

# KSB1116(A)

Rev.E Mar.-2016

## 描述 / Descriptions

TO-92 塑封封装 PNP 半导体三极管。Silicon PNP transistor in a TO-92 Plastic Package.

## 特征 / Features

与 KSD1616(A)互补。

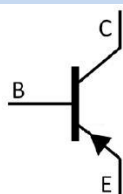
Complementary pair with KSD1616(A).

## 用途 / Applications

用于音频功率放大,中速开关。

Audio frequency power amplifier, medium speed switching.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1 : Base

PIN 2 : Collector

PIN 3 : Emitter

## 放大及印章代码 / hFE Classifications & Marking

| h <sub>FE</sub> Classifications Symbol | Y       | G       | L       |
|--|---------|---------|---------|
| h <sub>FE</sub> Range                  | 135~270 | 200~400 | 300~600 |

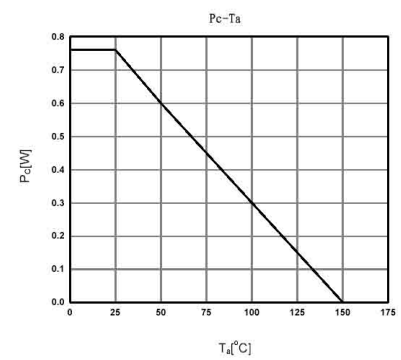
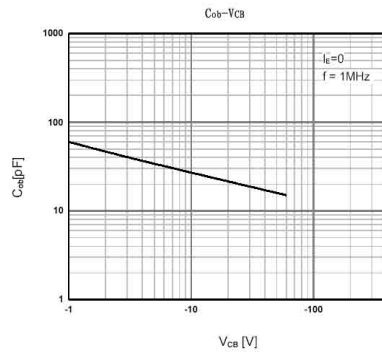
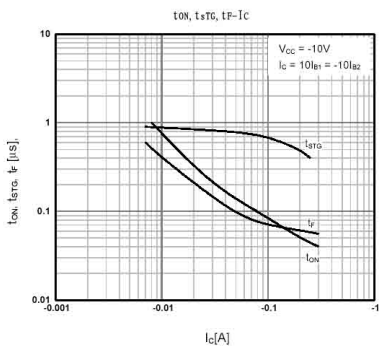
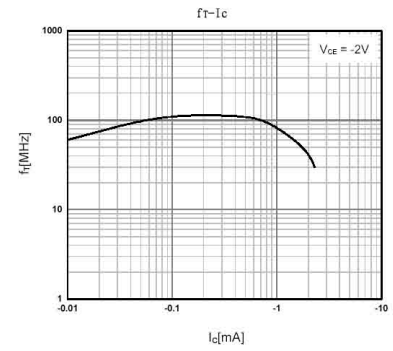
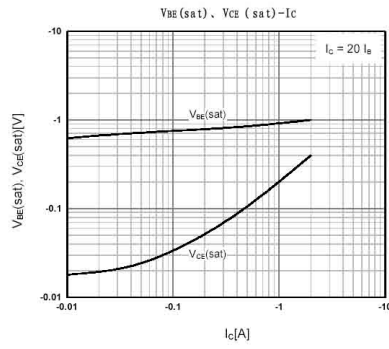
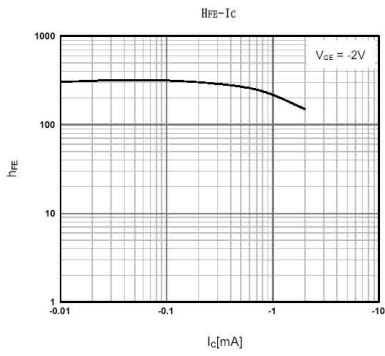
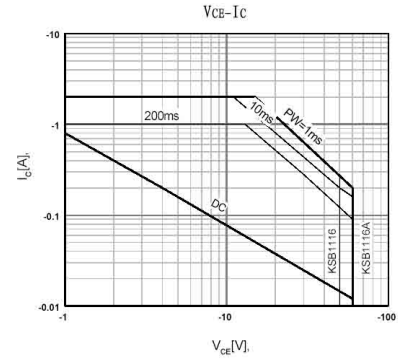
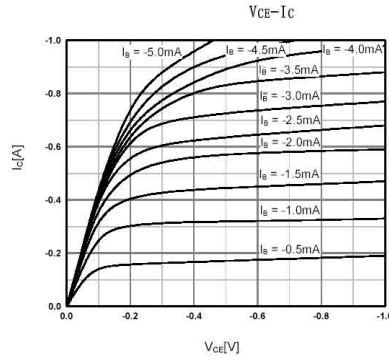
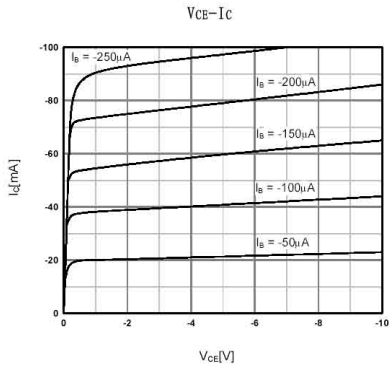
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

| 参数<br>Parameter                | 符号<br>Symbol     | 数值<br>Rating | 单位<br>Unit |   |
|--------------------------------|------------------|--------------|------------|---|
| Collector to Base Voltage      | V <sub>CBO</sub> | KSB1116      | -60        | V |
|                                |                  | KSB1116A     | -120       |   |
| Collector to Emitter Voltage   | V <sub>CEO</sub> | KSB1116      | -50        | V |
|                                |                  | KSB1116A     | -60        |   |
| Emitter to Base Voltage        | V <sub>EBO</sub> | -6.0         | V          |   |
| Collector Current - Continuous | I <sub>C</sub>   | -1.0         | A          |   |
| Base Current – Continuous      | I <sub>B</sub>   | -2.0         | A          |   |
| Collector Power Dissipation    | P <sub>C</sub>   | 750          | mW         |   |
| Junction Temperature           | T <sub>j</sub>   | 150          | °C         |   |
| Storage Temperature Range      | T <sub>stg</sub> | -55~150      | °C         |   |

**电性能参数 / Electrical Characteristics(Ta=25°C)**

| 参数<br>Parameter                         | 符号<br>Symbol         | 测试条件<br>Test Conditions                             | 最小值<br>Min | 典型值<br>Typ | 最大值<br>Max | 单位<br>Unit |
|---|----------------------|---|------------|------------|------------|------------|
| Collector Cut-Off Current               | I <sub>CBO</sub>     | V <sub>CB</sub> =-60V I <sub>E</sub> =0             |            |            | -0.1       | μA         |
| Emitter Cut-Off Current                 | I <sub>EBO</sub>     | V <sub>EB</sub> =-6.0V I <sub>C</sub> =0            |            |            | -0.1       | μA         |
| DC Current Gain                         | h <sub>FE(1)</sub>   | V <sub>CE</sub> =-2.0V I <sub>C</sub> =-100mA       | 135        |            | 600        |            |
|   |                      |   | 135        |            | 400        |            |
|   | h <sub>FE(2)</sub>   | V <sub>CE</sub> =-2.0V I <sub>C</sub> =-1.0A        | 81         |            |            |            |
| Collector to Emitter Saturation Voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =-1.0A I <sub>B</sub> =-50mA         |            | -0.2       | -0.3       | V          |
| Base to Emitter Saturation Voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> =-1.0A I <sub>B</sub> =-50mA         |            | -0.9       | -1.2       | V          |
| Base to Emitter On Voltage              | V <sub>BE(ON)</sub>  | V <sub>CE</sub> =-2.0V I <sub>C</sub> =-50mA        | -0.60      | -0.65      | -0.70      | V          |
| Transition Frequency                    | f <sub>T</sub>       | V <sub>CE</sub> =-2.0V I <sub>C</sub> =-100mA       | 70         | 120        |            | MHz        |
| Collector Output Capacitance            | C <sub>ob</sub>      | V <sub>CB</sub> =-10V I <sub>E</sub> =0<br>f=1.0MHz |            | 25         |            | pF         |
| Turn-On Time                            | t <sub>on</sub>      | V <sub>CC</sub> =-10V I <sub>C</sub> =-100mA        |            | 0.07       |            | μs         |
| Storage Time                            | t <sub>stg</sub>     | I <sub>B1</sub> =-I <sub>B2</sub> =-10mA            |            | 0.7        |            | μs         |
| Turn-Off Time                           | t <sub>off</sub>     | V <sub>BE(off)</sub> =2V~3V                         |            | 0.07       |            | μs         |

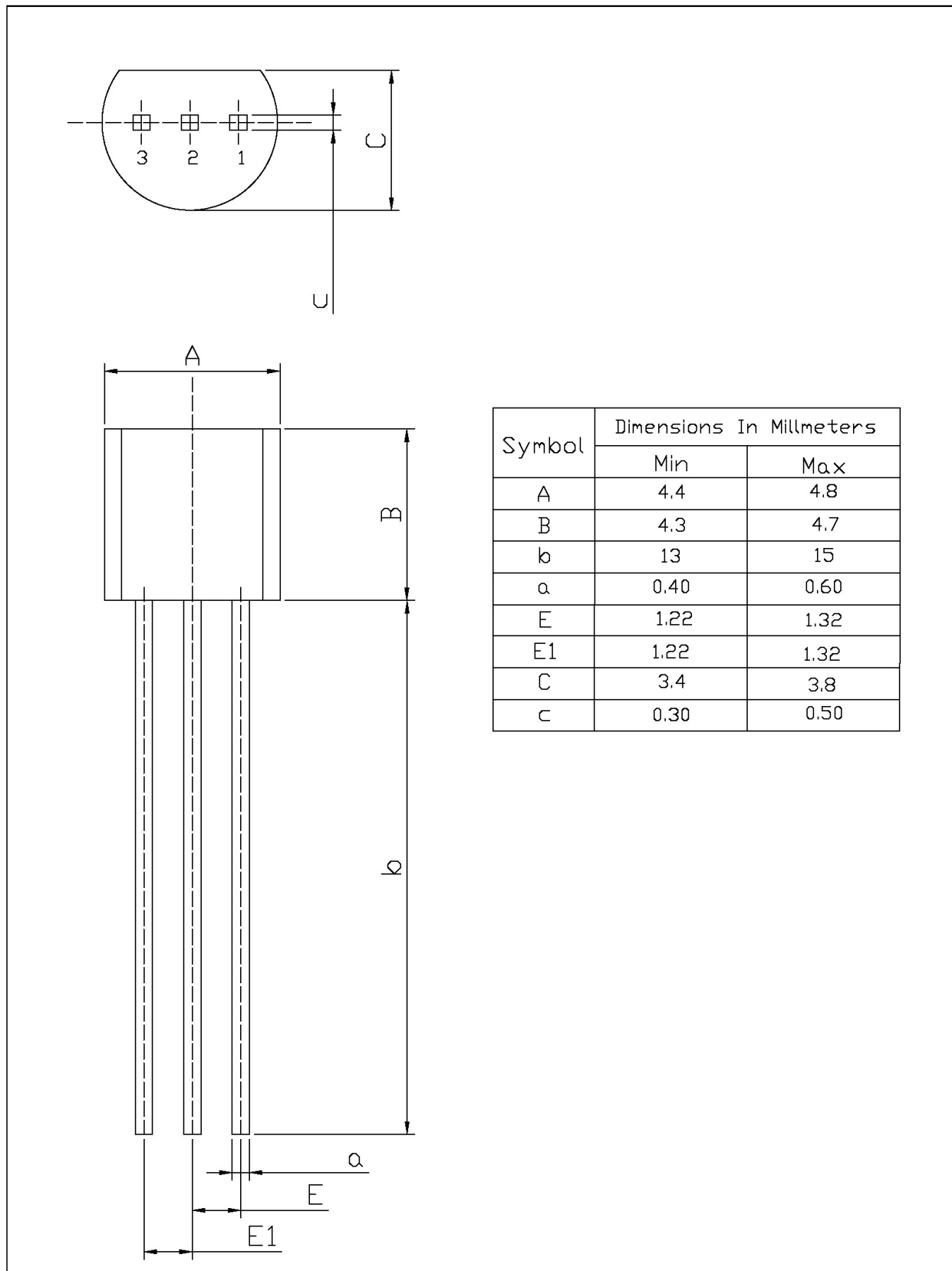
电参数曲线图 / Electrical Characteristic Curve



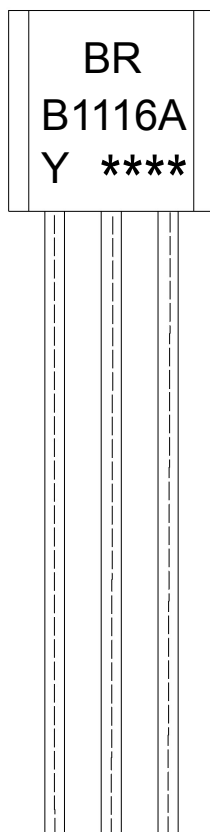
外形尺寸图 / Package Dimensions

TO-92

Unit: mm



印章说明 / Marking Instructions



说明：

BR: 为公司代码

B1116 : 为型号代码

Y: 为  $h_{FE}$  分档代码

\*\*\*\* : 为生产批号代码，随生产批号变化。

Note:

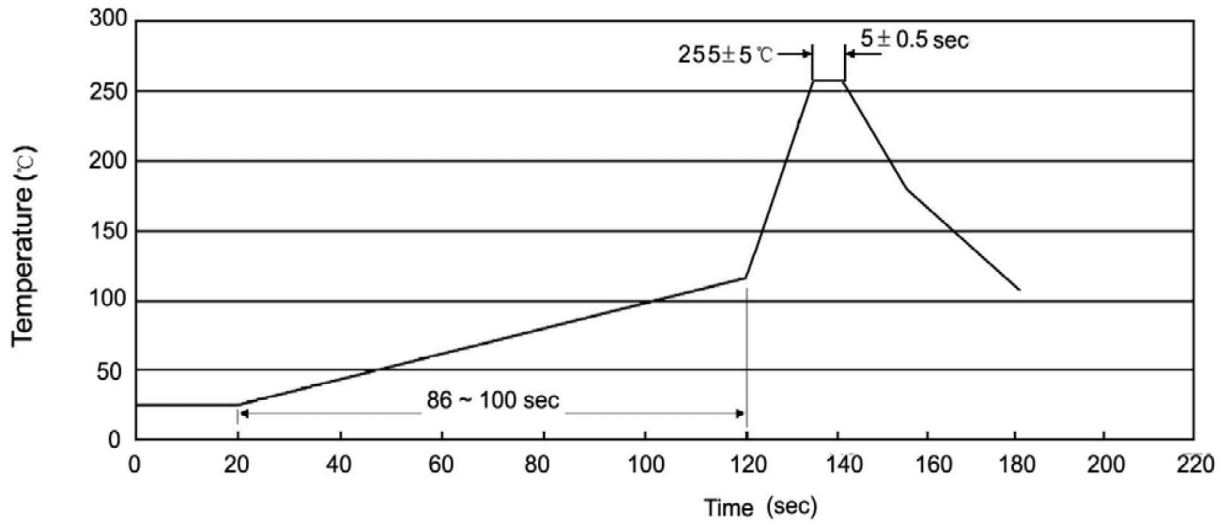
BR: Company Code.

B1116: Product Type.

Y:  $h_{FE}$  Classifications Symbol

\*\*\*\*: Lot No. Code,code change with Lot No.

**波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)**



说明：

- 1、预热温度 25 ~ 150°C，时间 60 ~ 90sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2 ~ 10°C/sec.

Note:

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

**耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions**

温度：270±5°C

时间：10±1 sec.

Temp:270±5°C

Time:10±1 sec

**包装规格 / Packaging SPEC.**

散件包装 / 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-92                | 1,000            | 10                    | 10,000                 | 5                            | 50,000                 | 135×190                    | 237×172×102 | 560×245×195 |
|                      | 1,000            | 10                    | 10,000                 | 10                           | 100,000                | 135×190                    | 237×172×102 | 560×245×375 |

编带包装 / 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-92                | 3,000              | 1                      | 120                     | 10                           | 30,000                 | 328×230×42                 | 小箱 480×346×235,<br>大箱 547×407×268 |

**使用说明 / Notices**