

# KSD1616(A)

Rev.E Mar.-2016

## 描述 / Descriptions

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

## 特征 / Features

与 KSB1116(A)互补

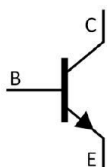
Complementary pair with KSB1116(A)

## 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

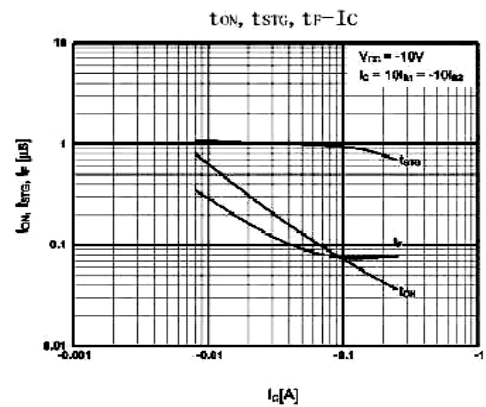
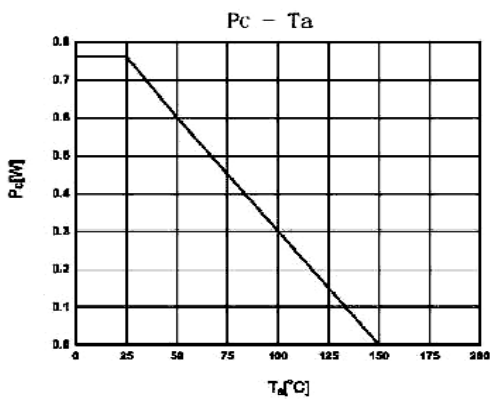
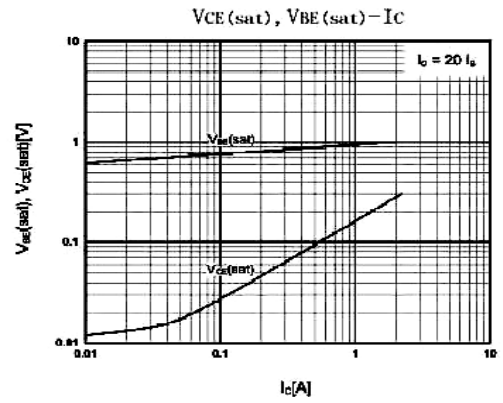
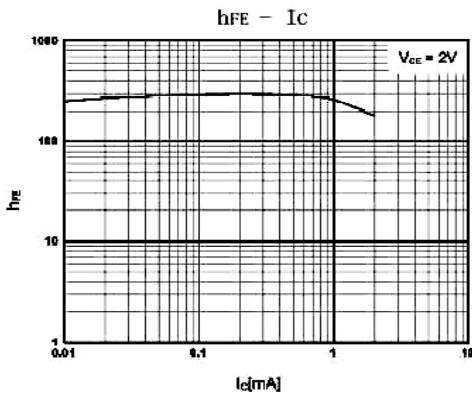
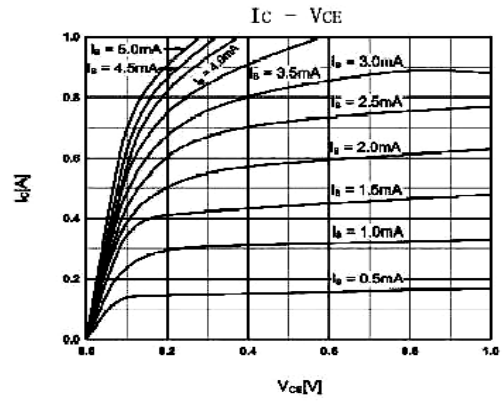
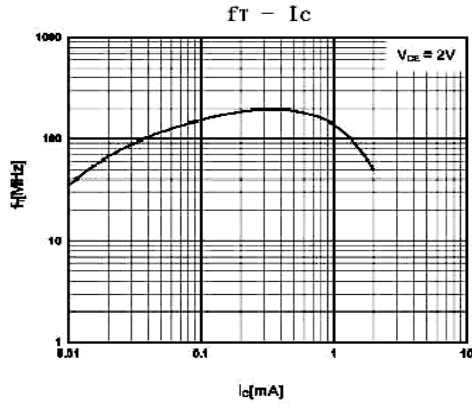
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V <sub>CBO</sub>	KSD1616	60
		KSD1616A	120
Collector to Emitter Voltage	V <sub>CEO</sub>	KSD1616	50
		KSD1616A	60
Emitter to Base Voltage	V <sub>EBO</sub>	6.0	V
Collector Current - Continuous	I <sub>C</sub>	1.0	A
Collector Current – Continuous(Pulse)	I <sub>CP</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 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 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		0.15	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	600	640	700	mV
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =2.0V I <sub>C</sub> =100mA	100	160		MHz
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V I <sub>E</sub> =0 f=1.0MHz		19		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		0.95		μs
Turn-Off Time	t <sub>off</sub>	V <sub>BE(off)</sub> =-2V~-3V		0.07		μs

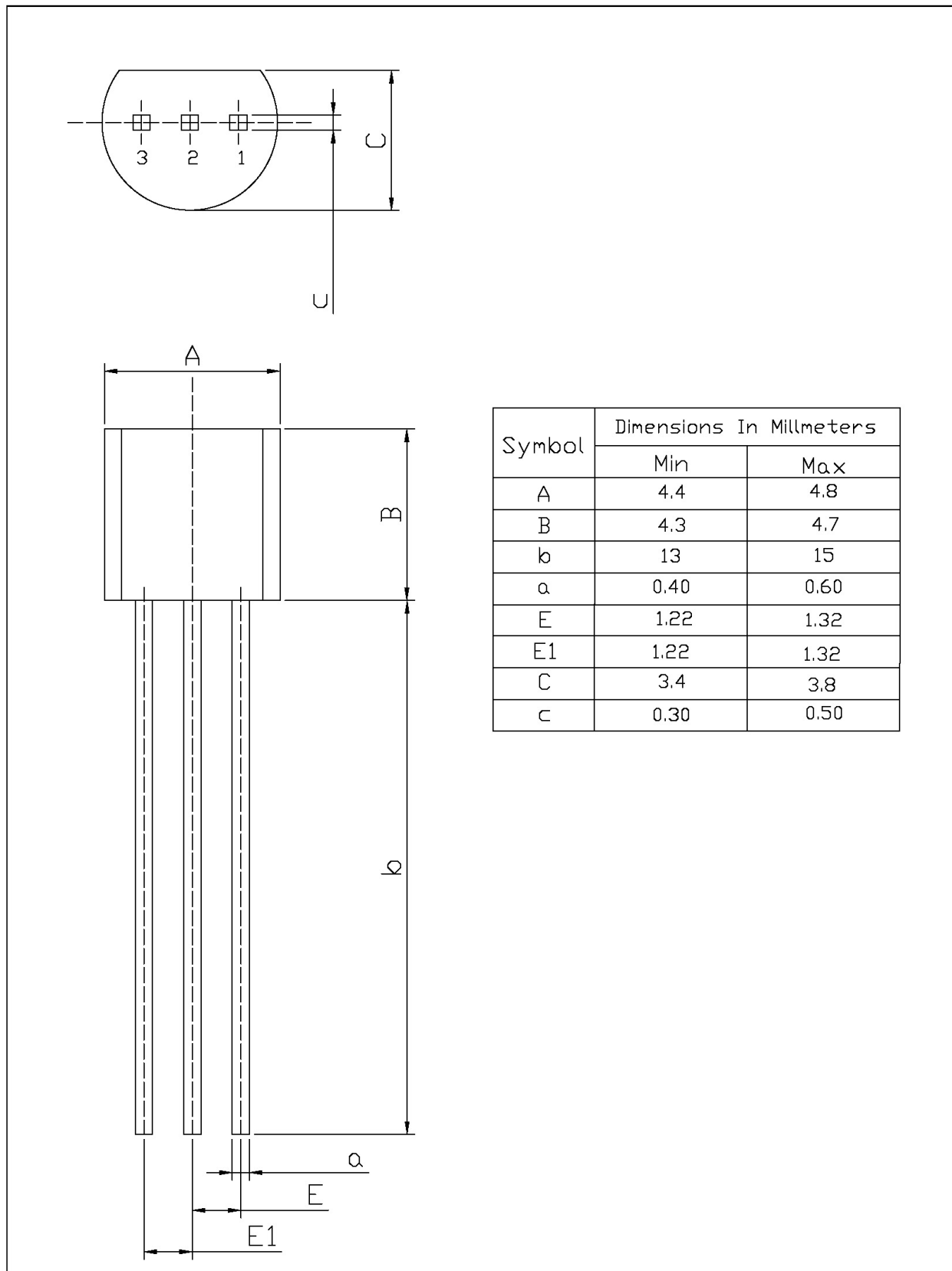
电参数曲线图 / Electrical Characteristic Curve



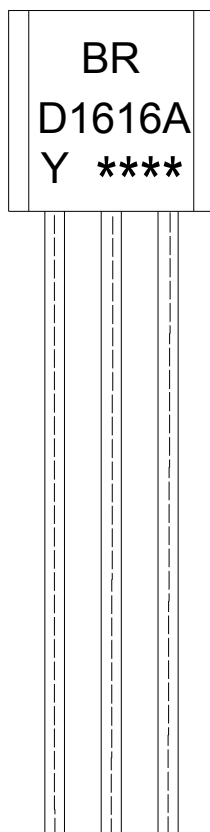
外形尺寸图 / Package Dimensions

TO-92

Unit: mm



印章说明 / Marking Instructions



说明：

BR: 为公司代码

D1616A : 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.

D1616A: 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 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)		
	Units/Bag 只/袋	Bags/Inner Box 袋/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 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 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)	
	Units/tape 只/纸带	Tape/Inner Box 纸带/盒	Rows/Inner Box 纸带层/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 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, 大箱 547×407×268

**使用说明 / Notices**