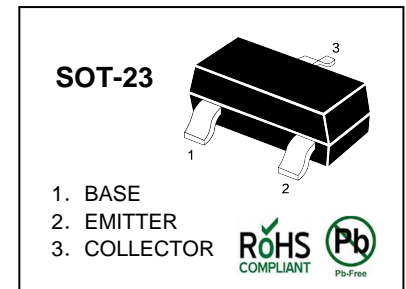


### NPN Silicon Epitaxial Planar Transistor

for high frequency amplifier applications

for FMIF, OSC stage and AM CONV. IF stage

The transistor is subdivided into three groups, R, O and Y, according to its DC current gain.



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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	35	V
Collector Emitter Voltage	$V_{CEO}$	30	V
Emitter Base Voltage	$V_{EBO}$	4	V
Collector Current	$I_C$	50	mA
Base Current	$I_B$	10	mA
Power Dissipation	$P_{tot}$	200	mW
Junction Temperature	$T_j$	125	$^\circ\text{C}$
Storage Temperature Range	$T_S$	-55 to +125	$^\circ\text{C}$

#### Characteristics at $T_{amb} = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 12\text{ V}$ , $I_C = 2\text{ mA}$ Current Gain Group      R O Y	$h_{FE}$	40	-	80	-
	$h_{FE}$	70	-	140	-
	$h_{FE}$	120	-	240	-
Collector Cutoff Current at $V_{CB} = 35\text{ V}$	$I_{CBO}$	-	-	0.1	$\mu\text{A}$
Emitter Cutoff Current at $V_{EB} = 4\text{ V}$	$I_{EBO}$	-	-	0.1	$\mu\text{A}$
Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$	$V_{CE(sat)}$	-	-	0.4	V
Base Emitter Saturation Voltage at $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$	$V_{BE(sat)}$	-	-	1	V
Current Gain Bandwidth Product at $V_{CE} = 10\text{ V}$ , $I_C = 1\text{ mA}$	$f_T$	100	-	400	MHz
Output Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	2	3.2	pF
Power Gain at $V_{CE} = 6\text{ V}$ , $-I_E = 1\text{ mA}$ , $f = 10.7\text{ MHz}$	$G_{pe}$	27	30	33	dB

### Typical Characteristics

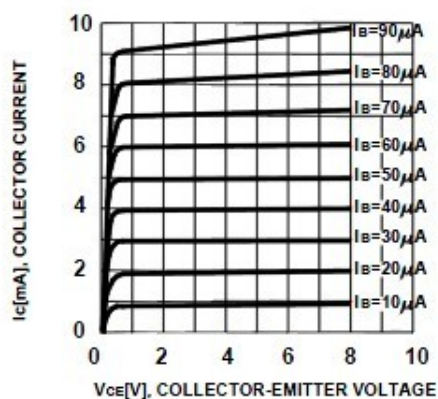


Figure 1. Static Characteristic

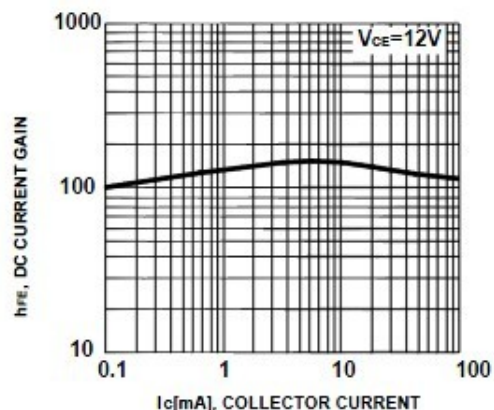


Figure 2. DC Current Gain

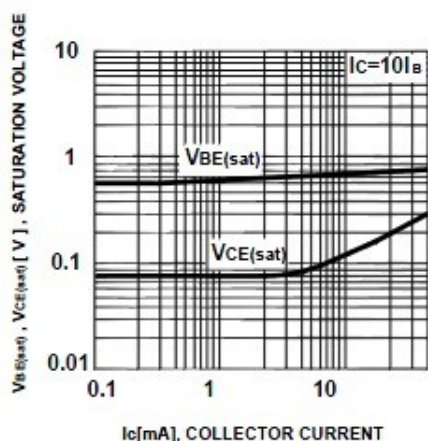


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

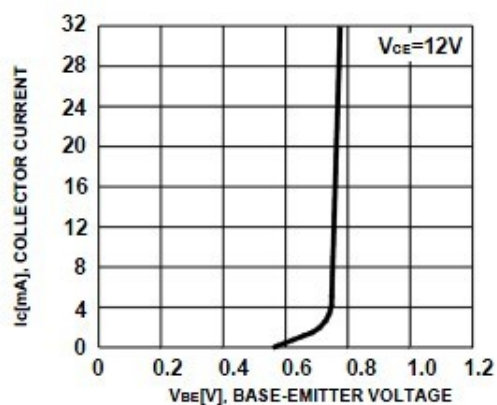


Figure 4. Base-Emitter On Voltage

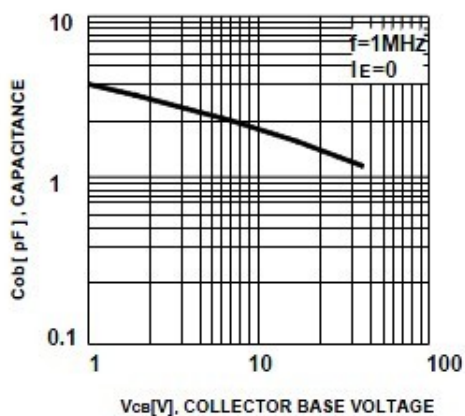


Figure 5. Collector Output Capacitance

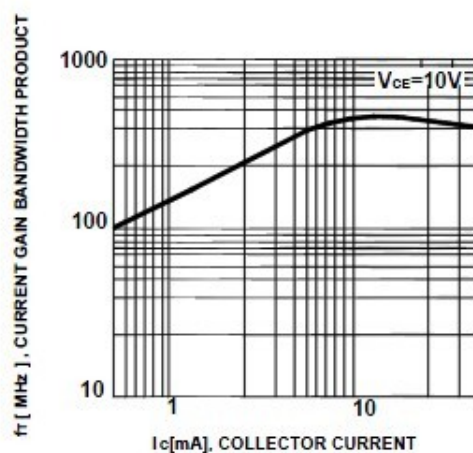
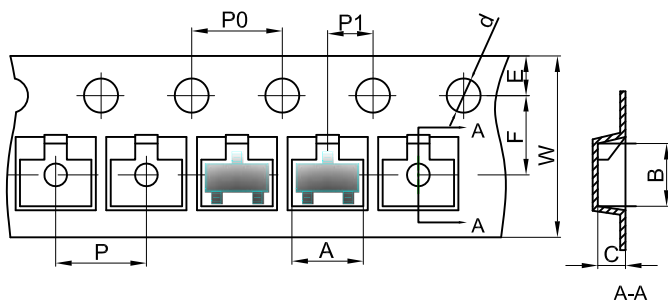


Figure 6. Current Gain Bandwidth Product

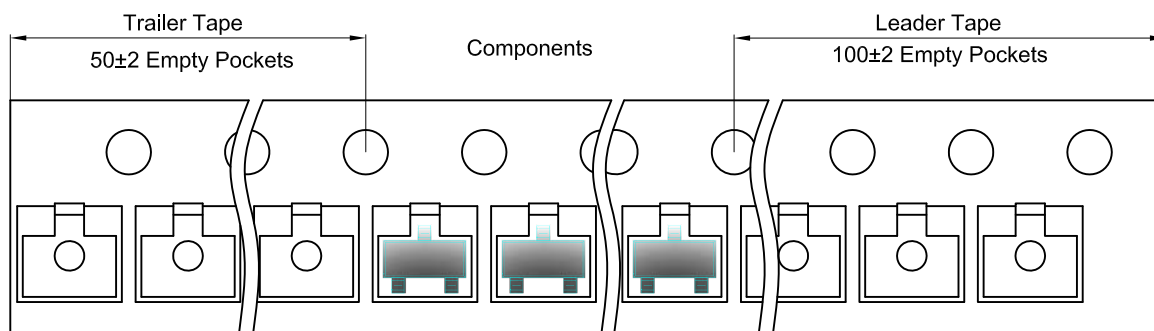
### SOT-23 Tape and Reel

#### SOT-23 Embossed Carrier Tape

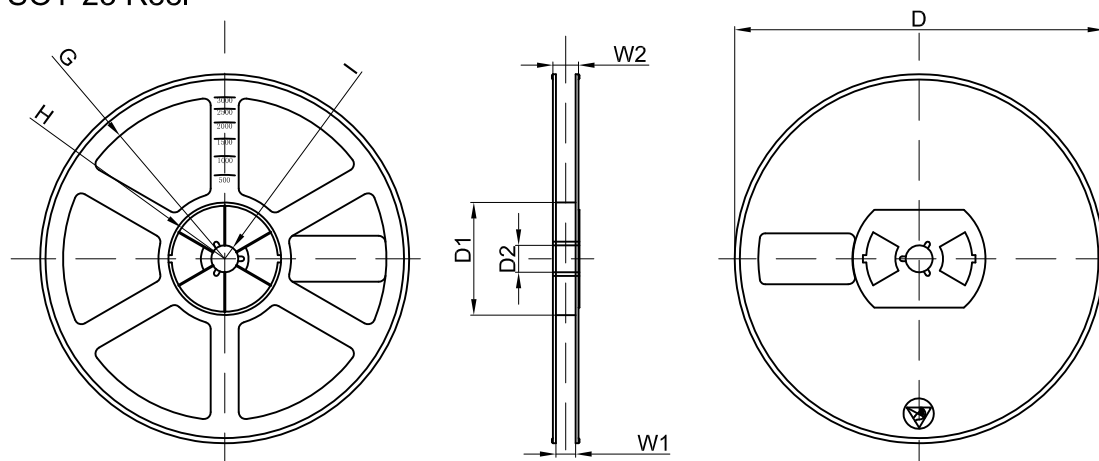


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

#### SOT-23 Tape Leader and Trailer



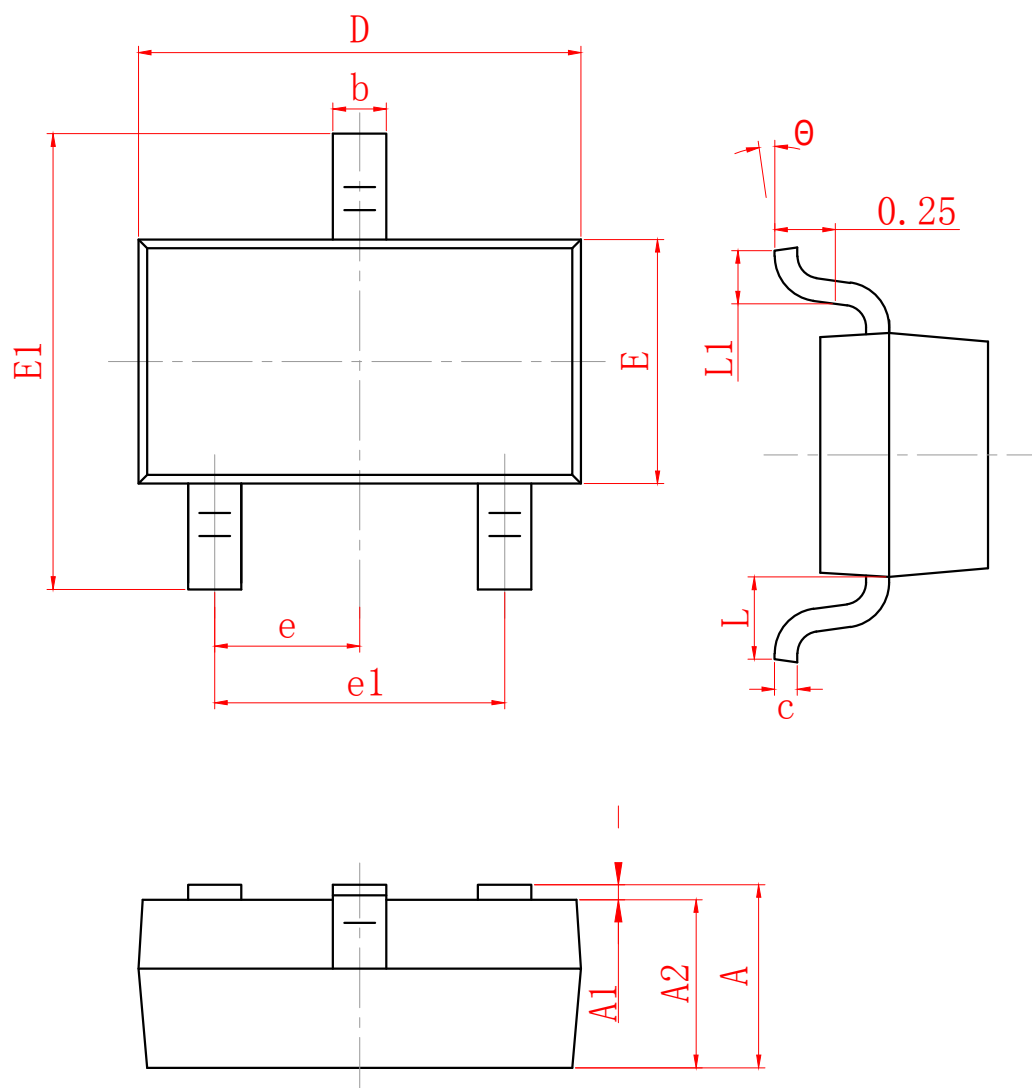
#### SOT-23 Reel



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
$\theta$	0°	8°

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