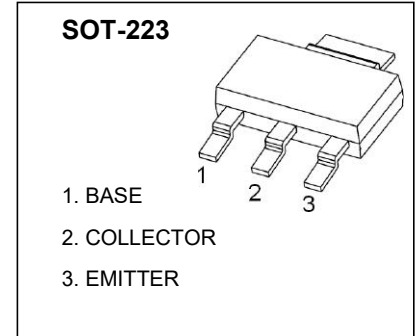


**CST54-55-56S223** TRANSISTOR (NPN)

**FEATURES**

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCP51 ... BCP53 (PNP)

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



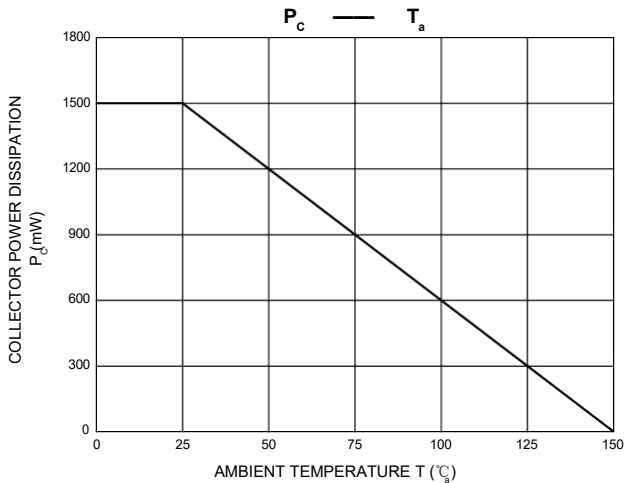
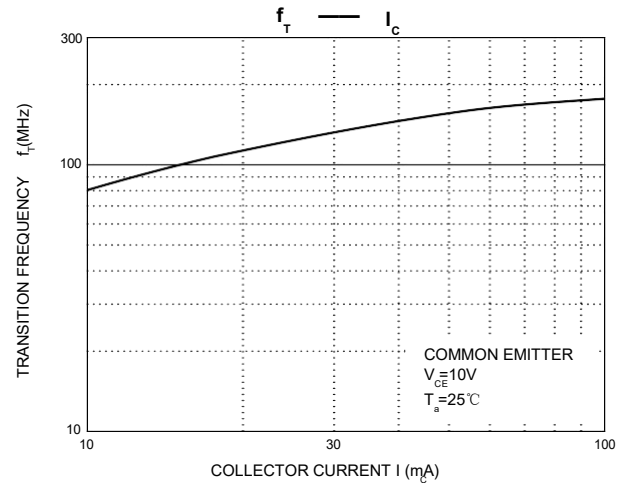
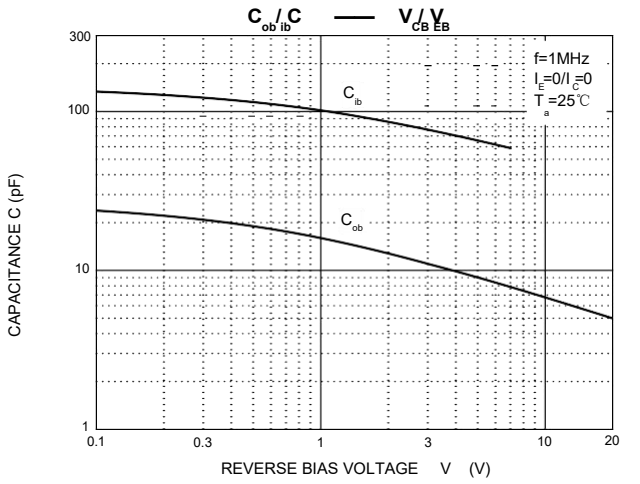
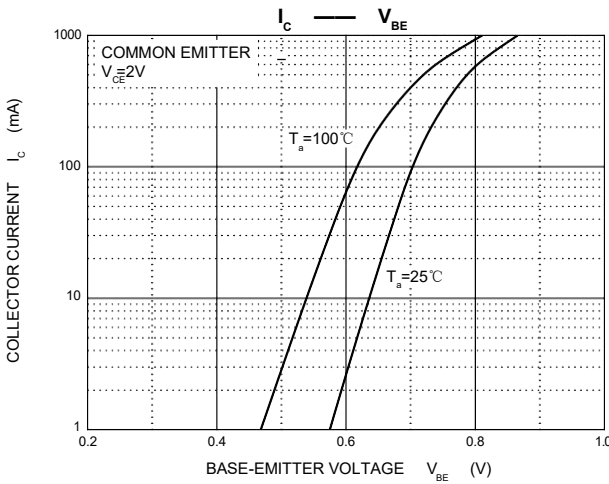
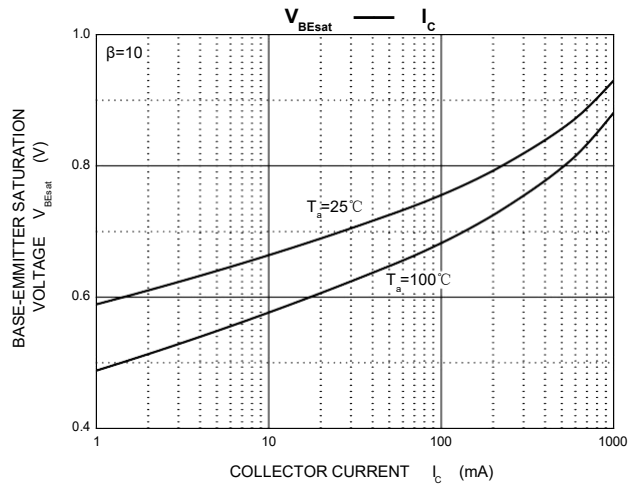
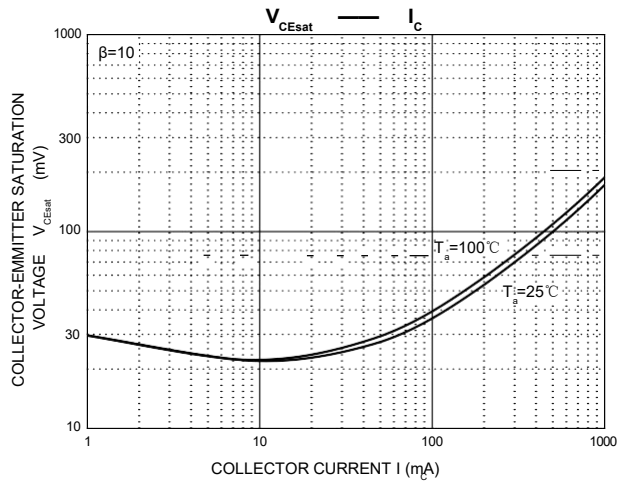
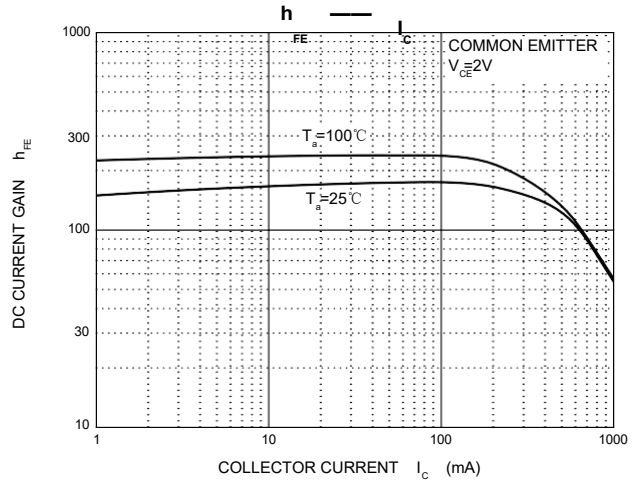
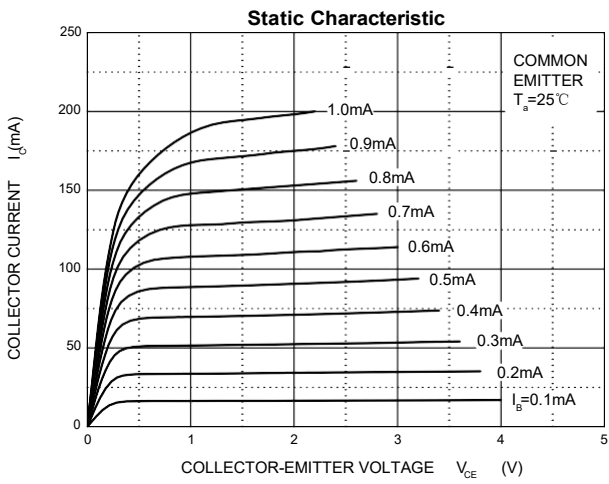
Symbol	Parameter	BCP54	BCP55	BCP56	Unit
V <sub>CB0</sub>	Collector-Base Voltage	45	60	100	V
V <sub>CE0</sub>	Collector-Emitter Voltage	45	60	80	V
V <sub>EBO</sub>	Emitter-Base Voltage	5			V
I <sub>c</sub>	Collector Current -Continuous	1			A
P <sub>c</sub>	Collector Power Dissipation	1.5			W
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~+150			°C
R <sub>θJA</sub>	Thermal Resistance Junction to Ambient	83.3			°C/W

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

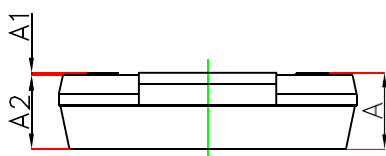
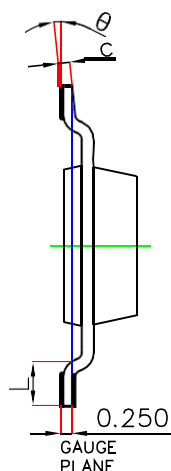
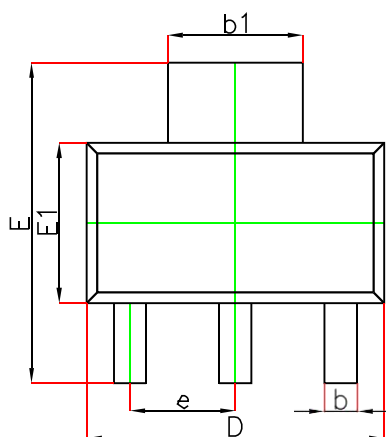
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	CSD54	I <sub>c</sub> = 0.1mA, I <sub>E</sub> = 0	45		V
	CSD55		60		
	CSD56		100		
Collector-emitter breakdown voltage	CSD54	I <sub>c</sub> = 10mA, I <sub>B</sub> = 0	45		V
	CSD55		60		
	CSD56		80		
Base-emitter breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 10μA, I <sub>c</sub> = 0	5		V
Collector cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> = 30 V, I <sub>E</sub> = 0		100	nA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> = 2V, I <sub>c</sub> = 5mA	25		
	h <sub>FE(2)</sub>	V <sub>CE</sub> = 2V, I <sub>c</sub> = 150mA	63	250	
	h <sub>FE(3)</sub>	V <sub>CE</sub> = 2V, I <sub>c</sub> = 500mA	25		
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> = 500mA, I <sub>B</sub> = 50mA		0.5	V
Base-emitter voltage	V <sub>BE</sub>	V <sub>CE</sub> = 2V, I <sub>c</sub> = 500mA		1	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>c</sub> = 50mA, f = 100MHz	100		MHz

**CLASSIFICATION OF h<sub>FE(2)</sub>**

Rank	CSD54-10, CSD55-10, CSD56-10	CSD54-16, CSD55-16, CSD56-16
Range	63-160	100-250

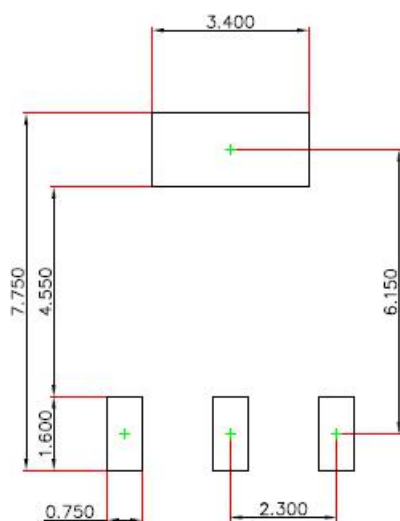


## SOT-223 Package Outline Dimensions



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



### Note:

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

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