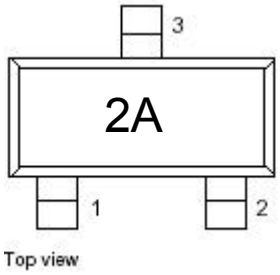
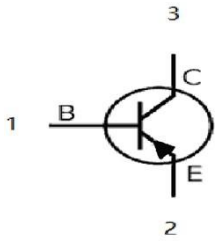
一、Features 产品特性





印字 **marking：2A**

MAXIMUM RATINGS(T_a=25℃) 最大额定值

CHARACTERISTIC 特性参数	Symbol 符号	Rating 额定值	Unit 单位
Collector-Emitter Voltage 集电极-发射极电压	V_{CEO}	-40	Vdc
Collector-Base Voltage 集电极-基极电压	V_{CBO}	-40	Vdc
Emitter-Base Voltage 发射极-基极电压	V_{EBO}	-5	Vdc
Collector Current—Continuous 集电极电流-连续	I_C	-200	mAdc

THERMAL CHARACTERISTICS 热特性

CHARACTERISTIC 特性参数	Symbol 符号	Max 最大值	Unit 单位
Total Device Dissipation 总耗散功率 FR-5 Board(1) (T_A=25℃ 环境温度=25℃)	P_D	225	mW
Derate above25℃ 超过 25℃递减		1.8	mW/℃
Thermal Resistance Junction to Ambient 热阻	R_{JA}	556	℃/W
Total Device Dissipation Alumina Substrate,(2) T_A=25℃ 总耗散功率 氧化铝衬底	P_D	300	mW
Derate above25℃ 超过 25℃递减		2.4	mW/℃
Thermal Resistance Junction to Ambient 热阻	R_{JA}	417	℃/W
Junction and Storage Temperature结温和储存温度	T_j, T_{stg}	150, -55 to +150	℃

ELECTRICAL CHARACTERISTICS 电特性

(T_A=25℃ unless otherwise noted 如无特殊说明，温度为 25℃)

Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Collector Cutoff Current 集电极截止电流	I_{CEX}	V_{CE}=-30Vdc, V_{EB}=-3.0 Vdc	—	—	-50	nAdc
Base Cutoff Current 基极截止电流	I_{BEX}	V_{CE}=-30Vdc, V_{EB}=-3.0Vdc	—	—	-50	nAdc
Collector-Emitter Breakdown	$V_{(BR)CEO}$	I_C=-1.0mAdc, I_B=0	-40	—	—	Vdc

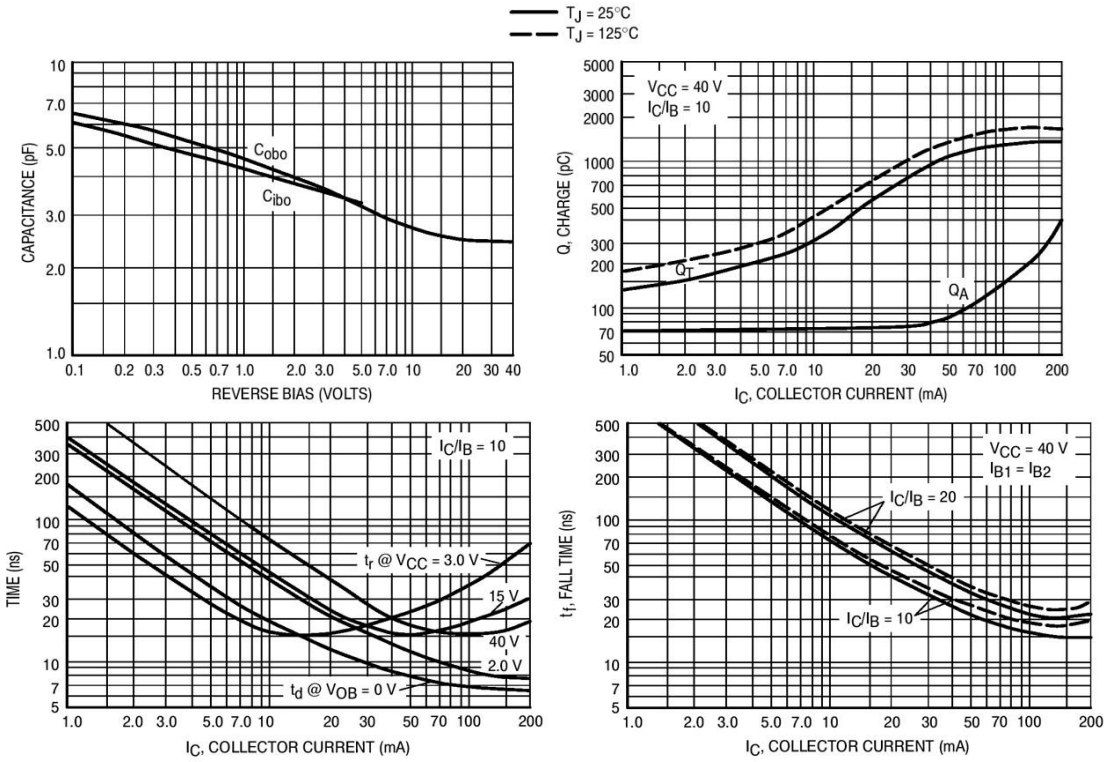
Voltage(3) 集电极-发射极击穿电压						
Collector-Base Breakdown Voltage 集电极-基极击穿电压	$V_{(BR)CBO}$	I_C=-10μAdc, I_E=0	-40	—	—	Vdc
Emitter-Base Breakdown Voltage 发射极-基极击穿电压	$V_{(BR)EBO}$	I_E=-10μAdc, I_C=0	-5	—	—	Vdc
DC Current Gain 直流电流增益	h_{FE}	Ic=-0.1mAdc, V_{CE}=-1.0Vdc	60	—	—	—
		Ic=-1.0mAdc, V_{CE}=-1.0Vdc	80	—	—	
		Ic=-10mAdc, V_{CE}=-1.0Vdc	100	—	300	
		Ic=-50mAdc, V_{CE}=-1.0Vdc	60	—	—	
		Ic=-100mAdc, V_{CE}=-1.0Vdc	30	—	—	
Collector-Emitter Saturation Voltage(3)集电极发射极饱和压降	$V_{CE(sat)}$	Ic=-10mAdc, I_B=-1.0mAdc	—	—	-0.25	Vdc
		Ic=-50mAdc, I_B=-5.0mAdc	—	—	-0.4	
Base-Emitter Saturation Voltage 基极-发射极极饱和压降	$V_{BE(sat)}$	Ic=-10mAdc, I_B=-1.0mAdc	-0.65	—	-0.85	Vdc
		Ic=-50mAdc, I_B=-5.0mAdc		—	-0.95	
Current-Gain-Bandwidth Product 电流增益-带宽乘积	f_T	Ic=-10mAdc, V_{CE}=-20Vdc, f=100MHz	250	—	—	MH_Z
Output Capacitance 输出电容	C_{obo}	V_{CB}=-5.0Vdc,I_E=0, f=1.0MHz	—	—	4.5	pF
INput Capacitance 输入电容	C_{ibo}	V_{EB}=-0.5Vdc,I_C=0, f=1.0MHz	—	—	10	pF
Input Impedance 输入抗阻	h_{ie}	V_{CE}=-10Vdc,I_C=-1.0m Adc f=1.0KHz	1.0	—	10	kΩ
Voltage Feedback Ratio 电压反馈系数	h_{re}	V_{CE}=-10Vdc, I_C=-1.0mAdc,f=1.0KHz	0.5	—	8.0	×10
Small-Signal Current Gain 小信号电流增益	h_{fe}	V_{CE}=-10Vdc, I_C=-1.0mAdc,f=1.0KHz	100	—	400	—
Output Admittance输出导纳	$*h_{oe}$	V_{CE}=-10Vdc, I_C=-1.0mAdc,f=1.0KHz	1.0	—	60	μmhos
Noise Figure噪声系数	NF	V_{CE}=-5.0Vdc, I_C=-100μA, R_S=1.0KΩ,f=1.0KHz	—	—	4.0	dB

SWITCHING CHARACTERISTICS 开关特性

Delay Time 延迟时间	t_d	V_{CC}=-3.0Vdc,V_{BE}=0.5Vdc,	—	—	35	nS
Rise Time 上升时间	t_r	I_C=-10mAdc,I_{B1}=-1.0mAdc	—	—	35	
Storage Time 储存时间	t_s	V_{CC}=-3.0Vdc,I_C=-10mAdc,	—	—	225	nS
Fall Time 下降时间	t_f	I_{B1}=I_{B2}=-1.0mAdc	—	—	75	

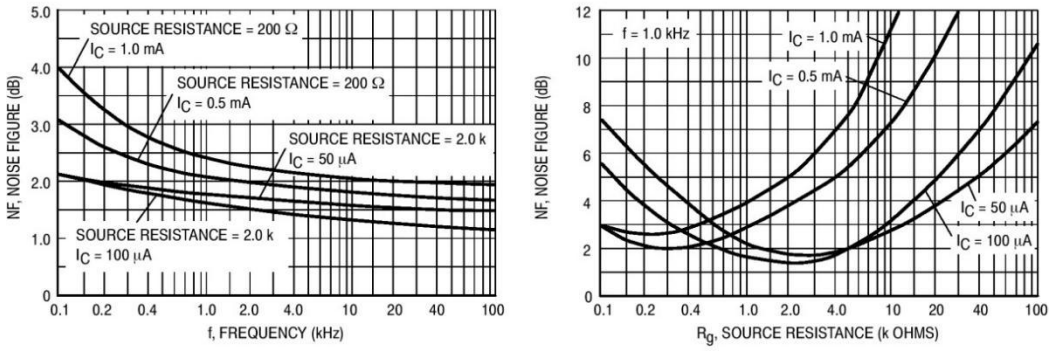
1. FR-5=1.0×0.75×0.062in.
2. Alumina=0.4×0.3×0.024in, 99.5%alumina.
3. Pulse Width≤300μS;Duty Cycle≤2.0%.

Typical Characteristics

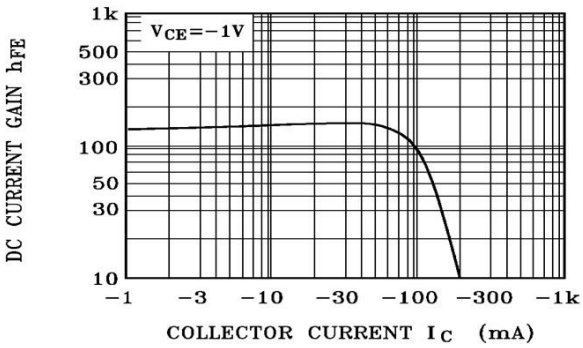


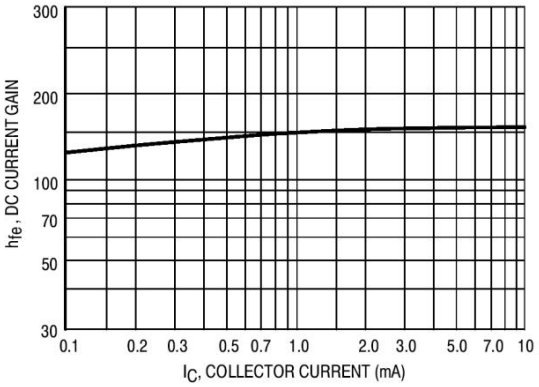
TYPICAL AUDIO SMALL–SIGNAL CHARACTERISTICS
NOISE FIGURE VARIATIONS

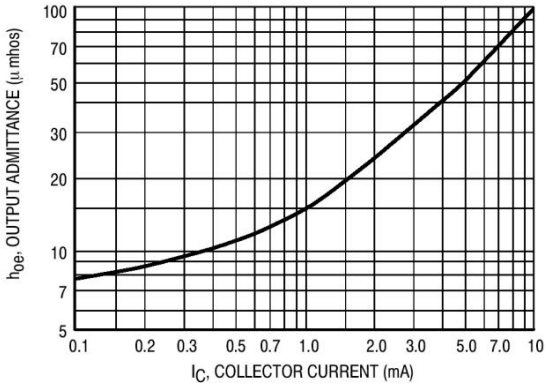
(V_{CE} = –5.0 Vdc, T_A = 25°C, Bandwidth = 1.0 Hz)

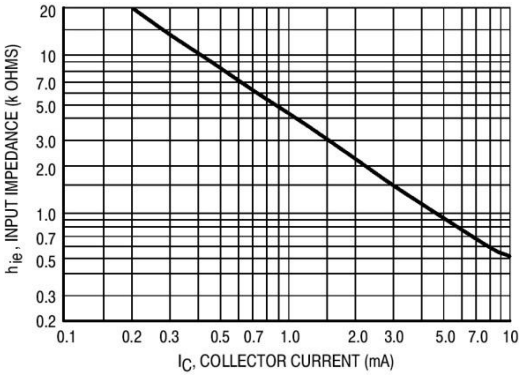


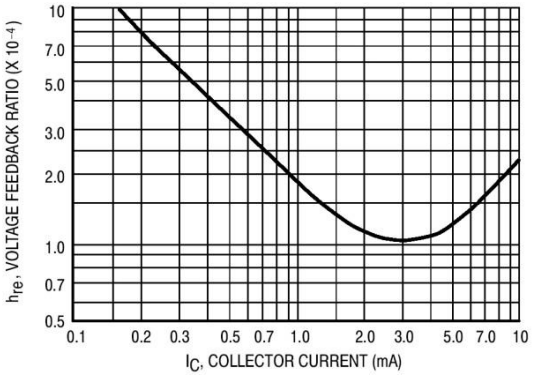
h_{FE} – I_C

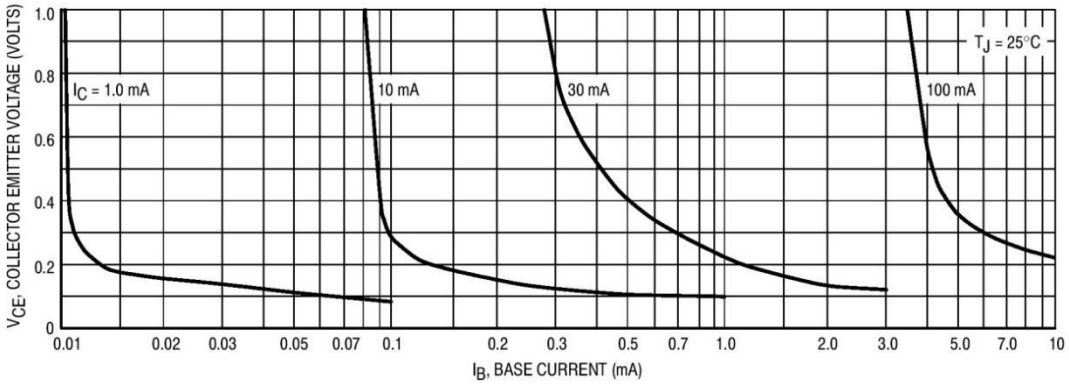

VCE=−1V
DC CURRENT GAIN hFE
1k
500
300
100
50
30
10
−1
−3
−10
−30
−100
−300
−1k
COLLECTOR CURRENT IC (mA)

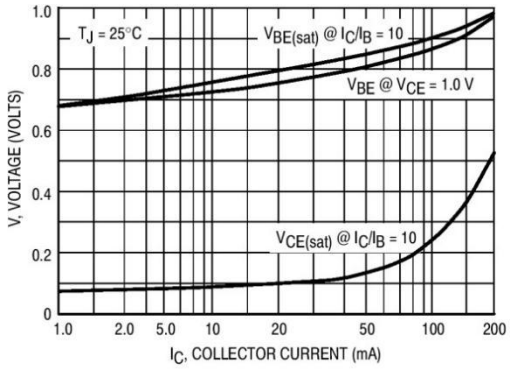

hfe, DC CURRENT GAIN
300
200
100
70
50
30
0.1
0.2
0.3
0.5
0.7
1.0
2.0
3.0
5.0
7.0
10
IC, COLLECTOR CURRENT (mA)

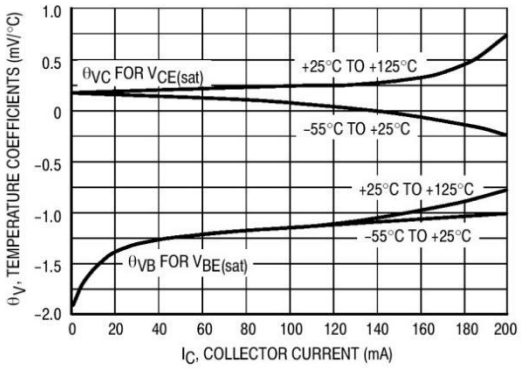

hoe, OUTPUT ADMITTANCE (μmhos)
100
70
50
30
20
10
7
5
0.1
0.2
0.3
0.5
0.7
1.0
2.0
3.0
5.0
7.0
10
IC, COLLECTOR CURRENT (mA)


hie, INPUT IMPEDANCE (k OHMS)
20
10
7.0
5.0
3.0
2.0
1.0
0.7
0.5
0.3
0.2
0.1
0.2
0.3
0.5
0.7
1.0
2.0
3.0
5.0
7.0
10
IC, COLLECTOR CURRENT (mA)

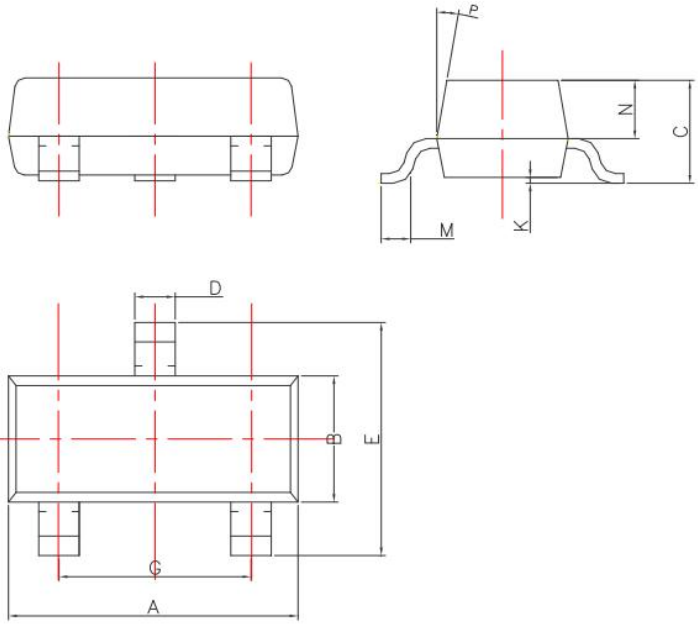

hre, VOLTAGE FEEDBACK RATIO (X 10-4)
10
7.0
5.0
3.0
2.0
1.0
0.7
0.5
0.1
0.2
0.3
0.5
0.7
1.0
2.0
3.0
5.0
7.0
10
IC, COLLECTOR CURRENT (mA)


VCE, COLLECTOR EMITTER VOLTAGE (VOLTS)
1.0
0.8
0.6
0.4
0.2
0
IC = 1.0 mA
10 mA
30 mA
100 mA
TJ = 25°C
0.01
0.02
0.03
0.05
0.07
0.1
0.2
0.3
0.5
0.7
1.0
2.0
3.0
5.0
7.0
10
IB, BASE CURRENT (mA)





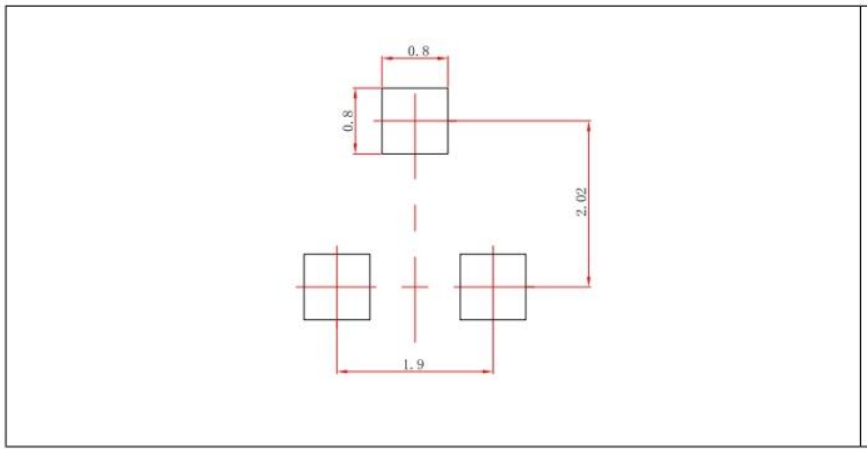
二、SOT-23 外形尺寸（SOT-23 DIMENSION）



DIM	MILLIMETERS
A	2.85~3.04
B	1.30±0.10
C	1.00±0.10
D	0.45±0.05
E	2.25~2.55
G	1.90±0.1
K	0.00−0.10
M	0.20 MIN
N	0.60±0.10
P	7±2°

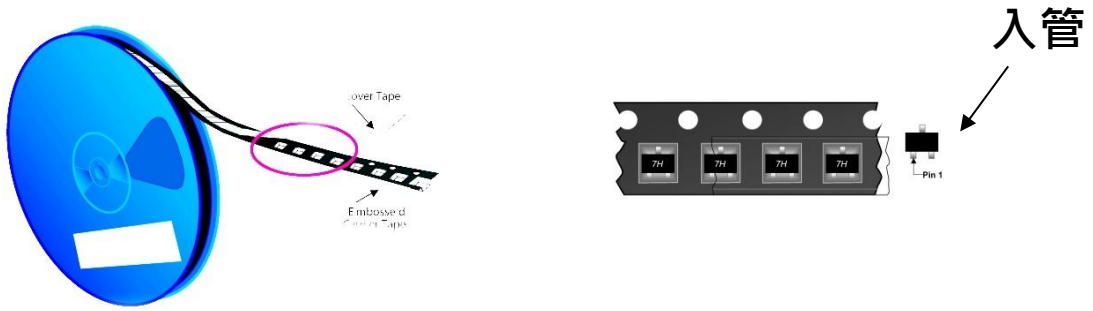
SOT−23 Pacakge Outline Dimensions

三、焊盘尺寸设计 SOT-23 Suggested Layout

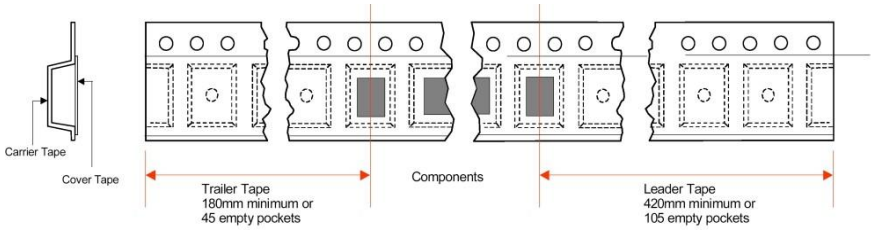


四、包装方式 Packings

封装形式	卷盘尺寸	只/卷	内盒尺寸	卷盘/内盒	只/内盒	外箱尺寸	内盒/外箱	只/外箱
SOT-23	7″	3000	**190X190X135mm**	**10**	**30000**	**430 X 400 X 215mm**	**6**	**180K**
			203X203X195mm	15	45000	440 X 440 X 230mm	4	180K



SOT-23 产品编带、包装图



SOT-23 带尾、带头空封数