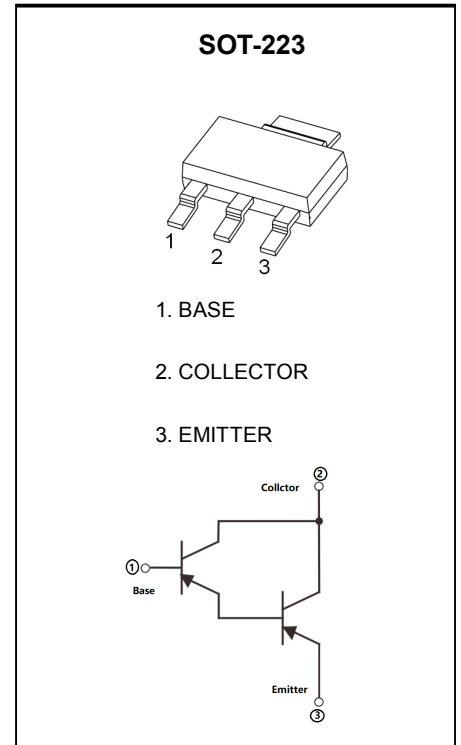




### FEATURES

- Low Voltage and High Current
- High Current Gain Applications



### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	-30	V
V <sub>CEO</sub>	Collector-Emitter Voltage	-30	V
V <sub>EBO</sub>	Emitter-Base Voltage	-10	V
I <sub>C</sub>	Collector Current	-500	mA
P <sub>C</sub>	Collector Power Dissipation	1	W
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	125	°C/W
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~+150	°C

### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

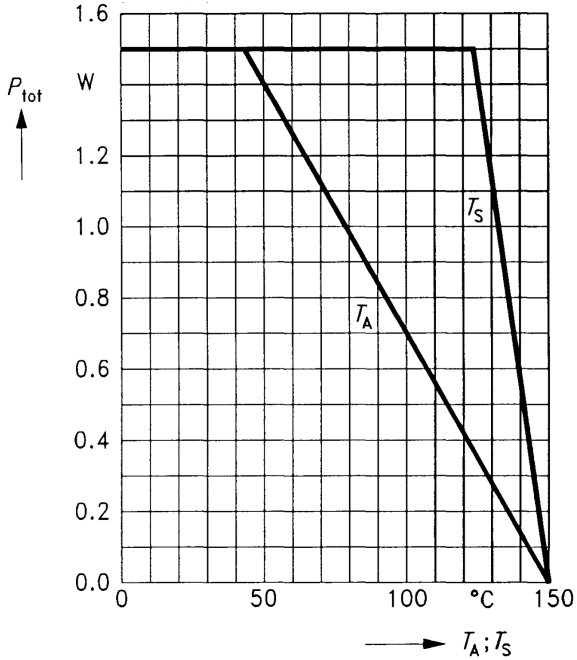
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-emitter breakdown voltage	V <sub>(BR)CES</sub>	I <sub>C</sub> =-0.1mA, I <sub>B</sub> =0	-30			V
Collector cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> =-30V, I <sub>E</sub> =0			-100	nA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =-10V, I <sub>C</sub> =0			-100	nA
DC current gain	h <sub>FE(1)</sub> *	V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA	10000			
	h <sub>FE(2)</sub> *	V <sub>CE</sub> =-5V, I <sub>C</sub> =-100mA	20000			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> *	I <sub>C</sub> =-100mA, I <sub>B</sub> =-0.1mA			-1.5	V
Base-emitter voltage	V <sub>BE</sub> *	V <sub>CE</sub> =-5V, I <sub>C</sub> =-100mA			-2	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA, f=100MHz	125			MHz

\*Pulse test: pulse width ≤350μs, duty cycle ≤ 2.0%.

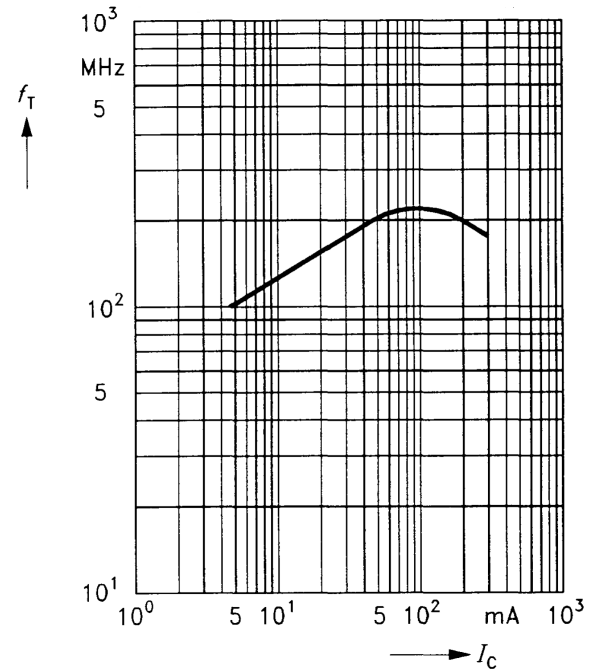


### Typical Characteristics

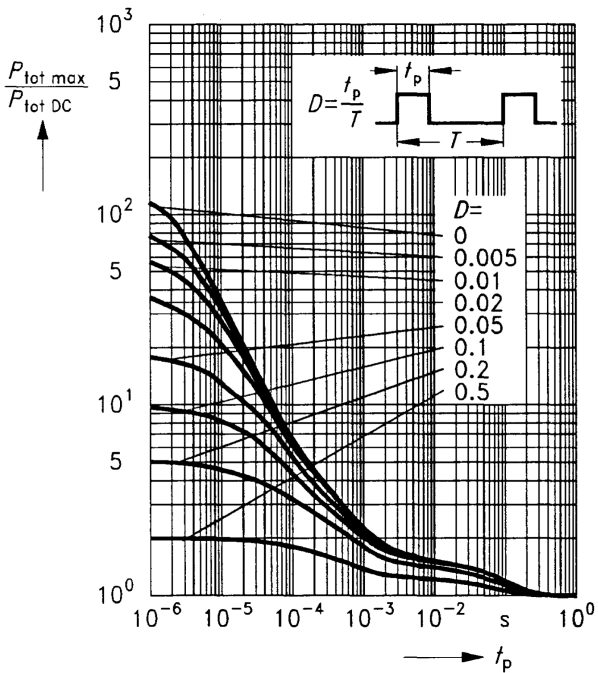
**Total power dissipation**  $P_{tot} = f(T_A^*, T_S)$   
 \* Package mounted on epoxy



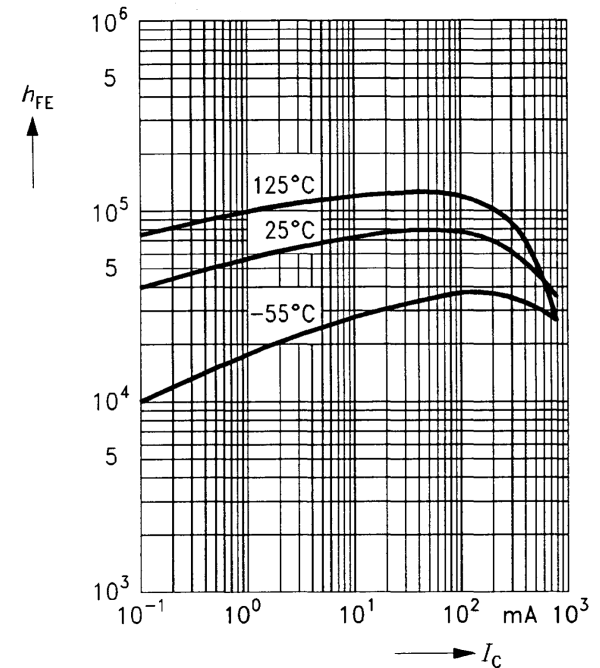
**Transition frequency**  $f_T = f(I_C)$   
 $V_{CE} = 5 V, f = 100 \text{ MHz}$



**Permissible pulse load**  $P_{tot \text{ max}} / P_{tot \text{ DC}} = f(t_p)$



**DC current gain**  $h_{FE} = f(I_C)$   
 $V_{CE} = 5 V$



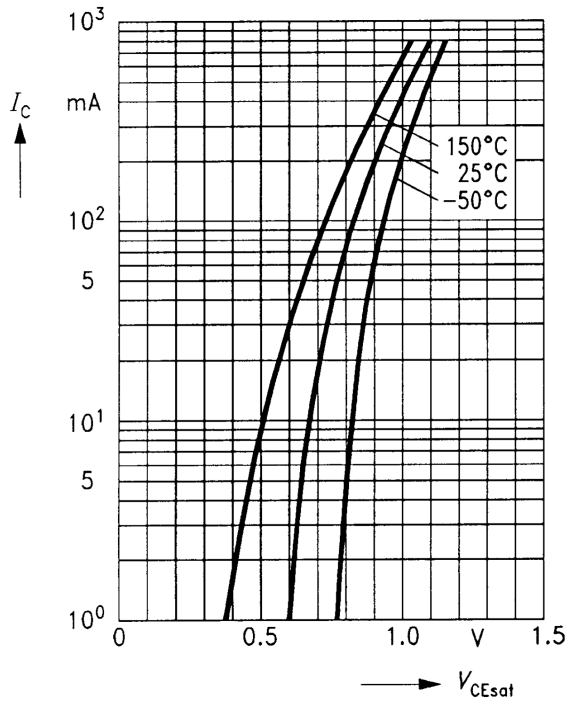


## Typical Characteristics

### Collector-emitter saturation voltage

$$I_C = f(V_{CE\ sat})$$

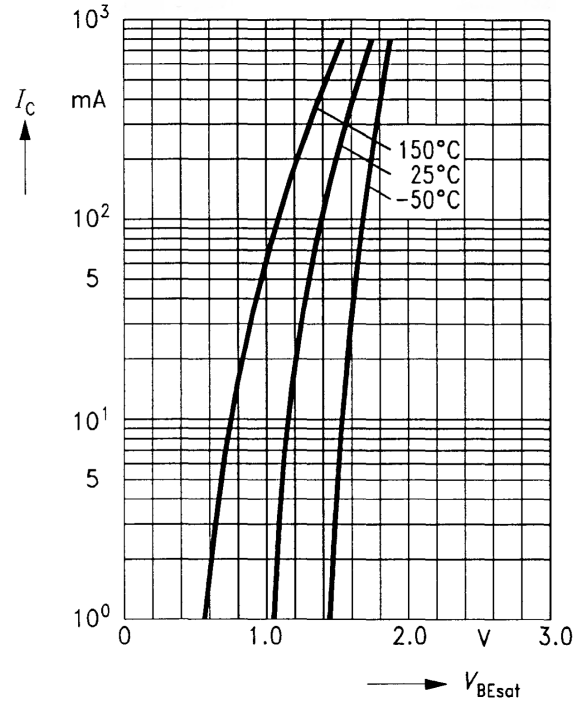
$$h_{FE} = 1000$$



### Base-emitter saturation voltage

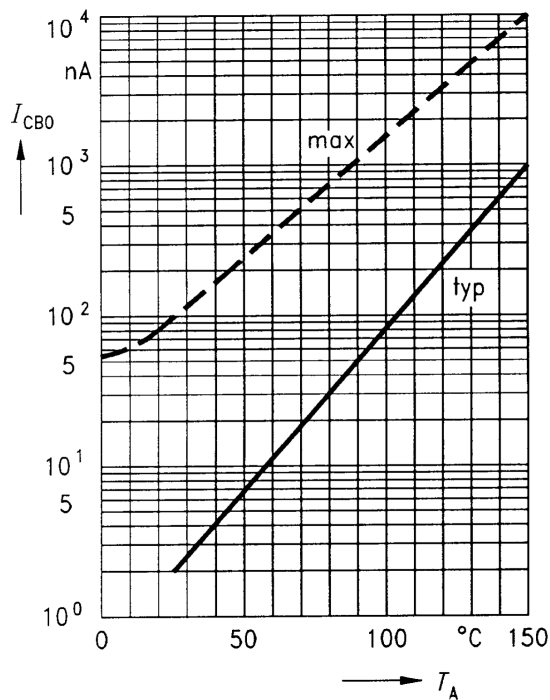
$$I_C = f(V_{BE\ sat})$$

$$h_{FE} = 1000$$



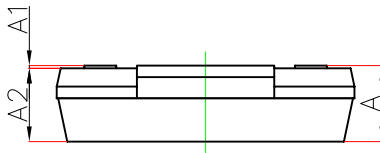
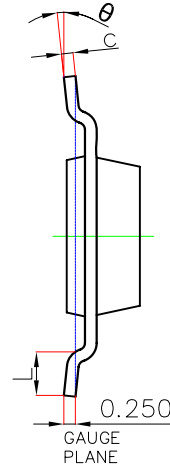
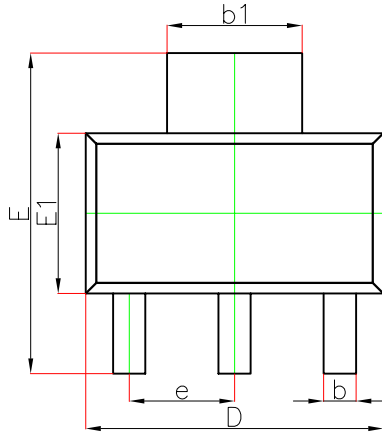
### Collector cutoff current $I_{CB0} = f(T_A)$

$$V_{CE} = 30\ V$$



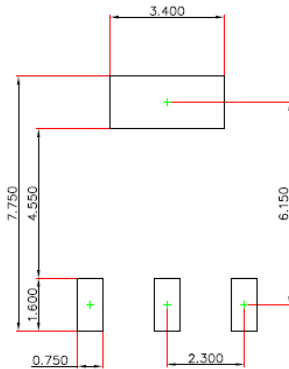


### SOT-223 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	—	1.800	—	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300(BSC)		0.091(BSC)	
L	0.750	—	0.030	—
θ	0°	10°	0°	10°

### SOT-223 Suggested Pad Layout



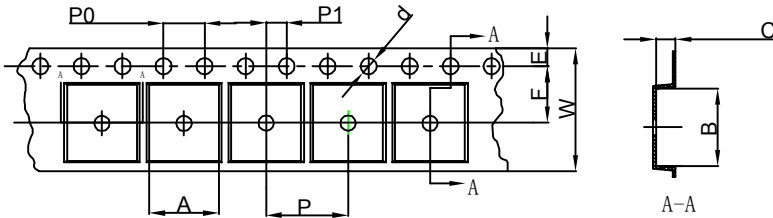
#### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.050$ mm.
3. The pad layout is for reference purposes only.



### SOT-223 Tape and Reel

#### SOT-223 Embossed Carrier Tape

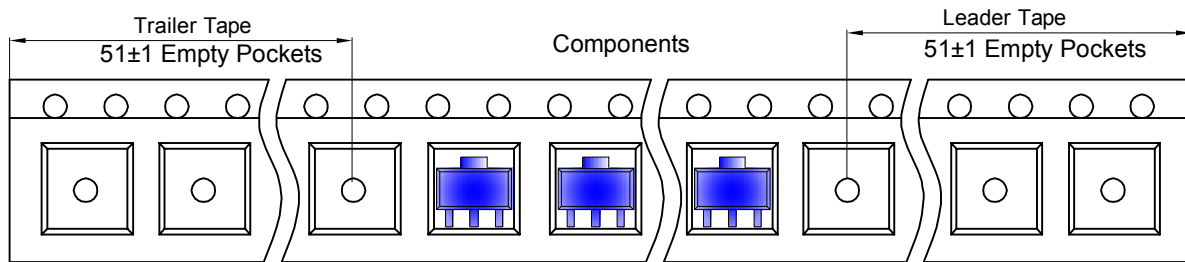


#### Packaging Description:

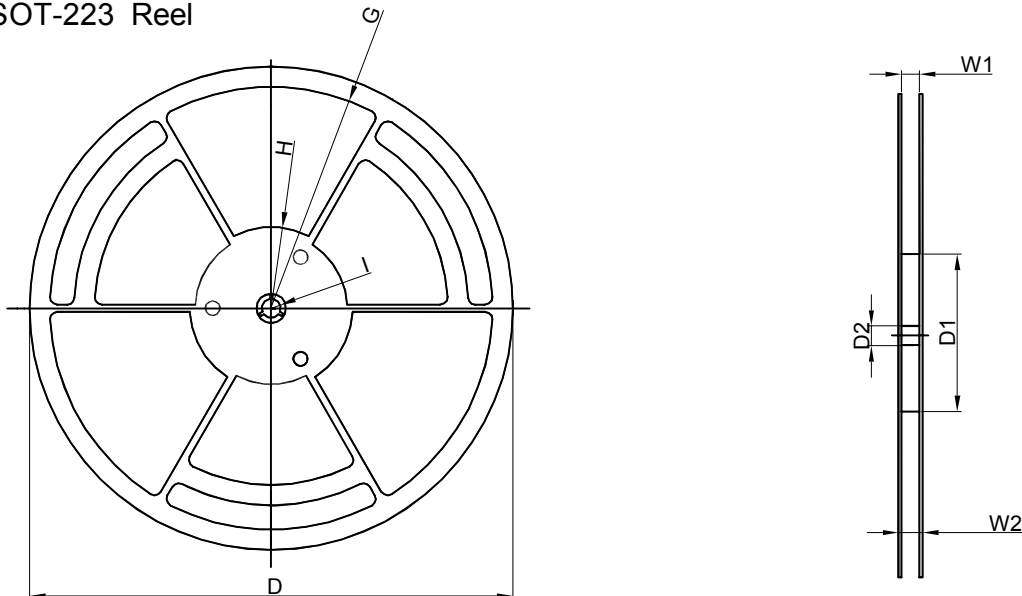
SOT-223 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 2,500 units per 13" or 33.0cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-223	6.765	7.335	1.88	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

#### SOT-223 Tape Leader and Trailer



#### SOT-223 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
13" Dia	Ø330.00	100.00	13.00	R151.00	R56.00	R6.50	12.40	17.60

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13 inch	2,500 pcs	336×336×48	20,000 pcs	445×355×365	