

# BRDTA143XKAQ

Rev.A Mar.-2025

## 描述 / Descriptions

SOT-23 塑封封装 硅 PNP 数字三极管。Silicon PNP Digital transistor in a SOT-23 Plastic Package.

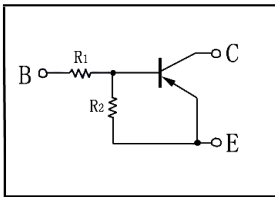
## 特征 / Features

内装偏置电阻，简化线路设计，减少元件和制造流程，符合 AEC-Q101 标准高可靠性要求，无卤产品。  
With built-in bias resistors, simplify circuit design, reduce a quantity of parts and manufacturing process, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

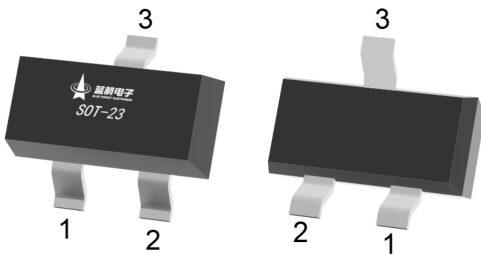
## 用途 / Applications

用于开关、反相电路、界面电路以及驱动电路中，满足汽车应用的严格要求。  
Switching, inverter circuit, interface circuit and driver circuit applications, Meet the stringent requirements of automotive applications.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



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

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

Marking	Q33
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**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Output Voltage	V <sub>CC</sub>	-50	V
Input Voltage	V <sub>I</sub>	-20	V
		7.0	V
Output Current	I <sub>O</sub>	-100	mA
Power Dissipation	P <sub>C</sub>	200	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
Input Voltage	V <sub>I(off)</sub>	V <sub>CC</sub> =-5.0V I <sub>O</sub> =-100μA	-0.3			V
	V <sub>I(on)</sub>	V <sub>O</sub> =-0.3V I <sub>O</sub> =-20mA			-2.5	V
Output Voltage	V <sub>O(on)</sub>	I <sub>O</sub> =-10mA I <sub>I</sub> =-0.5mA		-0.1	-0.3	V
Input Current	I <sub>I</sub>	V <sub>I</sub> =-5.0V			-1.8	mA
Output Cut-off Current	I <sub>O(off)</sub>	V <sub>CC</sub> =-50V V <sub>I</sub> =0V			-0.5	μA
DC Current Gain	G <sub>I</sub>	V <sub>O</sub> =-5.0V I <sub>O</sub> =-10mA	30			
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =-10V I <sub>C</sub> =-5.0mA f=100MHz		250		MHz
Resistance1	R <sub>1</sub>		3.29	4.7	6.11	KΩ
Resistance Ratio	R <sub>2</sub> /R <sub>1</sub>		1.7	2.1	2.6	

电参数曲线图 / Electrical Characteristic Curve

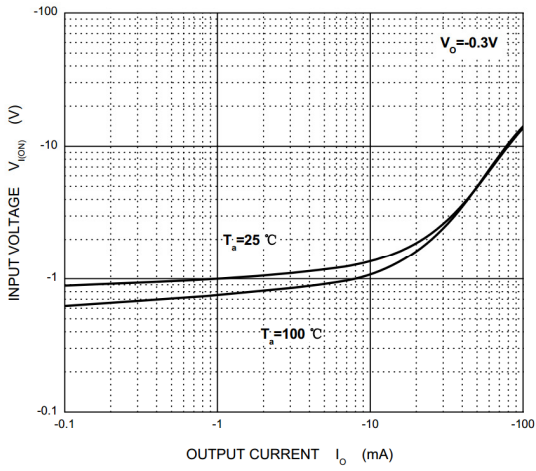


Fig 1. ON Characteristics

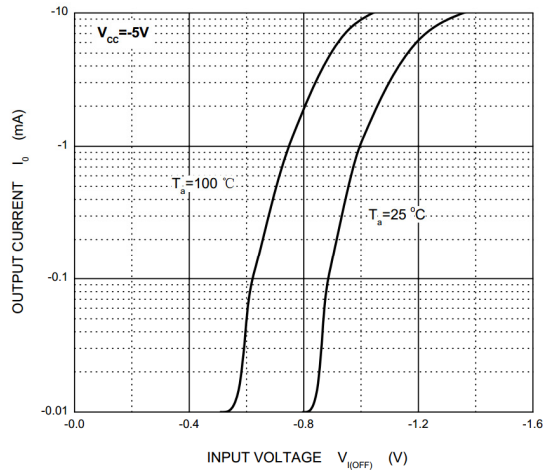


Fig 2. OFF Characteristics

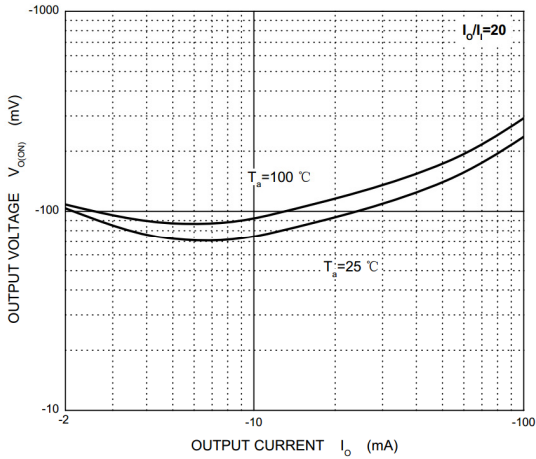


Fig 3.  $V_{O(ON)}$  —  $I_O$

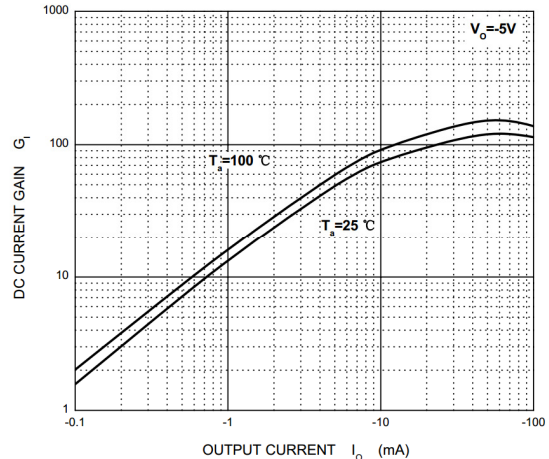


Fig 4.  $G_1$  —  $I_O$

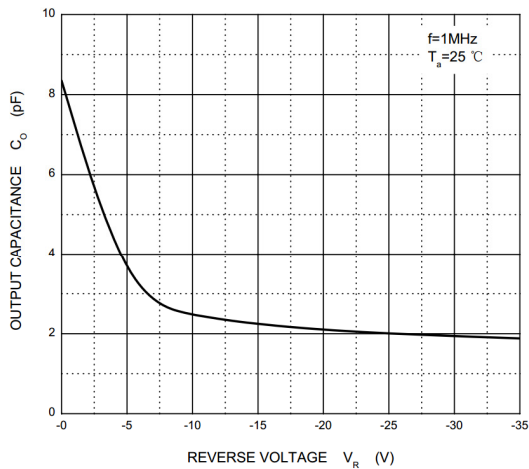


Fig 5.  $C_O$  —  $V_R$

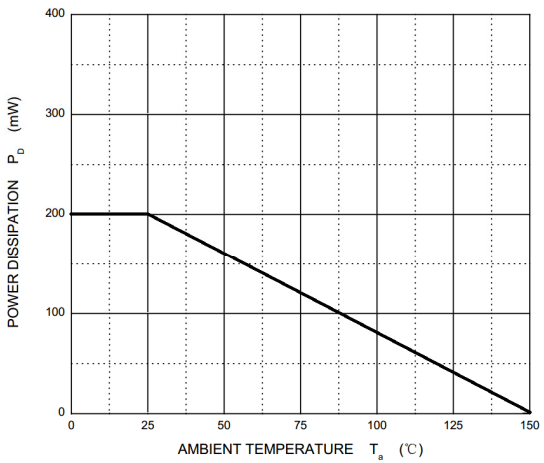
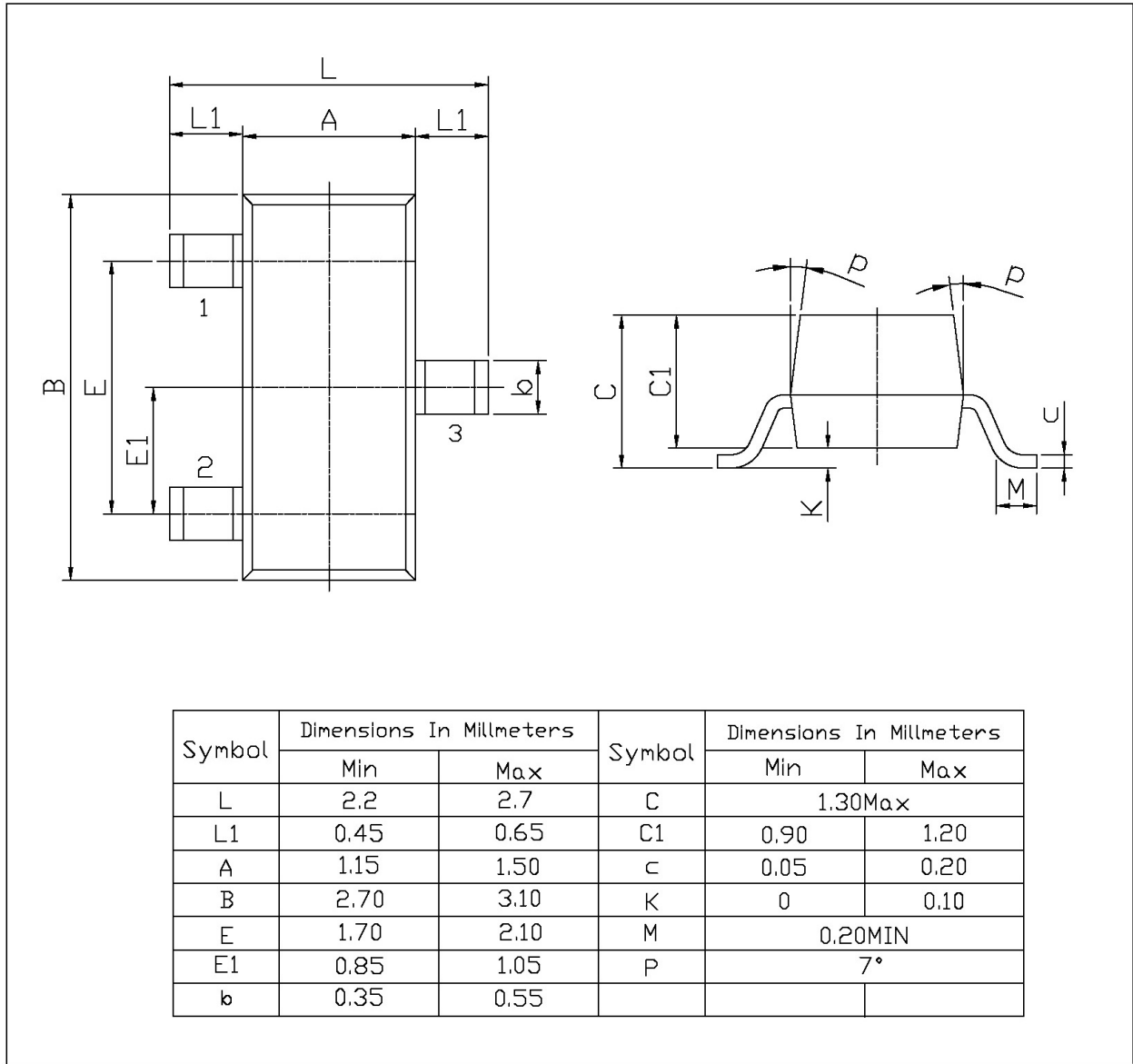


Fig 6.  $P_D$  —  $T_a$

外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

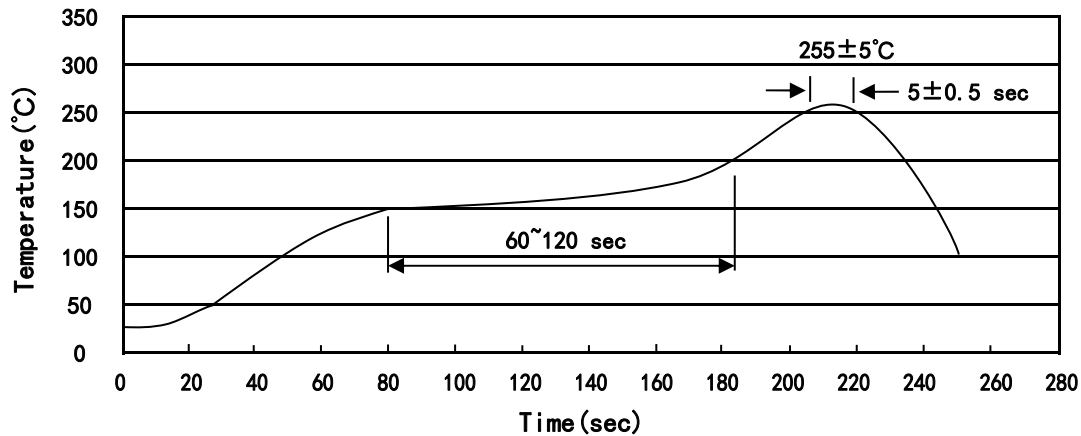
Q： 为汽车无卤产品标识

33： 为型号代码

Note:

Q: Automobile halogen-free product Code

33: Product Type Code

**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 150~200°C，时间 60~120sec;
- 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:150~200°C, Time:60~120sec.
- 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：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
SOT-23	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

**使用说明 / Notices**