

# KSA931

Rev.E Mar.-2016

## 描述 / Descriptions

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

## 特征 / Features

高击穿电压,与 KSC2331 互补。

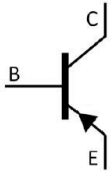
High Collector-Base voltage, complementary pair with KSC2331.

## 用途 / Applications

低频放大,中速开关。

Low frequency amplifier, medium speed switching.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN 1 : Base      PIN 2 : Collector      PIN 3 : Emitter

## 放大及印章代码 / $h_{FE}$ Classifications & Marking

$h_{FE}$ Classifications Symbol	R	O	Y
$h_{FE}$ Range	40~80	70~140	120~240

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

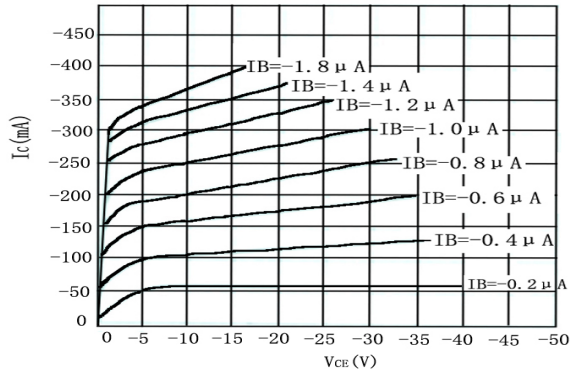
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	$V_{CBO}$	-80	V
Collector to Emitter Voltage	$V_{CEO}$	-60	V
Emitter to Base Voltage	$V_{EBO}$	-8.0	V
Collector Current - Continuous	$I_C$	-700	mA
Collector Power Dissipation	$P_C$	1.0	W
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C

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

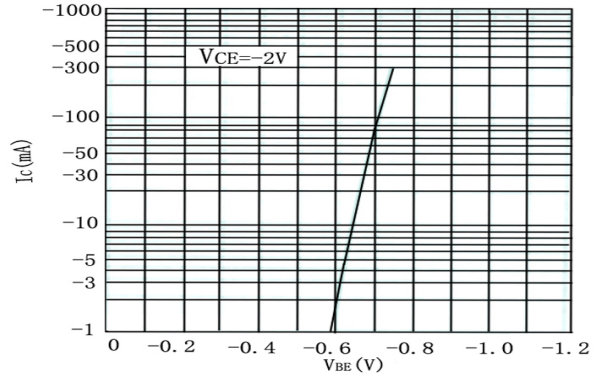
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Collector to Base Breakdown Voltage	$V_{CBO}$	$I_C=-100\mu A$ $I_E=0$	-80			V
Collector to Emitter Breakdown Voltage	$V_{CEO}$	$I_C=-10mA$ $I_B=0$	-60			V
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=-100\mu A$ $I_C=0$	-8.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-60V$ $I_E=0$			-0.1	$\mu A$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=-5.0V$ $I_C=0$			-0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=-2.0V$ $I_C=-50mA$	40		240	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-500mA$ $I_B=-50mA$		-0.3	-0.7	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-500mA$ $I_B=-50mA$		-0.9	-1.2	V
Transition Frequency	$f_T$	$V_{CE}=-10V$ $I_C=-50mA$		100		MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=-10V$ $I_E=0$ $f=1.0MHz$		13		pF

电参数曲线图 / Electrical Characteristic Curve

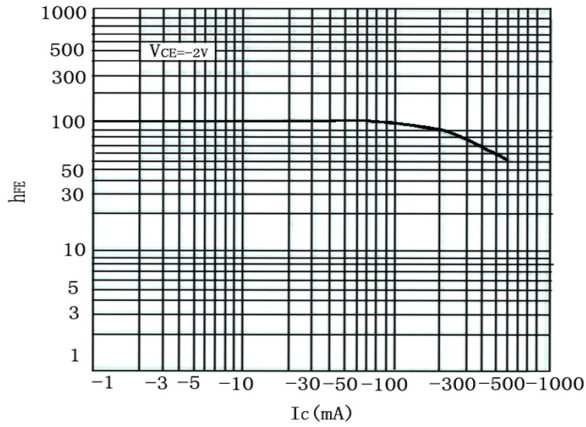
$I_C - V_{CE}$



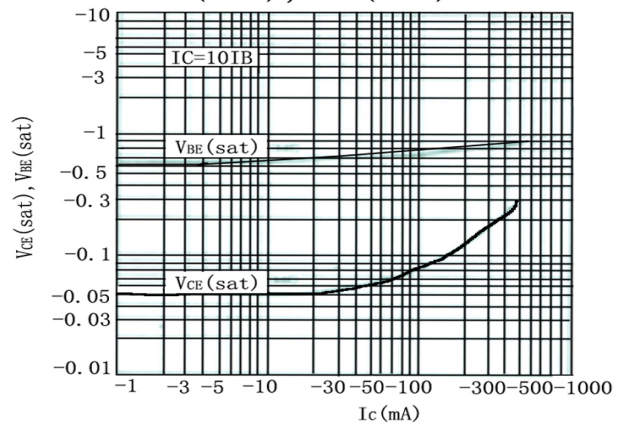
$I_C - V_{BE}$



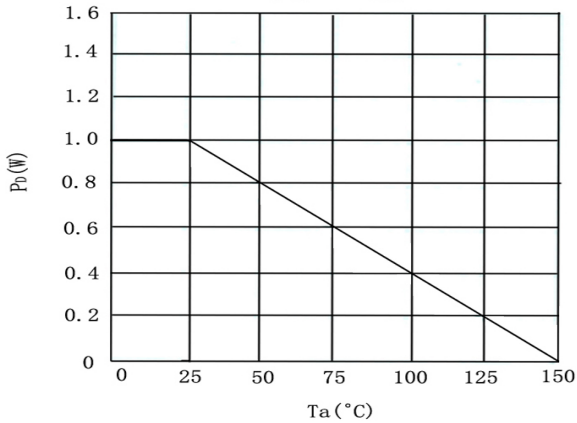
$h_{FE} - I_C$



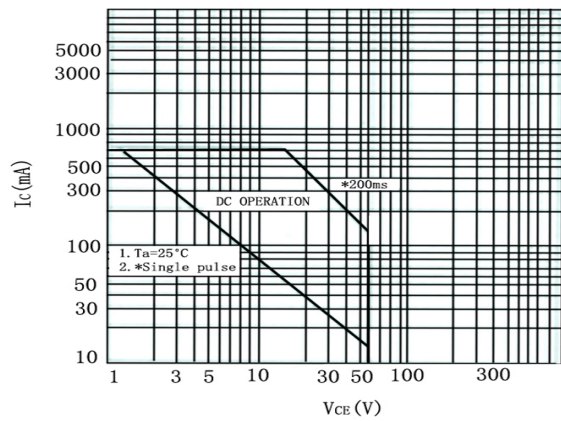
$V_{CE(sat)}, V_{BE(sat)} - I_C$



$P_D - T_a$



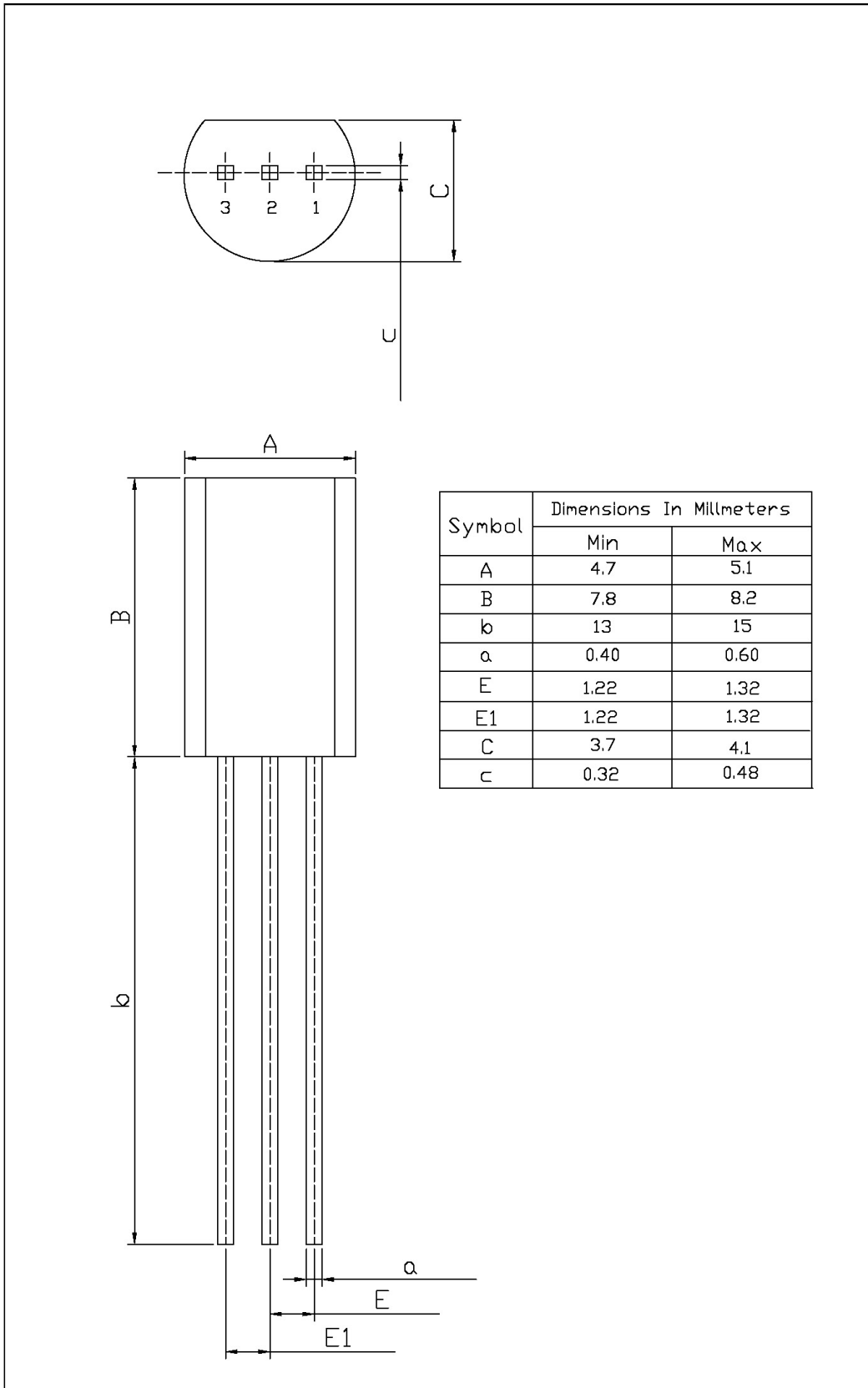
$I_C - V_{CE}$



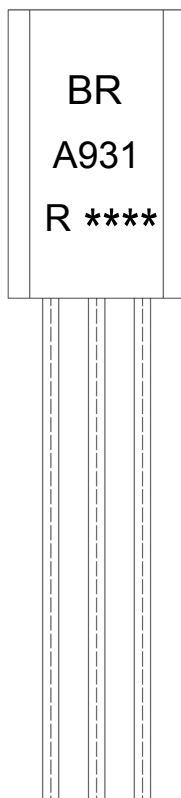
外形尺寸图 / Package Dimensions

T0-92LM

Unit: mm



印章说明 / Marking Instructions



说明：

BR: 为公司代码

A931 : 为型号代码

R: 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.

A931: Product Type.

R:  $h_{FE}$  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-92LM	1,000	8	8,000	5	40,000	135×190	237×172×102	560×245×195

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-92LM	2,500	1	100	10	25,000	328×230×42	小箱 480×346×235 大箱 547×407×268

**使用说明 / Notices**