

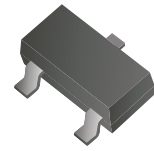
# CJ3400-HF (N-Channel )

**Reverse Voltage: 30 Volts**

**Forward Current: 5.8 A**

**RoHS Device**

**Halogen Free**



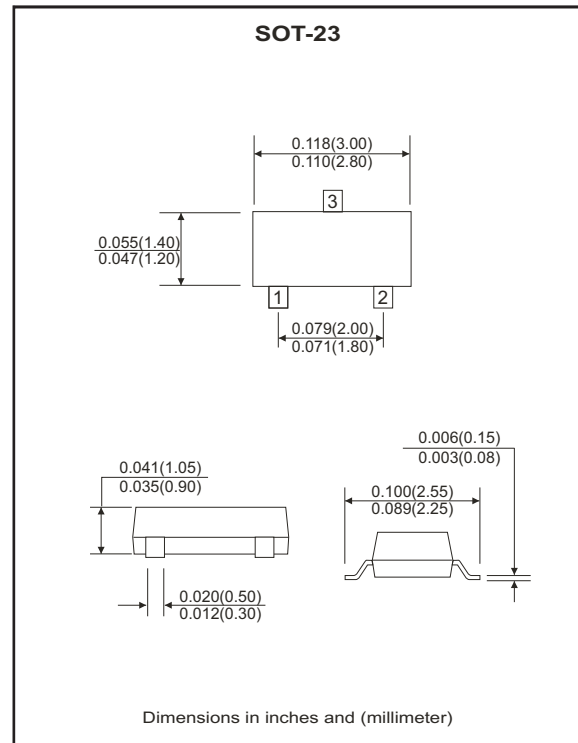
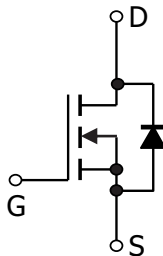
## Features

- N-Channel Enhancement mode field effect transistor.
- High dense cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability.

## Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.

## Circuit diagram



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

| Parameter                                            | Symbol          | Value       | Units              |
|------------------------------------------------------|-----------------|-------------|--------------------|
| Drain-source voltage                                 | $V_{DS}$        | 30          | V                  |
| Gate-source voltage                                  | $V_{GS}$        | $\pm 12$    | V                  |
| Continuous drain current                             | $I_D$           | 5.8         | A                  |
| Drain current-pulsed (note 1)                        | $I_{DM}$        | 30          | A                  |
| Power dissipation                                    | $P_D$           | 350         | mW                 |
| Thermal resistance from Junction to ambient (note 2) | $R_{\theta JA}$ | 357         | $^\circ\text{C/W}$ |
| Junction temperature                                 | $T_J$           | 150         | $^\circ\text{C}$   |
| Storage temperature                                  | $T_{STG}$       | -55 to +150 | $^\circ\text{C}$   |

## Electrical Characteristics (Ta=25 °C unless otherwise noted )

| Parameter                                              | Conditions                                               | Symbol        | Min. | Typ. | Max.      | Unit       |
|--------------------------------------------------------|----------------------------------------------------------|---------------|------|------|-----------|------------|
| Off Characteristics                                    |                                                          |               |      |      |           |            |
| Drain-Source breakdown voltage                         | $V_{GS}=0V, I_D=250\mu A$                                | $V_{(BR)DSS}$ | 30   |      |           | V          |
| Zero gate voltage drain current                        | $V_{DS}=24V, V_{GS}=0V$                                  | $I_{DSS}$     |      |      | 1         | $\mu A$    |
| Gate-Source leakage current                            | $V_{GS}=\pm 12V, V_{DS}=0V$                              | $I_{GSS}$     |      |      | $\pm 100$ | nA         |
| On Characteristics                                     |                                                          |               |      |      |           |            |
| Static drain-source on-resistance<br>(note 3)          | $V_{GS}=10V, I_D=5.8A$                                   | $R_{DS(ON)}$  |      |      | 35        | m $\Omega$ |
|                                                        | $V_{GS}=4.5V, I_D=5A$                                    |               |      |      | 40        |            |
|                                                        | $V_{GS}=2.5V, I_D=4A$                                    |               |      |      | 52        |            |
| Forward transconductance                               | $V_{DS}=5V, I_D=5A$                                      | $g_{FS}$      | 8    |      |           | S          |
| Gate threshold voltage                                 | $V_{DS}=V_{GS}, I_D=250\mu A$                            | $V_{GS(th)}$  | 0.7  |      | 1.4       | V          |
| Dynamic Characteristics (note 3,4)                     |                                                          |               |      |      |           |            |
| Input capacitance                                      | $V_{DS}=15V, V_{GS}=0V, f=1MHz$                          | $C_{iss}$     |      |      | 1050      | pF         |
| Output capacitance                                     |                                                          | $C_{oss}$     |      | 99   |           |            |
| Reverse transfer capacitance                           |                                                          | $C_{rss}$     |      | 77   |           |            |
| Gate resistance                                        | $V_{DS}=0V, V_{GS}=0V, f=1MHz$                           | $R_g$         |      |      | 3.6       | $\Omega$   |
| Switching Characteristics (note 3,4)                   |                                                          |               |      |      |           |            |
| Turn-on delay time                                     | $V_{GS}=10V, V_{DS}=15V, R_L=2.7\Omega, R_{GEN}=3\Omega$ | $t_{d(on)}$   |      |      | 5         | ns         |
| Turn-on rise time                                      |                                                          | $t_r$         |      |      | 7         |            |
| Turn-off delay time                                    |                                                          | $t_{d(off)}$  |      |      | 40        |            |
| Turn-off Fall time                                     |                                                          | $t_f$         |      |      | 6         |            |
| Drain-source diode characteristics and maximum ratings |                                                          |               |      |      |           |            |
| Diode forward voltage (note 3)                         | $I_S=1A, V_{GS}=0V$                                      | $V_{SD}$      |      |      | 1         | V          |

Note:

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface mounted on FR4 Board,  $t < 5sec$ .
3. Pulse test; Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to production testing.

## RATING AND CHARACTERISTIC CURVES (CJ3400-HF)

Fig.1- Output Characteristics

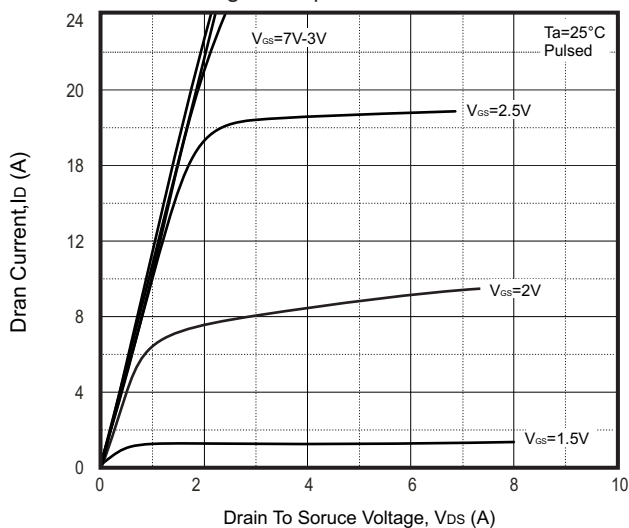


Fig.2- Transfer Characteristics

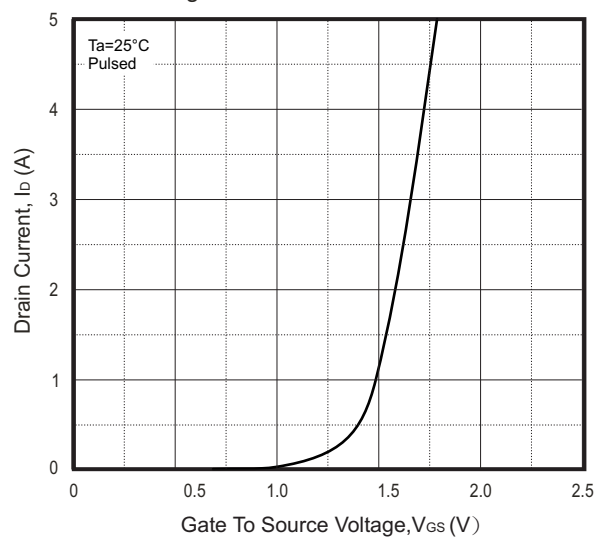


Fig.3 -  $R_{DS(ON)}$  —  $I_D$

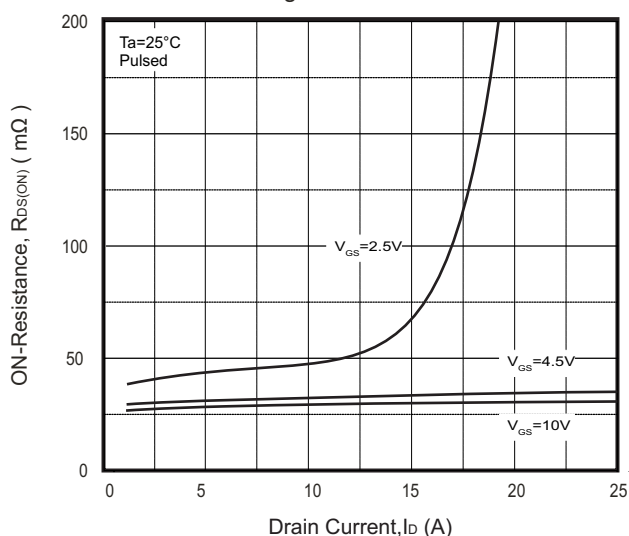


Fig.4-  $R_{DS(ON)}$  —  $V_{GS}$

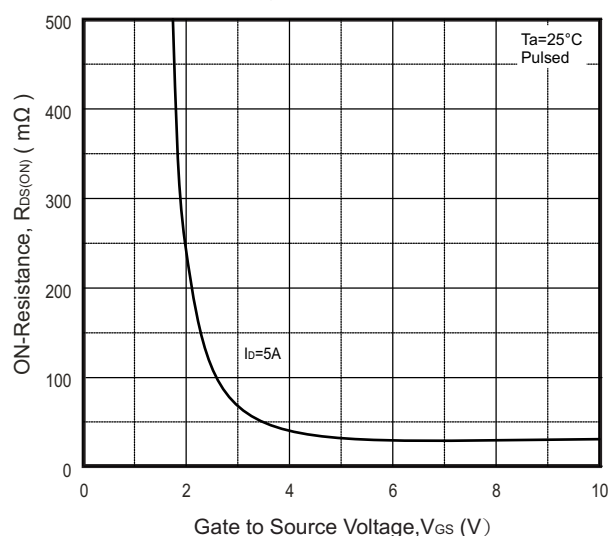
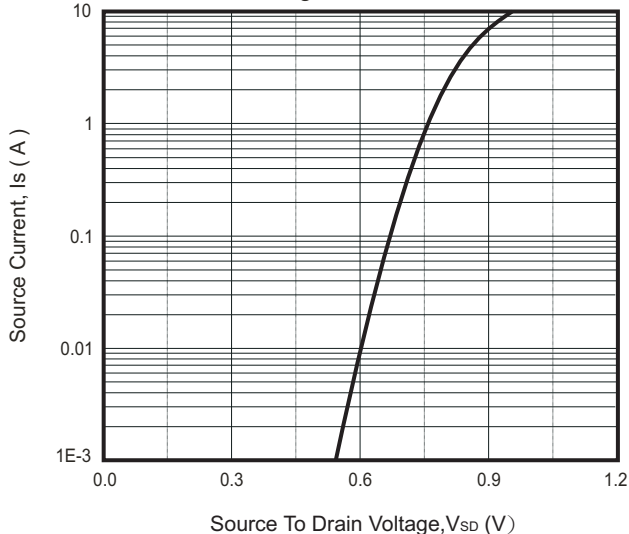


Fig.5 -  $I_S$  —  $V_{SD}$



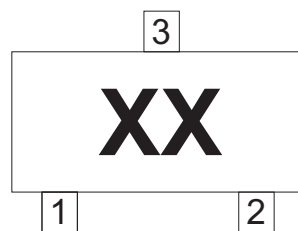
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REV:A

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## Marking Code

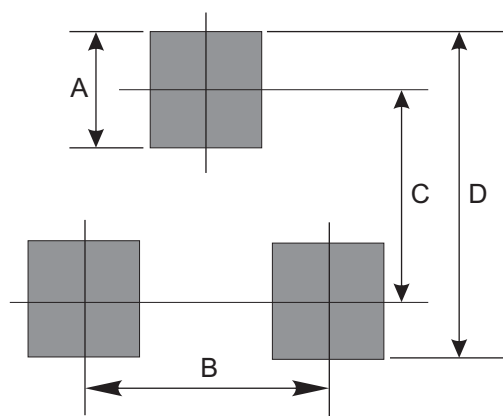
| Part Number | Marking Code |
|-------------|--------------|
| CJ3400-HF   | R0           |



xx = Product type marking code

## Suggested PAD Layout

| SIZE | SOT-23 |        |
|------|--------|--------|
|      | (mm)   | (inch) |
| A    | 0.80   | 0.031  |
| B    | 1.90   | 0.075  |
| C    | 2.02   | 0.080  |
| D    | 2.82   | 0.111  |



## Standard Packaging

| Case Type | Qty Per Reel | Reel Size |
|-----------|--------------|-----------|
|           | (Pcs)        | (inch)    |
| SOT-23    | 3,000        | 7         |