9013M

Rev.G Jun.-2023

蓝箭电子
BLUE ROCKET ELECTRONICS
DATA SHEET

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

P_C大,h_{FE}高且特性好,与 9012M 互补，无卤产品。

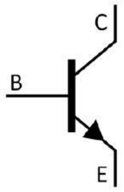
High P_C and h_{FE}, excellent h_{FE} linearity, complementary pair with 9012M,HF Product.

用途 / Applications

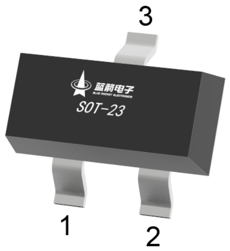
用于收音机推挽功放。

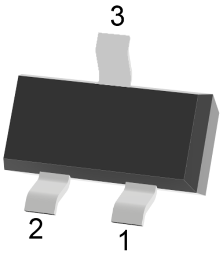
Amplifier of portable radios in class B push-pull operation.

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	D	E	F	G	H	I
h_{FE} Range	64～91	78～112	96～135	112～166	144～202	188～276
Marking	HJ3D	HJ3E	HJ3F	HJ3G	HJ3H	HJ3I

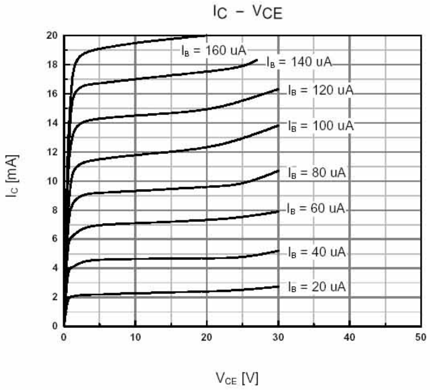
极限参数 / Absolute Maximum Ratings(Ta=25℃)

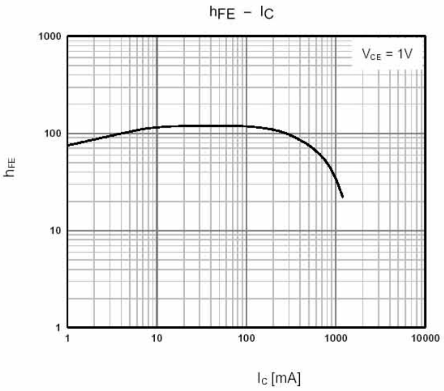
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V_{CBO}	40	V
Collector to Emitter Voltage	V_{CEO}	20	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	500	mA
Base Current	I_B	100	mA
Collector Power Dissipation	P_C	300	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55～150	℃

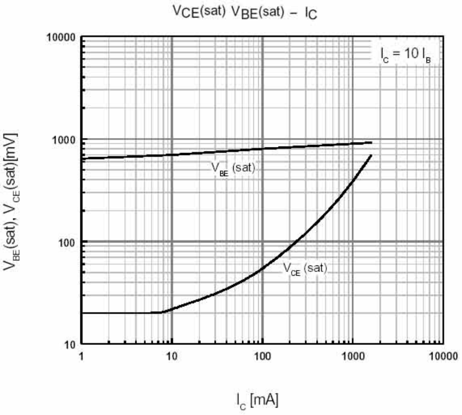
电性能参数 / Electrical Characteristics(Ta=25℃)

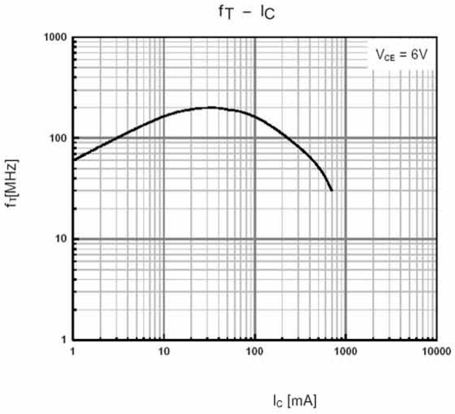
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Collector to Base Breakdown Voltage	V_{CBO}	I_C=0.1mA I_E=0	40			V
Collector to Emitter Breakdown Voltage	V_{CEO}	I_C=1.0mA I_B=0	20			V
Emitter to Base Breakdown Voltage	V_{EBO}	I_E=0.1mA I_C=0	5.0			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=25V I_E=0			0.1	μA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=3.0V I_C=0			0.1	μA
DC Current Gain	$h_{FE(1)}$	V_{CE}=1.0V I_C=50mA	150		300	
	$h_{FE(2)}$	V_{CE}=1.0V I_C=500mA	40			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=500mA I_B=50mA		0.16	0.6	V
Base-Emitter saturation Voltage	$V_{BE(sat)}$	I_C=500mA I_B=50mA		0.91	1.2	V
Base-Emitter Voltage	V_{BE}	V_{CE}=1.0V I_C=10mA		0.67	0.7	V

电参数曲线图 / Electrical Characteristic Curve



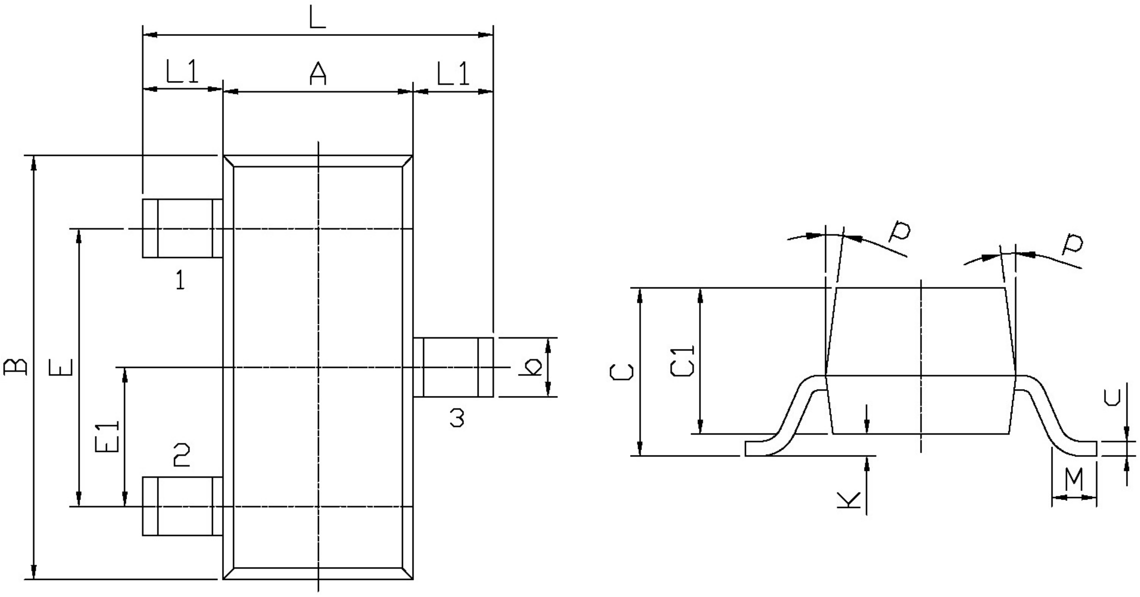






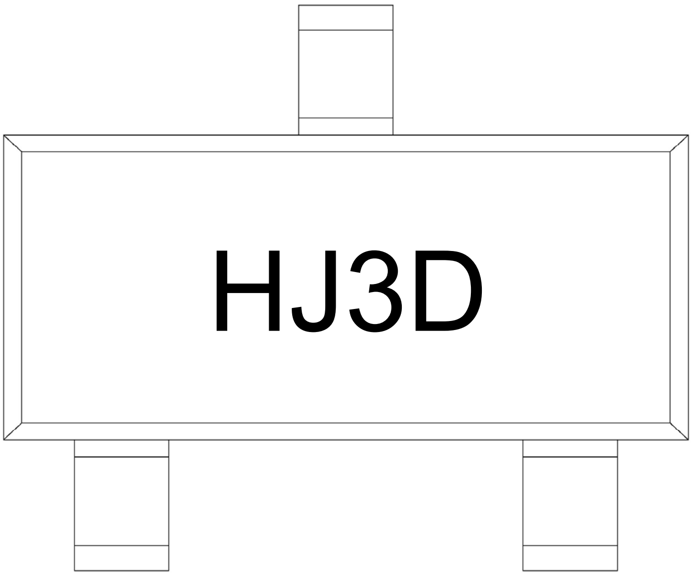
外形尺寸图 / Package Dimensions

SOT-23 单位：mm



Symbol	Dimensions In Millmeters		Symbol	Dimensions In Millmeters	
	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

J3： 为型号代码

D： 为 h_{FE} 档次代码

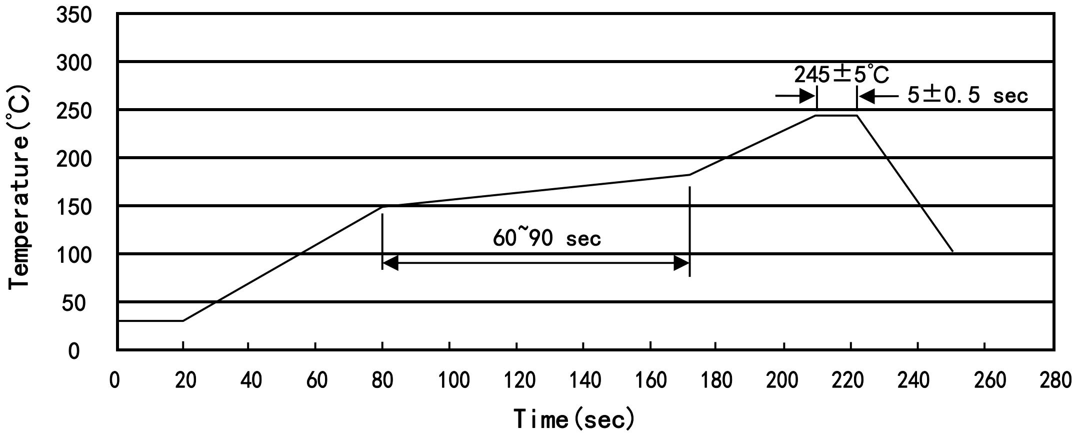
Note:

H： Company Code

J3： Product Type Code

D： 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：	Note:
1、预热温度 150～180℃，时间 60～90sec;	1.Preheating:150~180℃, Time:60~90sec.
2、峰值温度 245±5℃，时间持续为 5±0.5sec;	2.Peak Temp.:245±5℃, Duration:5±0.5sec.
3、焊接制程冷却速度为 2～10℃/sec.	3. Cooling Speed: 2~10℃/sec.

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

温度：260±5℃　时间：10±1 sec.　Temp.:260±5℃　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