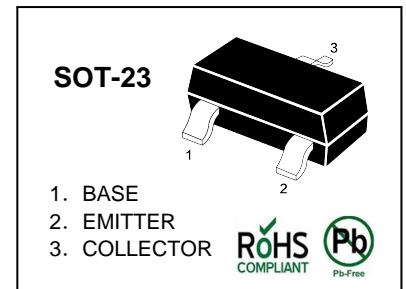


NPN Silicon Epitaxial Planar Transistor

for low frequency amplification applications

The transistor is subdivided into four groups Q, R, S and T, according to its DC current gain.



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

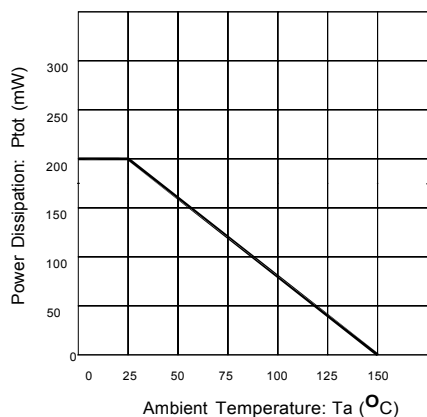
Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	50	V
Collector Emitter Voltage	V_{CEO}	50	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	200	mA
Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_S	- 55 to + 150	$^\circ\text{C}$

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

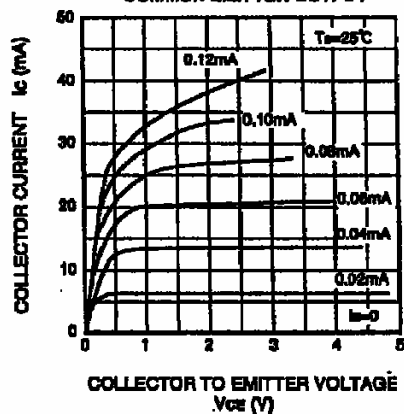
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 6\text{ V}$, $I_C = 1\text{ mA}$ Current Gain Group at $V_{CE} = 6\text{ V}$, $I_C = 0.1\text{ mA}$	Q R S T h_{FE} h_{FE} h_{FE} h_{FE} h_{FE}	120 180 270 390 70	- - - - -	270 390 560 820 -	- - - - -
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	50	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CEO}$	50	-	-	V
Emitter Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	6	-	-	V
Collector Cutoff Current at $V_{CB} = 50\text{ V}$	I_{CBO}	-	-	0.1	μA
Emitter Cutoff Current at $V_{EB} = 4\text{ V}$	I_{EBO}	-	-	0.1	μA
Collector Emitter Saturation Voltage at $I_C = 100\text{ mA}$, $I_B = 10\text{ mA}$	$V_{CE(sat)}$	-	-	0.3	V
Gain Bandwidth Product at $V_{CE} = 6\text{ V}$, $-I_E = 10\text{ mA}$	f_T	-	200	-	MHz
Collector Output Capacitance at $V_{CB} = 6\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	4	-	pF
Noise Figure at $V_{CE} = 6\text{ V}$, $-I_E = 0.1\text{ mA}$, $f = 1\text{ KHz}$, $R_G = 2\text{ K}\Omega$	NF	-	-	15	dB

Typical Characteristics

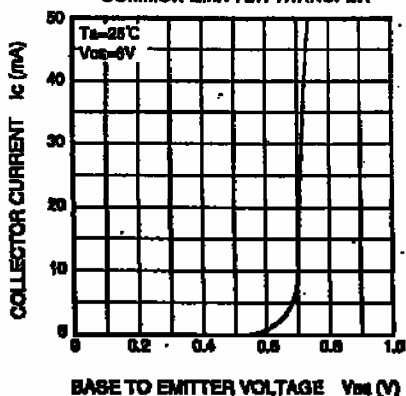
Power Dissipation vs Ambient Temperature



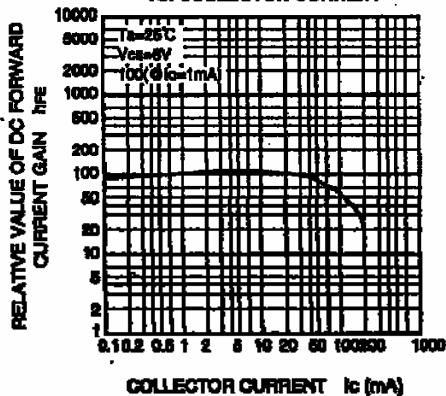
COMMON EMITTER OUTPUT



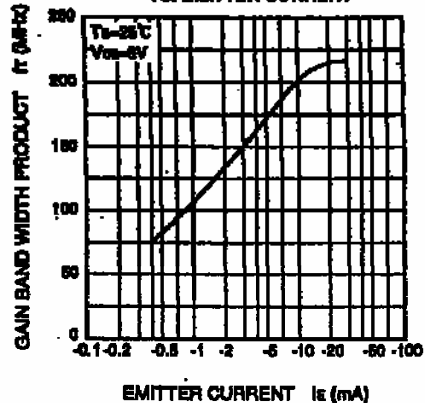
COMMON EMITTER TRANSFER



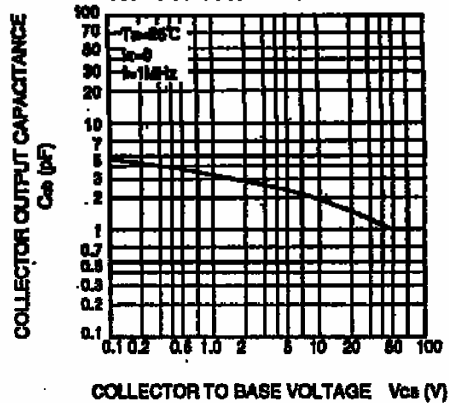
DC FORWARD CURRENT GAIN VS. COLLECTOR CURRENT



GAIN BAND WIDTH PRODUCT VS. EMITTER CURRENT

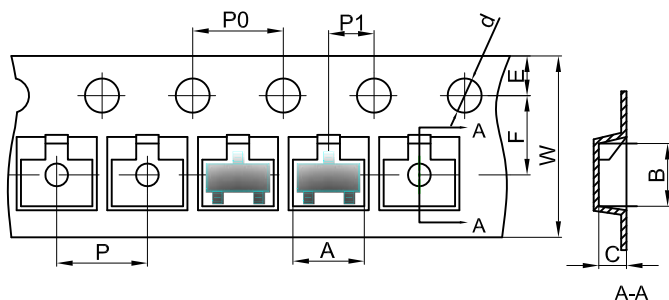


COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



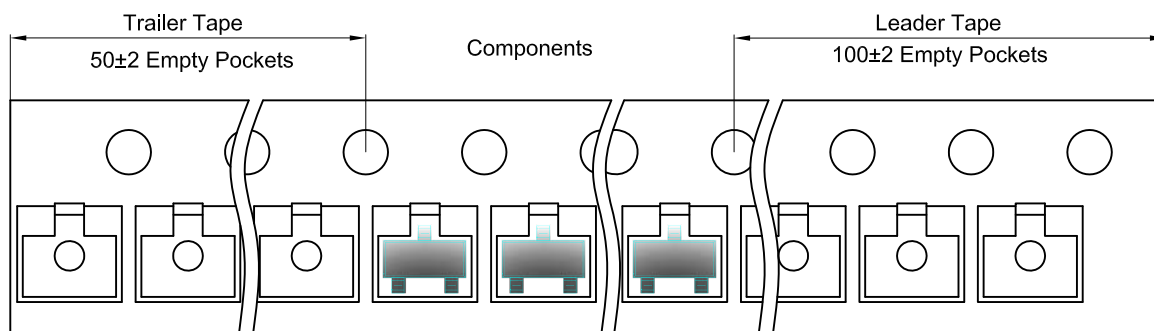
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

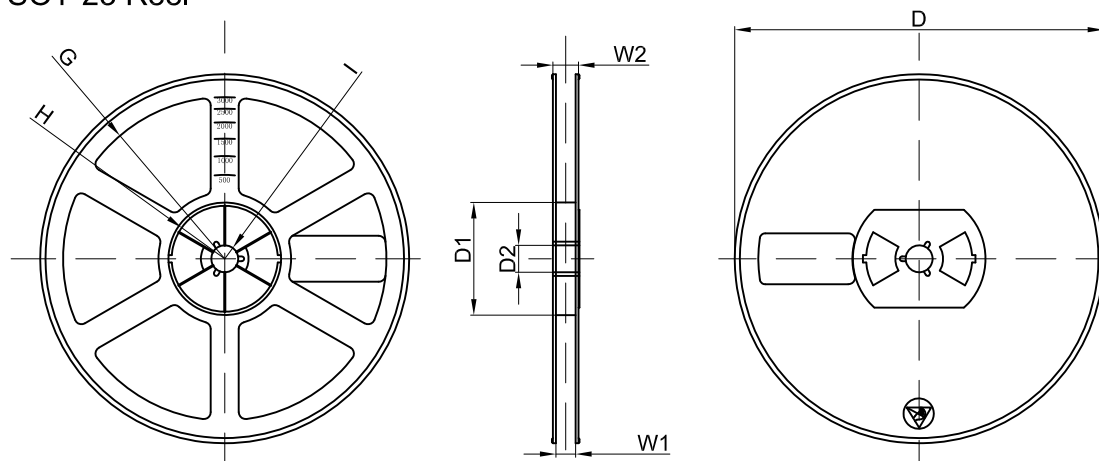


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer

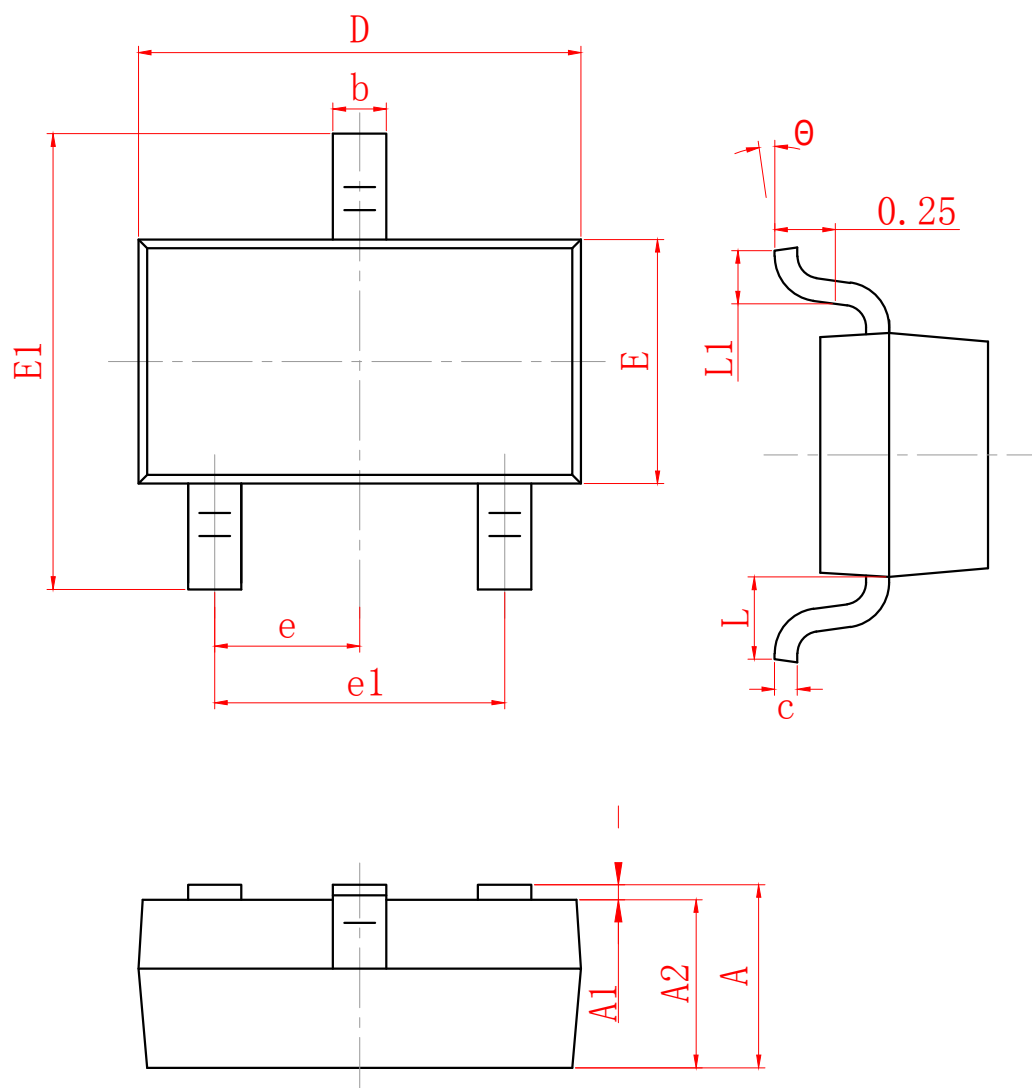


SOT-23 Reel



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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