

# CS625N3A

## 主要参数 MAIN CHARACTERISTICS

|                   |      |
|-------------------|------|
| $I_T(\text{RMS})$ | 6A   |
| $V_{\text{DRM}}$  | 800V |
| $I_{\text{GT}}$   | 35mA |

## 用途

- 交流开关
- 相位控制

## APPLICATIONS

- AC switching
- Phase control

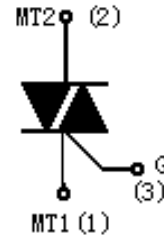
## 产品特性

- 玻璃钝化芯片，高可靠性和一致性
- 三象限可控硅，触发电流的一致性
- 环保 RoHS 产品

## FEATURES

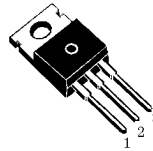
- Glass-passivated mesa chip for reliability and uniform
- Uniform gate trigger currents in three quadrants
- RoHS products

## 封装 Package

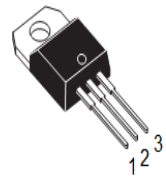


| 序号<br>Pin | 引线名称<br>Description |
|-----------|---------------------|
| 1         | 主电极 1 MT1           |
| 2         | 主电极 2 MT2           |
| 3         | 门极 G                |

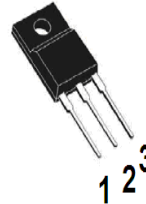
### T0-220C



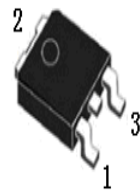
### T0-220S



### T0-220MF-K1



### DPAK



### IPAK





## 订货信息 ORDER MESSAGES

| 订 货 型 号 Order codes |                   |               |                  | 印 记<br>Marking | 封 装<br>Package |
|---------------------|-------------------|---------------|------------------|----------------|----------------|
| 有卤-编带               | 无卤-编带             | N/A           | N/A              |                |                |
| Halogen-Reel        | Halogen-Free-Reel | N/A           | N/A              |                |                |
| CS625N3A-R-A        | CS625N3A-R-AR     | N/A           | N/A              | CS625N3A       | DPAK           |
| 有卤-条管               | 无卤-条管             | 有卤-袋装         | 无卤-袋装            | CS625N3A       | IPAK           |
| Halogen-Tube        | Halogen-Free-Tube | Halogen- Bag  | Halogen-Free-Bag |                |                |
| CS625N3A-V-B        | CS625N3A-V-BR     | CS625N3A-V-C  | CS625N3A-V-CR    |                |                |
| 有卤-条管               | 无卤-条管             | 有卤-袋装         | 无卤-袋装            | CS625N3A       | TO-220C        |
| Halogen-Tube        | Halogen-Free-Tube | Halogen- Bag  | Halogen-Free-Bag |                |                |
| CS625N3A-C-B        | CS625N3A-C-BR     | CS625N3A-C-C  | CS625N3A-C-CR    |                |                |
| 有卤-条管               | 无卤-条管             | 有卤-袋装         | 无卤-袋装            | CS625N3A       | TO-220S        |
| Halogen-Tube        | Halogen-Free-Tube | Halogen- Bag  | Halogen-Free-Bag |                |                |
| CS625N3A-CB-B       | CS625N3A-CB-BR    | CS625N3A-CB-C | CS625N3A-CB-CR   |                |                |
| 有卤-条管               | 无卤-条管             | 有卤-袋装         | 无卤-袋装            | CS625N3A       | TO-220MF-K1    |
| Halogen-Tube        | Halogen-Free-Tube | Halogen- Bag  | Halogen-Free-Bag |                |                |
| CS625N3A-F1-B       | CS625N3A-F1-BR    | CS625N3A-F1-C | CS625N3A-F1-CR   |                |                |



绝对最大额定值 ABSOLUTE RATINGS ( $T_c=25^{\circ}\text{C}$ )

| 项 目<br>Parameter                                                       | 符 号<br>Symbol       | 试 验 条 件<br>Condition                                                                                   | 数 值<br>Value | 单 位 Unit               |
|------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------|--------------|------------------------|
| 重复峰值断态电压<br>Repetitive peak off-state voltage                          | $V_{\text{DRM}}$    |                                                                                                        | $\pm 800$    | V                      |
| 通态方均根电流 On-state RMS current                                           | $I_{\text{T(RMS)}}$ | full sine wave                                                                                         | 6            | A                      |
| 非重复浪涌峰值通态电流 Non-repetitive surge peak on-state current                 | $I_{\text{TSM}}$    | full sine wave , $t=20\text{ms}$                                                                       | 65           | A                      |
|                                                                        |                     | full sine wave , $t=16.7\text{ms}$                                                                     | 71           | A                      |
|                                                                        |                     | $I^2t$ $t=10\text{ms}$                                                                                 | 21           | $\text{A}^2\text{s}$   |
| 通态电流临界上升率 Repetitive rate of rise of on-state current after triggering | $di/dt$             | $I_{\text{TM}}=6\text{A}$ , $I_{\text{G}}=0.2\text{A}$ ,<br>$di_{\text{G}}/dt=0.2\text{A}/\mu\text{s}$ | 50           | $\text{A}/\mu\text{s}$ |
| 峰值门极电流 Peak gate current                                               | $I_{\text{GM}}$     |                                                                                                        | 2            | A                      |
| 峰值门极电压 Peak gate voltage                                               | $V_{\text{GM}}$     |                                                                                                        | 5            | V                      |
| 峰值门极功率 Peak gate power                                                 | $P_{\text{GM}}$     |                                                                                                        | 5            | W                      |
| 平均门极功率 Average gate power                                              | $P_{\text{G(AV)}}$  | over any 20ms period                                                                                   | 0.5          | W                      |
| 存储温度 Storage temperature                                               | $T_{\text{stg}}$    |                                                                                                        | -40~150      | $^{\circ}\text{C}$     |
| 操作结温 Operation junction temperature                                    | $T_{\text{VJ}}$     |                                                                                                        | 125          | $^{\circ}\text{C}$     |



电特性 ELECTRICAL CHARACTERISTIC (T<sub>c</sub>=25°C)

| 项 目<br>Parameter                             | 符 号<br>Symbol    | 测 试 条 件<br>Condition                                                                                            |                    | 最小<br>Min | 典型<br>Typ | 最大<br>Max | 单位 Unit |
|----------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------|--------------------|-----------|-----------|-----------|---------|
| 峰值重复断态电流<br>Peak Repetitive Blocking Current | I <sub>DRM</sub> | V <sub>DM</sub> =800V, T <sub>j</sub> =125℃, gate open                                                          |                    | -         | -         | 0.5       | mA      |
| 峰值通态电压<br>Peak on-state voltage              | V <sub>TM</sub>  | I <sub>TM</sub> =8A                                                                                             |                    | -         | 1.35      | 1.65      | V       |
| 门极触发电流<br>Gate trigger current               | I <sub>GT</sub>  | V <sub>DM</sub> =12V, R <sub>L</sub> =100 Ω                                                                     | MT1(-),MT2(+),G(+) | -         | -         | 35        | mA      |
|                                              |                  |                                                                                                                 | MT1(-),MT2(+),G(-) | -         | -         | 35        | mA      |
|                                              |                  |                                                                                                                 | MT1(+),MT2(-),G(-) | -         | -         | 35        | mA      |
| 门极触发电压<br>Gate trigger voltage               | V <sub>GT</sub>  | V <sub>DM</sub> =12V, R <sub>L</sub> =100 Ω                                                                     | MT1(-),MT2(+),G(+) | -         | 0.7       | 1.5       | V       |
|                                              |                  |                                                                                                                 | MT1(-),MT2(+),G(-) | -         | 0.7       | 1.5       | V       |
|                                              |                  |                                                                                                                 | MT1(+),MT2(-),G(-) | -         | 0.7       | 1.5       | V       |
| 维持电流<br>Holding current                      | I <sub>H</sub>   | V <sub>DM</sub> =12V, I <sub>GT</sub> =0.1A                                                                     |                    | -         | -         | 50        | mA      |
| 擎住电流<br>Latching current                     | I <sub>L</sub>   | V <sub>DM</sub> =12V, I <sub>GT</sub> =0.1A                                                                     | MT1(-),MT2(+),G(+) | -         | -         | 80        | mA      |
|                                              |                  |                                                                                                                 | MT1(-),MT2(+),G(-) | -         | -         | 80        | mA      |
|                                              |                  |                                                                                                                 | MT1(+),MT2(-),G(-) | -         | -         | 80        | mA      |
| 断态临界电压上升率<br>Rise of off- state voltage      | dV/dt            | V <sub>DM</sub> =67% V <sub>DRM(MAX)</sub> , T <sub>j</sub> =125℃, gate open                                    |                    | 10        | -         | -         | V/ μ s  |
| 门极开通时间 Gate controlled turn-on time          | tgt              | I <sub>TM</sub> =6A, V <sub>DM</sub> =V <sub>DRM(MAX)</sub> , I <sub>G</sub> =0.1A, dI <sub>G</sub> /dt=5A/ μ S |                    | -         | 2         | -         | μ s     |

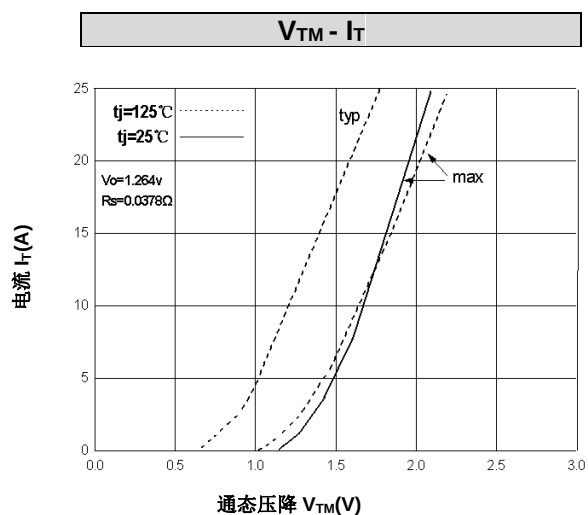
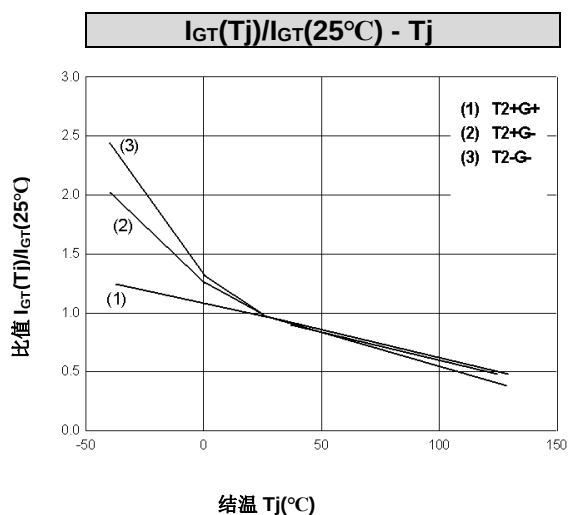
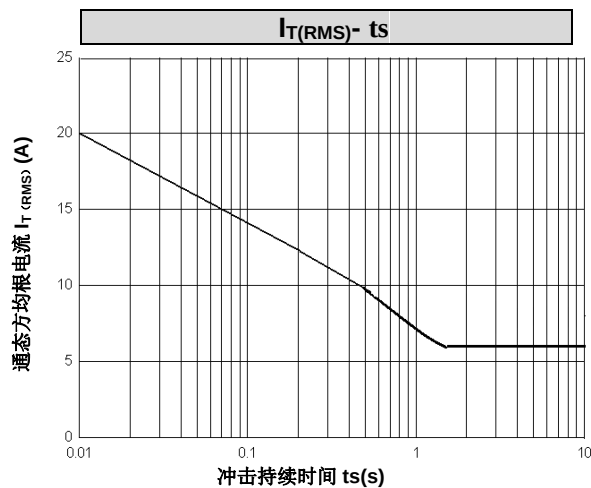
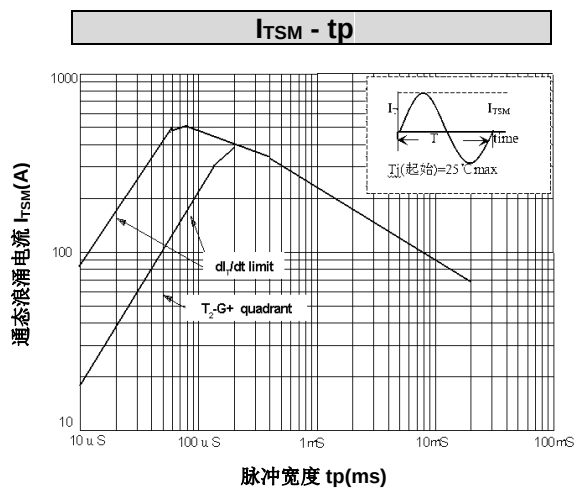
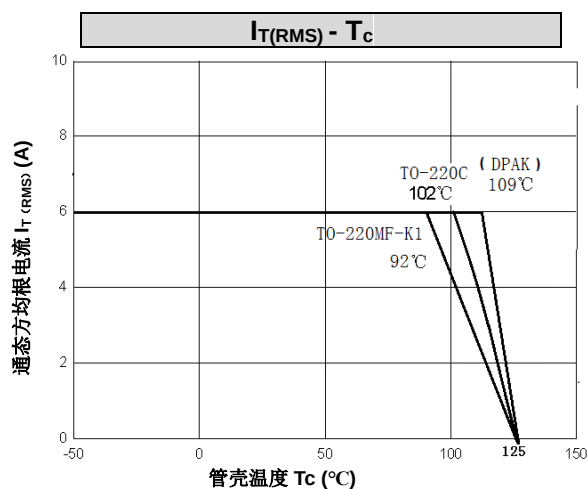
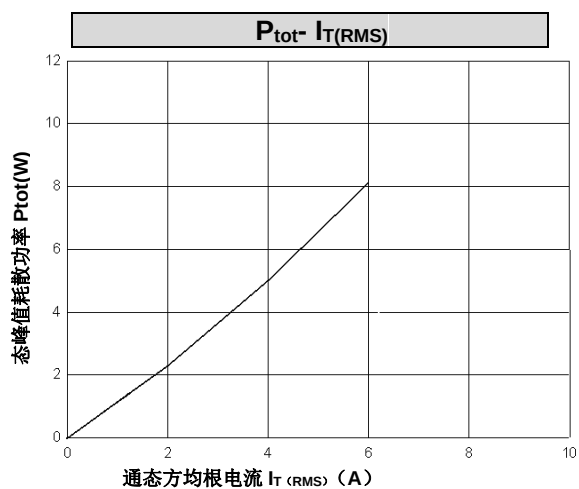
## 热特性 THERMAL CHARACTERISTIC

| 项 目<br>Parameter                                        | 符 号<br>Symbol        | 条 件<br>Condition            | 最小<br>Min | 典型<br>Typ | 最大<br>Max | 单位 Unit |
|---------------------------------------------------------|----------------------|-----------------------------|-----------|-----------|-----------|---------|
| 结 到 管 壳 的 热 阻<br>Thermal resistance<br>junction to case | R <sub>th(j-c)</sub> | full cycle(DPAK\IPAK)       |           |           | 2.0       | °C/W    |
|                                                         |                      | full cycle(TO-220S\TO-220C) |           |           | 2.8       | °C/W    |
|                                                         |                      | full cycle(TO-220MF-K1)     |           |           | 4.1       | °C/W    |





## 特征曲线 ELECTRICAL CHARACTERISTICS (curves)

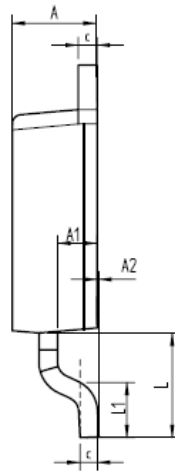
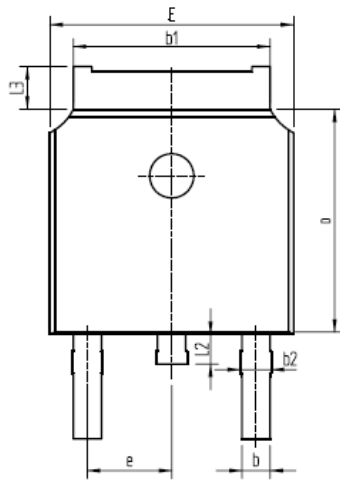




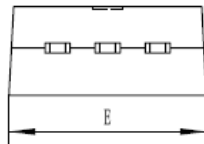
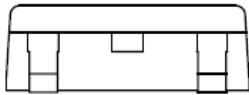
## 外形尺寸 PACKAGE MECHANICAL DATA

DPAK

单位 Unit : mm



| SYMBOL | mm       |      |
|--------|----------|------|
|        | MIN      | MAX  |
| A      | 2.16     | 2.41 |
| A1     | 0.97     | 1.17 |
| A2     | 0.00     | 0.15 |
| b      | 0.63     | 0.93 |
| b1     | 5.13     | 5.53 |
| b2     | 0.66     | 0.96 |
| c      | 0.40     | 0.60 |
| D      | 5.80     | 6.40 |
| E      | 6.30     | 6.90 |
| e      | 2.286BSC |      |
| L      | 2.50     | 3.30 |
| L1     | 1.20     | 1.80 |
| L2     | 0.60     | 1.00 |
| L3     | 0.85     | 1.30 |

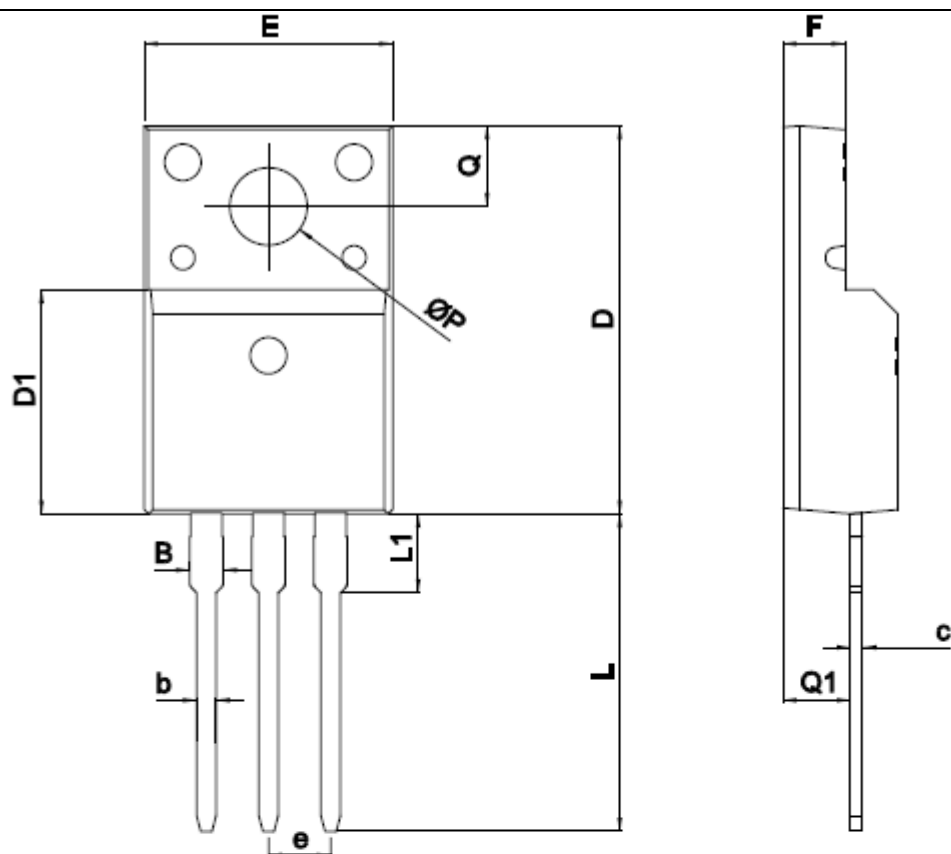




TO-220MF-K1

CS625N3A

单位 Unit : mm



| SYMBOL | mm       |      |
|--------|----------|------|
|        | MIN      | MAX  |
| A      | 4.5      | 4.9  |
| B      | 1.22     | 1.47 |
| b      | 0.7      | 0.9  |
| c      | 0.45     | 0.60 |
| D      | 15.6     | 16.1 |
| D1     | 9.0      | 9.3  |
| e      | 2.54TYPE |      |
| E      | 9.9      | 10.4 |
| F      | 2.3      | 2.8  |
| L      | 12.6     | 13.3 |
| L1     | 3.1      | 3.4  |
| Q      | 3.2      | 3.4  |
| Q1     | 2.6      | 2.9  |
| ΦP     | 3.0      | 3.5  |

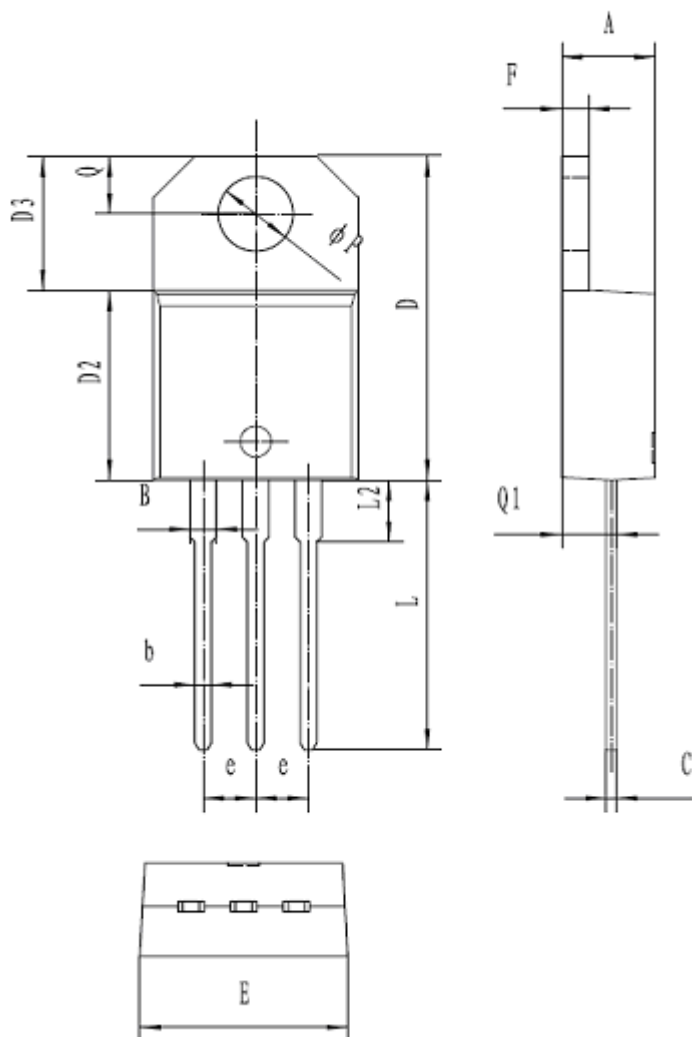




TO-220S

CS625N3A

单位 Unit : mm



| 符号<br>symbol | MIN       | MAX   |
|--------------|-----------|-------|
| A            | 4.40      | 4.60  |
| B            | 1.14      | 1.70  |
| b            | 0.61      | 0.88  |
| C            | 0.47      | 0.70  |
| D            | 15.20     | 15.90 |
| D2           | 8.60      | 9.70  |
| D3           | 6.20      | 6.60  |
| E            | 10.00     | 10.40 |
| e            | 2.40      | 2.70  |
| F            | 1.23      | 1.32  |
| L            | 13.00     | 14.00 |
| L2           | typ. 3.75 |       |
| Q            | 2.65      | 2.95  |
| Q1           | 2.89      | 3.42  |
| P            | 3.72      | 3.85  |



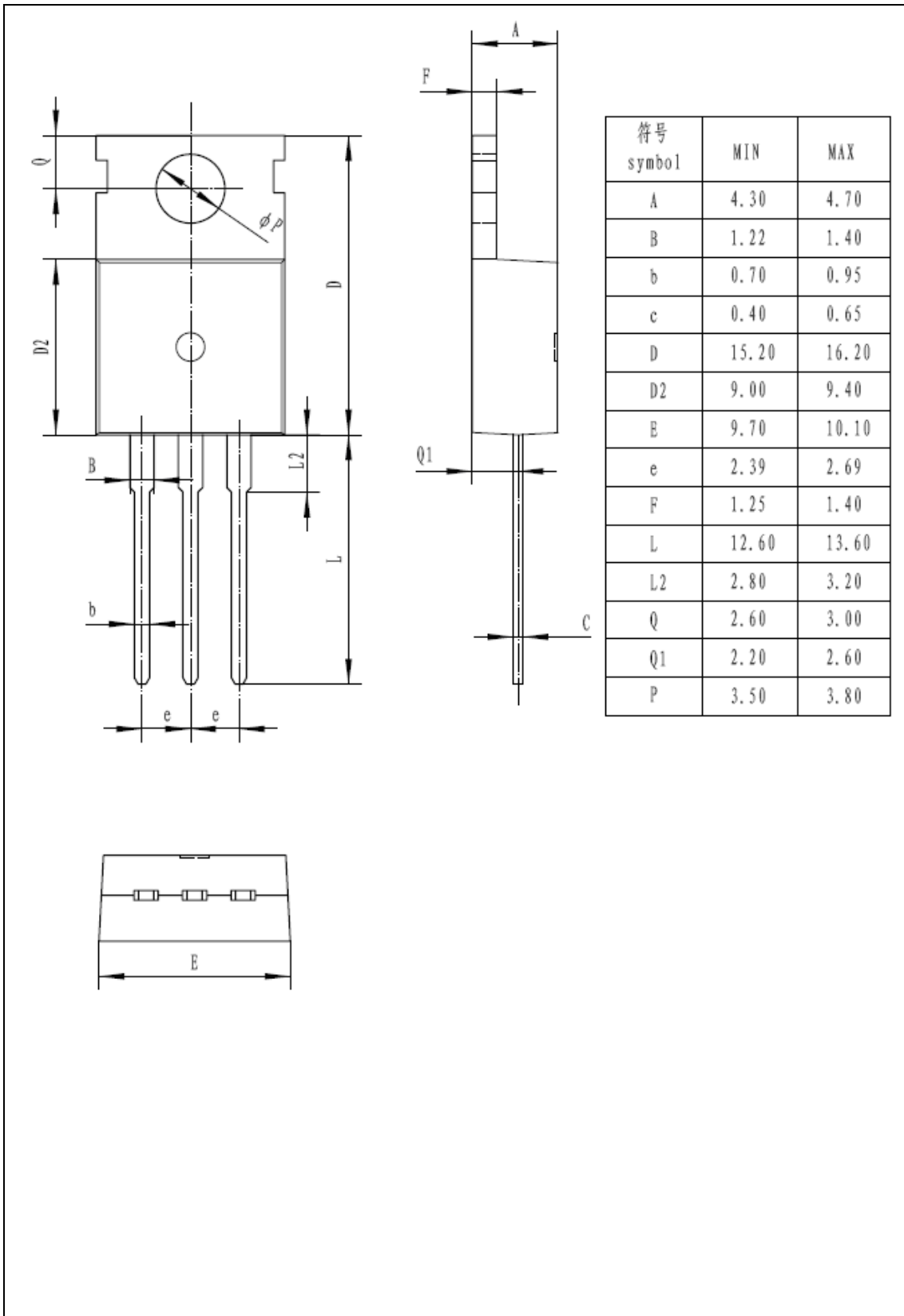




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-220C

单位 Unit : mm

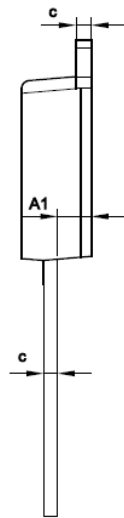
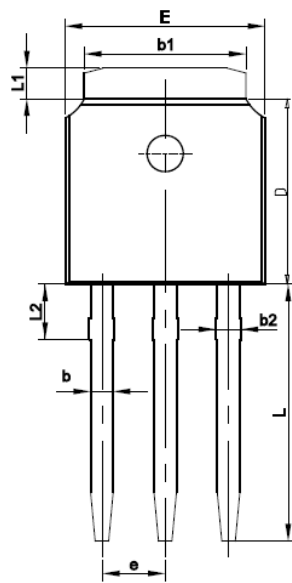




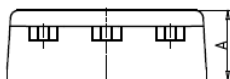
IPAK

CS625N3A

单位 Unit : mm



| SYMBOL | MM       |      |
|--------|----------|------|
|        | MIN      | MAX  |
| A      | 2.10     | 2.50 |
| A1     | 0.87     | 1.27 |
| b      | 0.63     | 0.93 |
| b1     | 5.13     | 5.53 |
| b2     | 0.67     | 1.00 |
| c      | 0.40     | 0.60 |
| D      | 5.80     | 6.40 |
| E      | 6.30     | 6.90 |
| L      | 9.10     | 9.70 |
| e      | 2.286BSC |      |
| L1     | 0.82     | 1.22 |
| L2     | 0.90     | 1.20 |



**注意事项**

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2. 购买时请认清公司商标，如有疑问请与公司本部联系。
3. 在电路设计时请不要超过器件的绝对最大额定值，否则会影响整机的可靠性。
4. 本说明书如有版本变更不另外告知

**NOTE**

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2. We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
4. Jilin Sino-microelectronics co., Ltd reserves the right to make changes in this specification sheet and is subject to change without prior notice.

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