

**描述 / Descriptions**

SOT-23 塑封封装 NPN 半导体三极管。

Silicon NPN transistor in a SOT-23 Plastic Package.

**特征 / Features**

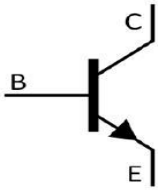
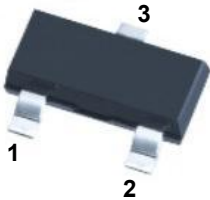
低电流，低电压，符合 AEC-Q101 标准高可靠性要求，无卤产品。

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

**用途 / Applications**

用于一般放大及开关，满足汽车应用的严格要求。

General power amplifier and switching application, Meet the stringent requirements of automotive applications.

**内部等效电路 / Equivalent Circuit****引脚排列 / Pinning**

PIN1 : Base      PIN 2 : Emitter      PIN 3 : Collector

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

$h_{FE}$ Classifications Symbol	A	B
$h_{FE}$ Range	110~220	200~450
Marking	1AQ	Q1B

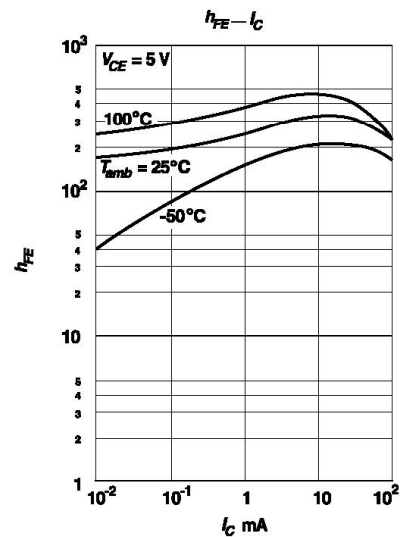
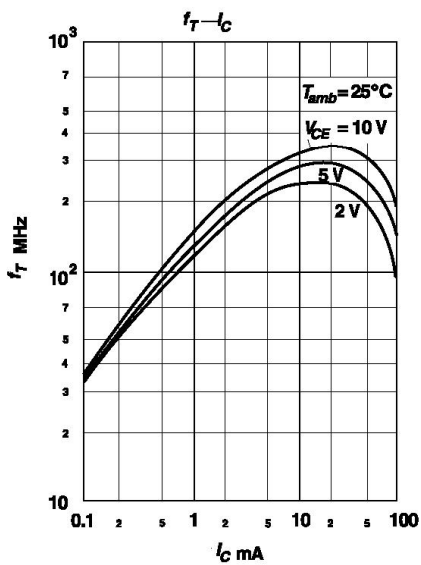
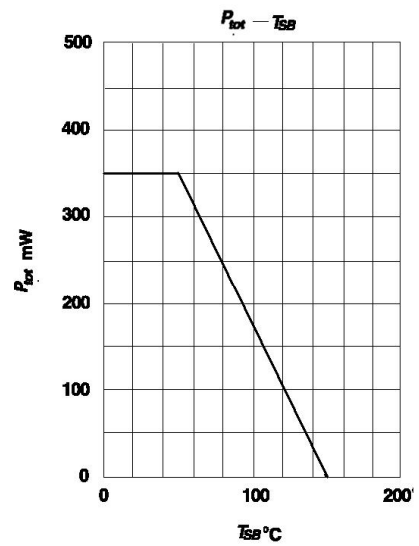
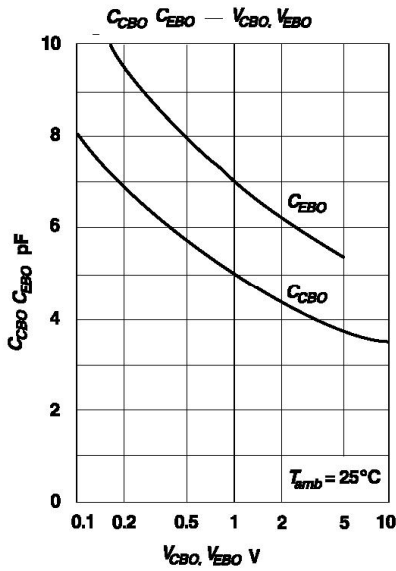
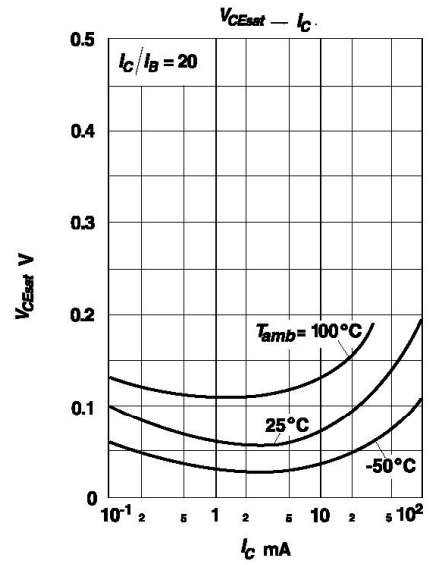
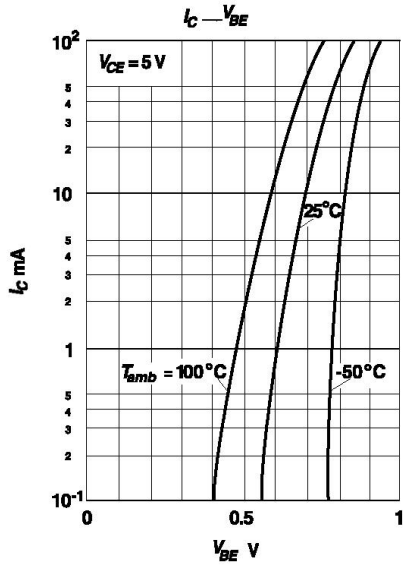
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	$V_{CBO}$	80	V
Collector to Emitter Voltage	$V_{CEO}$	65	V
Emitter to Base Voltage	$V_{EBO}$	6.0	V
Collector Current - Continuous	$I_C$	100	mA
Collector Power Dissipation	$P_C$	350	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	$I_{CBO}$	$V_{CB}=30V$ $I_E=0$			0.015	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=5.0V$ $I_C=2.0mA$	110		450	
Collector to Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C=10mA$ $I_B=0.5mA$		0.09	0.25	V
	$V_{CE(sat)(2)}$	$I_C=100mA$ $I_B=5.0mA$		0.2	0.6	V
Base to Emitter Saturation Voltage	$V_{BE(sat)(1)}$	$I_C=10mA$ $I_B=0.5mA$		0.7		V
	$V_{BE(sat)(2)}$	$I_C=100mA$ $I_B=5.0mA$		0.9		V
Base to Emitter Voltage	$V_{BE(1)}$	$V_{CE}=5.0V$ $I_C=2.0mA$	0.58		0.7	V
	$V_{BE(2)}$	$V_{CE}=5.0V$ $I_C=10mA$			0.75	V
Transition Frequency	$f_T$	$V_{CE}=5.0V$ $f=100MHz$ $I_C=10mA$		300		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10V$ $f=1.0MHz$ $I_E=0$		2.5	4.5	pF
Noise Figure	NF	$V_{CE}=6.0V$ $I_C=0.1mA$ $R_g=10K\Omega$ $f=1.0KHz$		1.0	10	dB

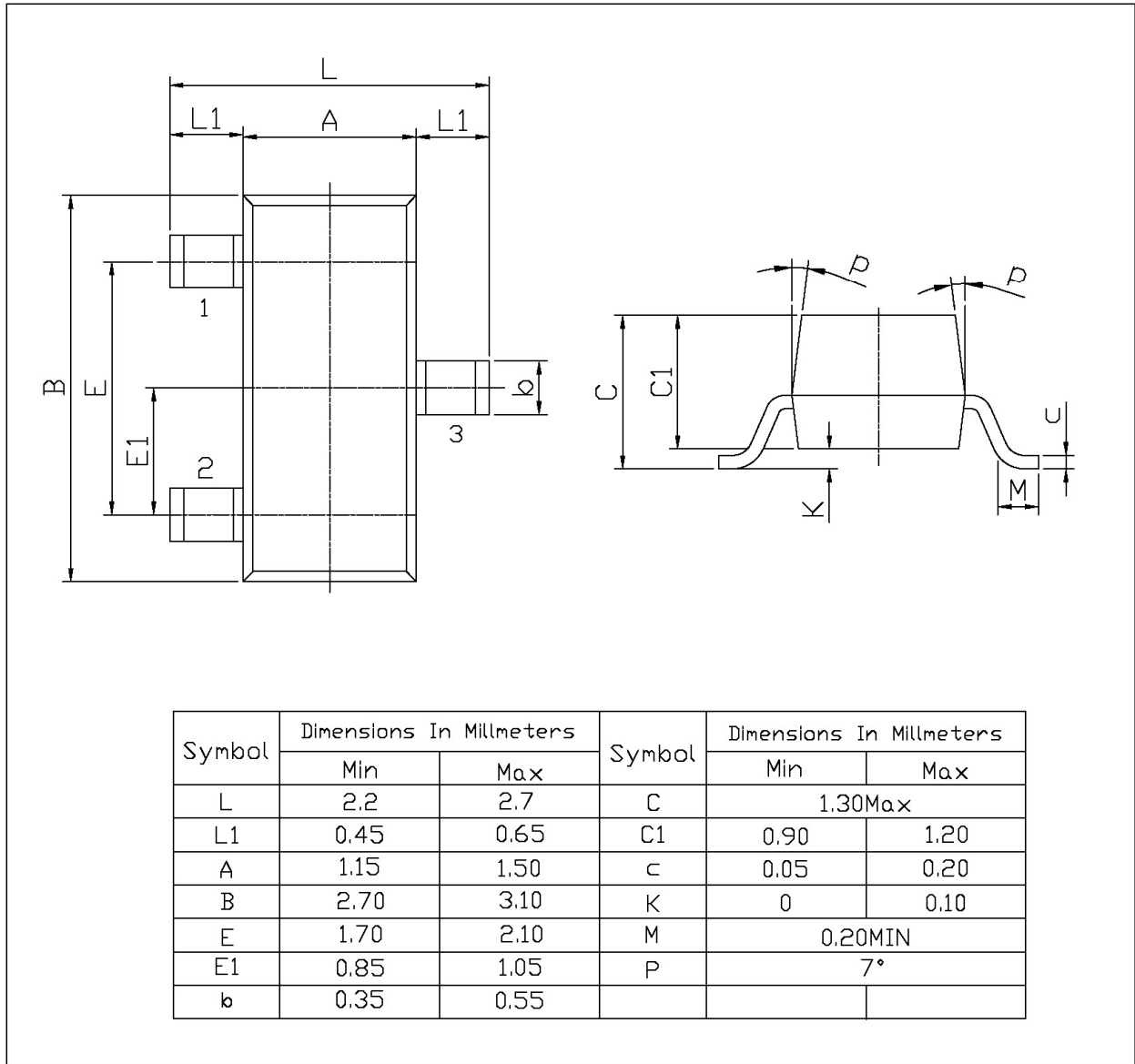
电参数曲线图 / Electrical Characteristic Curve



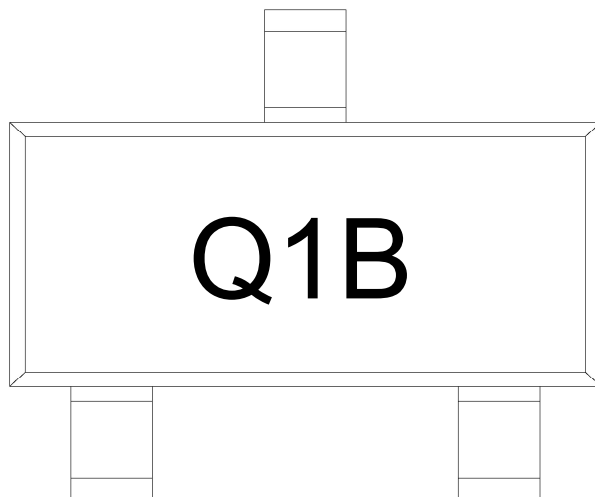
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

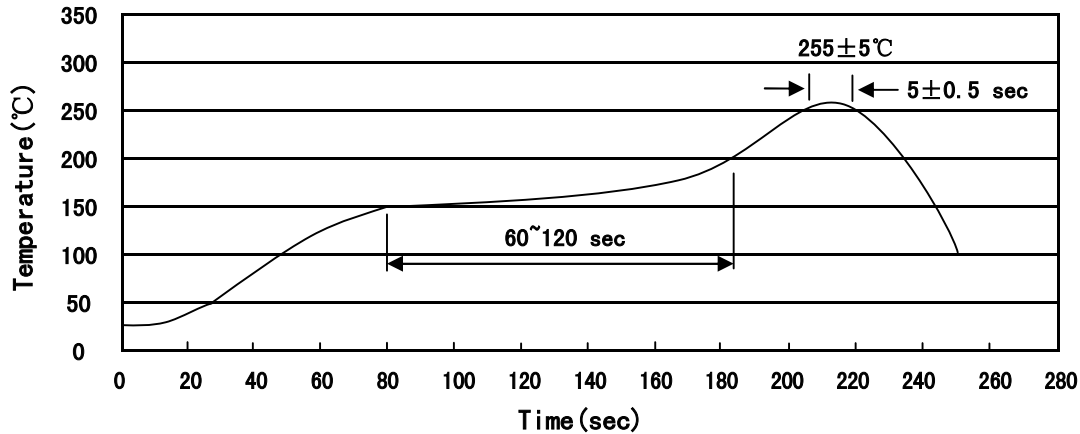
Q： 为汽车无卤产品标识

1B： 为型号代码

Note:

Q: Automobile halogen-free product Code

1B: 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**