

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

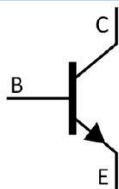
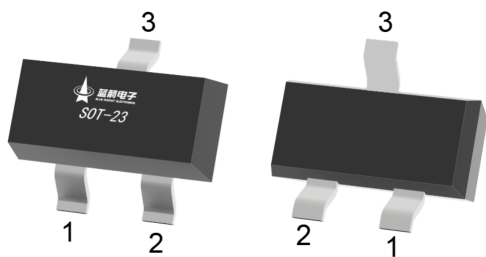
饱和压降低, 电流大, 符合 AEC-Q101 标准高可靠性要求, 无卤产品。

Low $V_{CE(sat)}$, high current, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

用于一般静音开关, 液晶显示器的背景照明, 线性开关电源, 满足汽车应用的严格要求。

General purpose switching and muting, LCD back-lighting, supply line switching circuits, 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 / h_{FE} Classifications & Marking

h_{FE} Range	>200
Marking	QU5

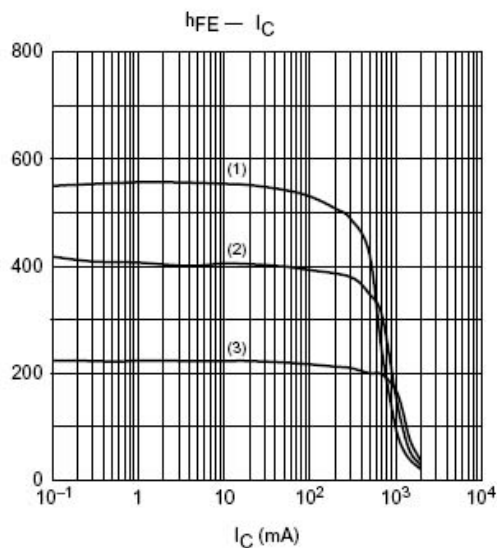
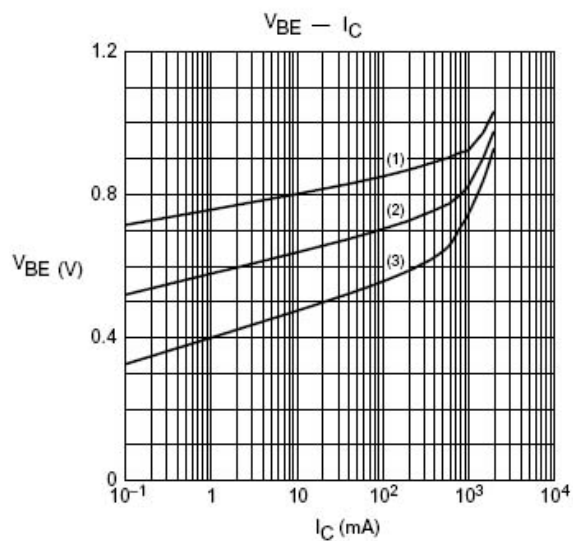
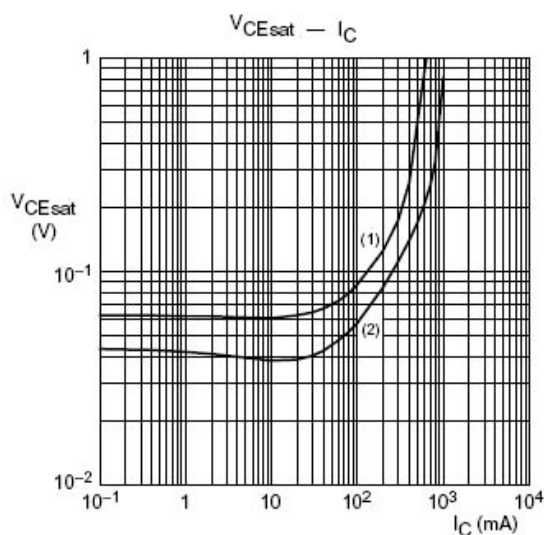
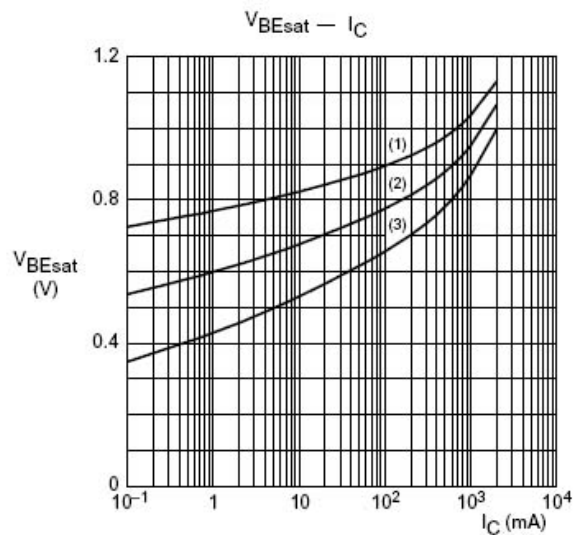
极限参数 / Absolute Maximum Ratings(Ta=25°C)

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}	60	V
Emitter to Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Peak Collector Current	I_{CM}	2	A
Base Current	I_B	0.3	A
Peak Base Current	I_{BM}	1	A
Collector Power Dissipation	P_C	400	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}	$V_{CB}=60V \quad I_E=0A$			100	nA
		$V_{CB}=60V \quad I_E=0A \quad T_j=150^\circ C$			50	μA
Collector Cut-Off Current	I_{CES}	$V_{CE}=60V \quad V_{BE}=0V$			100	nA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=5.0V \quad I_C=0A$			100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=5.0V \quad I_C=500mA$	200	350		
	$h_{FE(2)}$	$V_{CE}=5.0V \quad I_C=1.0mA$	250	400		
	$h_{FE(3)}$	$V_{CE}=5.0V \quad I_C=1.0A$	100	150		
Collector-Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C=100mA \quad I_B=1.0mA$		90	110	mV
	$V_{CE(sat)(2)}$	$I_C=500mA \quad I_B=50mA$		110	140	mV
	$V_{CE(sat)(3)}$	$I_C=1.0A \quad I_B=100mA$		200	250	mV
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.0A \quad I_B=50mA$		0.95	1.1	V
Base-Emitter Voltage	V_{BE}	$V_{CE}=5.0V \quad I_C=1.0A$		0.82	0.9	V
Transition Frequency	f_T	$V_{CE}=10V \quad I_C=50mA \quad f=100MHz$	150	220		MHz
Output Capacitance	C_C	$V_{CB}=10V \quad I_E=0 \quad f=1.0MHz$		5.5	10	pF

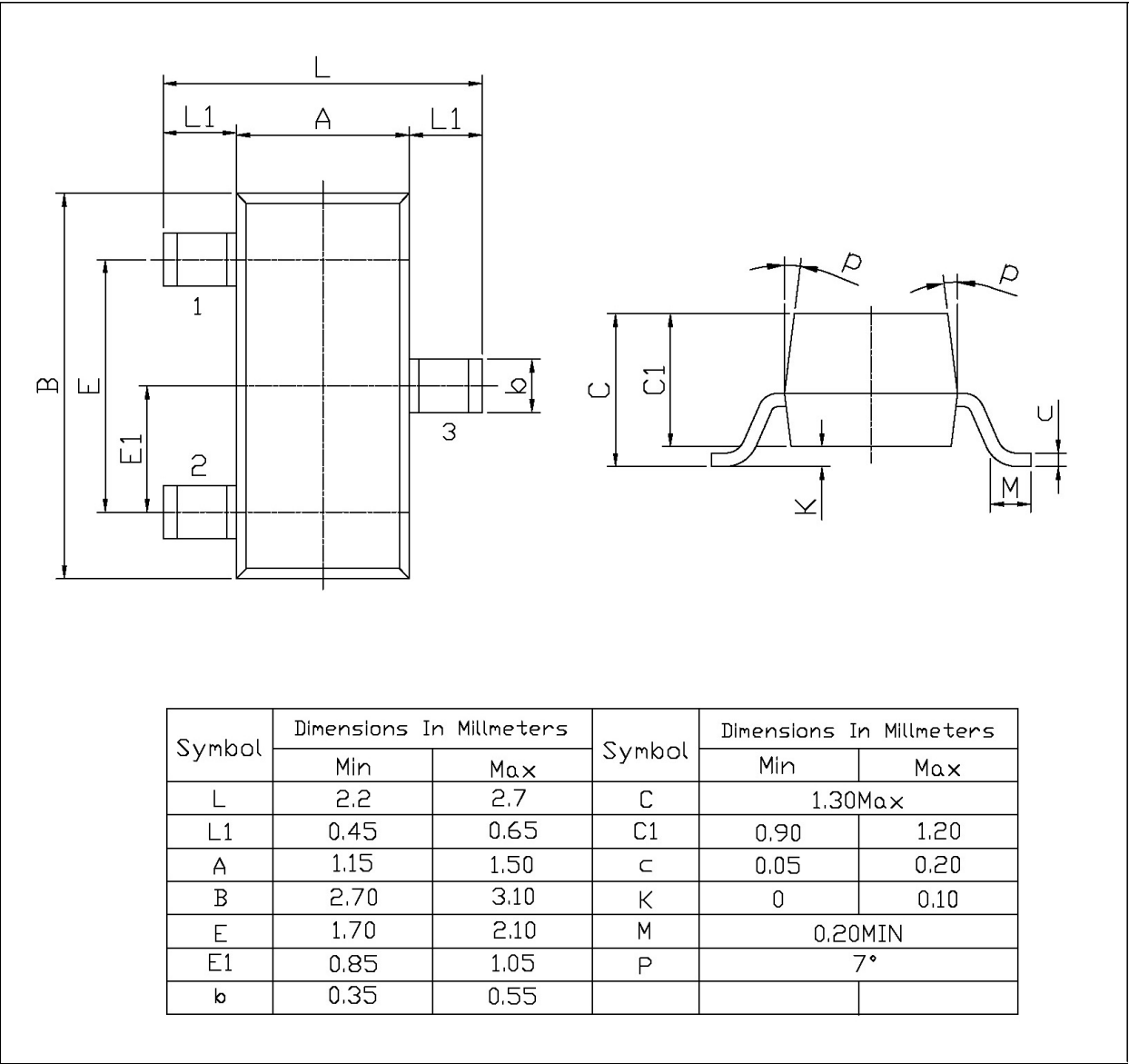
电参数曲线图 / Electrical Characteristic Curve

 $V_{CE} = 5\text{ V.}$ (1) $T_{amb} = 100\text{ }^{\circ}\text{C.}$ (2) $T_{amb} = 25\text{ }^{\circ}\text{C.}$ (3) $T_{amb} = -55\text{ }^{\circ}\text{C.}$  $V_{CE} = 5\text{ V.}$ (1) $T_{amb} = -55\text{ }^{\circ}\text{C.}$ (2) $T_{amb} = 25\text{ }^{\circ}\text{C.}$ (3) $T_{amb} = 100\text{ }^{\circ}\text{C.}$  $T_{amb} = 25\text{ }^{\circ}\text{C.}$ (1) $I_C/I_B = 100.$ (2) $I_C/I_B = 50.$  $I_C/I_B = 20.$ (1) $T_{amb} = -55\text{ }^{\circ}\text{C.}$ (2) $T_{amb} = 25\text{ }^{\circ}\text{C.}$ (3) $T_{amb} = 100\text{ }^{\circ}\text{C.}$

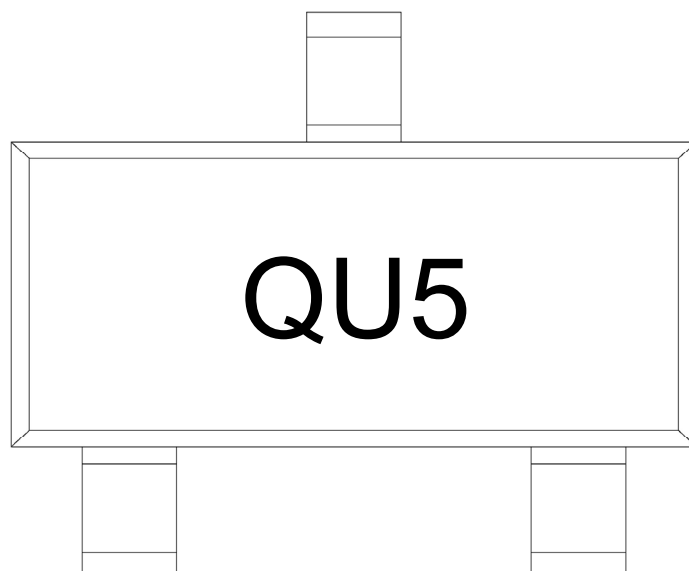
外形尺寸图 / Package Dimensions

SOT-23

单位：mm



印章说明 / Marking Instructions



说明：

Q： 为汽车无卤产品标识

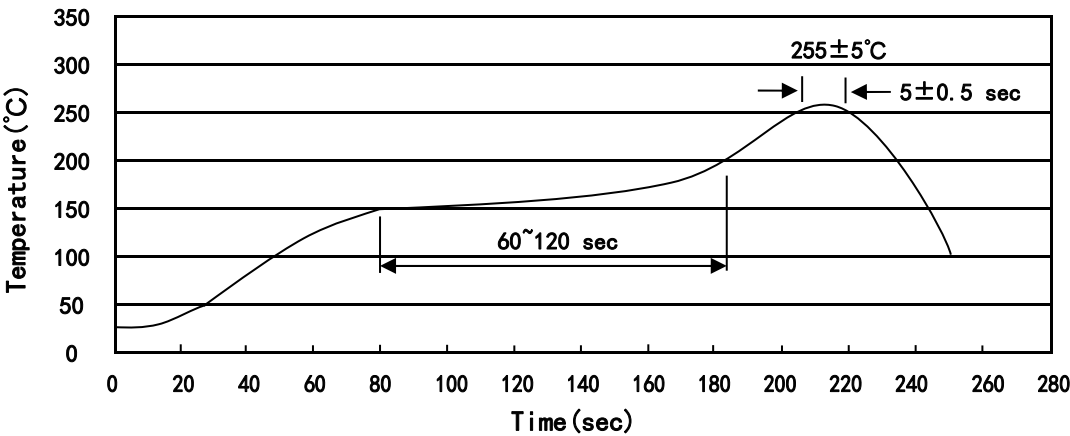
U5： 为型号代码

Note:

Q: Automobile halogen-free product Code

U5： 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; 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: 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-23	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

使用说明 / Notices