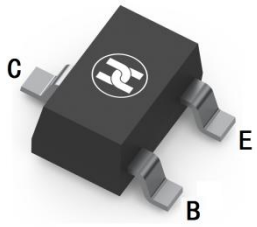
BIPOLAR TRANSISTOR (NPN)



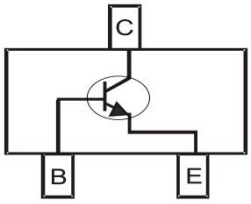
SOT-323

FEATURES

- Radio frequency amplifier
- High transition frequency
- High gain with low collector-to base time constant
- Low noise (NF)

MECHANICAL DATA

- Case: SOT-323
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.008 grams (approximate)



Maximum Ratings (T_A=25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	20	V
Collector-Emitter Voltage	V_{CEO}	11	V
Emitter-Base Voltage	V_{EBO}	3	V
Collector Current -Continuous	I_C	50	mA
Collector Power Dissipation	P_D	0.2	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit
Collector-base breakdown voltage I_C=10μA, I_E=0	$V_{(BR)CBO}$	20	-	-	V
Collector-emitter breakdown voltage I_C= 1mA, I_B=0	$V_{(BR)CEO}$	11	-	-	V
Emitter-base breakdown voltage I_E= 10 μA, I_C=0	$V_{(BR)EBO}$	3	-	-	V
Collector cut-off current V_{CB} =10V, I_E=0	I_{CBO}	-	-	0.5	μA
Emitter cut-off current V_{EB} =2V, I_C=0	I_{EBO}	-	-	0.5	μA
DC current gain V_{CE} =10V, I_C= 5mA	h_{FE}	56	-	270	-
Collector-base saturation voltage I_C=10mA, I_B=5mA	$V_{CE(sat)}$	-	-	0.5	V
Transition frequency V_{CE} =10V,I_C=10mA, f =500MHz	f_T	-	1.2	-	GHz
Output capacitance V_{CB} =10V,I_E=0, f =1MHz	Cob	-	-	1.5	pF
Collector-base time constant V_{CB} =10V,I_C=10mA, f=31.8MHz	$C_{C\cdot}$ r_{bb}	-	-	12	pS
Noise figure V_{CE} =6V,I_C=2mA,f =500MHz,Rg=50Ω	NF	-	3.5	-	dB

CLASSIFICATION OF h_{FE}

Rank	N	P	**Q**
Range	56-120	82-180	120-270

BIPOLAR TRANSISTOR (NPN)

Typical Characteristics

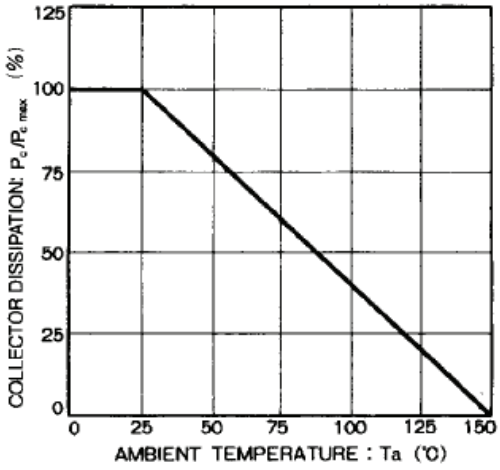


Figure 1

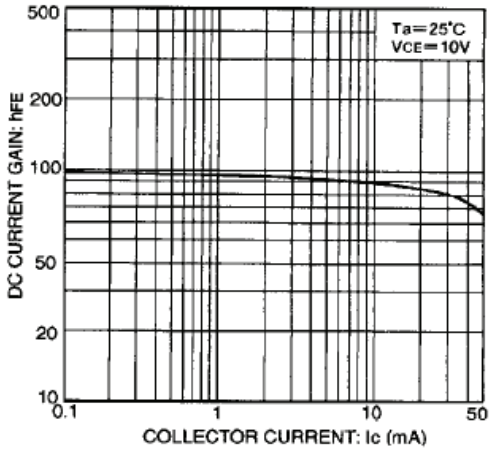


Figure 2

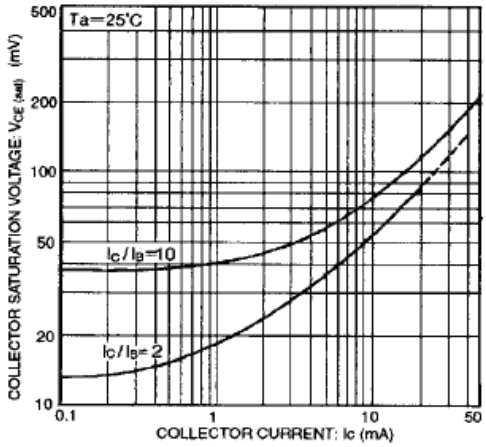


Figure 3

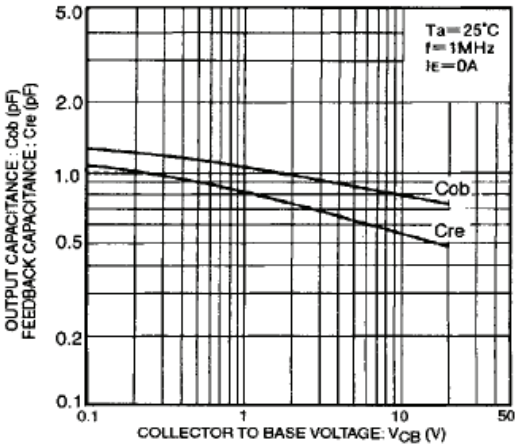


Figure 4

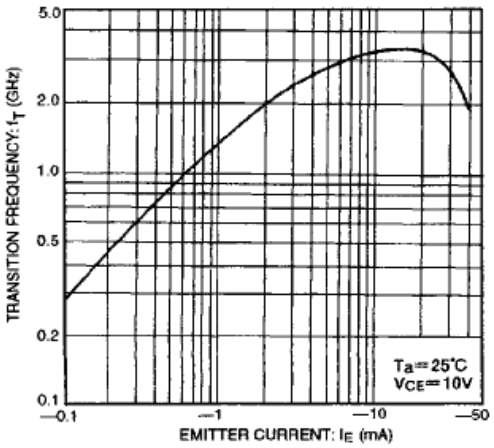


Figure 5

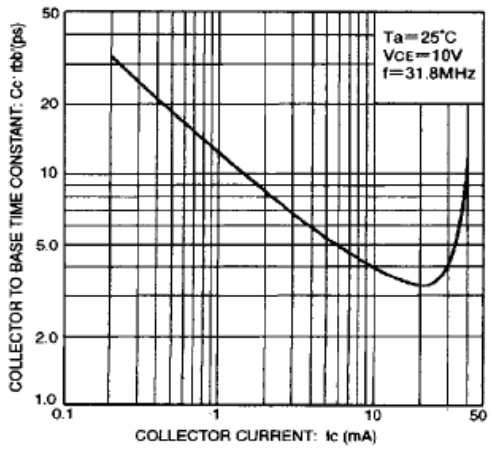


Figure 6

BIPOLAR TRANSISTOR (NPN)

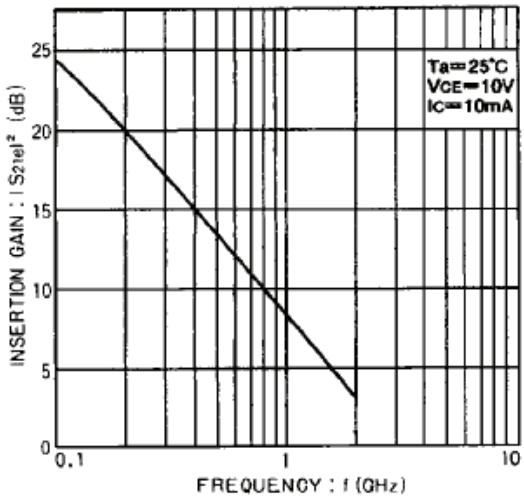


Figure 7

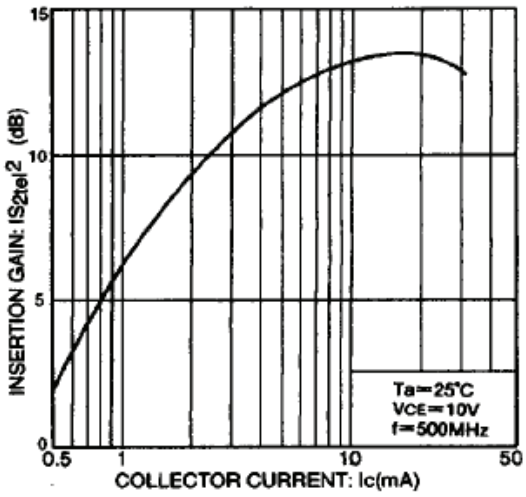


Figure 8

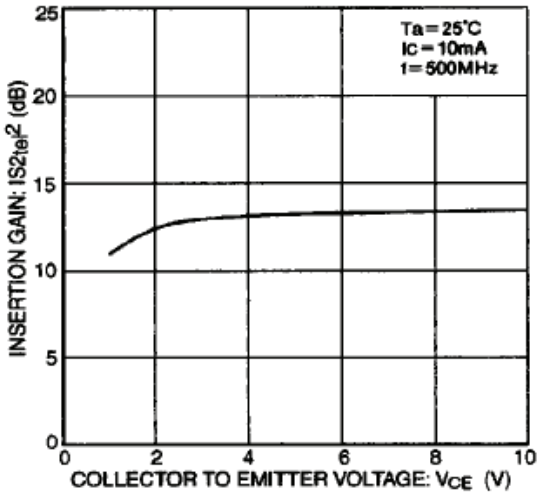


Figure 9

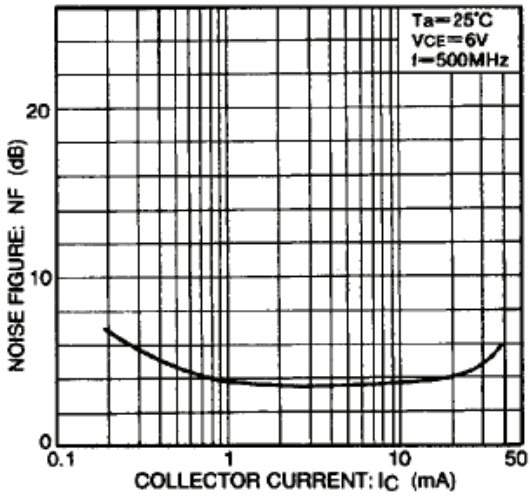


Figure 10

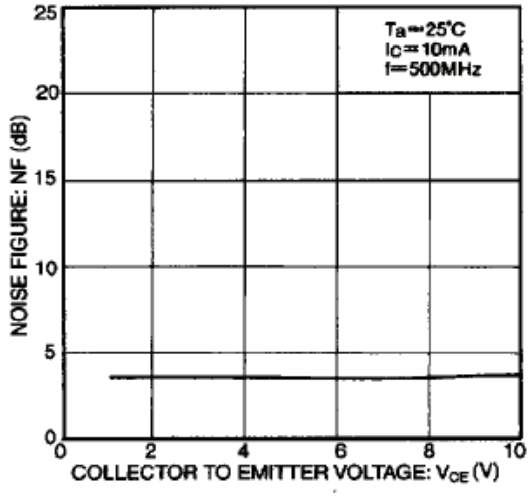
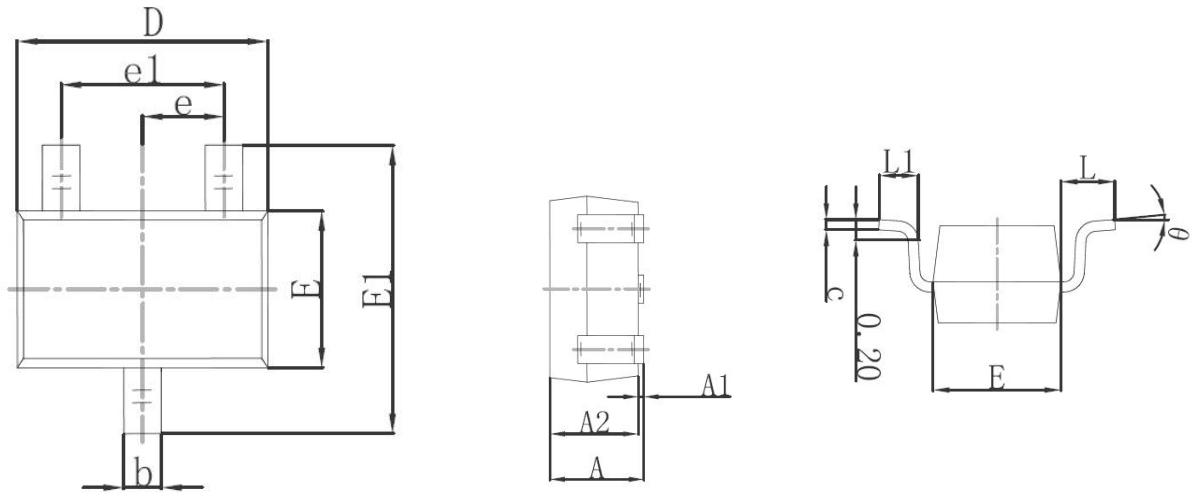


Figure 11

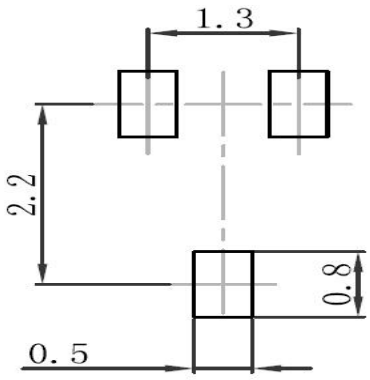
BIPOLAR TRANSISTOR (NPN)

SOT-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L	0.525REF		0.021REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-323 Suggested Pad Layout



Note:

1.Controlling dimension: in millimeters

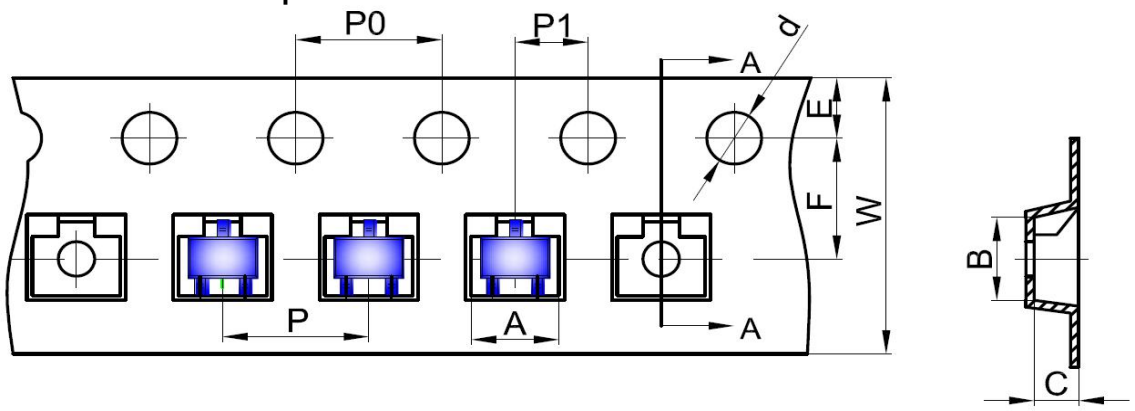
2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

BIPOLAR TRANSISTOR (NPN)

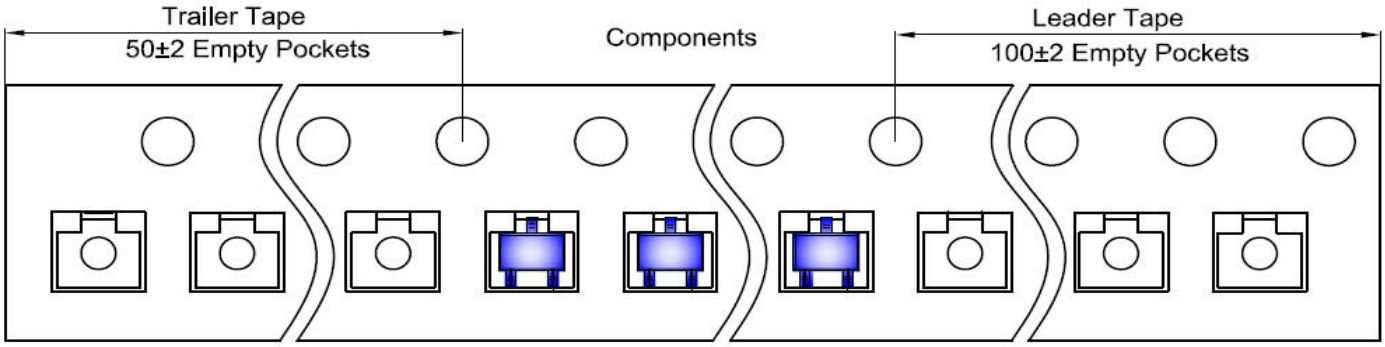
SOT-323 Tape and Reel

SOT-323 Embossed Carrier Tape

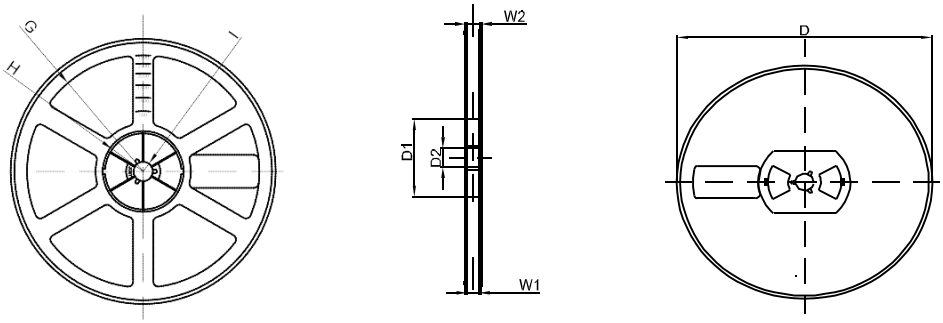


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-323	2.25	2.55	1.19	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-323 Tape Leader and Trailer



SOT-323 Reel



	DIMENSIONS ARE IN MILLIMETER							
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	9.50	12.30
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1