

SOT-223 Plastic-Encapsulate Transistors

Features

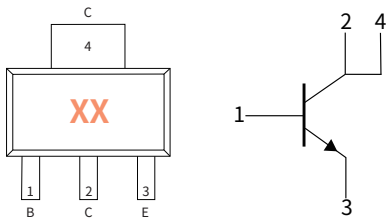
- Complementary to BCP51,BCP52,BCP53
- Power dissipation of 1.33W
- High stability and high reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Mechanical Data

- Case: SOT-223
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

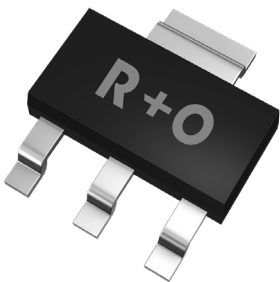
Function Diagram

XX = Device Code
BCP54-10=BCP54-10,BCP54-16=BCP54-16
BCP55-10=BCP55-10,BCP55-16=BCP55-16
BCP56-10=BCP56-10,BCP56-16=BCP56-16



Collector-Base Voltage
VCBO 45/60/100V
Collector Current
1 Ampere

SOT-223



Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	CONDLITIONS	VALUE
Collector-Base Voltage	V_{CBO}	V	BCP54	45
			BCP55	60
			BCP56	100
Collector-Emitter Voltage	V_{CEO}		BCP54	45
			BCP55	60
			BCP56	80
Emitter-Base Voltage	V_{EBO}		—	5.0
Collector Current	I_C	A	—	1.0
Collector Power Dissipation	P_C	W	—	1.33
Storage temperature	T_{stg}	°C	—	-55 ~+150
Junction temperature	T_j	°C	—	150
Typical Thermal Resistance	$R_{\theta J-A}$	°C /W	—	94

Ordering Information

PACKAGE	PACKAGE CODE	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-223	R1	2500	10000	40000	7"

BCP54 THRU BCP56

NPN TRANSISTORS

● Electrical Characteristics (Ta=25°C Unless otherwise noted)

PARAMETER	SYMBOL	UNIT	Condition		Min	Max
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	$I_C=100\mu A, I_E=0$	BCP54	45	—
				BCP55	60	—
				BCP56	100	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		$I_C=1.0mA, I_B=0$	BCP54	45	—
				BCP55	60	—
				BCP56	80	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		$I_E=100\mu A, I_C=0$		5.0	—
Collector-Base cut-off current	I_{CBO}	μA	$V_{CB}=30V, I_E=0$	BCP54	—	0.1
			$V_{CB}=50V, I_E=0$	BCP55	—	0.1
			$V_{CB}=80V, I_E=0$	BCP56	—	0.1
Emitter-Base cut-off current	I_{EBO}		$V_{EB}=5.0V, I_C=0$		—	0.1
DC Current Gain	$h_{FE(1)}$	—	$I_C=5.0mA \quad V_{CE}=2.0V$		25	—
	$h_{FE(2)}$		$I_C=150mA \quad V_{CE}=2.0V$		63	250
	$h_{FE(3)}$		$I_C=500mA \quad V_{CE}=2.0V$		25	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=500mA \quad I_B=50mA$		—	0.5
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		$I_C=500mA \quad I_B=50mA$		—	1.2
Base-Emitter Voltage	V_{BE}	V	$I_C=500mA \quad V_{CE}=2.0V$		—	1.0

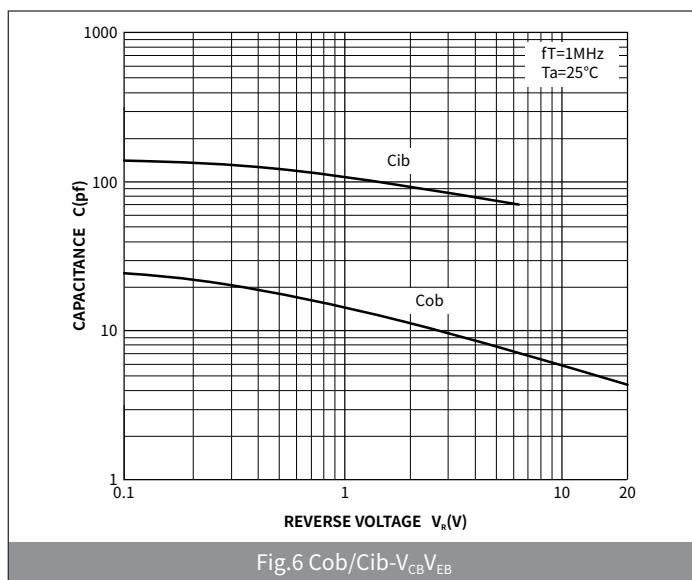
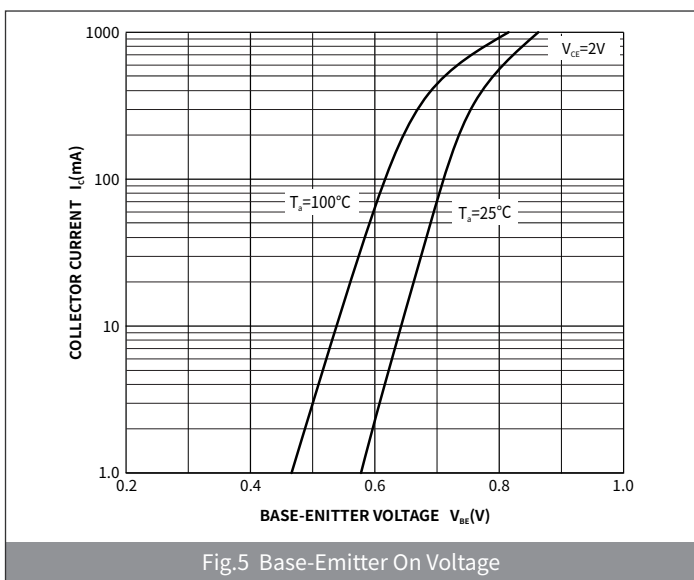
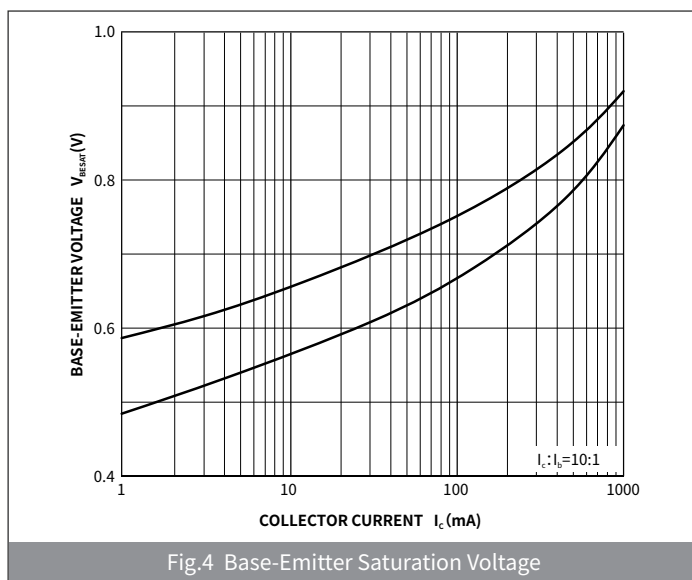
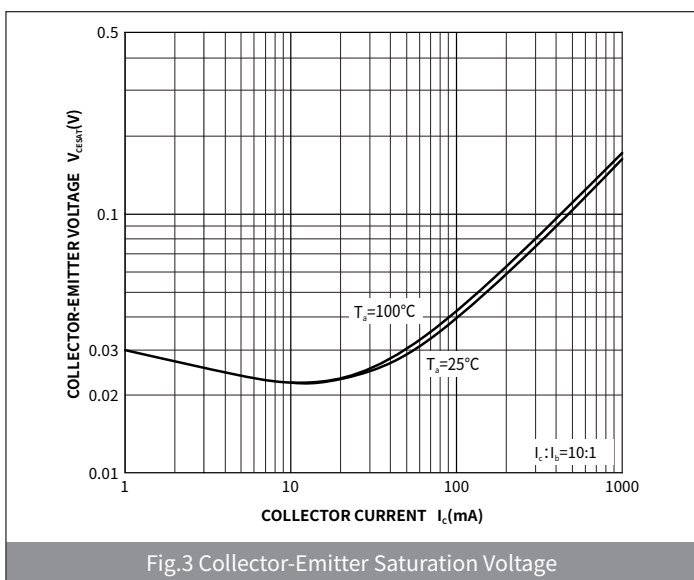
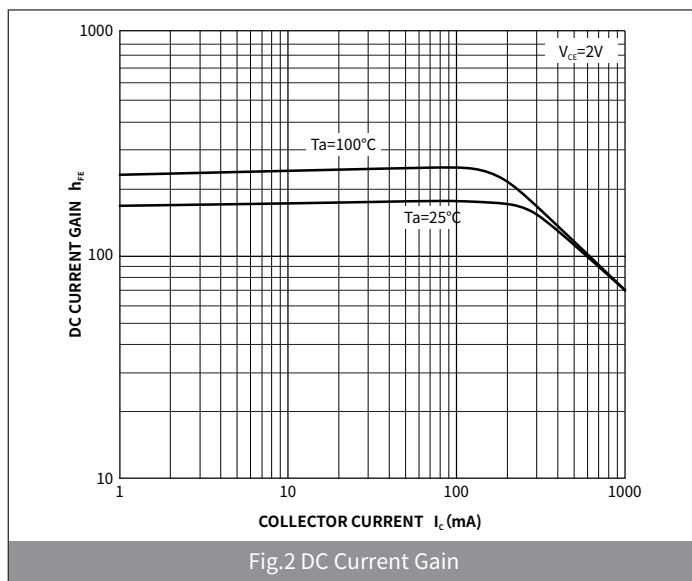
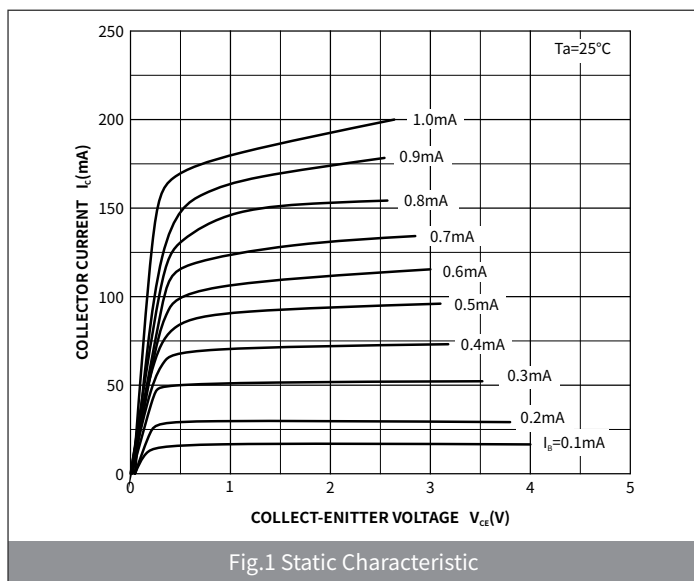
● Classification Of h_{FE}

RANK	BCP54-10/BCP55-10/BCP56-10	BCP54-16/BCP55-16/BCP56-16
Range	63-160	100-250

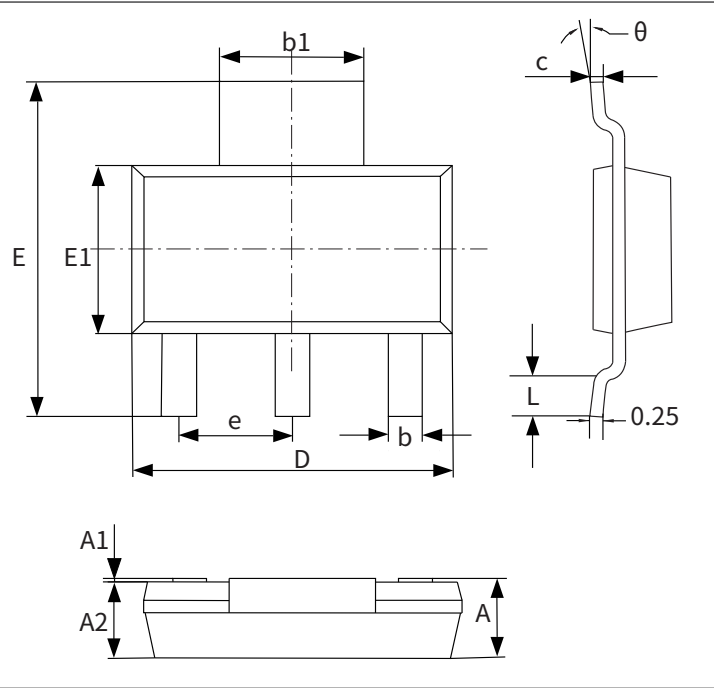
● Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Max
Transition frequency	f_T	$I_C=10mA, V_{CE}=5.0V, f=100MHz$	MHz	130	—

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

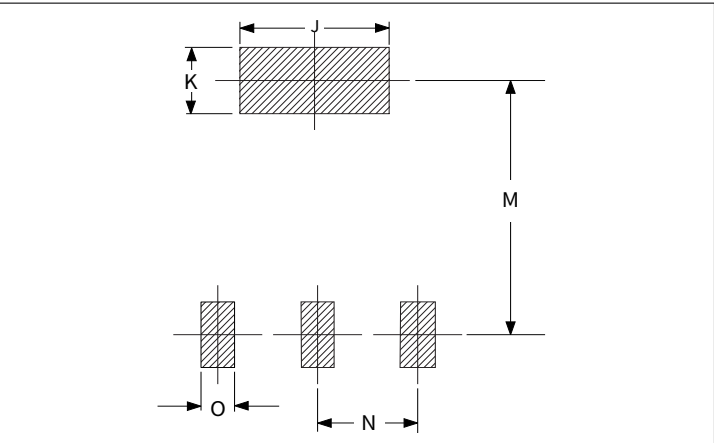


Package Outline Dimensions (SOT-223)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	-	1.8	-	0.071
A1	0.020	0.100	0.001	0.004
A2	1.50	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)		0.091TYP	
L	0.750	-	0.030	-
θ	0°	10°	0°	10°

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	3.20	3.60	0.126	0.142
K	1.40	1.80	0.055	0.071
M	5.90	6.30	0.23	0.25
N	2.15	2.45	0.085	0.096
O	0.60	0.85	0.024	0.033