



# 3TT8Z/C/J/F/U/S/E/F1

## 主要参数 MAIN CHARACTERISTICS

|              |              |
|--------------|--------------|
| $I_{T(RMS)}$ | 8A           |
| $V_{DRM}$    | 600V or 800V |
| $I_{GT}$     | 35mA         |

## 用途

- 交流开关
- 相位控制

## 产品特性

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

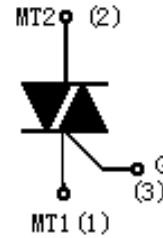
## APPLICATIONS

- AC switching
- Phase control

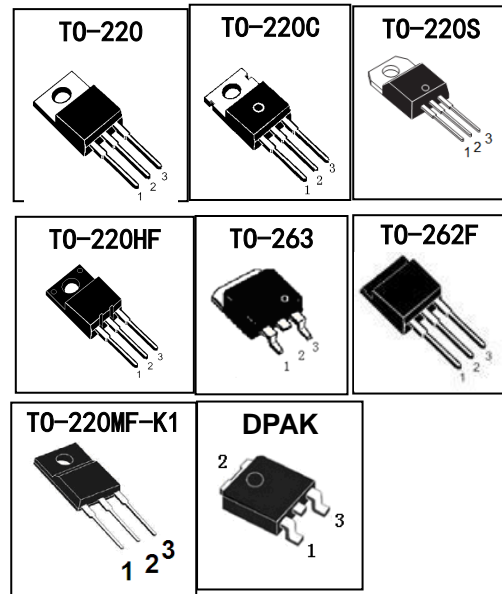
## FEATURES

- 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                |



## 订货信息 ORDER MESSAGES

| 订货型号 Order codes |                  |              |                   | 订货型号<br>Order codes | 订货型号<br>Order codes |
|------------------|------------------|--------------|-------------------|---------------------|---------------------|
| 有卤-袋装            | 无卤-袋装            | 有卤-条管        | 无卤-条管             | 3TT8Z               | TO-220              |
| Halogen-Bag      | Halogen-Free-Bag | Halogen-Tube | Halogen-Free-Tube |                     |                     |
| 3TT8Z-CA-C       | 3TT8Z-CA-CR      | 3TT8Z-CA-B   | 3TT8Z-CA-BR       |                     |                     |
| 有卤-袋装            | 无卤-袋装            | 有卤-条管        | 无卤-条管             | 3TT8C               | TO-220C             |
| Halogen-Bag      | Halogen-Free-Bag | Halogen-Tube | Halogen-Free-Tube |                     |                     |
| 3TT8C-CA-C       | 3TT8C-CA-CR      | 3TT8C-CA-B   | 3TT8C-CA-BR       |                     |                     |
| 有卤-袋装            | 无卤-袋装            | 有卤-条管        | 无卤-条管             | 3TT8J               | TO-220S             |
| Halogen-Bag      | Halogen-Free-Bag | Halogen-Tube | Halogen-Free-Tube |                     |                     |
| 3TT8J-CB-C       | 3TT8J-CB-CR      | 3TT8J-CB-B   | 3TT8J-CB-BR       |                     |                     |
| 有卤-袋装            | 无卤-袋装            | 有卤-条管        | 无卤-条管             | 3TT8F               | TO-220HF            |
| Halogen-Bag      | Halogen-Free-Bag | Halogen-Tube | Halogen-Free-Tube |                     |                     |
| 3TT8F-FA-C       | 3TT8F-FA-CR      | 3TT8F-FA-B   | 3TT8F-FA-BR       |                     |                     |
| 有卤-编带            | 无卤-编带            | 有卤-袋装        | 无卤-袋装             | 3TT8U               | DPAK                |
| Halogen-Reel     | Halogen-Free-    | Halogen-Bag  | Halogen-Free-Bag  |                     |                     |





|             | Reel             |              |                   |        |             |
|-------------|------------------|--------------|-------------------|--------|-------------|
| 3TT8U-R-A   | 3TT8U-R-AR       | N/A          | N/A               |        |             |
| 有卤-袋装       | 无卤-袋装            | 有卤-条管        | 无卤-条管             |        |             |
| Halogen-Bag | Halogen-Free-Bag | Halogen-Tube | Halogen-Free-Tube | 3TT8S  | TO-263      |
| 3TT8S-S-C   | 3TT8S-S-CR       | 3TT8S-S-B    | 3TT8S-S-BR        |        |             |
| 有卤-袋装       | 无卤-袋装            | 有卤-条管        | 无卤-条管             | 3TT8E  | TO-262F     |
| Halogen-Bag | Halogen-Free-Bag | Halogen-Tube | Halogen-Free-Tube |        |             |
| 3TT8Z-BC-C  | 3TT8Z-BC-CR      | 3TT8Z-BC-B   | 3TT8Z-BC-BR       | 3TT8F1 | TO-220MF-K1 |
| 有卤-袋装       | 无卤-袋装            | 有卤-条管        | 无卤-条管             |        |             |
| Halogen-Bag | Halogen-Free-Bag | Halogen-Tube | Halogen-Free-Tube |        |             |
| 3TT8F1-F1-C | 3TT8F1-F1-CR     | 3TT8F1-F1-B  | 3TT8F1-F1-BR      |        |             |

## 概述 GENERAL DESCRIPTION

3TT8Z/C/J/F/U/S/E/F1是玻璃钝化芯片结构的三象限双向晶闸管，产品在第四象限不可触发，具有较高的使用可靠性。可适用于容易出现较高 $dV/dt$ 或 $dI/dt$ 的交流全波控制线路中，特别推荐应用与电感性负载控制（如电机控制线路）。器件封装形式有TO-220、TO-220C、TO-220S（引线与散热片绝缘）、TO-220HF（塑料全封装）、DPAK、TO-263、TO-262F、TO-220MF-K1。

3TT8Z/C/J/F/U/S/E/F1 are Glass passivated three quadrant triacs, designed for high performance full-wave ac control applications where high static and dynamic  $dV/dt$  and high  $dI/dt$  can occur. They are specially recommended for use on inductive loads such as motor control circuits. Available packages are TO-220、TO-220C、TO-220S (internally isolated)、TO-220HF (plastic envelope)、DPAK、TO-263、TO-262F and TO-220MF-K1.

## 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<br>Unit            |
|--|---------------|--|------------------------|------------------------|
| 重复峰值断态电压<br>Repetitive peak off-state voltage                          | $V_{DRM}$     |  | $\pm 600$<br>$\pm 800$ | V                      |
| 通态方均根电流 On-state RMS current   | $I_{T(RMS)}$  | full sine wave   | 8                      | A                      |
| 非重复浪涌峰值通态电流 Non-repetitive surge peak on-state current                 | $I_{TSM}$     | full sine wave, $t=20\text{ms}$  | 80                     | A                      |
|  |               | full sine wave, $t=16.7\text{ms}$  | 84                     | A                      |
|  | $I^2t$        | $t=10\text{ms}$  | 32                     | $\text{A}^2\text{s}$   |
| 通态电流临界上升率 Repetitive rate of rise of on-state current after triggering | $dI/dt$       | $I_{TM}=12\text{A}$ , $I_G=0.2\text{A}$ ,<br>$dI_G/dt=0.2\text{A}/\mu\text{s}$ | 100                    | $\text{A}/\mu\text{s}$ |
| 峰值门极电流 Peak gate current   | $I_{GM}$      |  | 4                      | A                      |
| 峰值门极电压 Peak gate voltage   | $V_{GM}$      |  | 5                      | V                      |
| 峰值门极功率 Peak gate power   | $P_{GM}$      |  | 5                      | W                      |
| 平均门极功率 Average gate power  | $P_{G(AV)}$   | over any 20ms period   | 0.5                    | W                      |
| 存储温度 Storage temperature   | $T_{stg}$     |  | -40~150                | $^\circ\text{C}$       |
| 操作结温 Operation junction temperature                                    | $T_{VJ}$      |  | 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<br>Unit |
|--|------------------|---|-----------|-----------|-----------|------------|
| 峰值重复断态电流<br>Peak Repetitive Blocking Current | I <sub>DRM</sub> | V <sub>DM</sub> =V <sub>DRM</sub> , T <sub>j</sub> =125°C,<br>gate open   | -         | -         | 0.5       | mA         |
| 峰值通态电压<br>Peak on-state voltage              | V <sub>TM</sub>  | I <sub>TM</sub> =11.3A  | -         | 1.3       | 1.7       | V          |
| 门极触发电流<br>Gate trigger current               | I <sub>GT</sub>  | V <sub>DM</sub> =12V,<br>R <sub>L</sub> =100<br>Ω, MT1(-),MT2(+),G(+)   | 2         | -         | 35        | mA         |
|  |                  | MT1(-),MT2(+),G(-)  | 2         | -         | 35        | mA         |
|  |                  | MT1(+),MT2(-),G(-)  | 2         | -         | 35        | mA         |
| 门极触发电压<br>Gate trigger voltage               | V <sub>GT</sub>  | V <sub>DM</sub> =12V,<br>R <sub>L</sub> =100<br>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,<br>I <sub>GT</sub> =0.1A, MT1(-),MT2(+),G(+)  | -         | -         | 50        | mA         |
|  |                  | MT1(-),MT2(+),G(-)  | -         | -         | 75        | mA         |
|  |                  | MT1(+),MT2(-),G(-)  | -         | -         | 50        | 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> ,<br>T <sub>j</sub> =125°C, gate open                                  | 1000      | -         | -         | V/μs       |
| 门极开通时间 Gate<br>controlled turn-on time       | tgt              | I <sub>TM</sub> =12A, V <sub>DM</sub> =V <sub>DRM(MAX)</sub> ,<br>I <sub>G</sub> =0.1A, dI <sub>G</sub> /dt=5A/μs | -         | 2         | -         | μs         |

## 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<br>Unit |
|---|----------------------|--|-----------|-----------|-----------|------------|
| 结到管壳的热阻<br>Thermal resistance<br>junction to case | R <sub>th(j-c)</sub> | full cycle(TO-220/TO-220C/DPAK/TO-263)   |           |           | 2.0       | °C/W       |
|   |                      | full cycle(TO-220S)                      |           |           | 2.8       | °C/W       |
|   |                      | full cycle(TO-220HF/TO-262F/TO-220MF-K1) |           |           | 4.1       | °C/W       |

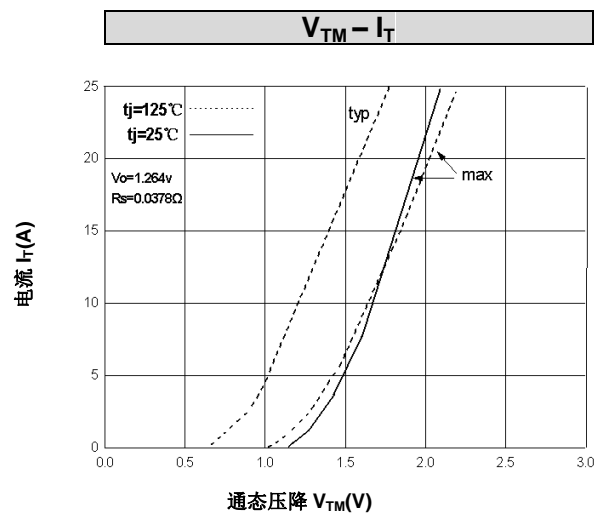
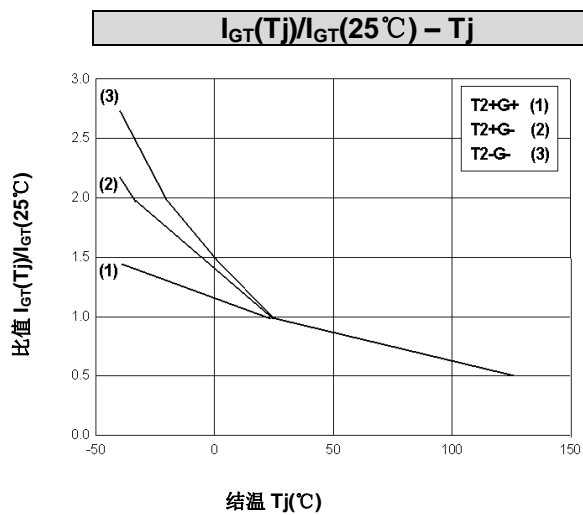
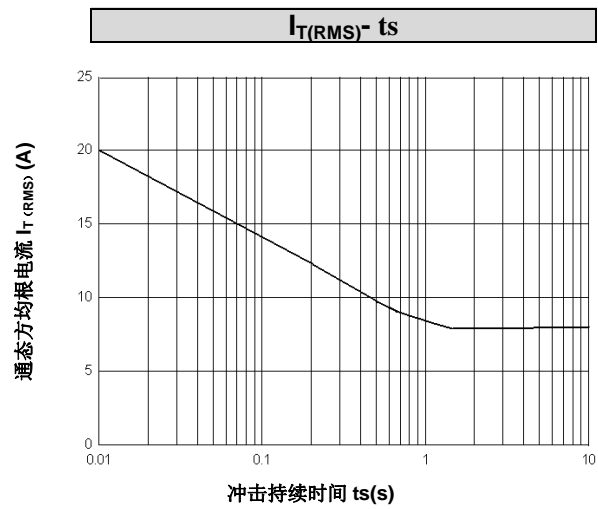
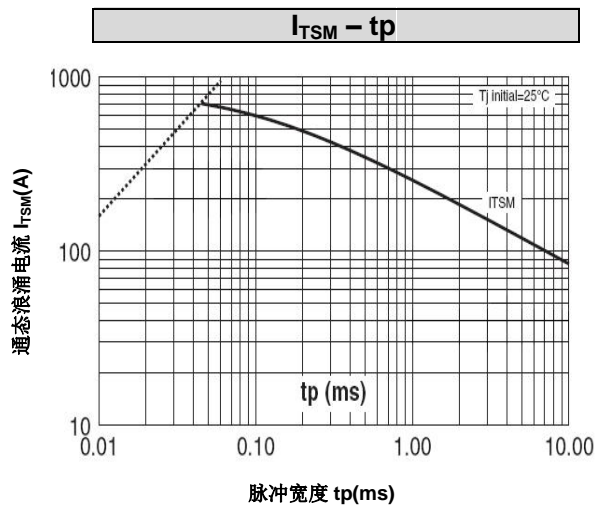
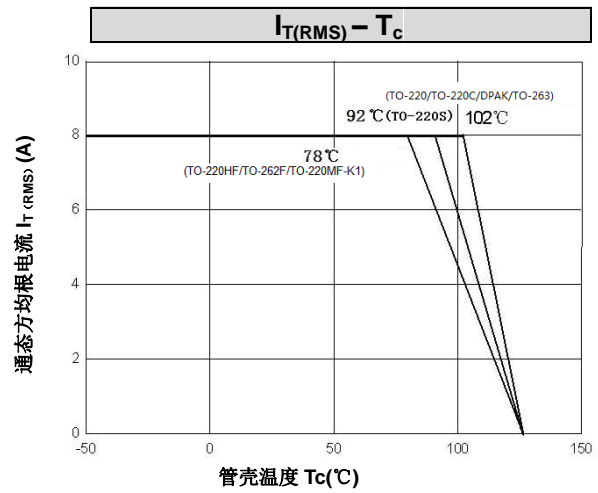
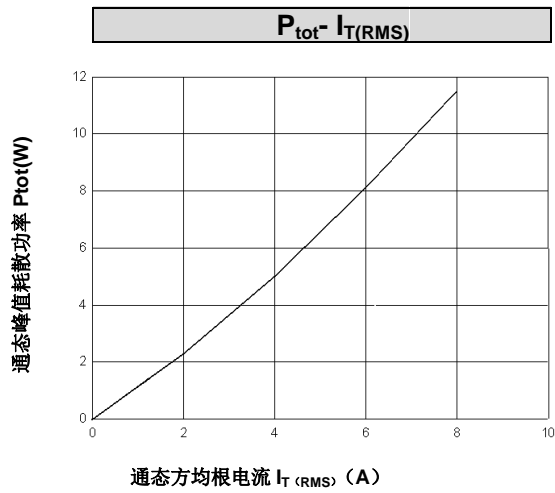
## 电绝缘特性 ELECTRICAL ISOLATION

| 项 目<br>Parameter          | 符 号<br>Symbol     | 条 件<br>Condition  | 数 值<br>Value | 单 位<br>Unit |
|---------------------------|-------------------|---|--------------|-------------|
| 绝缘电压<br>Isolation voltage | V <sub>ISOL</sub> | 1 minute, leads to mounting tab TO-220S                         | 2000         | V           |
|                           |                   | 1 minute, leads to mounting tab<br>TO-220HF/TO-262F/TO-220MF-K1 | 2000         | V           |





征曲线 ELECTRICAL CHARACTERISTICS (curves)

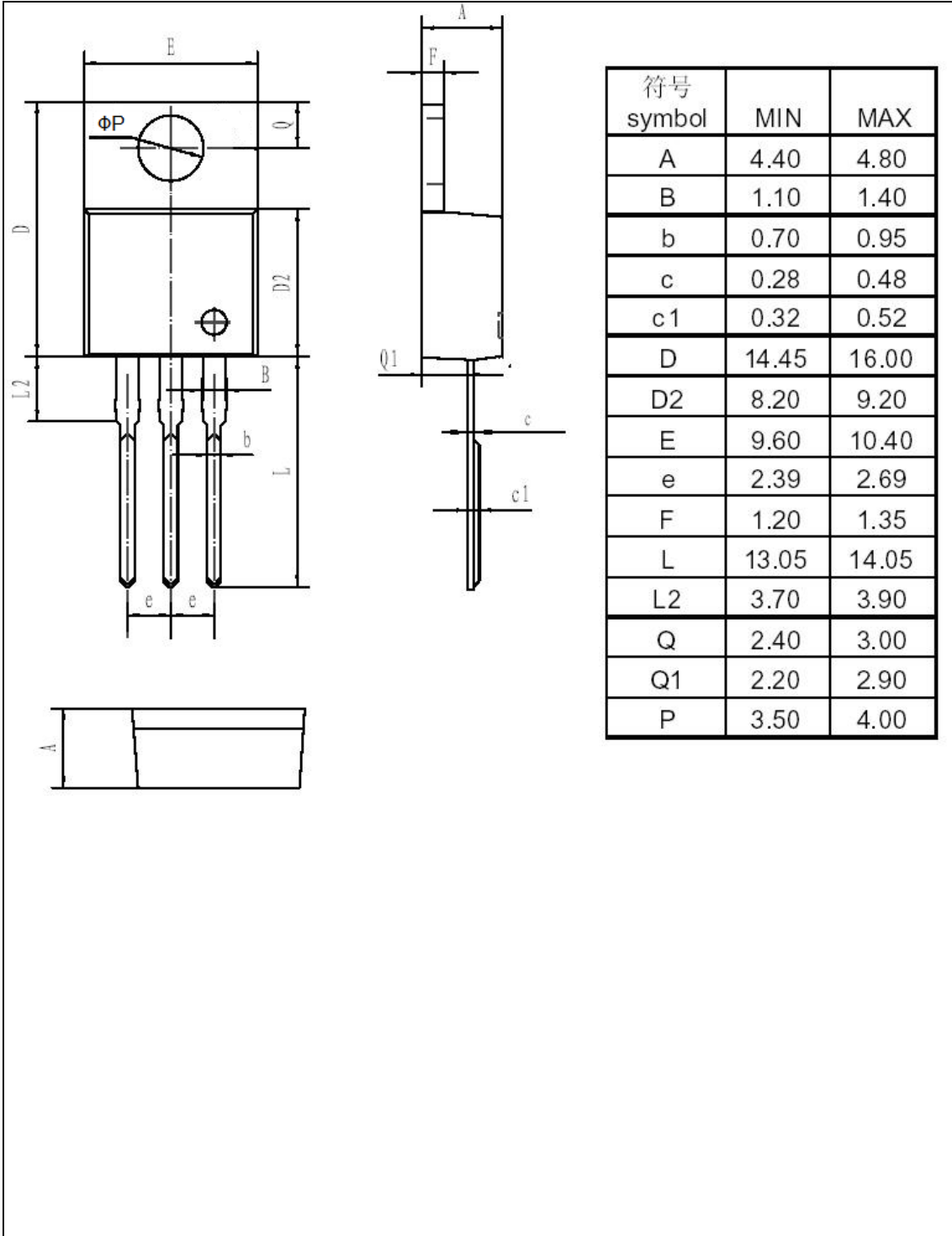




外形尺寸 PACKAGE MECHANICAL DATA

TO-220

单位 Unit : mm

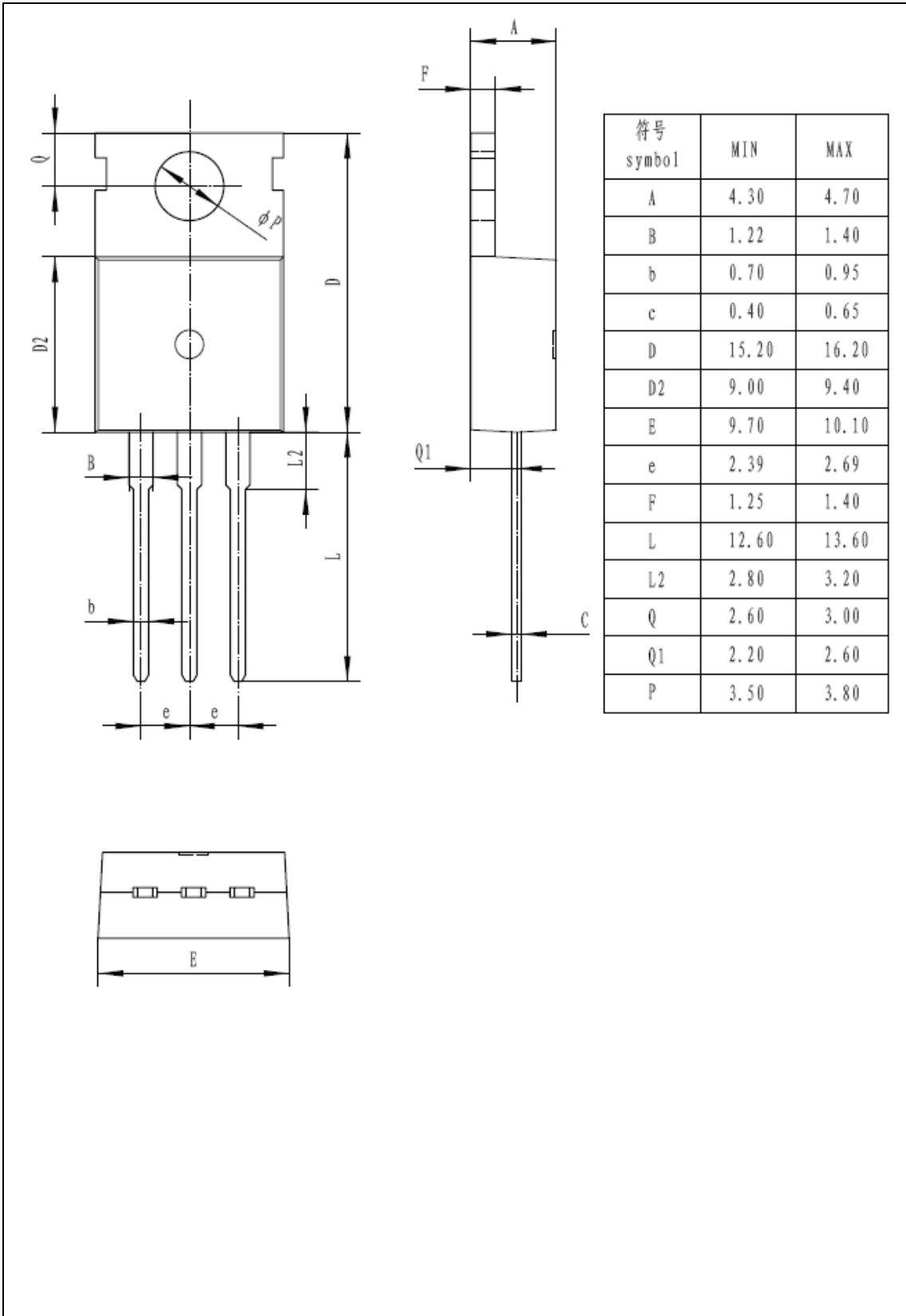




外形尺寸 PACKAGE MECHANICAL DATA

TO-220C

单位 Unit : mm

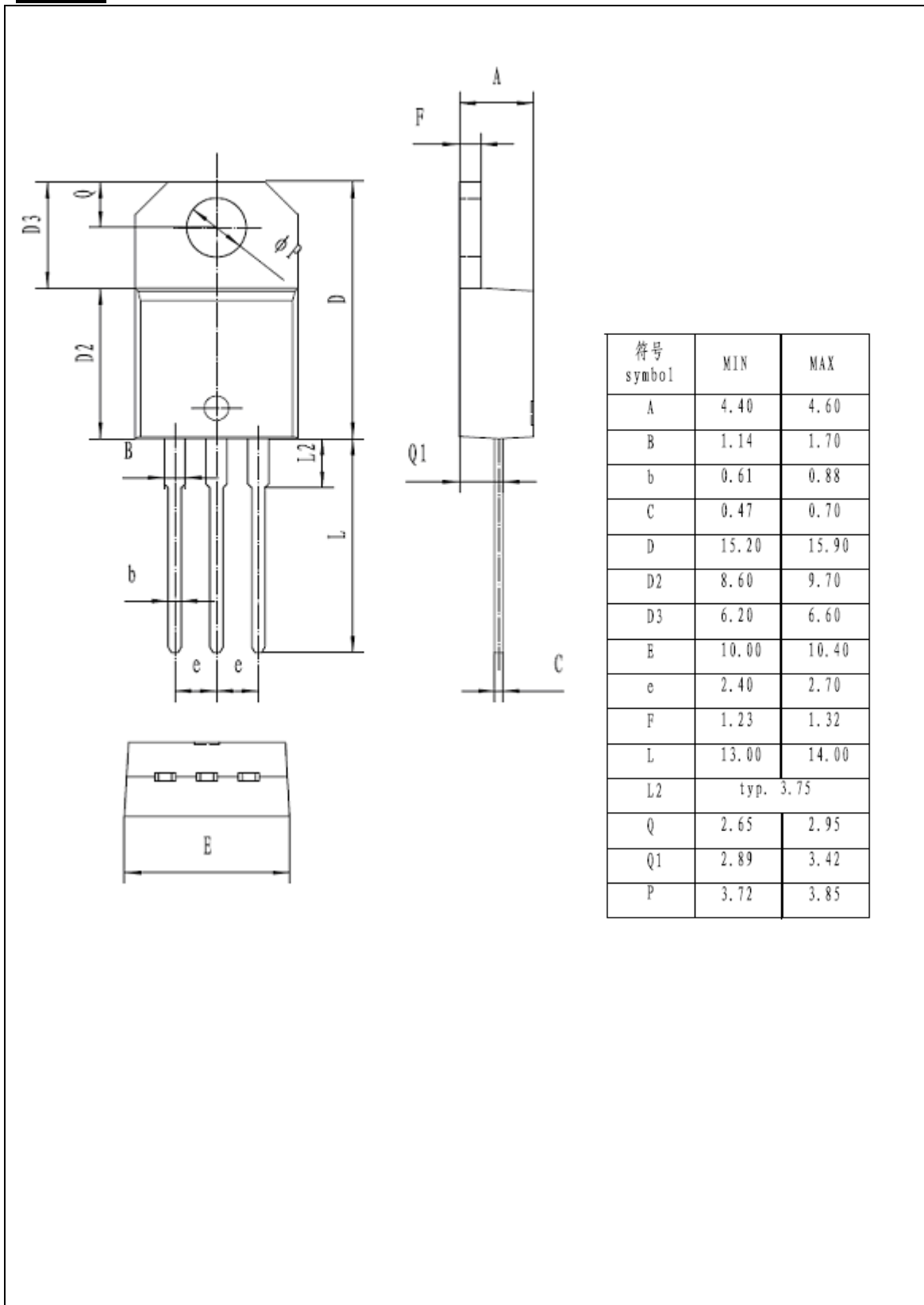




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-220S

单位 Unit : mm

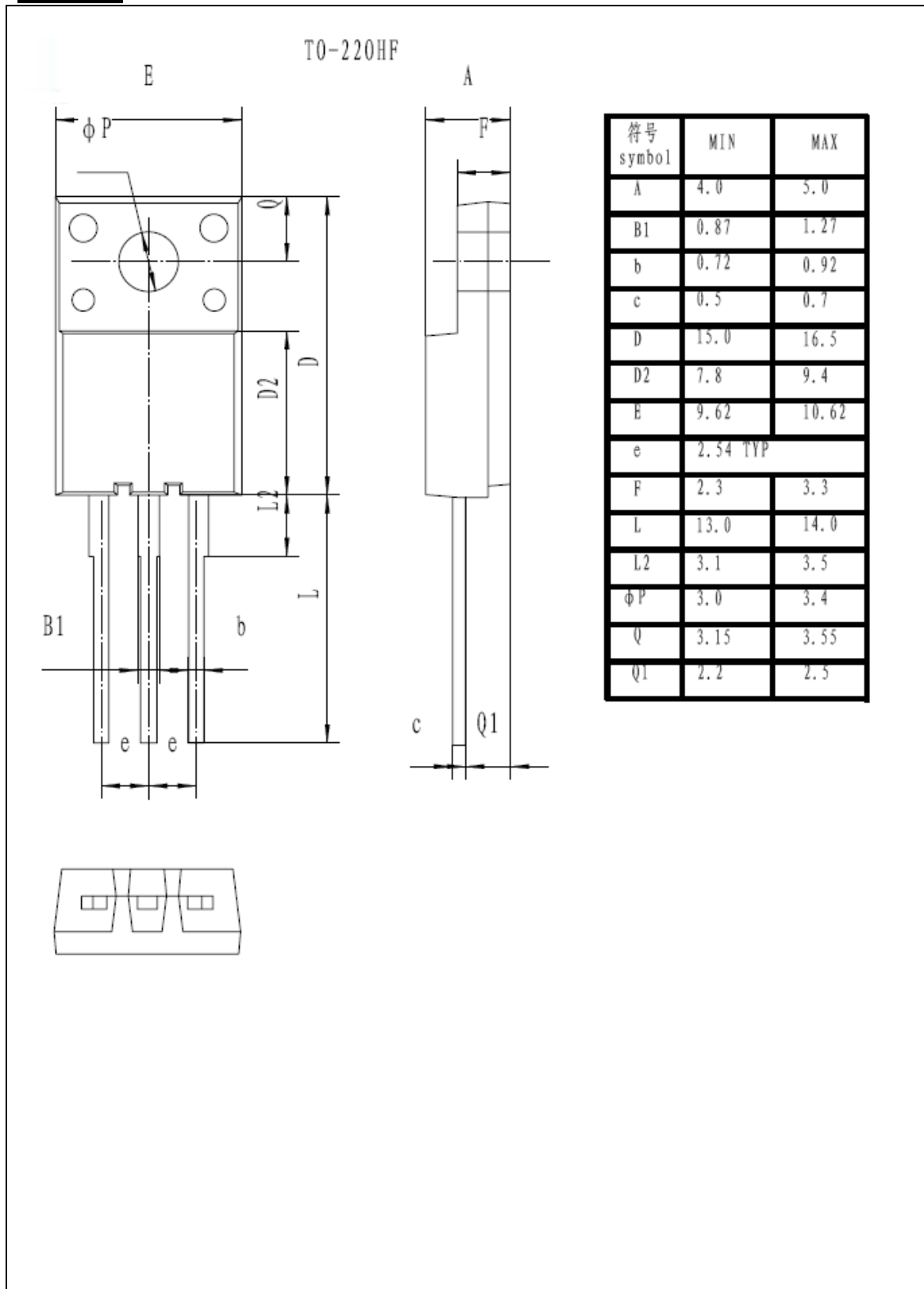




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-220HF

单位 Unit : mm



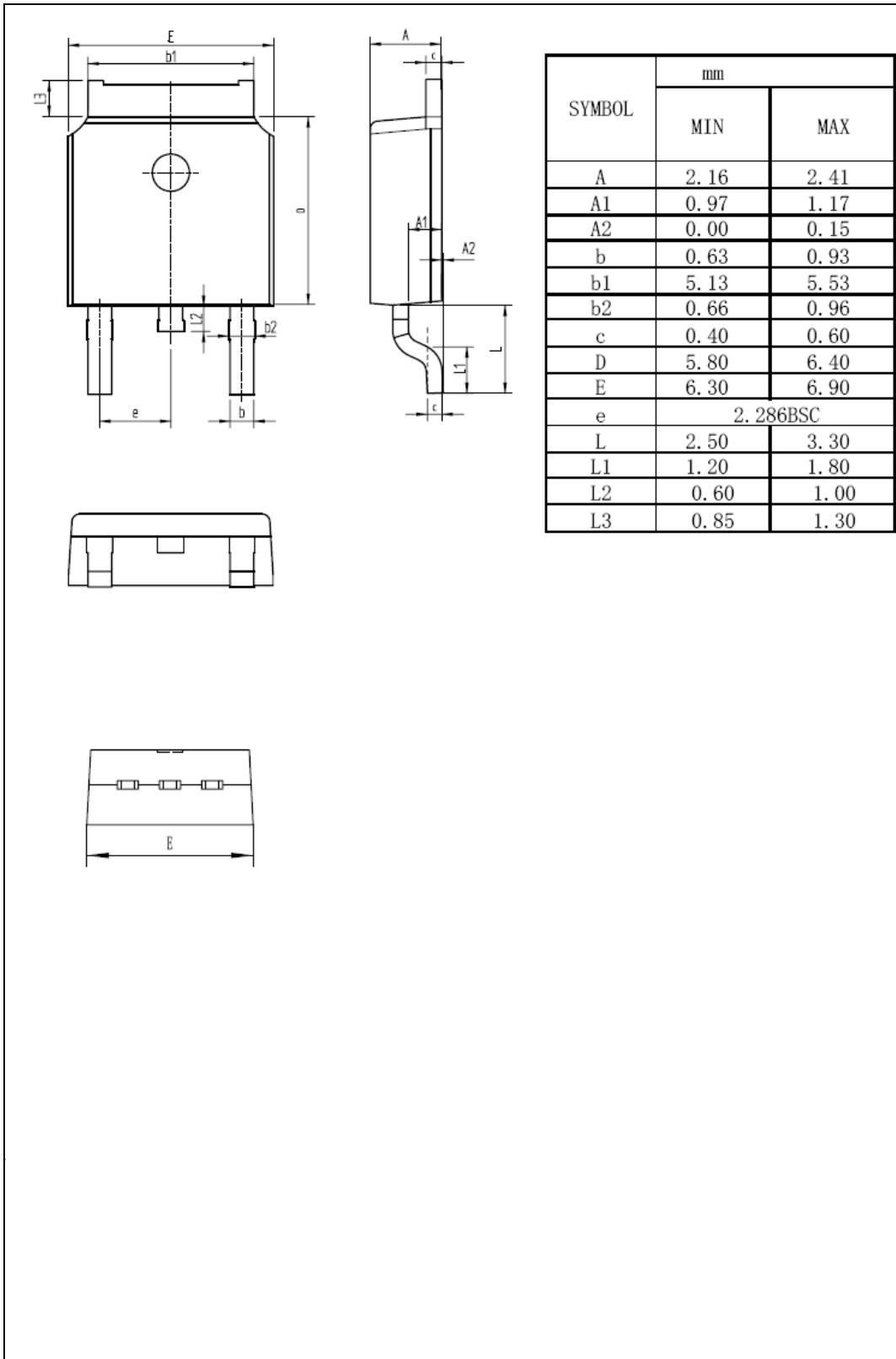




## 外形尺寸 PACKAGE MECHANICAL DATA

DPAK

单位 Unit : mm

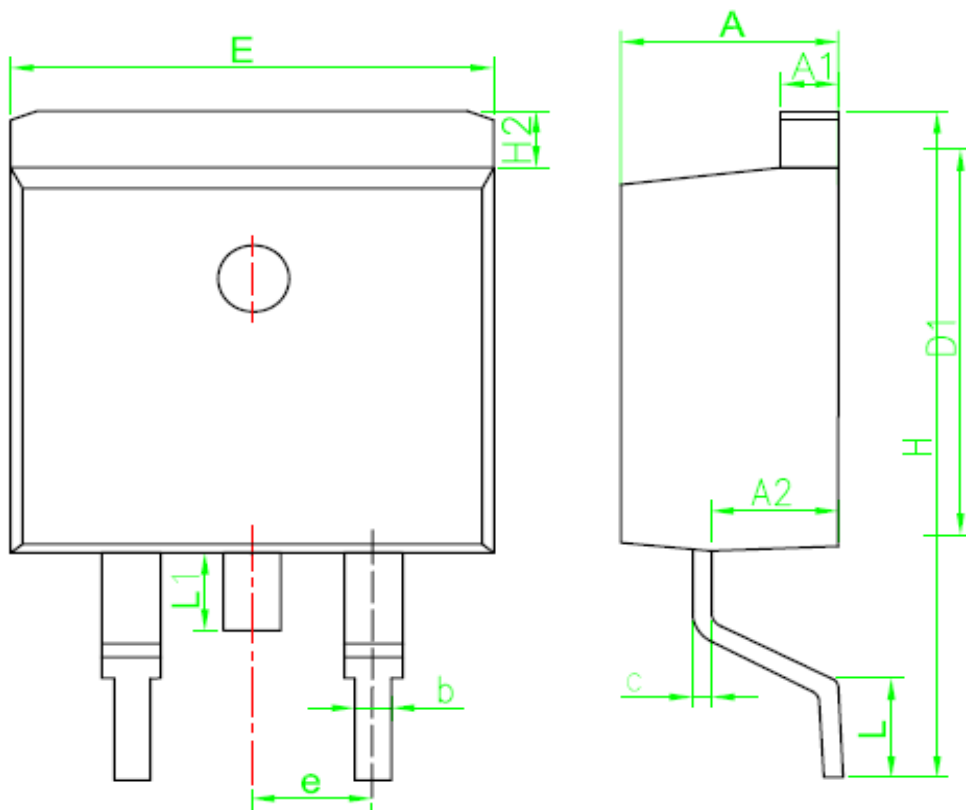




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-263

单位 Unit : mm



| SYMBOL | MM      |       |
|--------|---------|-------|
|        | MIN     | MAX   |
| A      | 4.30    | 4.80  |
| A1     | 1.12    | 1.42  |
| A2     | 2.54    | 2.84  |
| b      | 0.67    | 1.00  |
| c      | 0.29    | 0.52  |
| D1     | 8.40    | 9.00  |
| E      | 9.80    | 10.46 |
| e      | 2.54BSC |       |
| H      | 14.00   | 16.00 |
| H2     | 1.12    | 1.45  |
| L      | 1.50    | 3.10  |
| L1     | 1.45    | 1.70  |

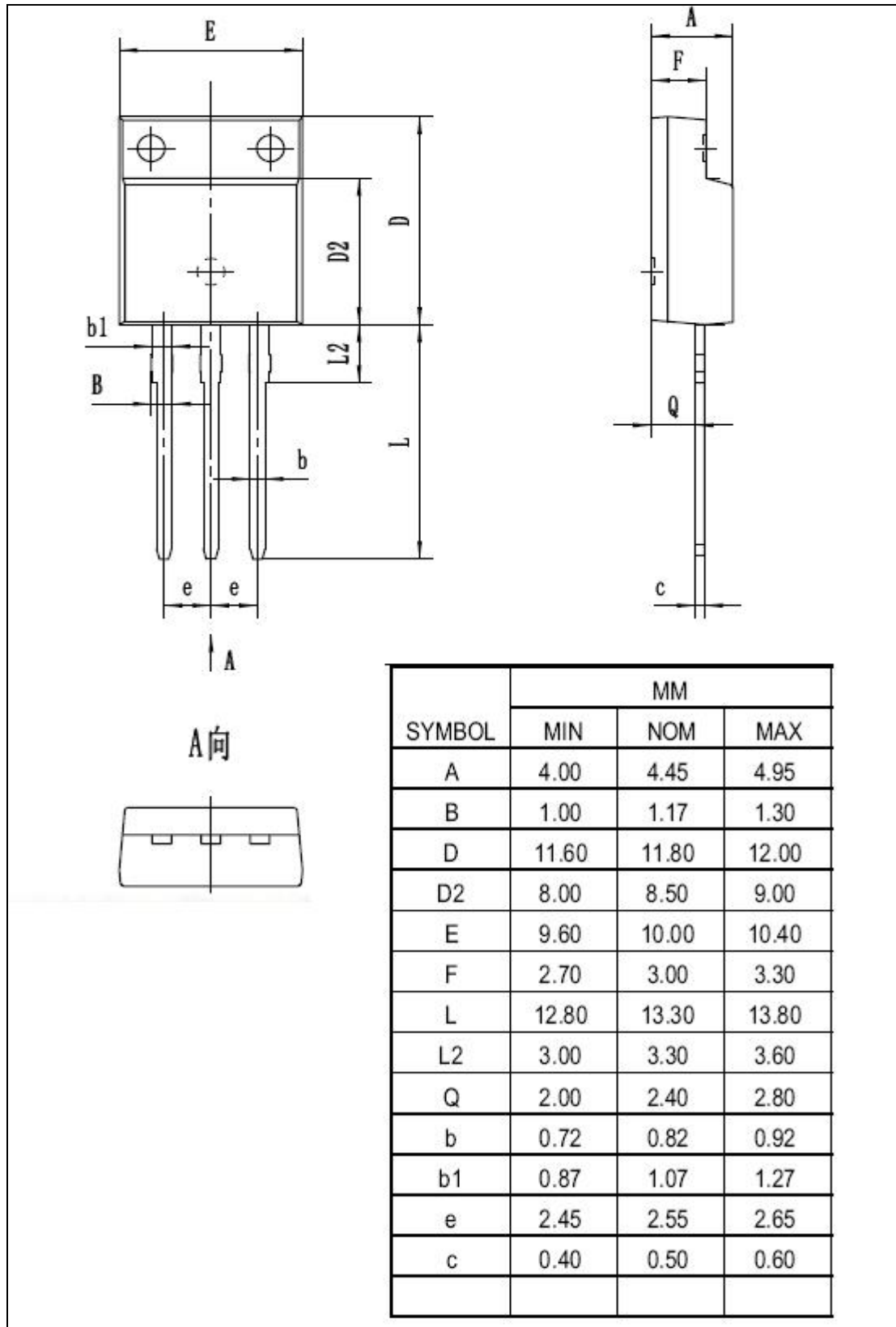




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-262F

单位 Unit : mm

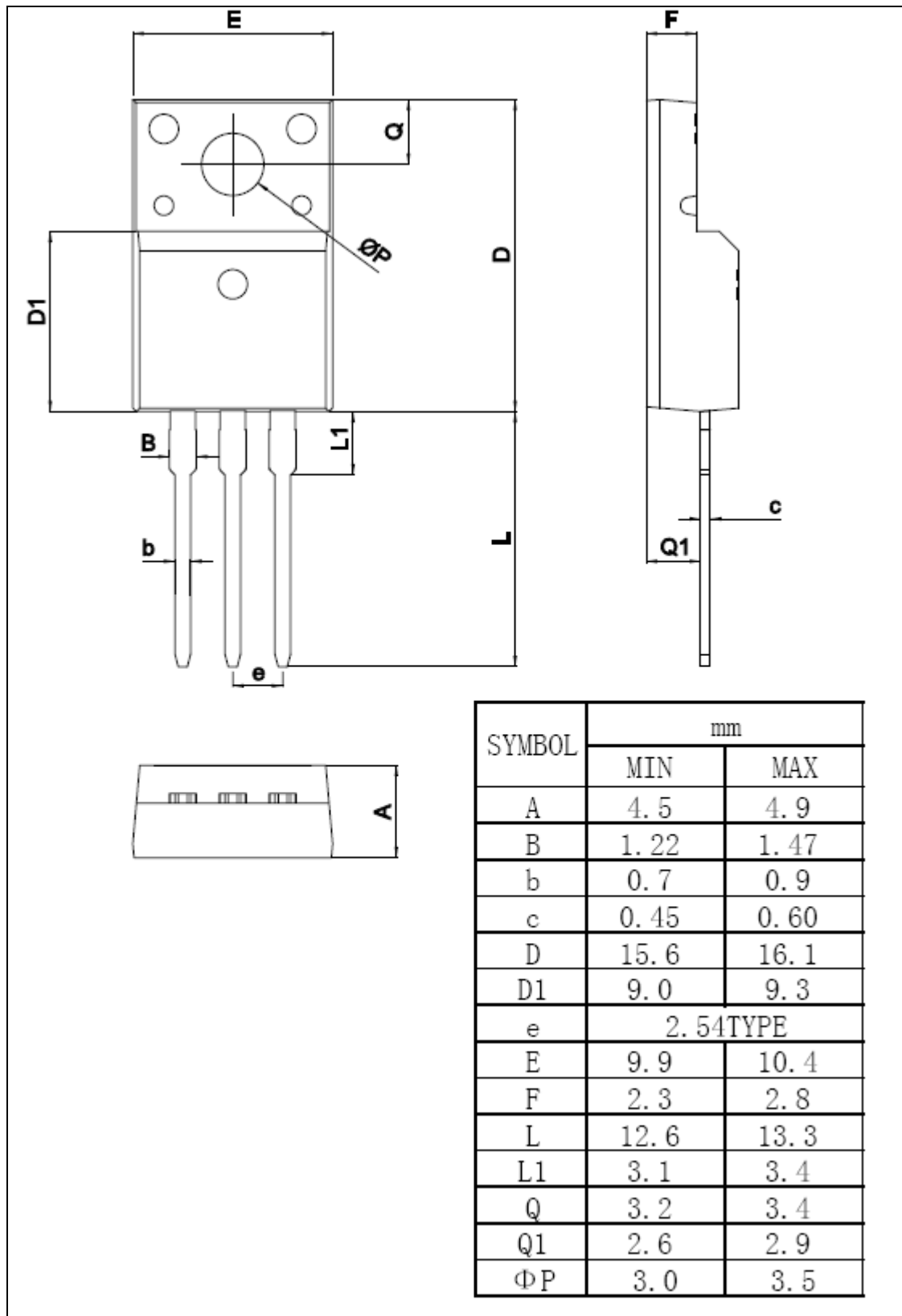




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-220MF-K1

单位 Unit : mm



**注意事项**

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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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