

描述 / Descriptions

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

特征 / Features

大电流，低电压，符合 AEC-Q101 标准高可靠性要求，无卤产品。

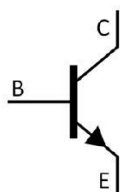
High current, low voltage, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

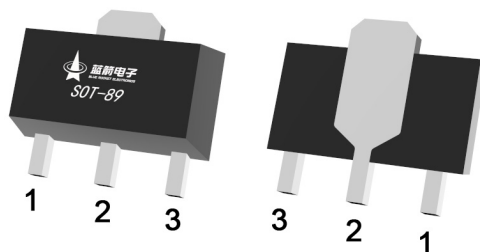
主要用于音频和视频放大，满足汽车应用的严格要求。

Driver stages of audio and video amplifiers applications, 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

印章代码 / Marking

$h_{FE(1)}$ Classifications	10	16
$h_{FE(1)}$ Range	63~160	100~250
Marking	QBK *	QBL *

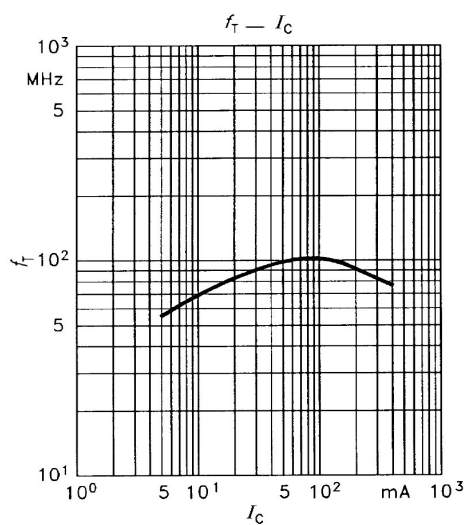
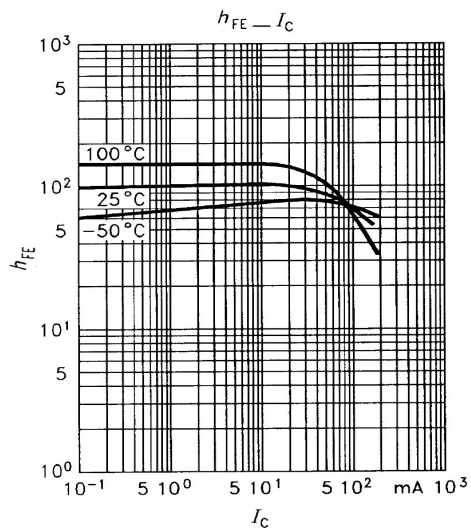
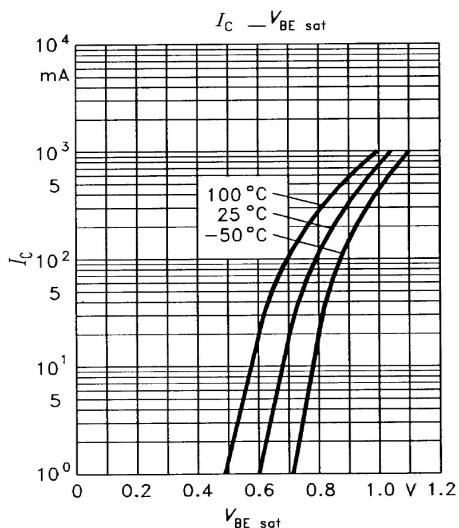
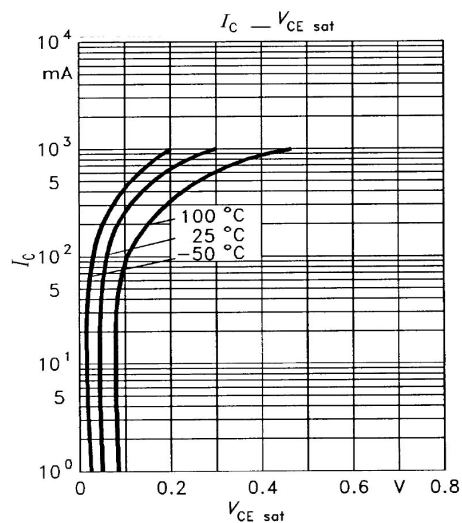
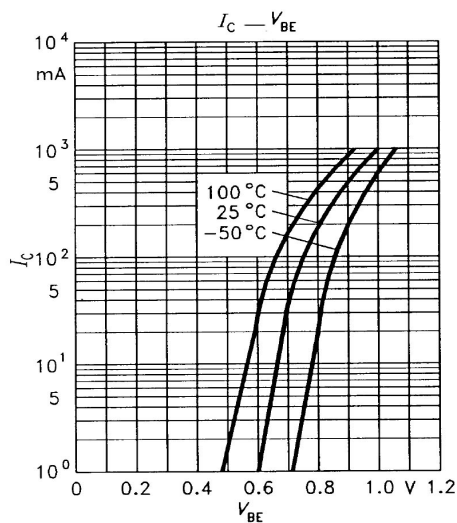
极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V_{CBO}	100	V
Collector to Emitter Voltage	V_{CEO}	80	V
Emitter to Base Voltage	V_{EBO}	5	V
Collector Current-Continuous	I_C	1	A
Peak Collector Current	I_{CM}	1.5	A
Peak Base Current	I_{BM}	0.2	A
Collector Power Dissipation	$P_C(T_C=25^{\circ}C)$	1.3	W
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}	$I_C=100\mu A$ $I_E=0$	100			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=500\mu A$ $I_B=0$	80			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E=100\mu A$ $I_C=0$	5.0			V
Collector Cut-Off Current	$I_{CBO(1)}$	$V_{CB}=30V$ $I_E=0$			0.1	μA
	$I_{CBO(2)}$	$V_{CB}=30V$ $I_E=0$ $T_j=125^{\circ}C$			10	μA
Emitter Base Cut-Off Current	I_{EBO}	$V_{EB}=5V$ $I_C=0$			0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=2V$ $I_C=150mA$	63		250	
	$h_{FE(2)}$	$V_{CE}=2V$ $I_C=5mA$	40			
	$h_{FE(3)}$	$V_{CE}=2V$ $I_C=500mA$	25			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=500mA$ $I_B=50mA$			0.5	V
Base to Emitter Voltage	V_{BE}	$I_C=500mA$ $V_{CE}=2V$			1	V
Transition Frequency	f_T	$I_C=10mA$ $V_{CE}=5V$ $f=100MHz$		130		MHz
DC Current Gain Ratio Of The Complementary Pairs	$\frac{h_{FE1}}{h_{FE2}}$	$ I_C =150mA$ $ V_{CE} =2V$		1.3	1.6	

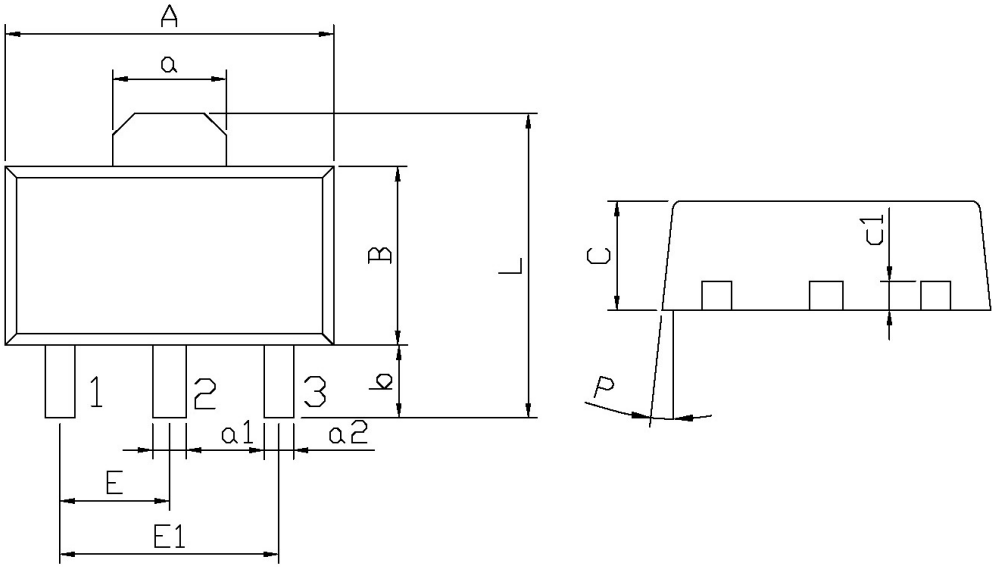
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

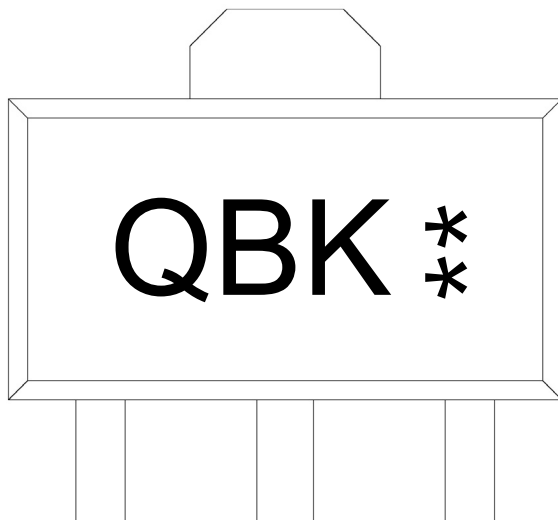
SOT-89

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

BK： 为型号代码

**： 为生产批号代码，随生产批号变化

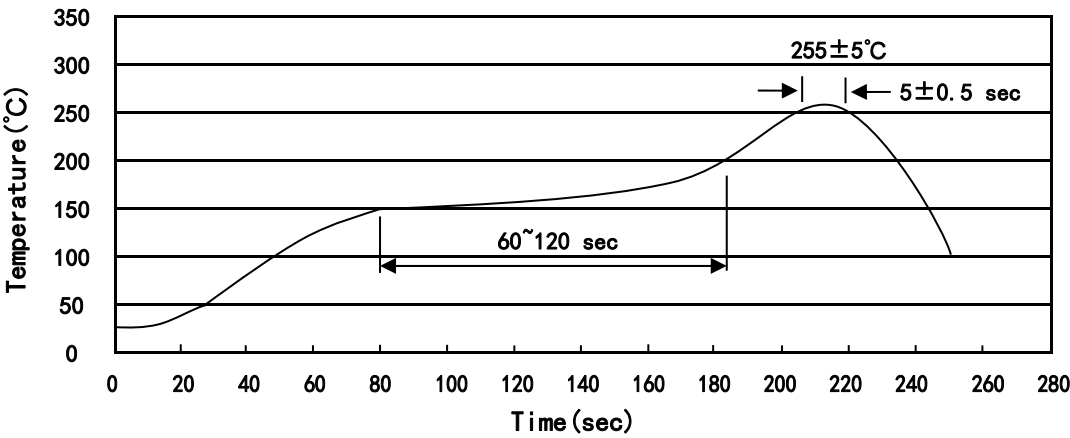
Note:

Q: Automobile halogen-free product Code

BK: Product Type

**: 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：
- Note:
- 1、预热温度 150 ~ 200°C，时间 60 ~ 120sec;

1.Preheating:150~200°C, Time:60~120sec.

2、峰值温度 255±5°C，时间持续为 5±0.5sec;

2.Peak Temp.:255±5°C, Duration:5±0.5sec.

3、焊接制程冷却速度为 2 ~ 10°C/sec.

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: mm³)		
	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