

## / Descriptions

TO-92LM      NPN      Silicon NPN transistor in a TO-92LM Plastic Package.

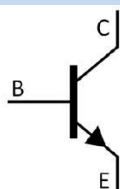
## / Features

1 2W,  $f_T$  100MHz,  $h_{FE}$  100,  $h_{FE}$  100, 2SA934  
High  $P_C$ , low collector saturation voltage, complementary pair with 2SA934.

## / Applications

1 2W  
1 2W low frequency amplifiers.

## / Equivalent Circuit



## / Pinning



PIN1 Base      PIN 2 Collector      PIN 3 Emitter

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

| $h_{FE}$ Classifications<br>Symbol | P      | Q       | R       |
|------------------------------------|--------|---------|---------|
| $h_{FE}$ Range                     | 82 180 | 120 270 | 180 390 |

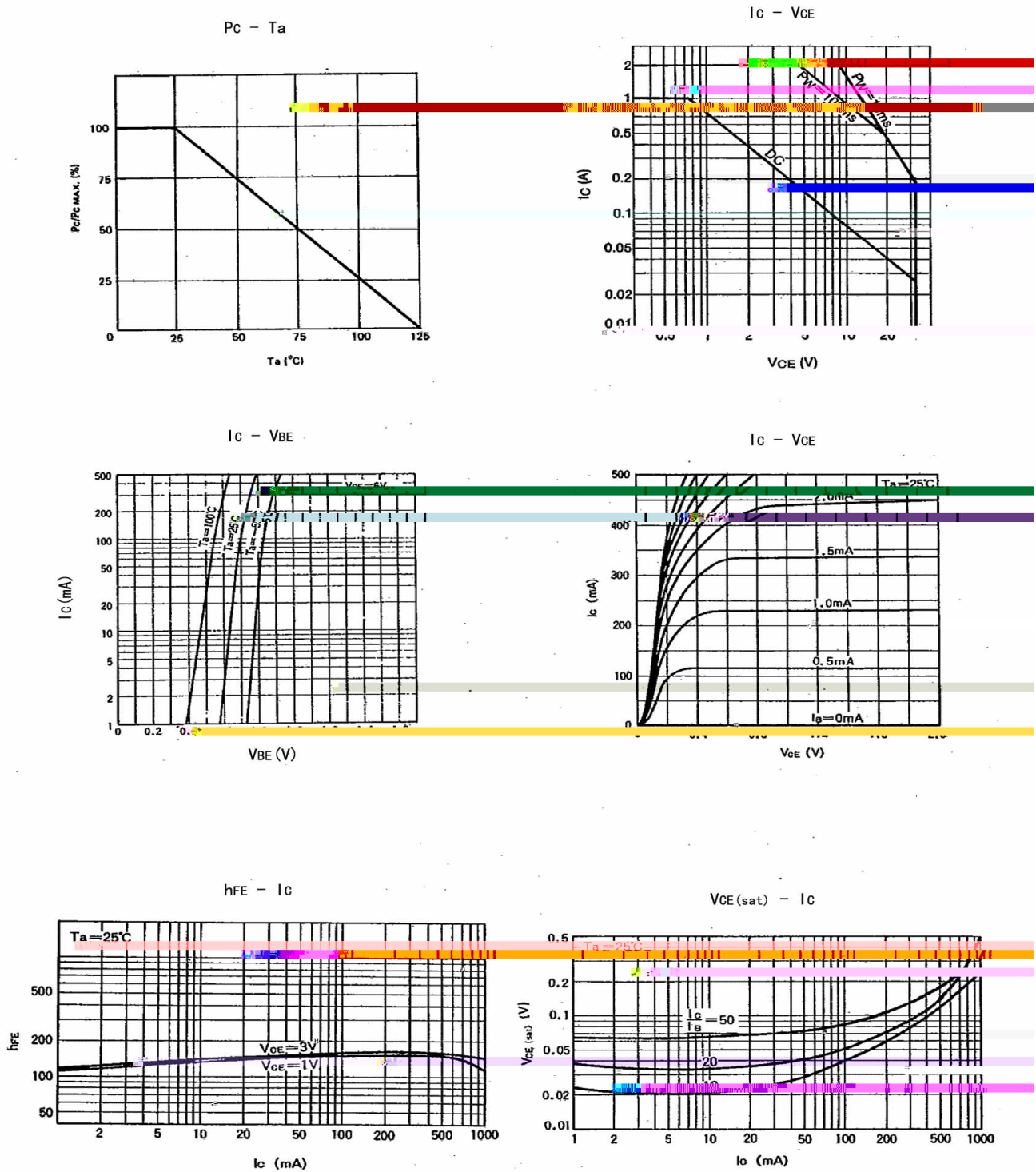
**/ Absolute Maximum Ratings(Ta=25 )**

| Parameter                    | Symbol    | Rating  | Unit |
|------------------------------|-----------|---------|------|
| Collector to Base Voltage    | $V_{CBO}$ | 40      | V    |
| Collector to Emitter Voltage | $V_{CEO}$ | 32      | V    |
| Emitter to Base Voltage      | $V_{EBO}$ | 5.0     | V    |
| Collector Current (DC)       | $I_C$     | 1.0     | A    |
| Collector Current (Pulse)    | $I_{CP}$  | 2.0     | A    |
| Collector Power Dissipation  | $P_C$     | 750     | mW   |
| Junction Temperature         | $T_j$     | 150     | °C   |
| Storage Temperature Range    | $T_{stg}$ | -55 150 | °C   |

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

| Parameter                               | Symbol        | Test Conditions                    | Min | Typ | Max | Unit    |
|-----------------------------------------|---------------|------------------------------------|-----|-----|-----|---------|
| Collector to Base Breakdown Voltage     | $V_{CBO}$     | $I_C=50\mu A$ $I_E=0$              | 40  |     |     | V       |
| Collector to Emitter Breakdown Voltage  | $V_{CEO}$     | $I_C=1.0mA$ $I_B=0$                | 32  |     |     | V       |
| Emitter to Base Breakdown Voltage       | $V_{EBO}$     | $I_E=50\mu A$ $I_C=0$              | 5.0 |     |     | V       |
| Collector Cut-Off Current               | $I_{CBO}$     | $V_{CB}=20V$ $I_E=0$               |     |     | 0.5 | $\mu A$ |
| Emitter Cut-Off Current                 | $I_{EBO}$     | $V_{EB}=4.0V$ $I_C=0$              |     |     | 0.5 | $\mu A$ |
| DC Current Gain                         | $h_{FE}$      | $V_{CE}=3.0V$ $I_C=100mA$          | 82  |     | 390 |         |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=500mA$ $I_B=50mA$             |     |     | 0.4 | V       |
| Transition Frequency                    | $f_T$         | $V_{CE}=5.0V$ $I_C=50mA$           | 50  | 150 |     | MHz     |
| Collector output capacitance            | $C_{ob}$      | $V_{CB}=10V$ $I_E=0$<br>$f=1.0MHz$ |     | 15  | 30  | pF      |

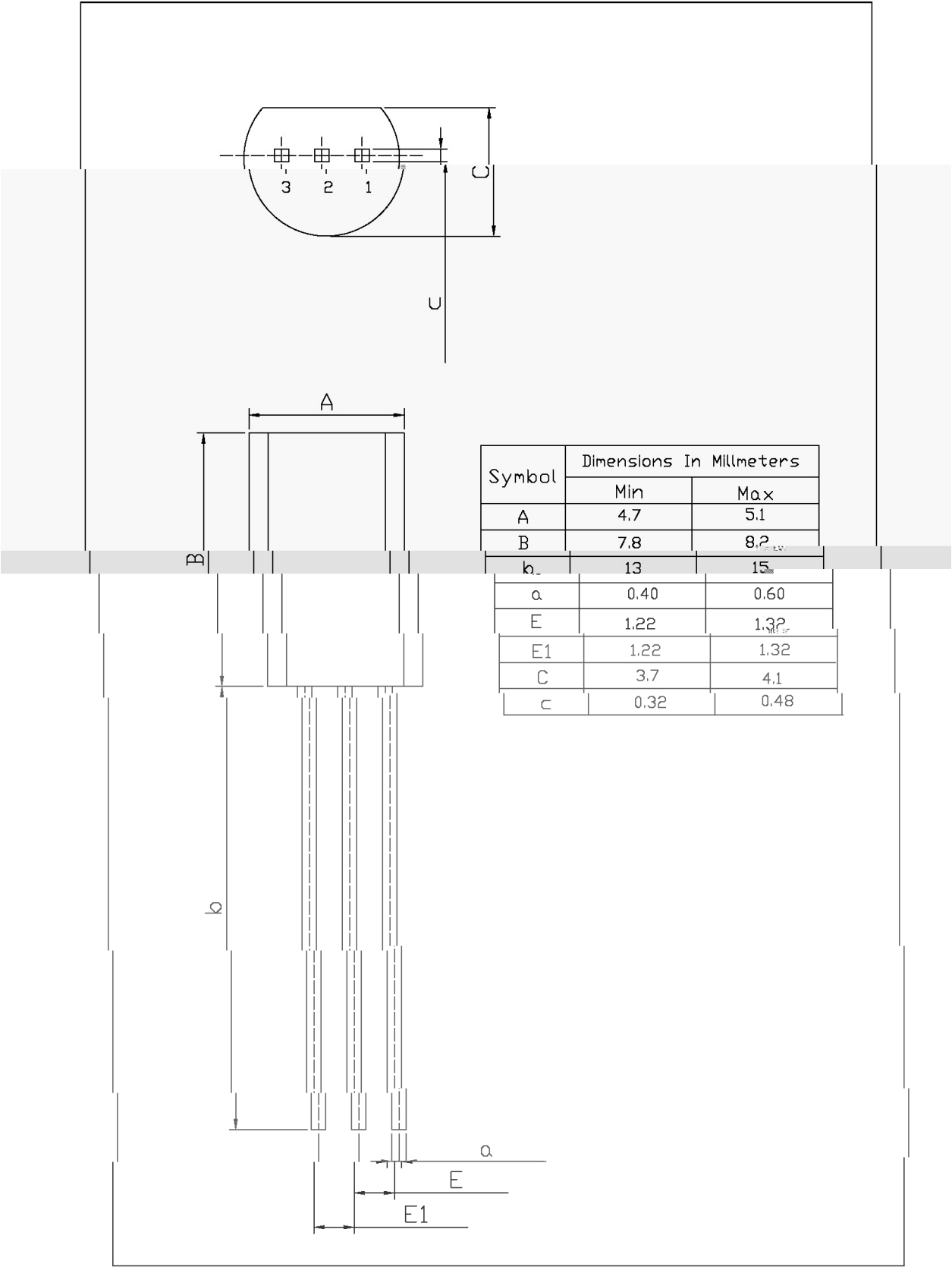
/ Electrical Characteristic Curve



/ Package Dimensions

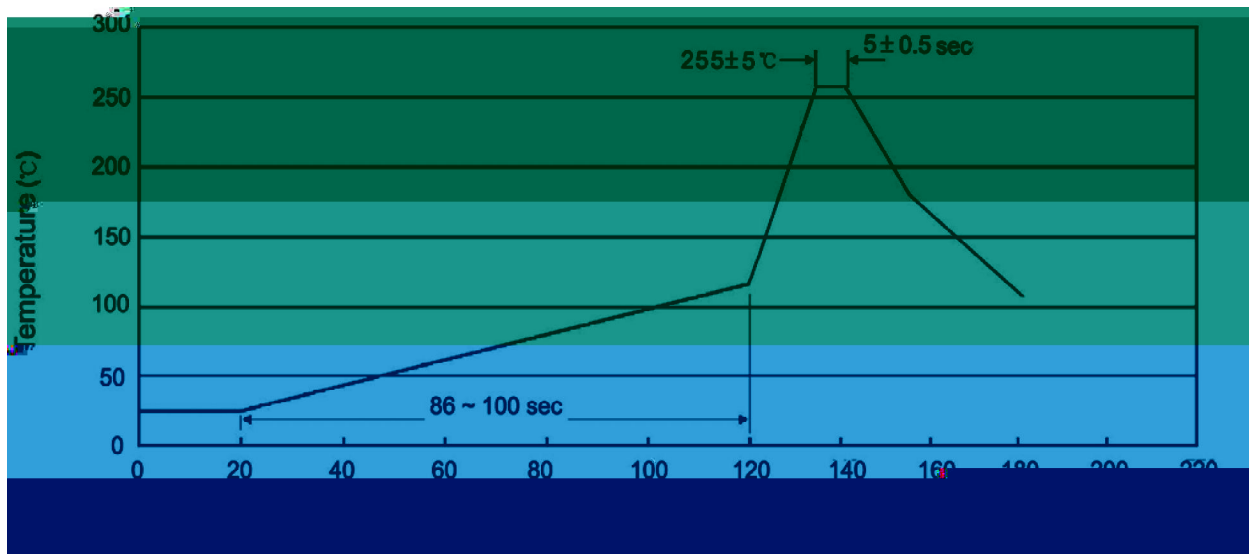
T0-92LM

Unit: mm





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



Note:

- |   |       |     |           |                                         |                                      |
|---|-------|-----|-----------|-----------------------------------------|--------------------------------------|
| 1 | 25    | 150 | 60        | 90sec;                                  | 1.Preheating:25~150 , Time:60~90sec. |
| 2 | 255±5 |     | 5±0.5sec; | 2.Peak Temp.:255±5 , Duration:5±0.5sec. |                                      |
| 3 |       | 2   | 10        | /sec.                                   | 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.

/ BULK

| Package Type<br>封装形式 | Units 包装数量       |                       |                        |                              |                        | Dimension 包装尺寸 (unit: mm3) |             |             |
|----------------------|------------------|-----------------------|------------------------|------------------------------|------------------------|----------------------------|-------------|-------------|
|                      | Units/Bag<br>只/袋 | Bags/Inner Box<br>袋/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Bag 袋                      | Inner Box 盒 | Outer Box 箱 |
| TO-92LM              | 1,000            | 8                     | 8,000                  | 5                            | 40,000                 | 135×190                    | 237×172×102 | 560×245×195 |

/ AMMO

| Package Type<br>封装形式 | Units 包装数量         |                        |                         |                              |                        | Dimension 包装尺寸 (unit: mm3) |                                  |
|----------------------|--------------------|------------------------|-------------------------|------------------------------|------------------------|----------------------------|----------------------------------|
|                      | Units/tape<br>只/纸带 | Tape/Inner Box<br>纸带/盒 | Rows/Inner Box<br>纸带层/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Inner Box 盒                | Outer Box 箱                      |
| TO-92LM              | 2,500              | 1                      | 100                     | 10                           | 25,000                 | 328×230×42                 | 小箱 480×346×235<br>大箱 547×407×268 |

/ Notices