

描述 / Descriptions

SOT-23 塑封封装 PNP 半导体三极管。Silicon PNP transistor in a SOT-23 Plastic Package.

特征 / Features

电流容量大，饱和压降低，小封装尺寸使设备越来越小。

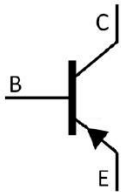
Large current capacity, low collector to emitter saturation voltage very small-sized package permitting sets to be made smaller and slimer.

用途 / Applications

用于音频功率放大，中速开关，小型电机驱动。

AF power amplifie,medium-speed switching, small-sized motor drivers.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : Emitter PIN 2 : Base PIN 3 : Collector

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

h_{FE} Classifications Symbol	Q	P	K
h_{FE} Range	135~270	200~400	300~600
Marking	HULQ	HULP	HULK

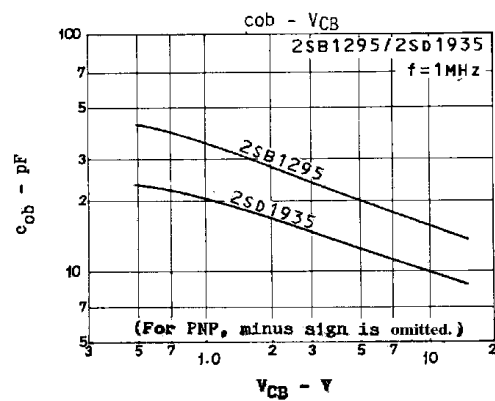
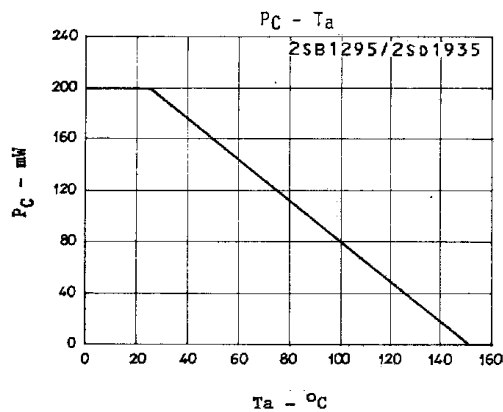
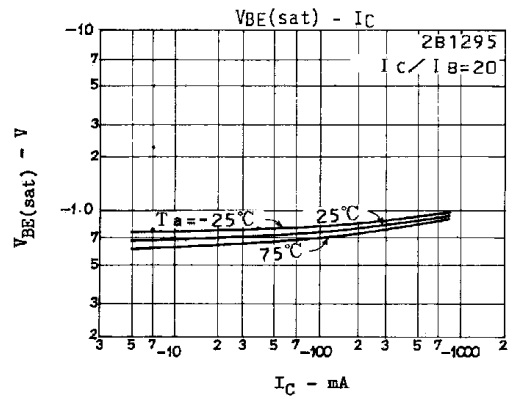
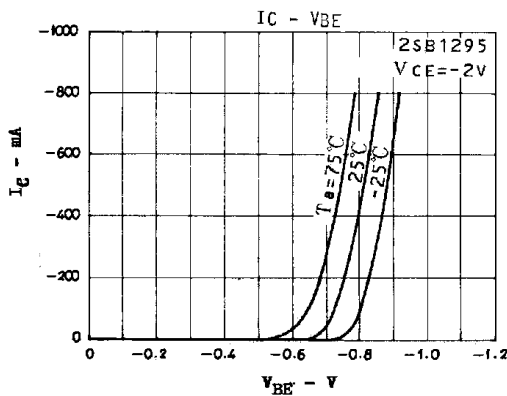
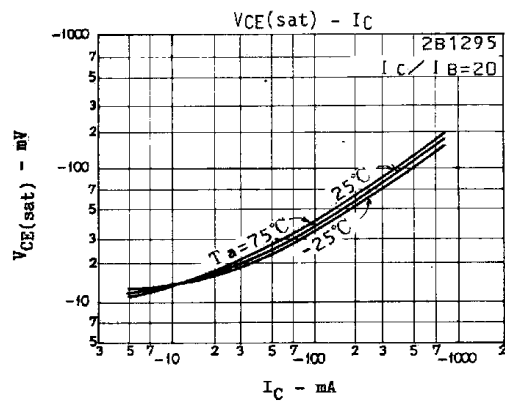
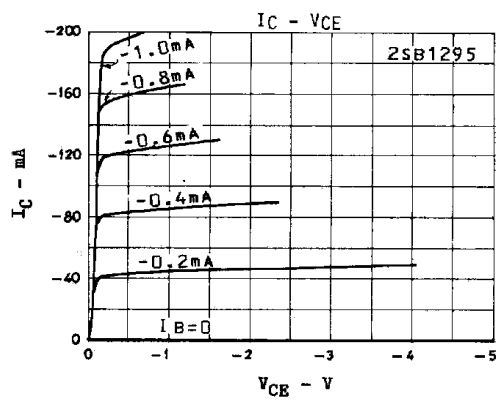
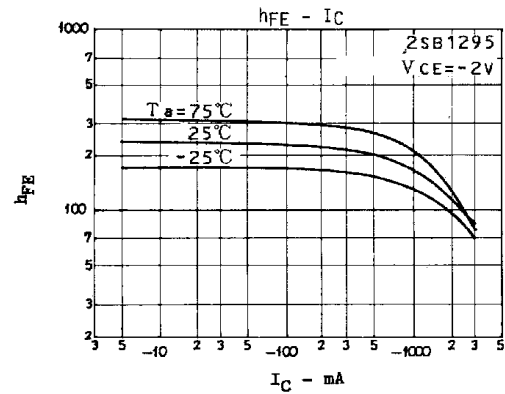
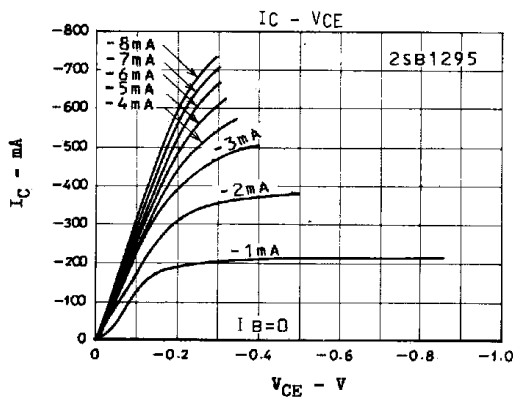
极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V_{CBO}	-15	V
Collector to Emitter Voltage	V_{CEO}	-15	V
Emitter to Base Voltage	V_{EBO}	-5.0	V
Collector Current	I_C	-800	mA
Collector Current(Pulse)	I_{CP}	-3.0	A
Collector Power Dissipation	P_C	200	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 to Base Breakdown Voltage	V_{CBO}	$I_C = -10\mu A$ $I_B = 0$	-15			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C = -1.0mA$ $R_{BE} = \infty$	-15			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E = -10\mu A$ $I_C = 0$	-5.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = -12V$ $I_E = 0$			-0.1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{CE} = -4.0V$ $I_B = 0$			-0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = -2.0V$ $I_C = -50mA$	135		600	
	$h_{FE(2)}$	$V_{CE} = -2.0V$ $I_C = -800mA$	80			
Collector to Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C = -5.0mA$ $I_B = -0.5mA$		-0.01	-0.025	V
	$V_{CE(sat)(2)}$	$I_C = -400mA$ $I_B = -20mA$		-0.1	-0.2	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -400mA$ $I_B = -20mA$		-0.9	-1.2	V
Transition Frequency	f_T	$V_{CB} = -2.0V$ $I_C = -50mA$		300		MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = -10V$ $f = 1.0MHz$		15		pF

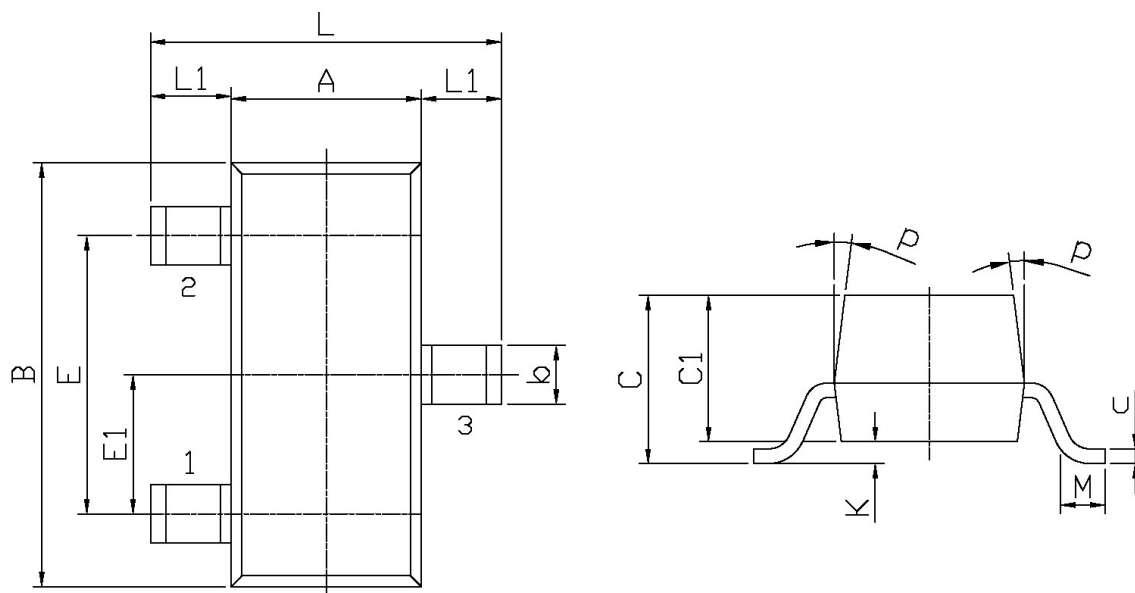
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

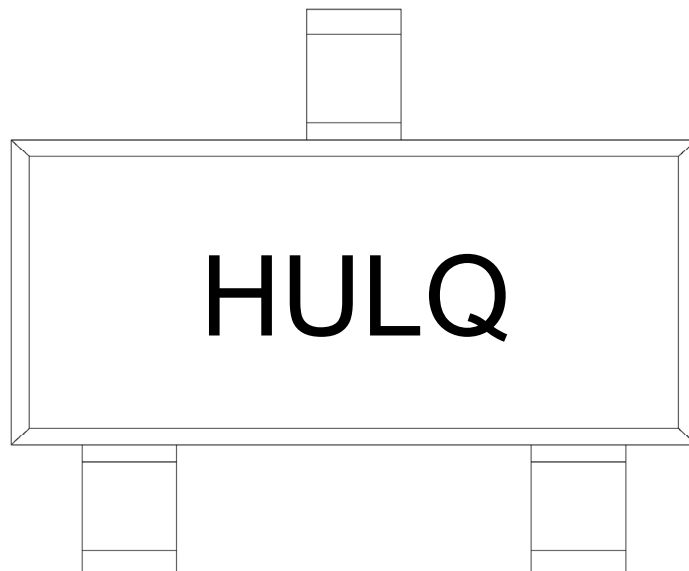
SOT-23

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.55			

印章说明 / Marking Instructions



说明：

H： 为公司代码

UL： 为型号代码

Q： h_{FE} 档次代码

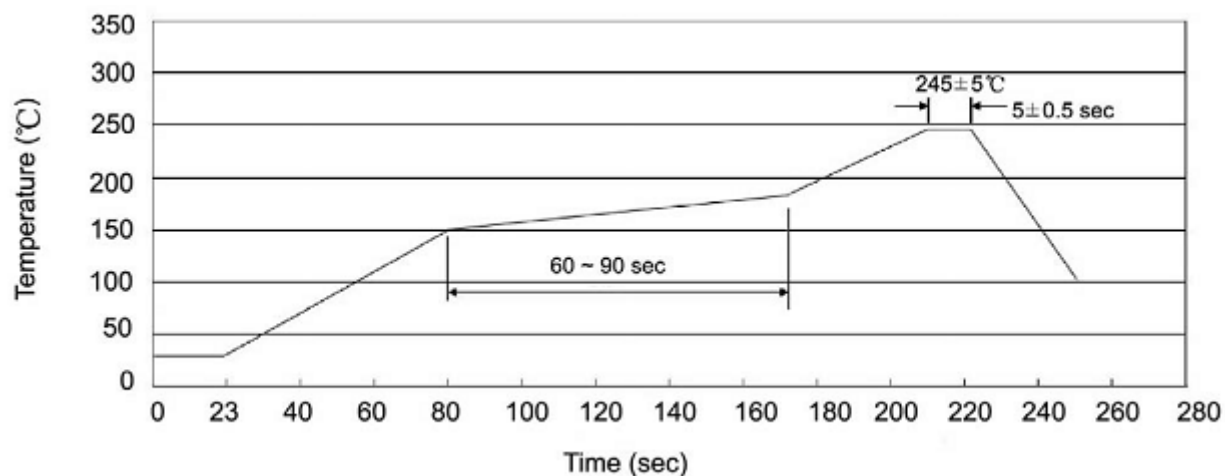
Note:

H： Company Code

UL： Product Type Code

Q： h_{FE} Classifications Symbol 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 25 ~ 150°C，时间 60 ~ 90sec;
- 2、峰值温度 245±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:25~150°C, Time:60~90sec.
- 2.Peak Temp.:245±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 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	8	240,000	7" x8	180×120×180	385×257×392

使用说明 / Notices