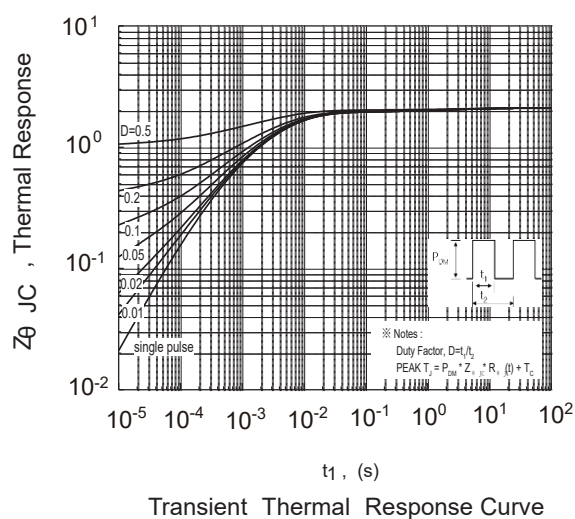
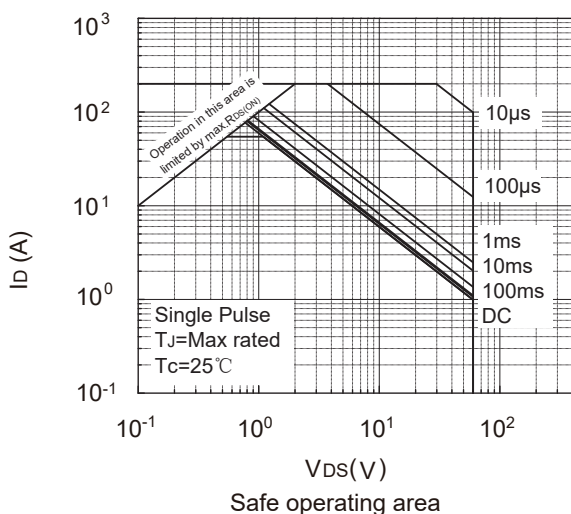
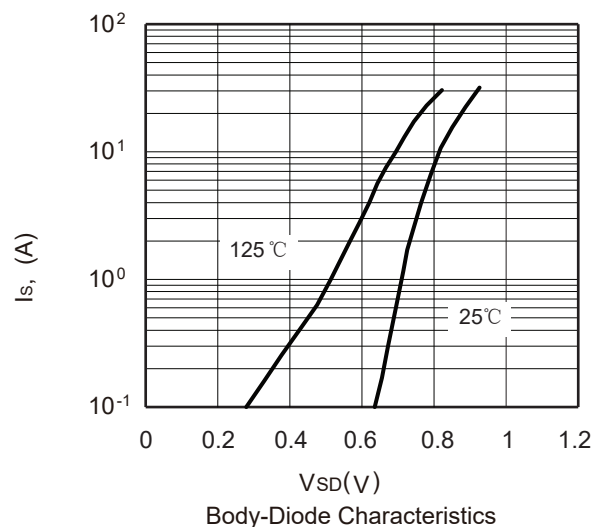
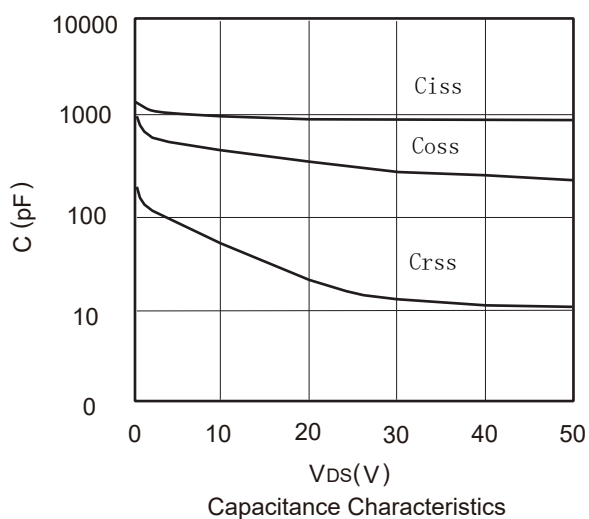
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Cmos reserves the right to improve product design ,functions and reliability without notice. Please refer to the latest version of specification.

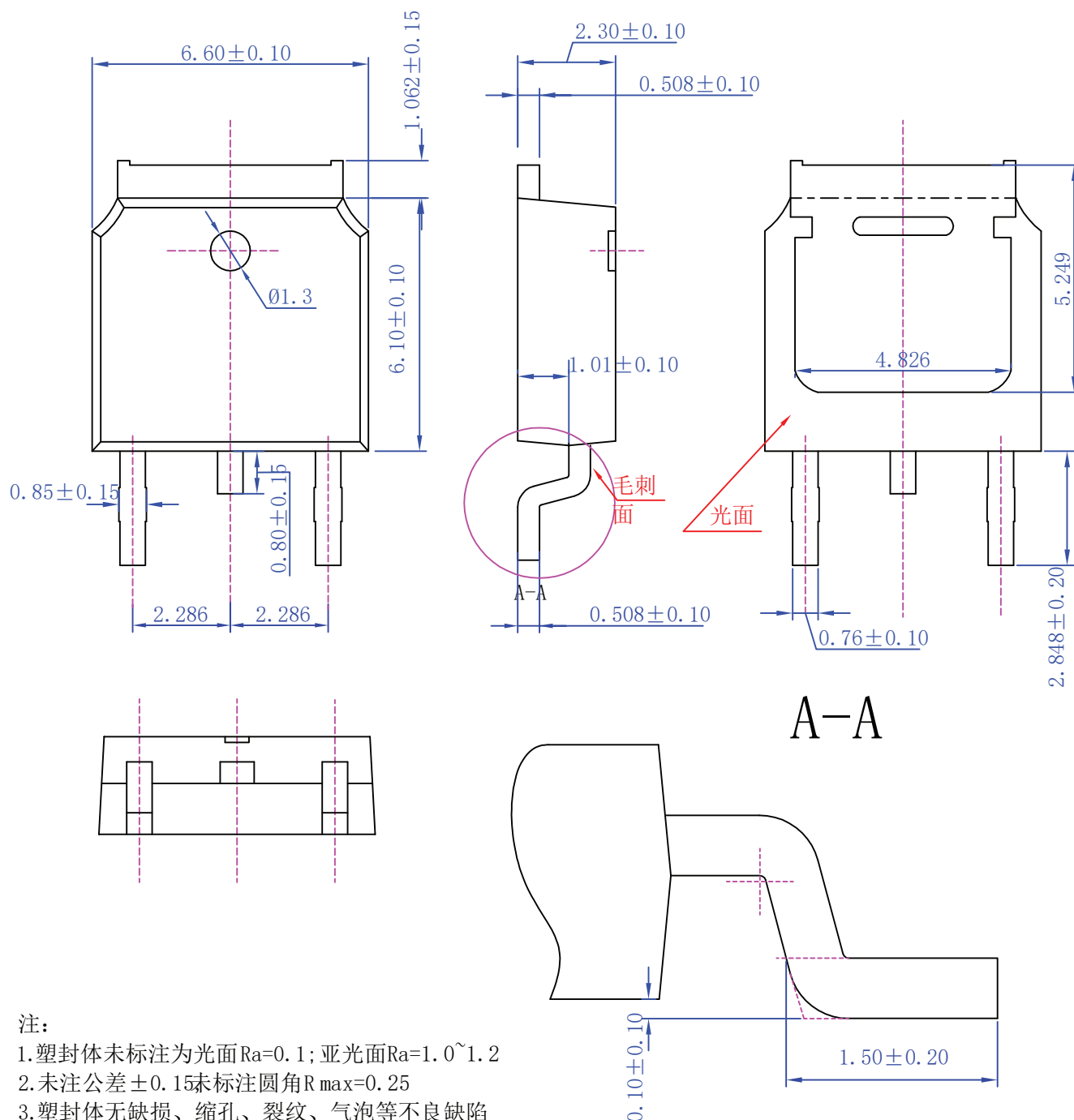
Typical Characteristics



Typical Characteristics



Unit :mm



1. 塑封体未标注为光面 $Ra=0.1$ ; 亚光面 $Ra=1.0 \sim 1.2$
2. 未注公差 $\pm 0.15$ 未标注圆角 $R_{\max}=0.25$
3. 塑封体无缺损、缩孔、裂纹、气泡等不良缺陷
4. 标注单位mm
5. 顶针孔不允许凸出塑封体表面

## Package Dimension

TO-251A

Unit :mm

