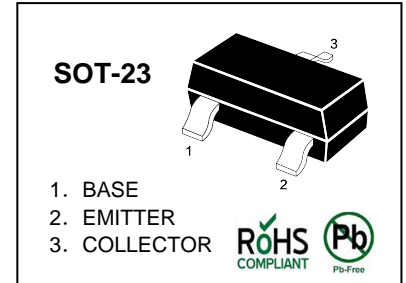


NPN Silicon Epitaxial Planar Transistor

for high frequency amplifier application



Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	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	I_C	50	mA
Collector Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_S	- 55 to + 150	$^\circ\text{C}$

Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 10\text{ V}$, $I_C = 5\text{ mA}$	h_{FE}	56	-	160	-
Current Gain Group	h_{FE}	120	-	240	-
Collector Cutoff Current at $V_{CB} = 10\text{ V}$	I_{CBO}	-	-	0.5	μA
Emitter Cutoff Current at $V_{EB} = 2\text{ V}$	I_{EBO}	-	-	0.5	μA
Collector Base Breakdown Voltage at $I_C = 10\text{ }\mu\text{A}$	$V_{(BR)CBO}$	20	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	11	-	-	V
Emitter Base Breakdown Voltage at $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	3	-	-	V
Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$, $I_B = 5\text{ mA}$	$V_{CE(sat)}$	-	-	0.5	V
Transition Frequency at $V_{CE} = 10\text{ V}$, $I_E = 10\text{ mA}$, $f = 500\text{ MHz}$	f_T	1.4	3.2	-	GHz
Output Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	-	1.5	pF
Noise Figure at $V_{CE} = 6\text{ V}$, $I_C = 2\text{ mA}$, $f = 500\text{ MHz}$, $R_g = 50\text{ }\Omega$	NF	-	3.5	-	dB

Typical Characteristics

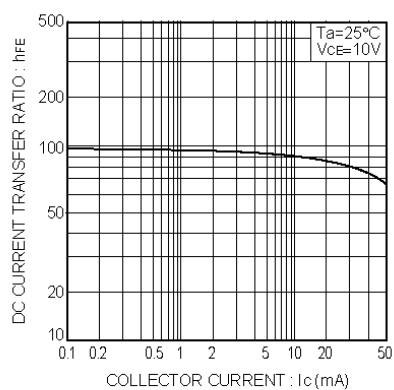


Fig.1 DC current gain vs. collector current

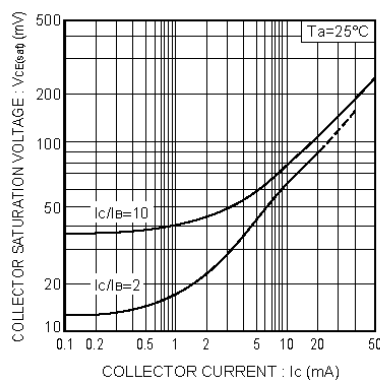


Fig.2 Collector-emitter saturation voltage vs. collector current

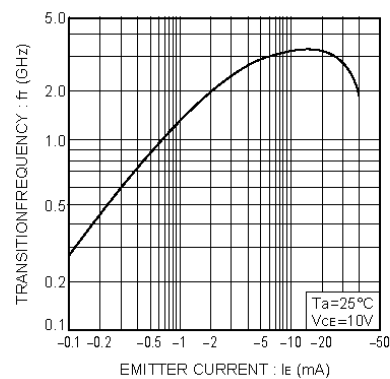


Fig.3 Gain bandwidth product vs. emitter current

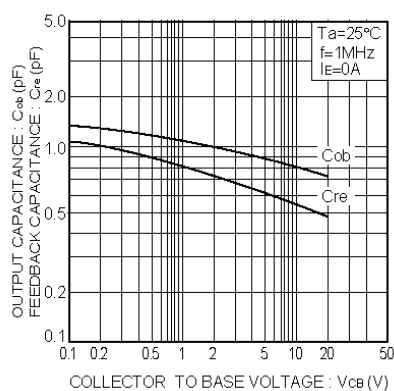


Fig.4 Capacitance vs. reverse bias voltage

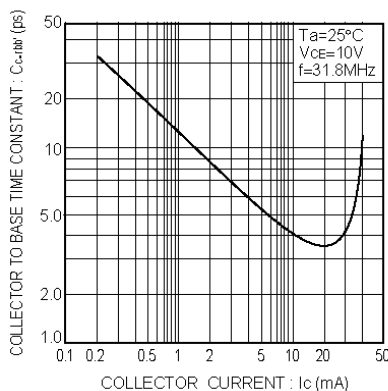


Fig.5 Collector to base time constant vs. collector current

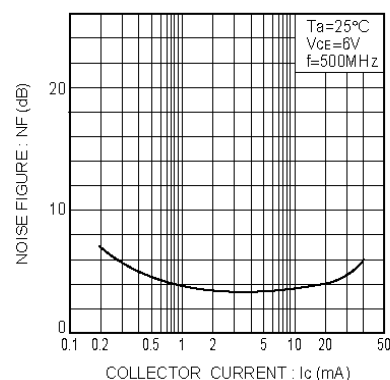
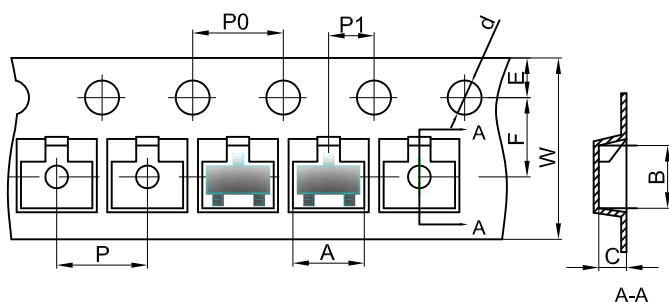


Fig.6 Noise factor vs. collector current characteristics

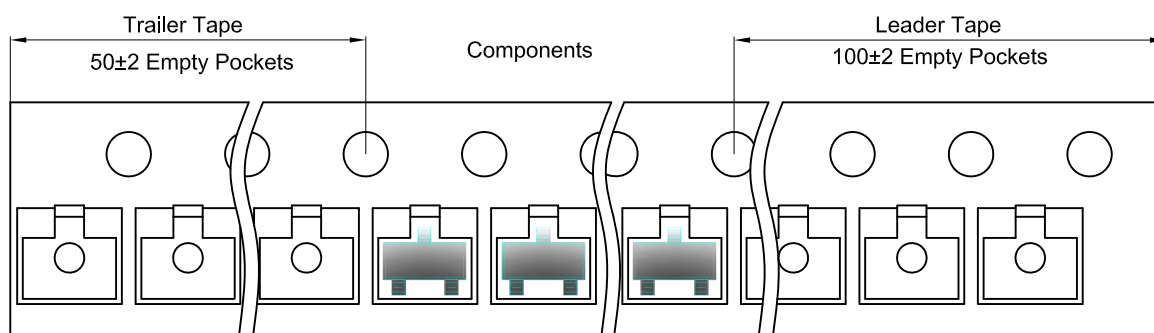
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

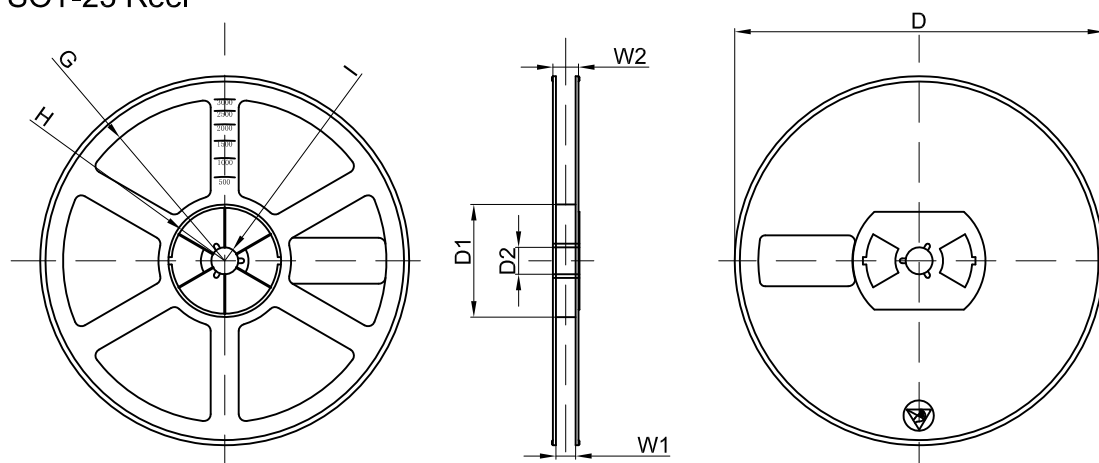


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer

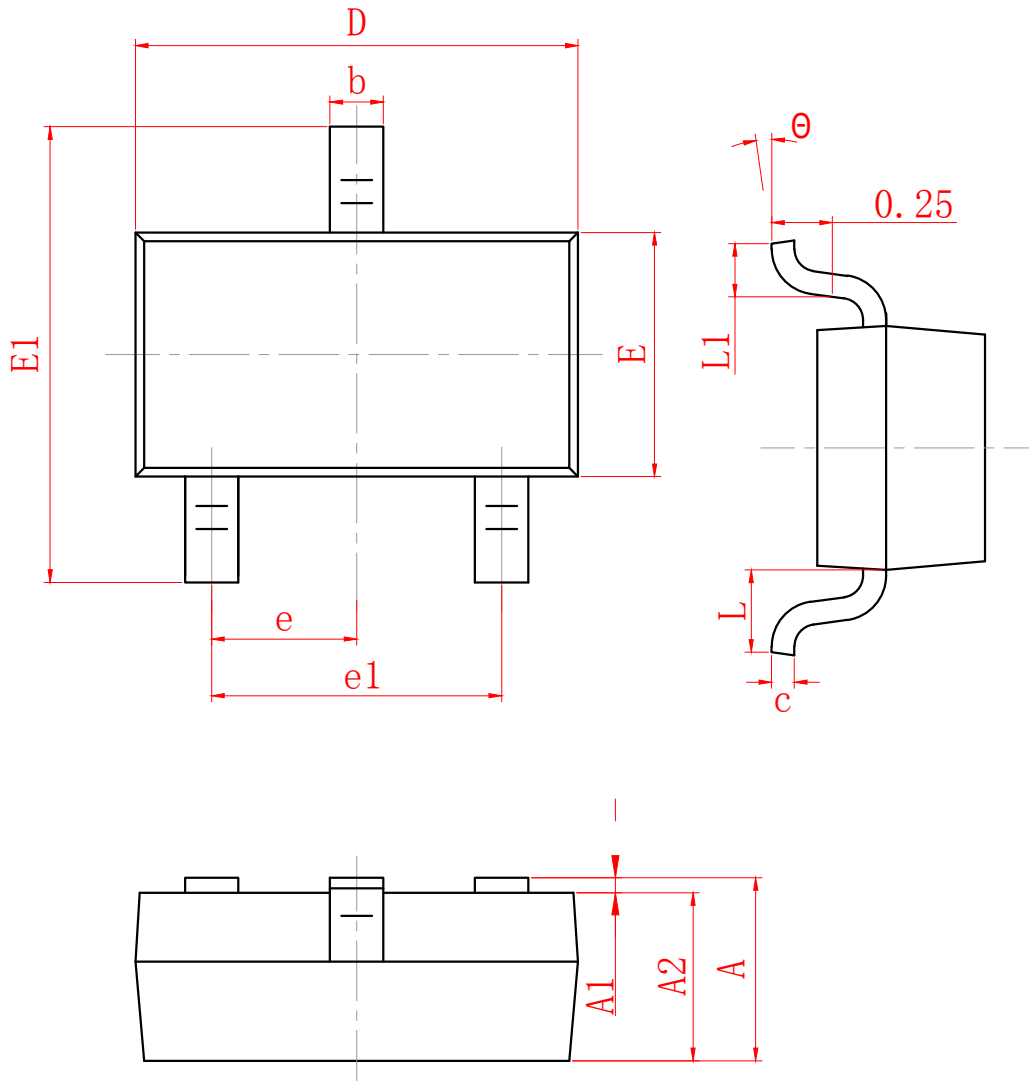


SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	



SYMBOL	MILLIMETER	
	MIN	MAX
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950 TYP	
e1	1.800	2.000
L	0.550 REF	
L1	0.300	0.500
θ	0°	8°

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