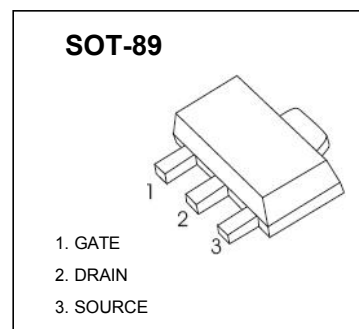


## Plastic-Encapsulate MOSFETS

N-Channel MOSFET

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | $I_D$ |
|---------------|-----------------|-------|
| 100 V         | 140mΩ@ 10V      | 3A    |



### DESCRIPTION

The CJA03N10 uses advanced trench technology and design to provide excellent  $R_{DS(ON)}$  with low gate charge. This device is suitable for use in a wide variety of applications.

### FEATURES

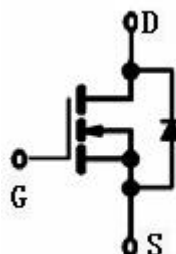
- Lead free product is acquired
- Special process technology for high ESD capability
- High density cell design for ultra low  $R_{DS(on)}$
- Good stability and uniformity with high  $E_{AS}$
- Excellent package for good heat dissipation

### APPLICATION

- Power switching application
- Hard switching and high frequency circuits
- Uninterruptible power supply

**MARKING:A03N10**

### Equivalent Circuit



**Maximum ratings ( $T_a=25^\circ\text{C}$  unless otherwise noted)**

| Parameter                                                     | Symbol          | Value    | Unit               |
|---------------------------------------------------------------|-----------------|----------|--------------------|
| Drain-Source Voltage                                          | $V_{DS}$        | 100      | V                  |
| Gate-Source Voltage                                           | $V_{GS}$        | $\pm 20$ | V                  |
| Continuous Drain Current                                      | $I_D$           | 3        | A                  |
| Pulsed Drain Current ( <b>note 1</b> )                        | $I_{DM}$        | 20       | A                  |
| Power Dissipation                                             | $P_D$           | 0.5      | W                  |
| Thermal Resistance from Junction to Ambient ( <b>note 2</b> ) | $R_{\theta JA}$ | 250      | $^\circ\text{C/W}$ |
| Junction Temperature                                          | $T_J$           | 150      | $^\circ\text{C}$   |
| Storage Temperature                                           | $T_{STG}$       | -55~+150 | $^\circ\text{C}$   |

## CBA03N10 MOSFET ELECTRICAL CHARACTERISTICS

$T_a=25\text{ }^{\circ}\text{C}$  unless otherwise specified

| Parameter                           | Symbol        | Test Condition                                                                   | Min | Typ  | Max       | Unit       |
|-------------------------------------|---------------|----------------------------------------------------------------------------------|-----|------|-----------|------------|
| STATIC CHARACTERISTICS              |               |                                                                                  |     |      |           |            |
| Drain-source breakdown voltage      | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$                                                    | 100 |      |           | V          |
| Zero gate voltage drain current     | $I_{DSS}$     | $V_{DS} = 100V, V_{GS} = 0V$                                                     |     |      | 1         | $\mu A$    |
| Gate-body leakage current           | $I_{GSS}$     | $V_{GS} = \pm 20V, V_{DS} = 0V$                                                  |     |      | $\pm 100$ | nA         |
| Gate threshold voltage (note 3)     | $V_{GS(th)}$  | $V_{DS} = V_{GS}, I_D = 250\mu A$                                                | 1   |      | 2         | V          |
| Drain-source on-resistance (note 3) | $R_{DS(on)}$  | $V_{GS} = 10V, I_D = 5A$                                                         |     |      | 140       | m $\Omega$ |
| Forward transconductance (note 3)   | $g_{FS}$      | $V_{DS} = 5V, I_D = 2.9A$                                                        | 3   |      |           | S          |
| Diode forward voltage (note 3)      | $V_{SD}$      | $I_S = 3A, V_{GS} = 0V$                                                          |     |      | 1.2       | V          |
| DYNAMIC CHARACTERISTICS (note 4)    |               |                                                                                  |     |      |           |            |
| Input capacitance                   | $C_{iss}$     | $V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$                                            |     | 690  |           | pF         |
| Output capacitance                  | $C_{oss}$     |                                                                                  |     | 120  |           | pF         |
| Reverse transfer capacitance        | $C_{rss}$     |                                                                                  |     | 90   |           | pF         |
| SWITCHING CHARACTERISTICS (note 4)  |               |                                                                                  |     |      |           |            |
| Turn-on delay time                  | $t_{d(on)}$   | $V_{GS} = 10V, V_{DS} = 30V,$<br>$R_{GEN} = 2.5\Omega, I_D = 2A, R_L = 15\Omega$ |     | 11   |           | ns         |
| Turn-on rise time                   | $t_r$         |                                                                                  |     | 7.4  |           | ns         |
| Turn-off delay time                 | $t_{d(off)}$  |                                                                                  |     | 35   |           | ns         |
| Turn-off fall time                  | $t_f$         |                                                                                  |     | 9.1  |           | ns         |
| Total gate charge                   | $Q_g$         | $V_{DS} = 30V, V_{GS} = 10V, I_D = 3A$                                           |     | 15.5 |           | nC         |
| Gate-source Charge                  | $Q_{gs}$      |                                                                                  |     | 3.2  |           | nC         |
| Gate-drain Charge                   | $Q_{gd}$      |                                                                                  |     | 4.7  |           | nC         |

### Notes :

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board ,  $t \leq 10s$ .
3. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to producing.

