

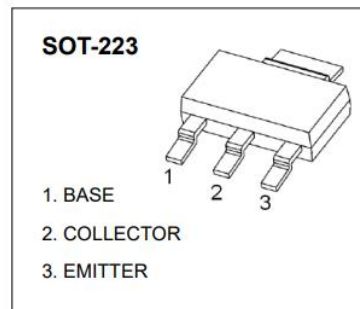


## AD-BCP51/52/53\* series Plastic-Encapsulated Transistor

### AD-BCP51/52/53\* series Transistor (PNP)

#### FEATURES

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: AD-BCP54/55/56\* series (NPN)
- AEC-Q101 qualified



**MAXIMUM RATINGS ( $T_j = 25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	AD-BCP51*	AD-BCP52*	AD-BCP53*	Unit
Collector-base voltage	$V_{CBO}$	-45	-60	-100	V
Collector-emitter voltage	$V_{CEO}$	-45	-60	-80	V
Emitter-base voltage	$V_{EBO}$		-5		V
Collector continuous current	$I_C^{(1)}$		-1		A
Peak pulsed collector current	$I_{CM}$		-2		A
Base continuous current	$I_B$		-100		mA
Peak pulsed base current	$I_{BM}$		-200		mA
Collector power dissipation	$P_{C1}$		1.5		W
Thermal resistance from junction to ambient	$R_{\theta JA}^{(1)}$		83.3		$^\circ\text{C}/\text{W}$
Collector power dissipation @ $T_L \leq 120^\circ\text{C}$	$P_{C2}$		2.1		W
Thermal resistance from junction to lead	$R_{\theta JL}^{(1)}$		14		$^\circ\text{C}/\text{W}$
Operating junction and storage temperature range	$T_j, T_{stg}$		-55 ~ 150		$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS ( $T_j = 25^\circ\text{C}$  unless otherwise specified)**

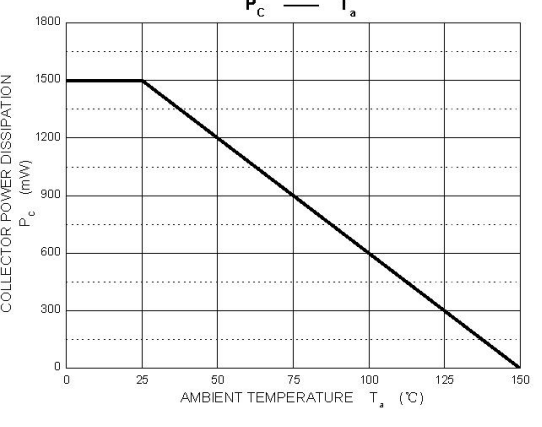
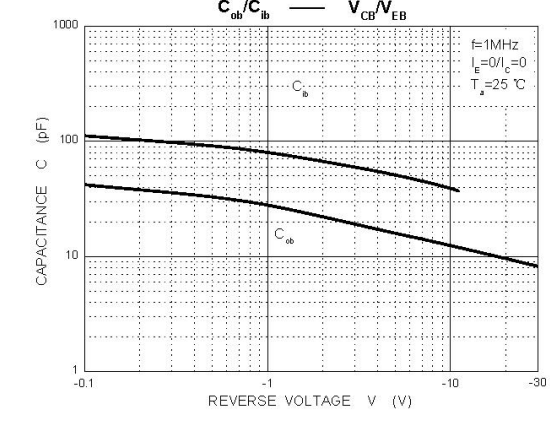
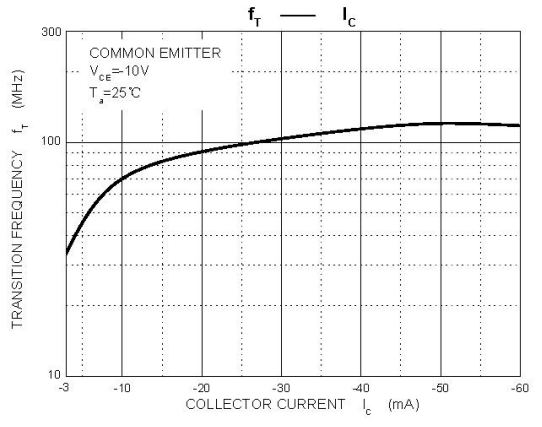
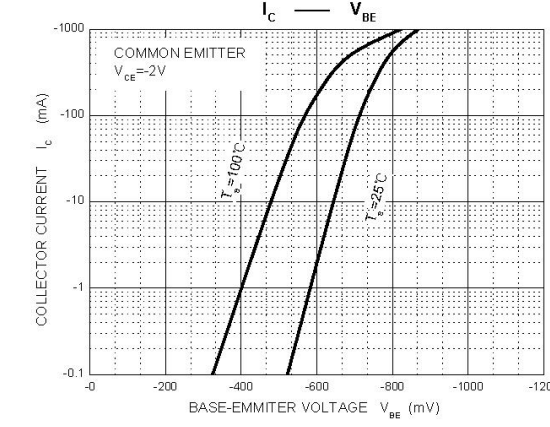
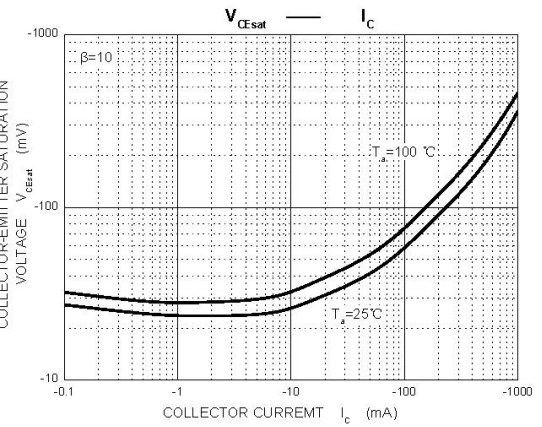
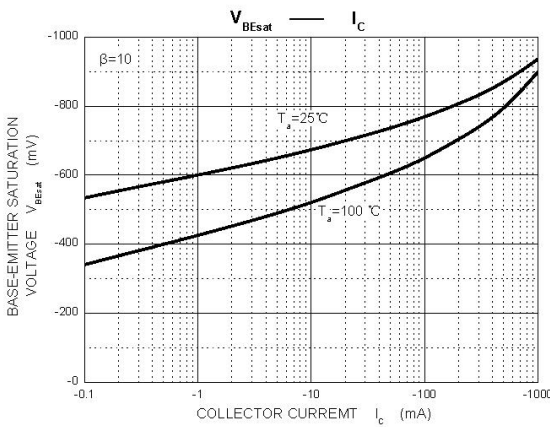
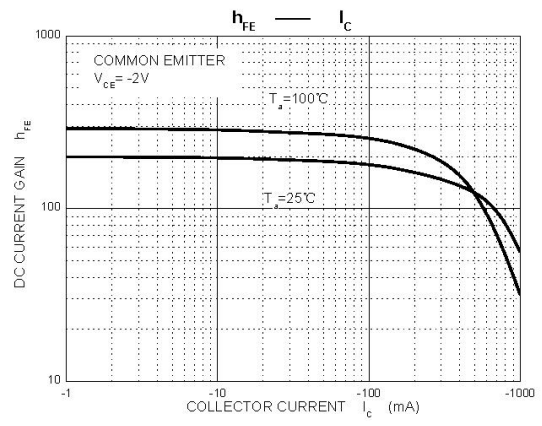
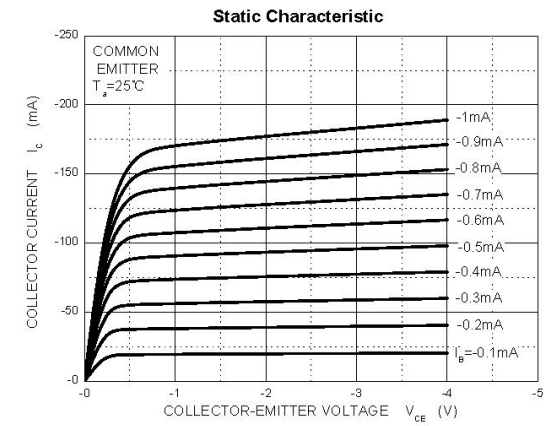
Parameter		Symbol	Test condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	AD-BCP51*	$V_{(BR)CBO}$	$I_C = -0.1\text{mA}, I_E = 0\text{A}$	-45	-	-	V
	AD-BCP52*			-60	-	-	
	AD-BCP53*			-100	-	-	
Collector-emitter breakdown voltage	AD-BCP51*	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0\text{A}$	-45	-	-	V
	AD-BCP52*			-60	-	-	
	AD-BCP53*			-80	-	-	
Base-emitter breakdown voltage		$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0\text{A}$	-5	-	-	V
Collector-base cut-off current		$I_{CBO}$	$V_{CB} = -30\text{V}, I_E = 0\text{A}$	-	-	-100	nA
DC current gain		$h_{FE(1)}$	$V_{CE} = -2\text{V}, I_C = -5\text{mA}$	25	-	-	-
		$h_{FE(2)}$	$V_{CE} = -2\text{V}, I_C = -150\text{mA}$	63	-	250	
		$h_{FE(3)}$	$V_{CE} = -2\text{V}, I_C = -500\text{mA}$	25	-	-	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$	-	-	-0.5	V
Base-emitter voltage		$V_{BE}$	$I_C = -500\text{mA}, V_{CE} = -2\text{V}$	-	-	-1	V
Transition frequency		$f_T$	$V_{CE} = -10\text{V}, I_C = -50\text{mA}, f = 100\text{MHz}$	100	-	-	MHz

**CLASSIFICATION OF  $h_{FE(2)}$** 

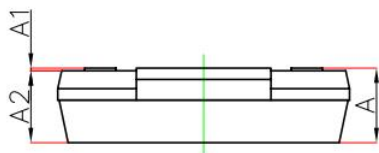
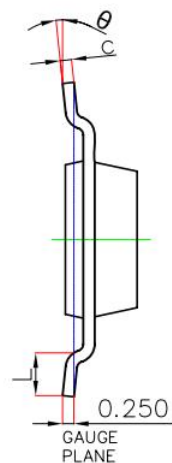
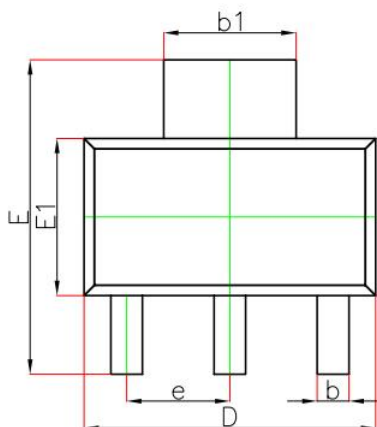
RANK	AD-BCP51-10, AD-BCP52-10, AD-BCP53-10	AD-BCP51-16, AD-BCP52-16, AD-BCP53-16
RANGE	63 ~ 160	100 ~ 250
MARKING	$\bar{B}CP51-10, \bar{B}CP52-10, \bar{B}CP53-10$	$\bar{B}CP51-16, \bar{B}CP52-16, \bar{B}CP53-16$

1) Measured with the device mounted on 1 inch<sup>2</sup> FR-4 board with no copper, in a still air environment with  $T_a = 25^{\circ}\text{C}$ .

TYPICAL CHARACTERISTICS

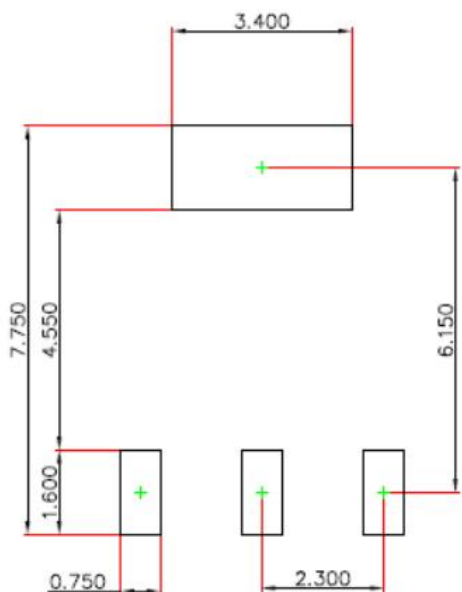


### SOT-223 PACKAGE OUTLINE DIMENSIONS



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
$b_1$	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	—
$\theta$	0°	10°	0°	10°

### SOT-223 SUGGESTED PAD LAYOUT



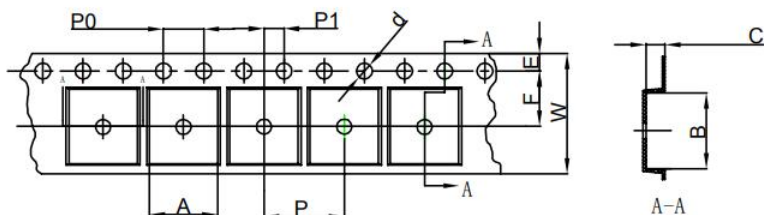
only.

Note:

1. Controlling dimension in millimeters.
2. General tolerance:  $\pm 0.05$ mm.
3. The pad layout is for reference purpose

# SOT-223 TAPE AND REEL

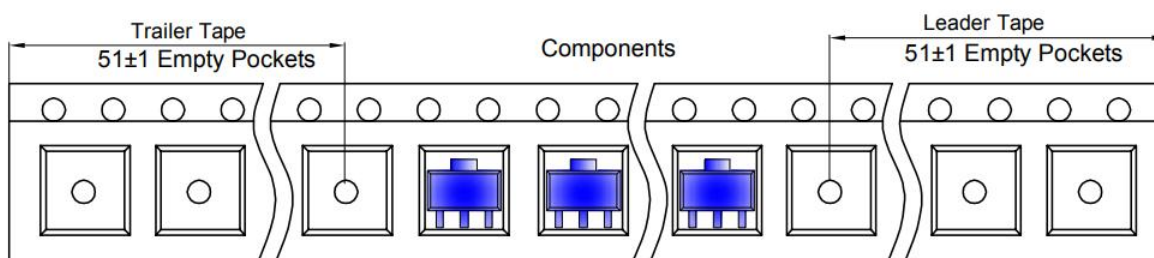
## SOT-223 Embossed Carrier Tape



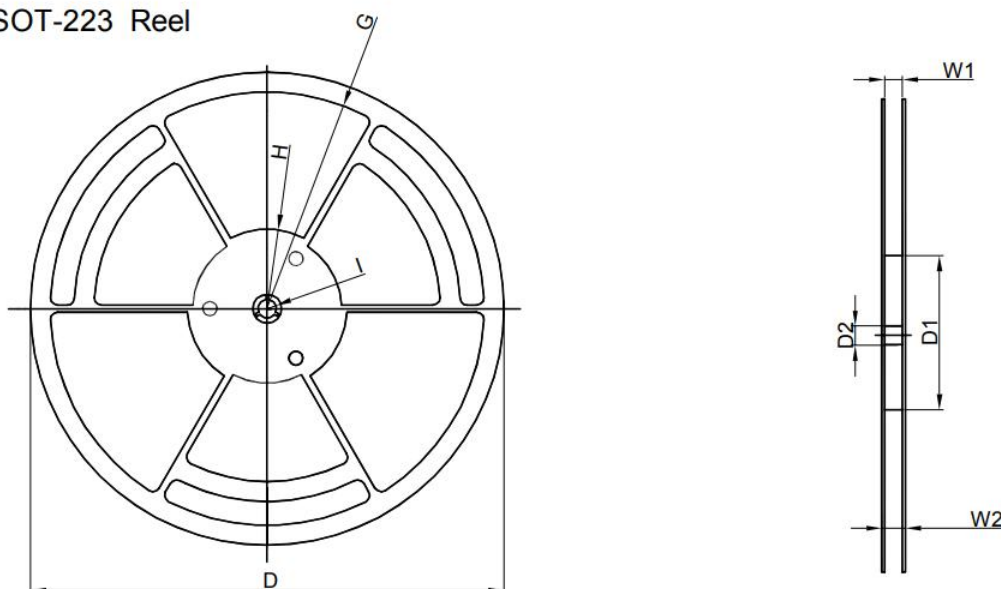
**Packaging Description:**  
 SOT-223 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed 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	

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