

# MJE13003K4

Rev.E May.-2016

## 描述 / Descriptions

TO-252 塑封封装 NPN 半导体三极管。Silicon NPN transistor in a TO-252 Plastic Package.

## 特征 / Features

耐压高,开关速度快。

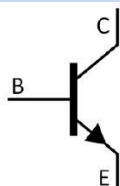
High voltage capability, high speed switching.

## 用途 / Applications

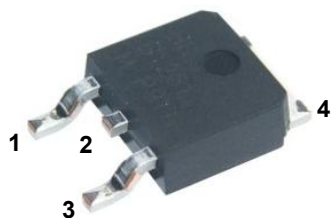
主要用于高频电子照明电路、开关及开关电源。

High frequency electronic lighting, switching power supply applications.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1 : Base

PIN 2、4 : Collector

PIN 3 : Emitter

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

见印章说明。See Marking Instructions

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

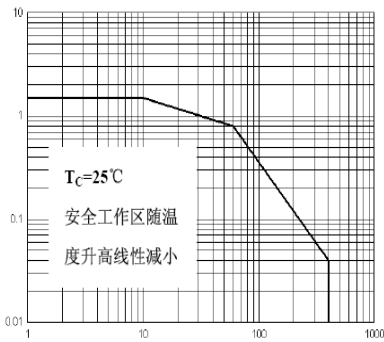
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	$V_{CBO}$	600	V
Collector to Emitter Voltage	$V_{CEO}$	400	V
Emitter to Base Voltage	$V_{EBO}$	9.0	V
Collector Current - Continuous	$I_C$	1.5	A
Collector Power Dissipation	$P_C$	1.25	W
Collector Power Dissipation	$P_C(T_C=25^\circ\text{C})$	50	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)**

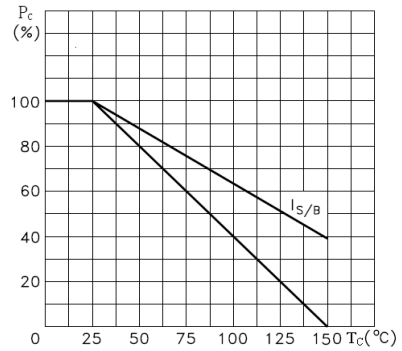
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Collector to Base Breakdown Voltage	$V_{CBO}$	$I_C=1\text{mA}$ $I_E=0$	600			V
Collector to Emitter Breakdown Voltage	$V_{CEO}$	$I_C=10\text{mA}$ $I_B=0$	400			V
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=1\text{mA}$ $I_C=0$	9.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=600\text{V}$ $I_E=0$			0.1	mA
Collector cut-off current	$I_{CEO}$	$V_{CE}=400\text{V}$ $I_B=0$			0.1	mA
Emitter Base Cut-Off Current	$I_{EBO}$	$V_{EB}=9.0\text{V}$ $I_C=0$			0.1	mA
DC Current Gain	$h_{FE}$	$V_{CE}=5.0\text{V}$ $I_C=0.2\text{A}$	10		40	
Collector to Base Breakdown Voltage	$V_{CE(sat)}$	$I_C=1.0\text{A}$ $I_B=0.25\text{A}$			0.9	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.0\text{A}$ $I_B=0.5\text{A}$			1.2	V
Transition Frequency	$f_T$	$V_{CE}=10\text{V}$ $f=1.0\text{MHz}$ $I_C=0.1\text{A}$	5.0			MHz
Storage time	$t_s$	$V_{CE}=5\text{V}$ $I_C=250\text{mA}$ (UI9600)			4	μs
Fall time	$t_f$				0.8	μs

电参数曲线图 / Electrical Characteristic Curve

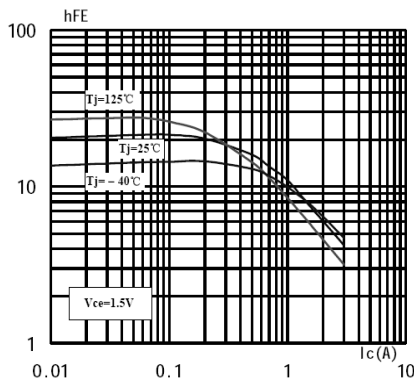
SOA(DC)



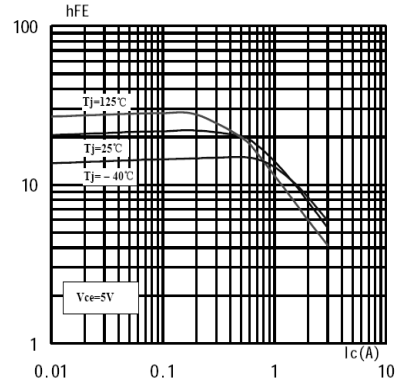
P<sub>C</sub>-T<sub>C</sub>



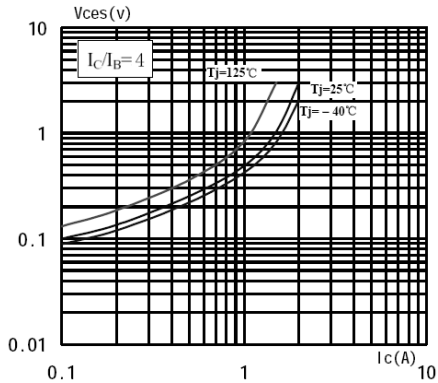
h<sub>FE</sub>-I<sub>C</sub>



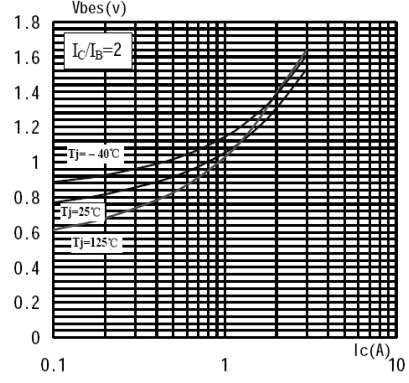
h<sub>FE</sub>-I<sub>C</sub>



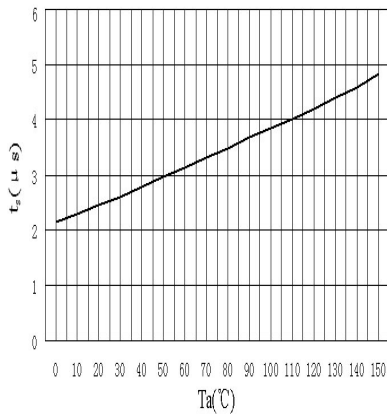
V<sub>ces</sub>-I<sub>C</sub>



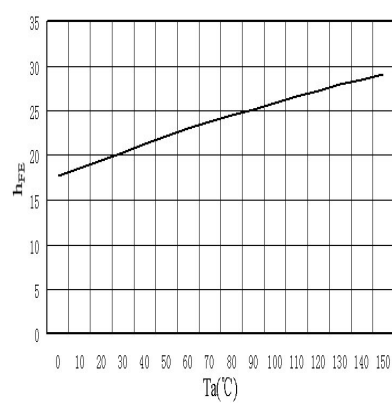
V<sub>bes</sub>-I<sub>C</sub>



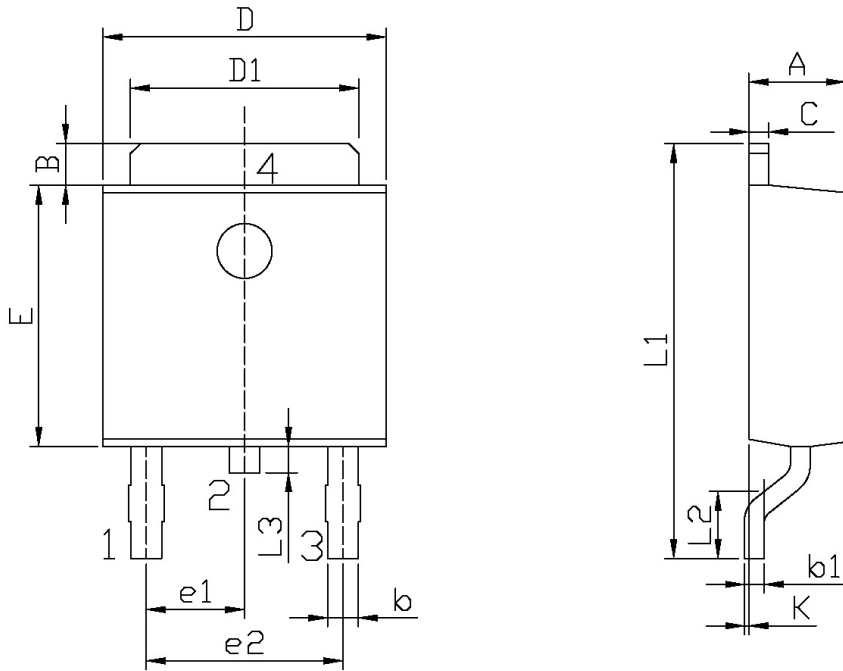
t<sub>S</sub>-T<sub>a</sub>



h<sub>FE</sub>-T<sub>a</sub>



外形尺寸图 / Package Dimensions

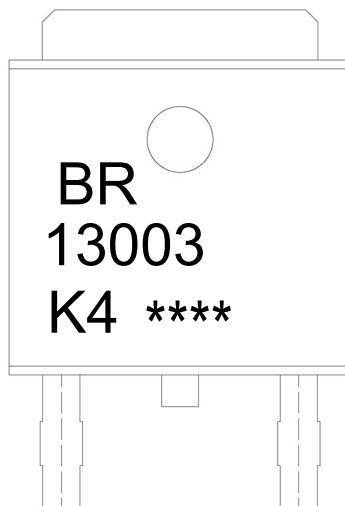


单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.50	0.70	e2	4.43	4.73
b1	0.45	0.55	L1	9.45	9.95
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

T0-252

## 印章说明 / Marking Instructions



说明：

BR： 为公司代码

13003： 为型号代码

K4： 为规格代码

\*\*\*\*： 为生产批号代码，随生产批号变化。

Note:

BR: Company Code

13003: Product Type.

K4: Specification Code

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

**回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)**



说明：

- 1、预热温度 25~150°C，时间 60~90sec;
- 2、峰值温度 245±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.:245±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：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

**包装规格 / Packaging SPEC.**

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
TO-252	2,500	2	5,000	5	25,000	13" × 16	360×360×50	385×257×392

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

**使用说明 / Notices**