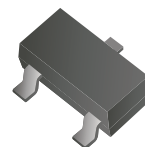
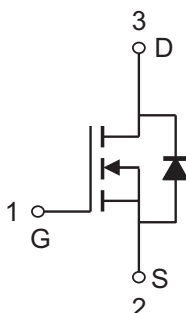


# CJ3404-HF

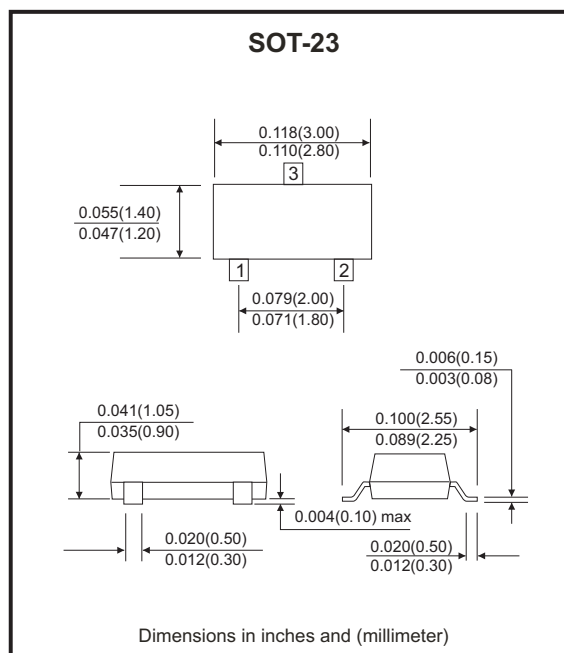
N-Channel  
RoHS Device  
Halogen Free



## Circuit diagram



| V(BR)DSS | RDS(on) MAX | Id   |
|----------|-------------|------|
| 30V      | 30mΩ @ 10V  | 5.8A |
|          | 42mΩ @ 4.5V |      |



## Maximum Ratings and Electrical Characteristics

(at Ta=25 °C unless otherwise noted)

| Parameter                                          | Symbol           | Value       | Units |
|----------------------------------------------------|------------------|-------------|-------|
| Drain-source voltage                               | V <sub>DS</sub>  | 30          | V     |
| Gate-source voltage                                | V <sub>GS</sub>  | ±20         | V     |
| Continuous drain current                           | I <sub>D</sub>   | 5.8         | A     |
| Pulsed drain current (Note 1)                      | I <sub>DM</sub>  | 30          | A     |
| Power dissipation                                  | P <sub>D</sub>   | 350         | mW    |
| Thermal resistance from Junction to ambient (t<5s) | RθJA             | 357         | °C/W  |
| Junction temperature                               | T <sub>J</sub>   | 150         | °C    |
| Storage temperature                                | T <sub>STG</sub> | -55 to +150 | °C    |

Note:

1. Repetitive rating: Pulse width limited by maximum junction temperature.

Company reserves the right to improve product design , functions and reliability without notice.

REV: B

**Electrical Characteristics** (at TA=25°C unless otherwise noted)

| Parameter                            | Symbol         | Conditions                                                         | Min | Typ  | Max       | Units      |
|--------------------------------------|----------------|--------------------------------------------------------------------|-----|------|-----------|------------|
| <b>Static Parameters</b>             |                |                                                                    |     |      |           |            |
| Drain-source breakdown voltage       | $V_{(BR) DSS}$ | $V_{GS}=0V$ , $I_D=250\mu A$                                       | 30  |      |           | V          |
| Zero gate voltage drain current      | $I_{DSS}$      | $V_{DS}=30V$ , $V_{GS}=0V$                                         |     |      | 1         | $\mu A$    |
| Gate-body leakage current            | $I_{GSS}$      | $V_{DS}=0V$ , $V_{GS}=\pm 20V$                                     |     |      | $\pm 100$ | nA         |
| Gate threshold voltage               | $V_{GS(th)}$   | $V_{DS}=V_{GS}$ , $I_D=250\mu A$                                   | 1   | 1.4  | 3         | V          |
| Drain-source on-resistance (Note 1)  | $R_{DS(on)}$   | $V_{GS}=10V$ , $I_D=5.8A$                                          |     | 23   | 30        | m $\Omega$ |
|                                      |                | $V_{GS}=4.5V$ , $I_D=4.8A$                                         |     | 31   | 42        |            |
| Forward transconductance (Note 1)    | $g_{fs}$       | $V_{DS}=5V$ , $I_D=5.8A$                                           | 5   |      |           | S          |
| Diode forward voltage                | $V_{SD}$       | $I_S = 1A$                                                         |     |      | 1         | V          |
| <b>Dynamic Parameters (Note 2)</b>   |                |                                                                    |     |      |           |            |
| Input capacitance                    | $C_{iss}$      | $V_{DS}=15V$ , $V_{GS}=0V$ ,<br>$f=1MHz$                           |     |      | 820       | pF         |
| Output capacitance                   | $C_{oss}$      |                                                                    |     | 118  |           |            |
| Reverse transfer capacitance         | $C_{rss}$      |                                                                    |     | 85   |           |            |
| Gate resistance                      | $G_g$          | $V_{DS}=0V$ , $V_{GS}=0V$ , $f=1MHz$                               |     |      | 1.5       | $\Omega$   |
| <b>Switching Parameters (Note 2)</b> |                |                                                                    |     |      |           |            |
| Turn-on delay time                   | $t_{d(on)}$    | $V_{GS}=10V$ , $V_{DS}=15V$<br>$R_L=2.6\Omega$ , $R_{GEN}=3\Omega$ |     |      | 6.5       | nS         |
| Rise time                            | $t_r$          |                                                                    |     | 3.1  |           |            |
| Turn-off delay time                  | $t_{d(off)}$   |                                                                    |     | 15.1 |           |            |
| Fall time                            | $t_f$          |                                                                    |     | 2.7  |           |            |

Note:

1. Pulse test: Pulse width $\leq 300\mu s$ , Duty cycle $\leq 0.5\%$ .
2. These parameters have no way to verify.

## RATING AND CHARACTERISTIC CURVES (CJ3404-HF)

Fig.1 - Output Characteristics

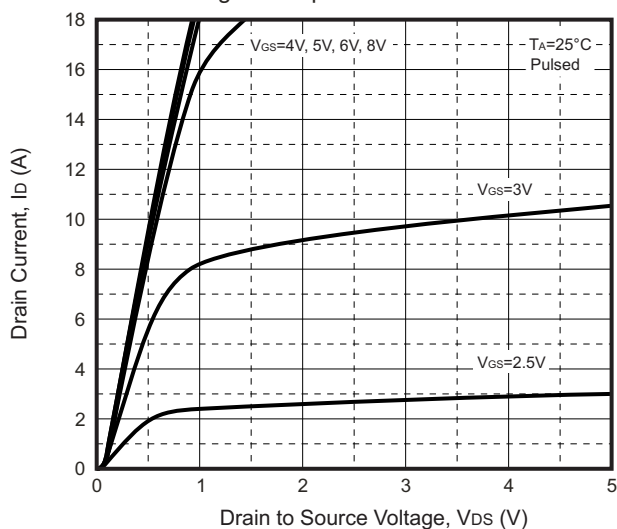


Fig.2 - Transfer Characteristics

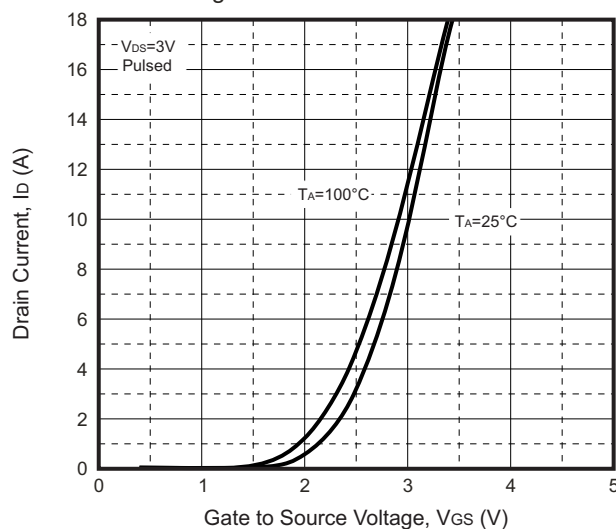


Fig.3 -  $R_{DS(ON)}$  —  $I_D$

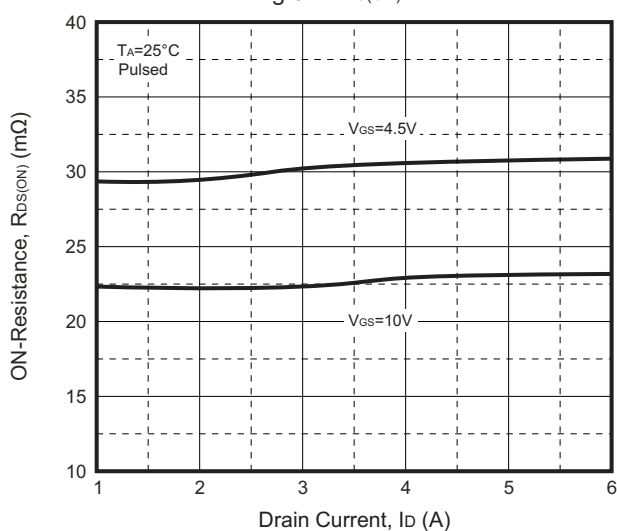


Fig.4 -  $R_{DS(ON)}$  —  $V_{GS}$

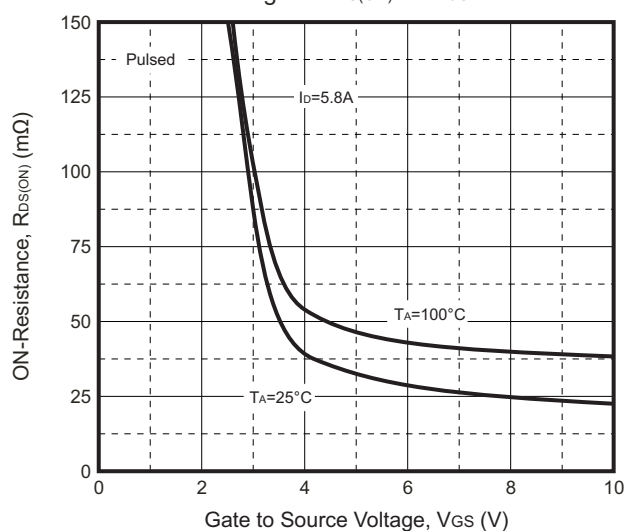


Fig.5 -  $I_S$  —  $V_{SD}$

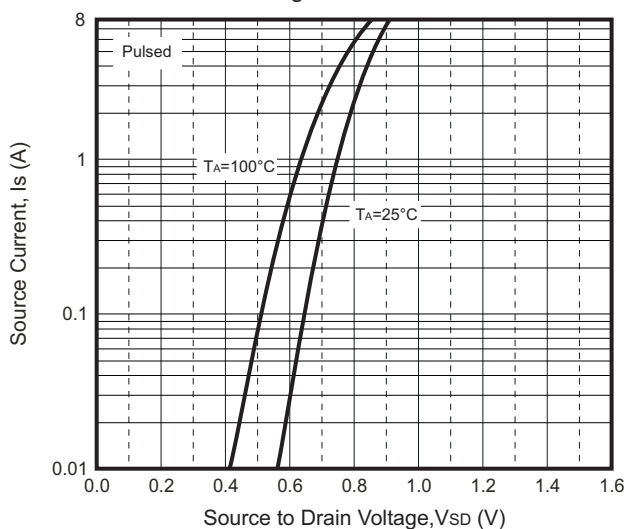
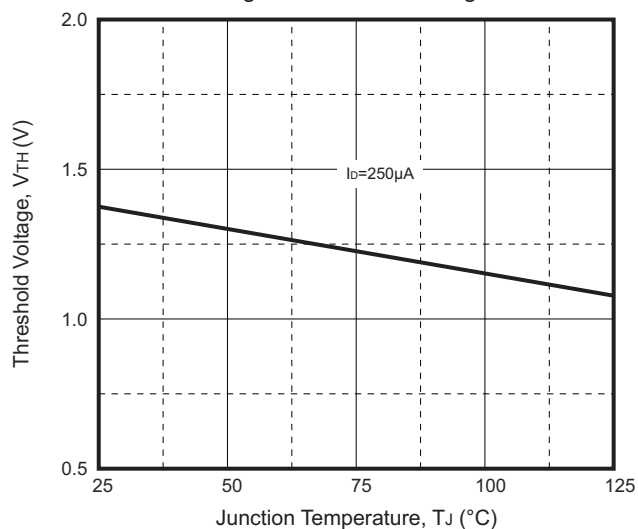


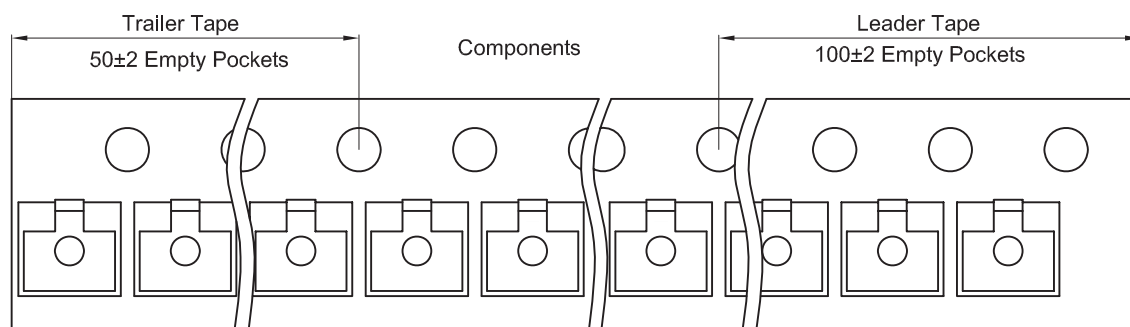
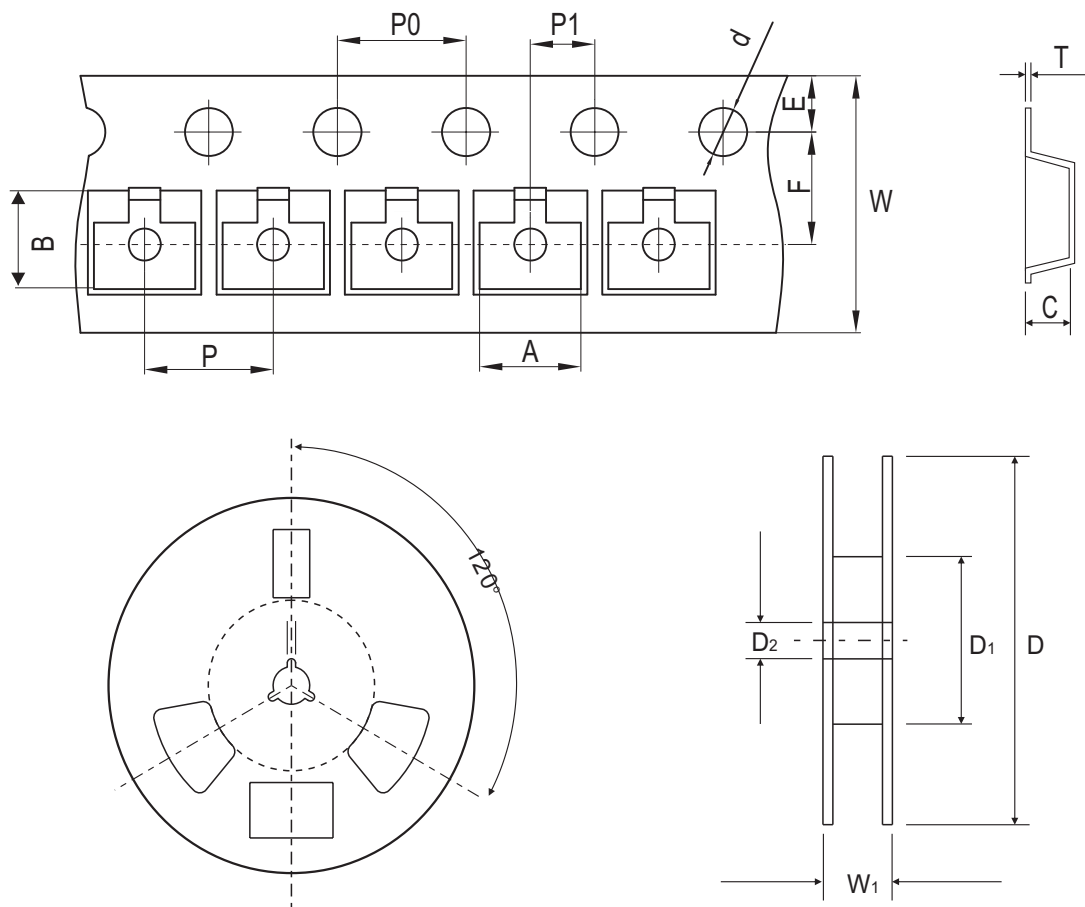
Fig.6 - Threshold Voltage



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REV: B

## Reel Taping Specification



| SOT-23 | SYMBOL | A                 | B                 | C                 | d                 | D                 | D1                | D2                |
|--------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|        | (mm)   | $3.15 \pm 0.10$   | $2.77 \pm 0.10$   | $1.22 \pm 0.10$   | $1.50 \pm 0.10$   | $178.00 \pm 2.00$ | $54.40 \pm 1.00$  | $13.00 \pm 1.00$  |
|        | (inch) | $0.124 \pm 0.004$ | $0.109 \pm 0.004$ | $0.048 \pm 0.004$ | $0.059 \pm 0.004$ | $7.087 \pm 0.079$ | $2.142 \pm 0.039$ | $0.512 \pm 0.039$ |

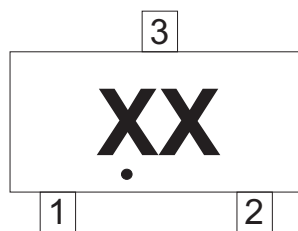
| SOT-23 | SYMBOL | E                 | F                 | P                 | P0                | P1                | W                         | W1                |
|--------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------|-------------------|
|        | (mm)   | $1.75 \pm 0.10$   | $3.50 \pm 0.10$   | $4.00 \pm 0.10$   | $4.00 \pm 0.10$   | $2.00 \pm 0.10$   | $8.00 + 0.30 / - 0.10$    | $12.30 \pm 1.00$  |
|        | (inch) | $0.069 \pm 0.004$ | $0.138 \pm 0.004$ | $0.157 \pm 0.004$ | $0.157 \pm 0.004$ | $0.079 \pm 0.004$ | $0.315 + 0.012 / - 0.004$ | $0.484 \pm 0.039$ |

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REV: B

## Marking Code

| Part Number | Marking Code |
|-------------|--------------|
| CJ3404-HF   | R4           |



**xx = Product type marking code**

**Solid dot “.” = Halogen Free**

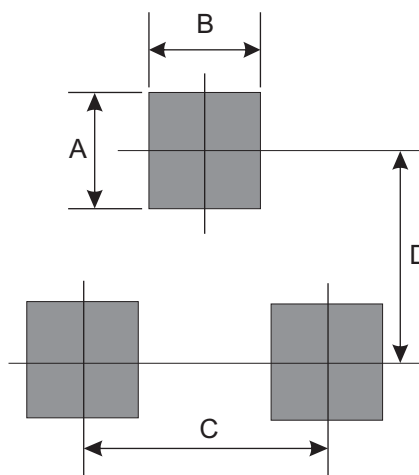
## Suggested PAD Layout

| SIZE | SOT-23 |        |
|------|--------|--------|
|      | (mm)   | (inch) |
| A    | 0.80   | 0.031  |
| B    | 0.60   | 0.024  |
| C    | 1.90   | 0.075  |
| D    | 2.02   | 0.080  |

Note:

1.General tolerance:  $\pm 0.05\text{mm}$ .

2.The pad layout is for reference purposes only.



## Standard Packaging

| Case Type | REEL PACK       |                     |
|-----------|-----------------|---------------------|
|           | REEL<br>( pcs ) | Reel Size<br>(inch) |
| SOT-23    | 3,000           | 7                   |