

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

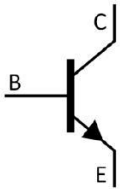
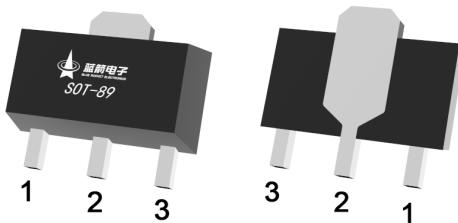
饱和压降 $V_{CE(sat)}$ 小, h_{FE} 高且线性极好, 符合 AEC-Q101 标准高可靠性要求, 无卤产品。

Low saturation voltage, excellent h_{FE} linearity and high h_{FE} , Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

用于 3 瓦音频放大输出, 电压调节器, 电源转换和继电器驱动, 满足汽车应用的严格要求。

Output stage of 3 watts audio amplifier, voltage regulator, DC-DC converter and relay driver, 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	R	Q	P	E
h_{FE} Range	60~120	100~200	160~320	200~400
Marking	Q82R *	Q82Q *	Q82P *	Q82E *

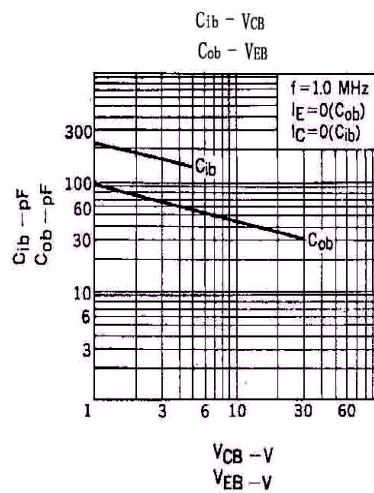
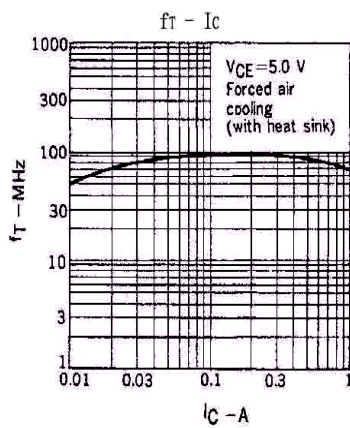
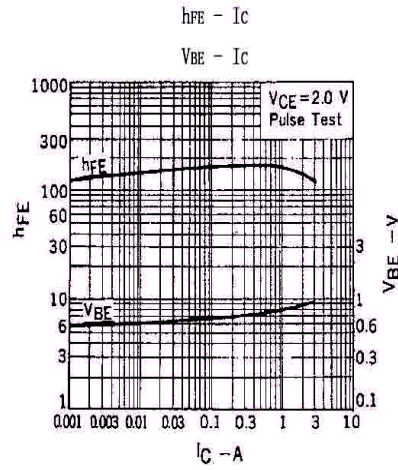
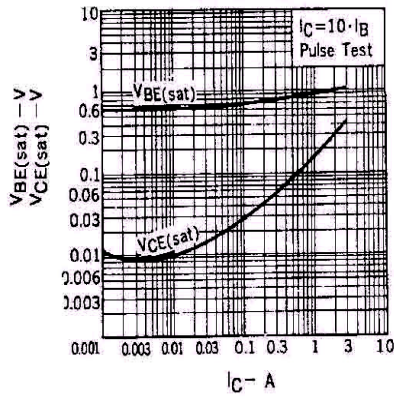
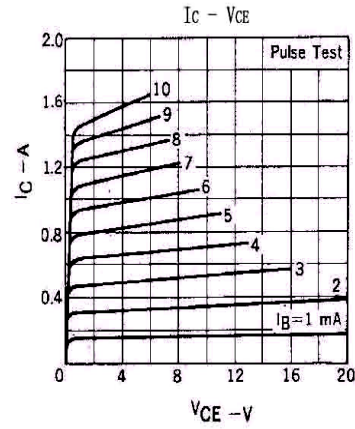
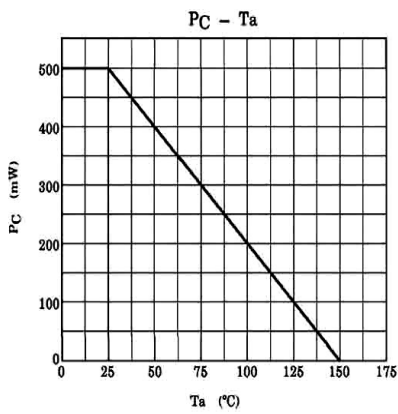
极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V_{CB0}	40	V
Collector to Emitter Voltage	V_{CEO}	30	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current-Continuous	I_C	3.0	A
Collector Power Dissipation	P_C	500	mW
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 Cut-Off Current	I_{CB0}	$V_{CB}=30V$ $I_E=0$			1.0	μA
Emitter Base Cut-Off Current	I_{EBO}	$V_{EB}=3.0V$ $I_C=0$			1.0	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=2.0V$ $I_C=1.0A$	60	160	400	
	$h_{FE(2)}$	$V_{CE}=2.0V$ $I_C=20mA$	30	150		
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2.0A$ $I_B=0.2A$		0.3	0.5	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2.0A$ $I_B=0.2A$		1.0	2.0	V
Transition Frequency	f_T	$V_{CE}=5.0V$ $I_C=0.1A$		90		MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=10V$ $f=1.0MHz$ $I_E=0$		45		pF

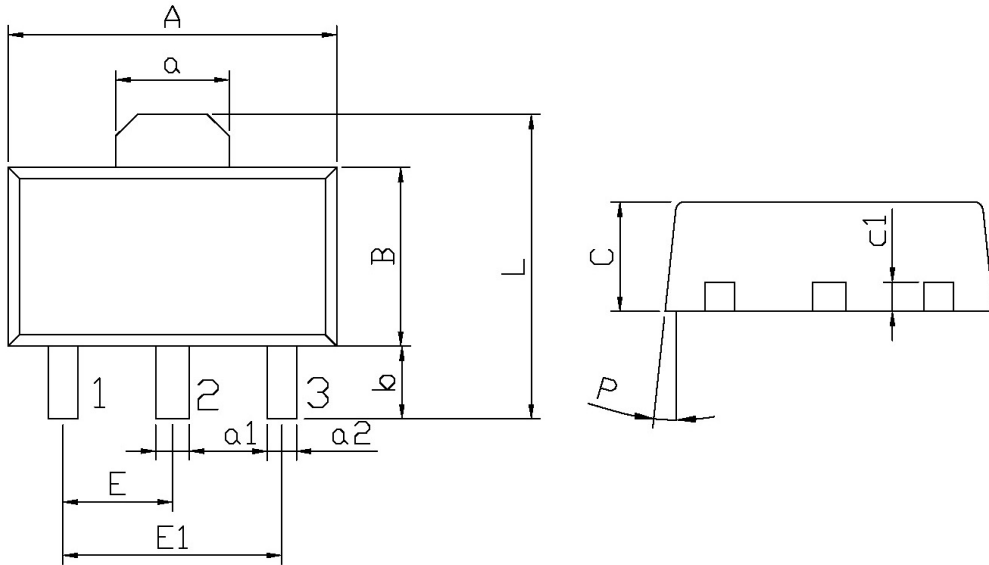
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

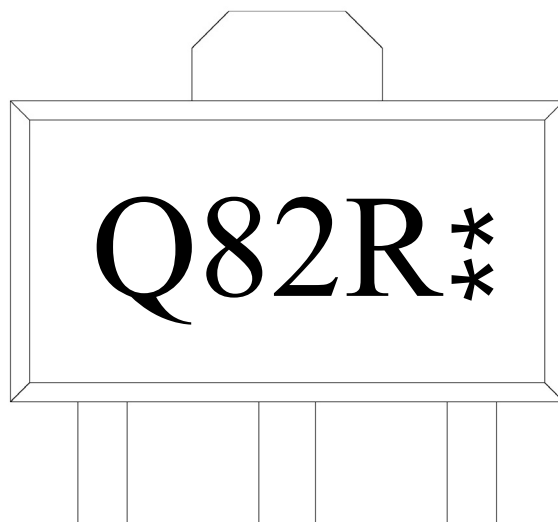
SOT-89

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

82： 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:

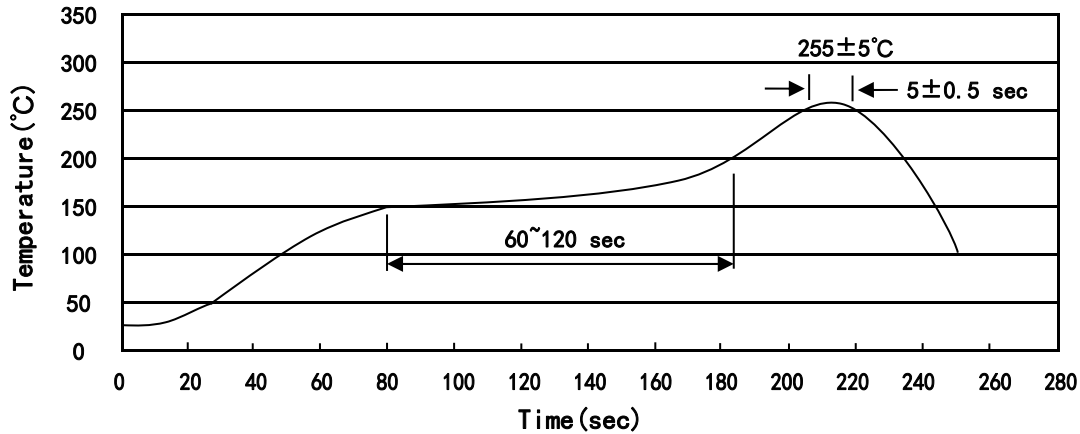
Q: Automobile halogen-free product Code

82: Product Type

R: h_{FE} Classifications Symbol

** : 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 $150 \sim 200^\circ\text{C}$ ，时间 $60 \sim 120 \text{ sec}$;
- 2、峰值温度 $255 \pm 5^\circ\text{C}$ ，时间持续为 $5 \pm 0.5 \text{ sec}$;
- 3、焊接制程冷却速度为 $2 \sim 10^\circ\text{C}/\text{sec}$.

Note:

- 1.Preheating: $150 \sim 200^\circ\text{C}$, Time: $60 \sim 120 \text{ sec}$.
- 2.Peak Temp.: $255 \pm 5^\circ\text{C}$, Duration: $5 \pm 0.5 \text{ sec}$.
3. Cooling Speed: $2 \sim 10^\circ\text{C}/\text{sec}$.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度： $260 \pm 5^\circ\text{C}$

时间： $10 \pm 1 \text{ sec}$.

Temp.: $260 \pm 5^\circ\text{C}$

Time: $10 \pm 1 \text{ sec}$

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 ³)		
	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