

### / Descriptions

TO-3P                  NPN                  Silicon NPN transistor in a TO-3P Plastic Package.

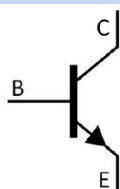
### / Features

45-50W                  2SB688  
For 45-50W audio frequency amplifier output stage, Complementary to 2SB688.

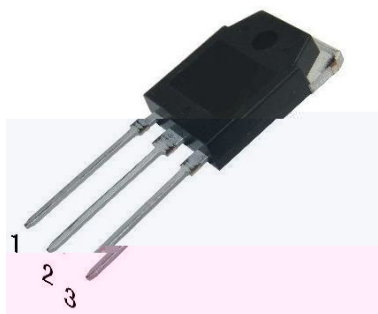
### / Applications

Designed for use in audio frequency amplifier.

### / Equivalent Circuit



### / Pinning



PIN1    Base                  PIN 2    Collector                  PIN 3    Emitter

### / $h_{FE}$ Classifications & Marking

|                                    |        |        |
|------------------------------------|--------|--------|
| $h_{FE}$ Classifications<br>Symbol | R      | O      |
| $h_{FE}$ Range                     | 55~110 | 80~160 |

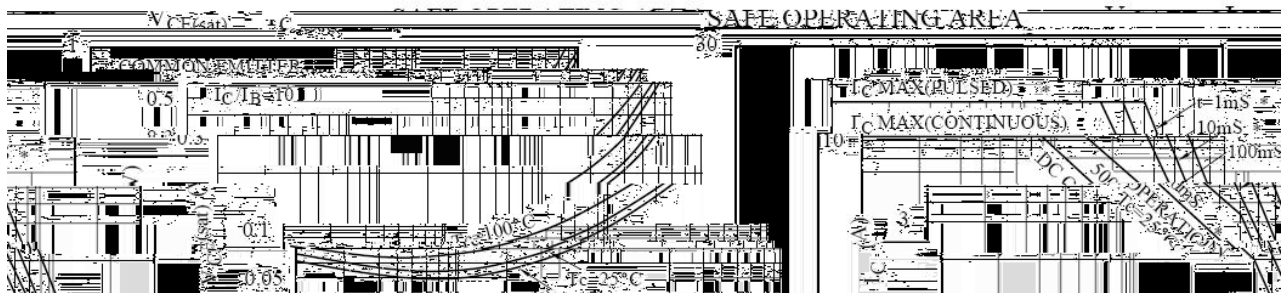
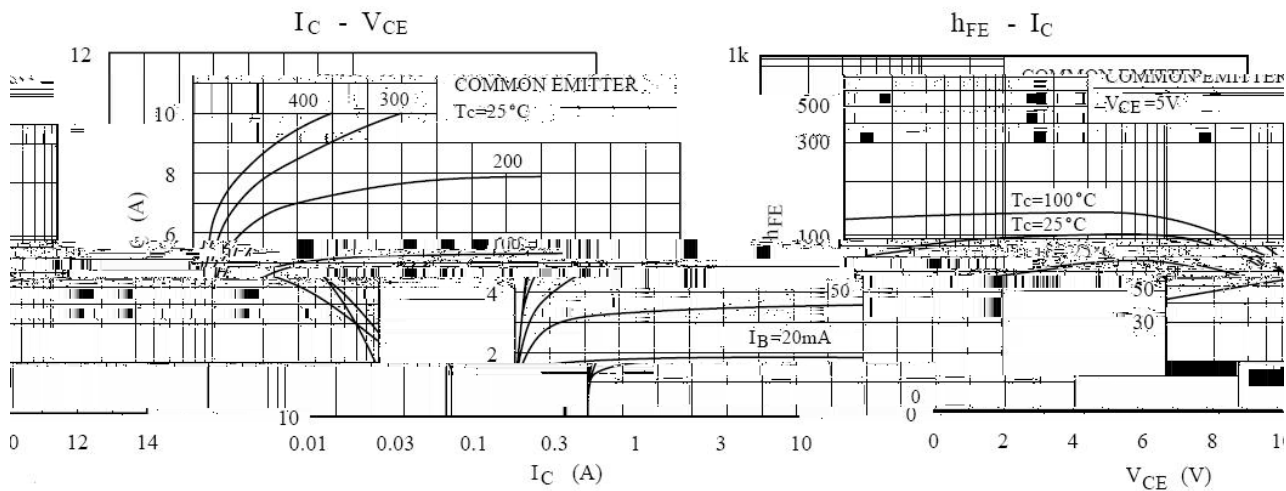
**/ Absolute Maximum Ratings(Ta=25 )**

| Parameter                      | Symbol       | Rating  | Unit |
|--------------------------------|--------------|---------|------|
| Collector to Base Voltage      | $V_{CBO}$    | 120     | V    |
| Collector to Emitter Voltage   | $V_{CEO}$    | 120     | V    |
| Emitter to Base Voltage        | $V_{EBO}$    | 5       | V    |
| Collector Current - Continuous | $I_C$        | 10      | A    |
| Base Current                   | $I_B$        | 1       | A    |
| Collector Power Dissipation    | $P_C(TC=25)$ | 80      | W    |
| Junction Temperature           | $T_j$        | 150     |      |
| Storage Temperature Range      | $T_{stg}$    | -55~150 |      |

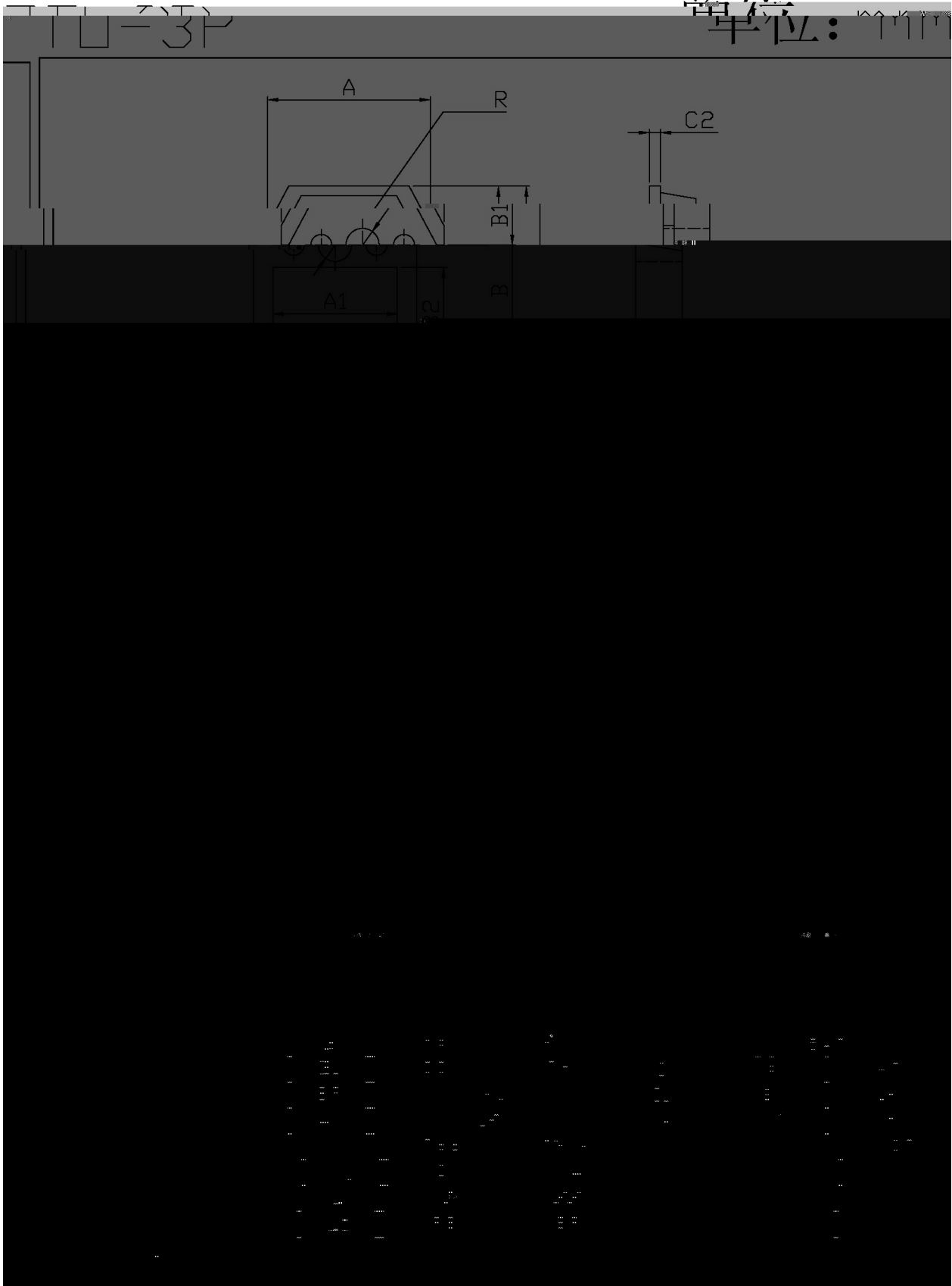
**/ Electrical Characteristics(Ta=25 )**

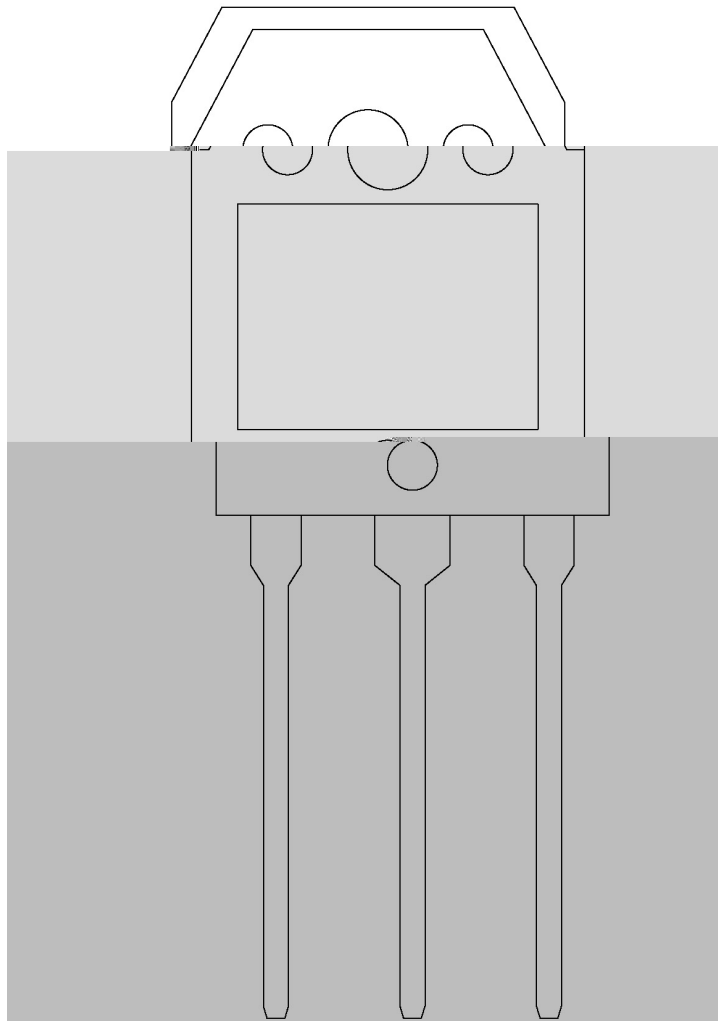
| Parameter                               | Symbol        | Test Conditions                        | Min | Typ | Max | Unit    |
|-----------------------------------------|---------------|----------------------------------------|-----|-----|-----|---------|
| Collector to Emitter Breakdown Voltage  | $V_{CEO}$     | $I_C=50mA$ $I_B=0$                     | 120 |     |     | V       |
| Collector Cut-Off Current               | $I_{CBO}$     | $V_{CB}=120V$ $I_E=0$                  |     |     | 10  | $\mu A$ |
| Emitter Cut-Off Current                 | $I_{EBO}$     | $V_{EB}=5.0V$ $I_C=0$                  |     |     | 10  | $\mu A$ |
| DC Current Gain                         | $h_{FE}$      | $V_{CE}=5.0V$ $I_C=1.0A$               | 55  |     | 160 |         |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=6.0A$ $I_B=0.6A$                  |     |     | 2   | V       |
| Base to Emitter Voltage                 | $V_{BE}$      | $V_{CE}=5.0V$ $I_C=5.0A$               |     |     | 1.5 | V       |
| Transition Frequency                    | $f_T$         | $V_{CE}=5.0V$ $I_C=1.0A$<br>$f=1.0MHz$ |     | 12  |     | MHz     |
| Collector Output Capacitance            | $C_{ob}$      | $V_{CB}=10V$ $I_E=0$<br>$f=1.0MHz$     |     | 170 |     | pF      |

/ Electrical Characteristic Curve

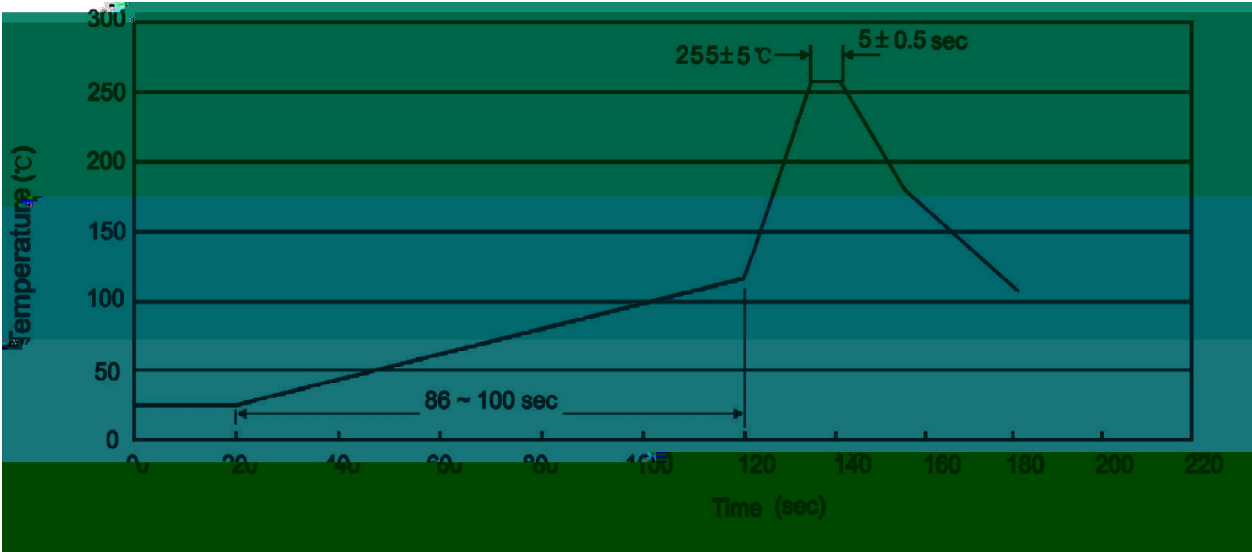


/ Package Dimensions





( ) / Temperature Profile for Dip Soldering(Pb-Free)



Note:

- 1

25 150

60 90sec;
- 2

255±5

5±0.5sec;
- 3

2 10 /sec.
- 1.Preheating:25~150 , Time:60~90sec.

2.Peak Temp.:255±5 , Duration:5±0.5sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

270±5                      10±1 sec.                      Temp.:270±5                      Time:10±1 sec

/ Packaging SPEC.

/ TUBE

| Package Type<br>封装形式 | Units 包装数量         |                         |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Tube<br>只/套管 | Tubes/Inner Box<br>套管/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Tube 套管                                 | Inner Box 盒 | Outer Box 箱 |
| TO-3P                | 30                 | 15                      | 450                    | 5                            | 2250                   | 497.5×46×8                              | 555×164×50  | 575×290×180 |

/ Notices