

# BR2SD667(A)TQ

Rev.A Apr.-2023

## 描述 / Descriptions

SOT-89 塑封封装 NPN 半导体三极管。Silicon NPN transistor in a SOT-89 Plastic Package.

## 特征 / Features

与 BR2SB647(A)TQ 互补，符合 AEC-Q101 标准高可靠性要求，无卤产品。

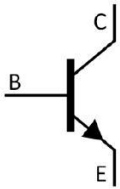
Complementary pair with BR2SB647(A)TQ, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

## 用途 / Applications

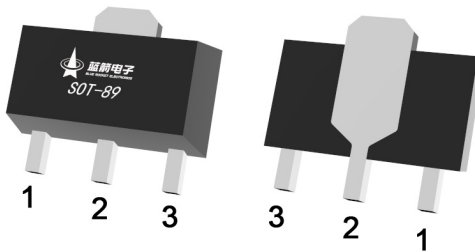
用于低频功率放大，满足汽车应用的严格要求。

Low frequency power amplifier, Meet the stringent requirements of automotive applications.

## 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 / $h_{FE}$ Classifications & Marking

$h_{FE}$ Classifications Symbol	B	C	D
$h_{FE}$ Range	60~120	100~200	160~320
Marking	Q67B * **	Q67C * **	Q67D * **

**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>	120	V
Collector to Emitter Voltage	V <sub>CEO</sub>	BR2SD667TQ	80
		BR2SD667ATQ	100
Emitter to Base Voltage	V <sub>EBO</sub>	5.0	V
Collector Current (DC)	I <sub>C</sub>	1.0	A
Collector Current (Pulse)	I <sub>CP</sub>	2.0	A
Collector Power Dissipation	P <sub>C</sub>	500	mW
Collector Power Dissipation*	*P <sub>C</sub>	1.0	W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55~150	°C

\*:mounted on ceramic substrate(250mm<sup>2</sup>×0.8t).

\*装于 250mm<sup>2</sup>×0.8t 的陶瓷上。

**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 <sub>CBO</sub>	I <sub>C</sub> =10μA I <sub>E</sub> =0	120			V
Collector to Emitter Breakdown Voltage	V <sub>CEO</sub>	BR2SD667TQ	80			V
		BR2SD667ATQ	100			
Emitter to Base Breakdown Voltage	V <sub>EBO</sub>	I <sub>E</sub> =10μA I <sub>C</sub> =0	5.0			V
Collector Cut-Off Current	I <sub>CBO</sub>	V <sub>CB</sub> =100V I <sub>E</sub> =0			10	μA
DC Current Gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =5.0V I <sub>C</sub> =150mA	60		320	
	h <sub>FE(2)</sub>	V <sub>CE</sub> =5.0V I <sub>C</sub> =500mA	30			
Collector to Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =500mA I <sub>B</sub> =50mA			1.0	V
Base to Emitter Saturation Voltage	V <sub>BE</sub>	V <sub>CE</sub> =5.0V I <sub>C</sub> =150mA			1.5	V
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =5.0V I <sub>C</sub> =150mA		140		MHz
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V I <sub>E</sub> =0 f=1.0MHz		12		pF

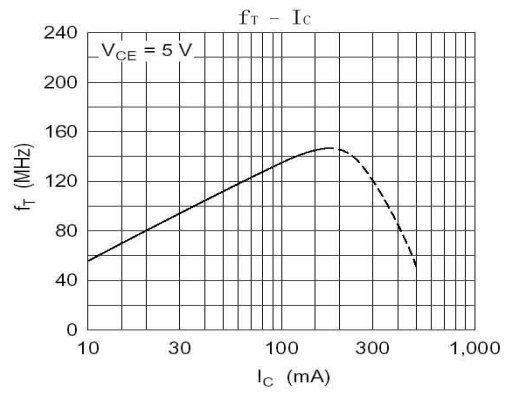
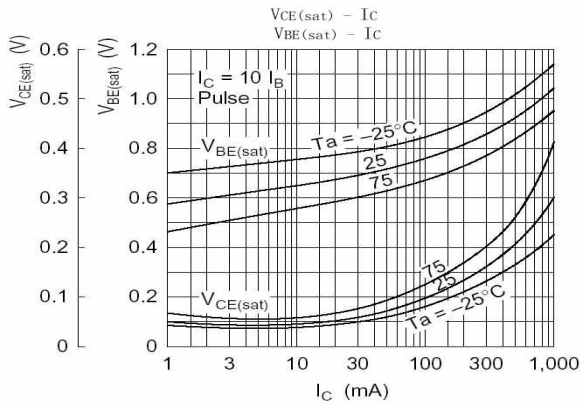
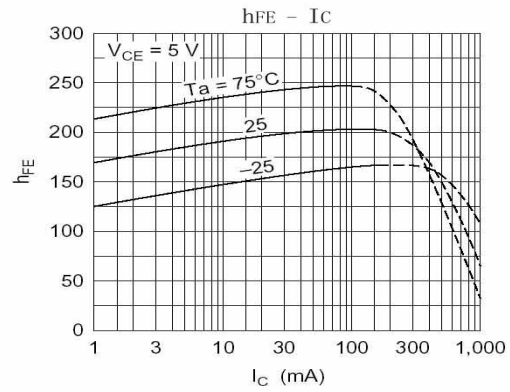
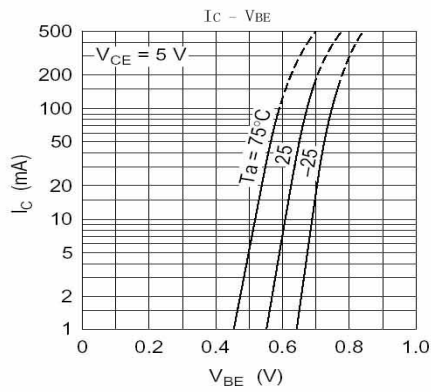
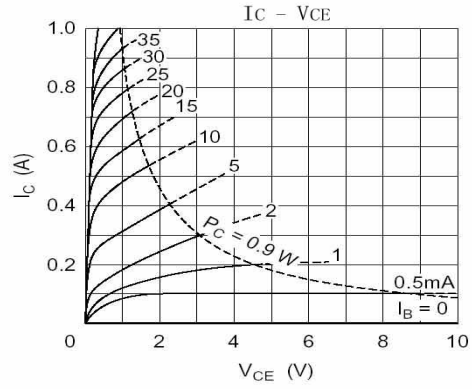
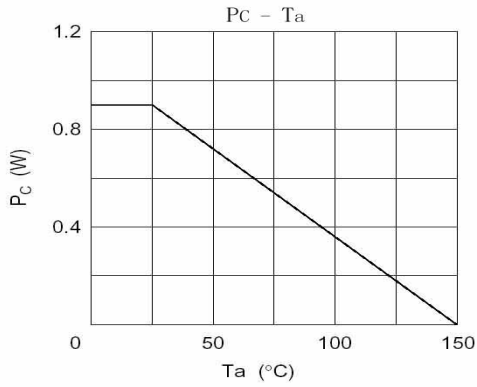
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DATA SHEET

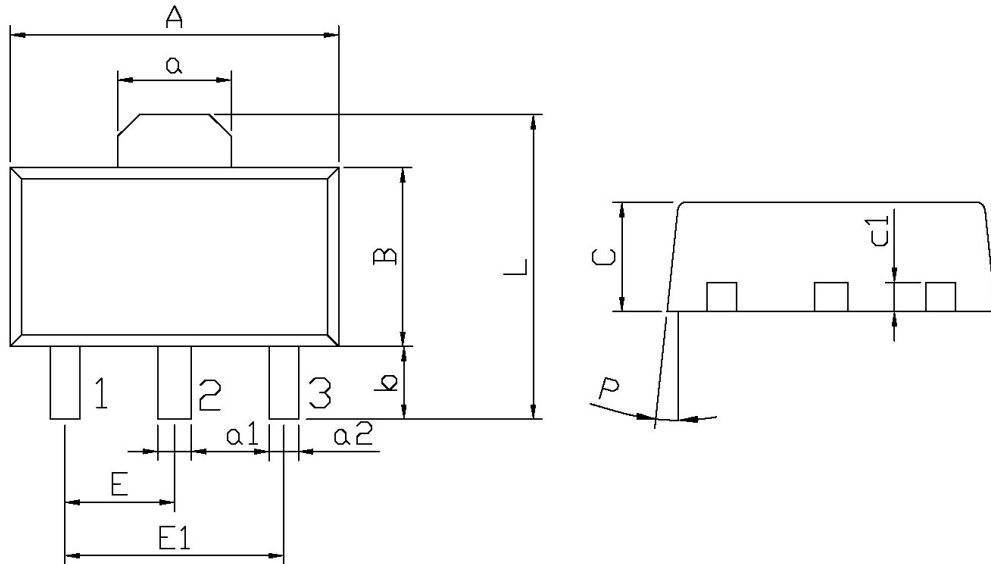
## 电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

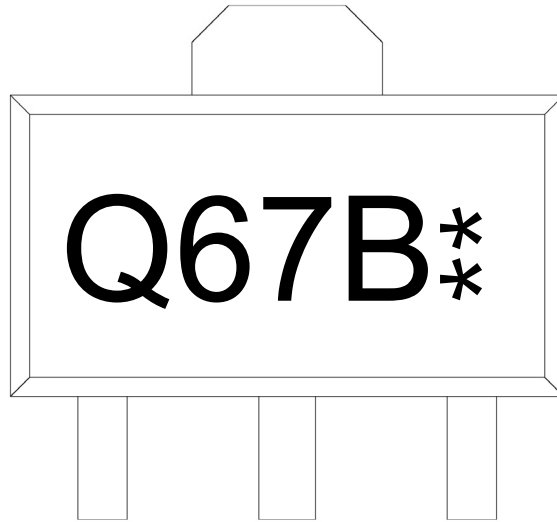
SOT-89

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.4	4.7	a1	0.36	0.56
B	2.35	2.65	a2	0.30	0.50
L	3.878	4.478	C	1.40	1.70
a	1.45	1.65	c1	0.35	0.50
E	1.40	1.60	P	6°	
E1	2.80	3.20			
b	0.80	1.20			

印章说明 / Marking Instructions

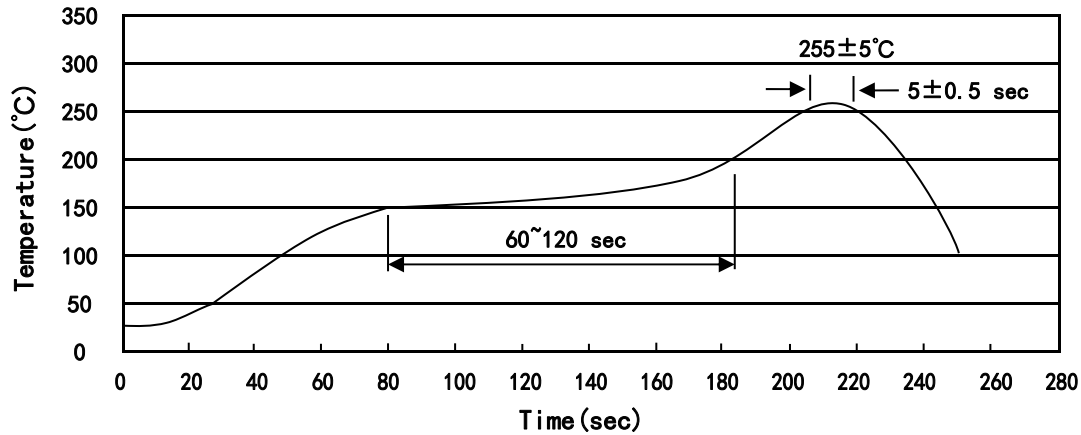


说明：

- Q：为汽车无卤产品标识
- 67：为型号代码
- B：为  $h_{FE}$  分档代码
- \*\*：为生产批号代码，随生产批号变化

Note:

- Q: Automobile halogen-free product Code
- 67: Product Type
- B:  $h_{FE}$  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 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-89	1,000	7	7,000	6	42,000	7" ×12	180×120×180	390×385×205

**使用说明 / Notices**