

# BCX54 THRU BCX56

NPN TRANSISTORS

## SOT-89 Plastic-Encapsulate Transistors

### ● Features

- Complementary to BCX51 THRU BCX53
- Power dissipation of 500mW
- High stability and high reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

### ● Mechanical Data

- Case: SOT-89  
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

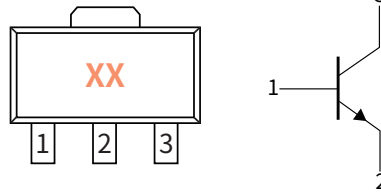
### ● Function Diagram

XX = Device Code

BA = BCX54, BC = BCX54-10, BD = BCX54-16

BE = BCX55, BG = BCX55-10, BM = BCX55-16

BH = BCX56, BK = BCX56-10, BL = BCX56-16



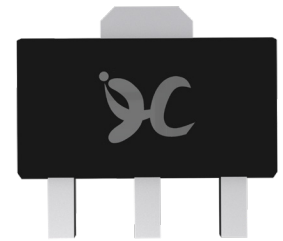
**Collector-Base Voltage**

VCBO 100V

**Collector Current**

1.0 Ampere

SOT-89



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

PARAMETER	SYMBOL	UNIT	CONDLITIONS	VALUE
Collector-Base Voltage	$V_{CBO}$	V	BCX54	45
			BCX55	60
			BCX56	100
Collector-Emitter Voltage	$V_{CEO}$	V	BCX54	45
			BCX55	60
			BCX56	80
Emitter-Base Voltage	$V_{EBO}$		—	5.0
Collector Current	$I_C$	A	—	1.0
Collector Power Dissipation	$P_C$	mW	—	500
Storage temperature	$T_{stg}$	°C	—	-55 ~+150
Junction temperature	$T_j$	°C	—	-55 ~+150
Typical Thermal Resistance	$R_{\theta J-A}$	°C /W	—	250

### ● Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-89	R1	0.055	1000	7000	21000	7"

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

PARAMETER	SYMBOL	UNIT	Condition	Min	Max	
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	$I_C=100\mu A, I_E=0$	BCX54	45	—
				BCX55	60	—
				BCX56	100	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		$I_C=10mA, I_B=0$	BCX54	45	—
				BCX55	60	—
				BCX56	80	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		$I_E=100\mu A, I_C=0$	5.0	—	
Collector-Base cut-off current	$I_{CBO}$		nA	$V_{CB}=30V, I_E=0$	—	100
Emitter-Base cut-off current	$I_{EBO}$			$V_{EB}=5.0V, I_C=0$	—	100
DC Current Gain	$h_{FE(1)}$	—	$I_C=500mA, V_{CE}=2.0V$	40	—	
	$h_{FE(2)}$		$I_C=150mA, V_{CE}=2.0V$	63	250	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=500mA, I_B=50mA$	—	0.5	
Base-Emitter Voltage	$V_{BE}$	V	$I_C=500mA, V_{CE}=2.0V$	—	1.0	

## ● Classification Of $h_{FE}$

RANK	BCX54/BCX55/BCX56	BCX54-10/BCX55-10/BCX56-10	BCX54-16/BCX55-16/BCX56-16
Range	63-250	63-160	100-250

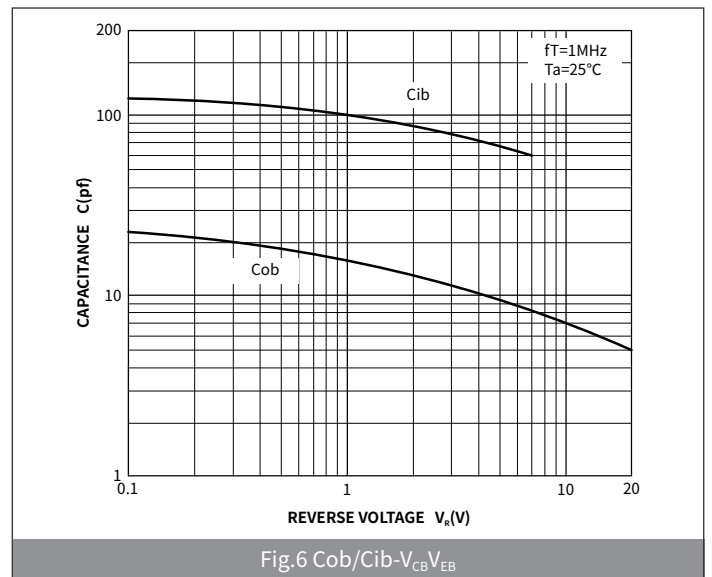
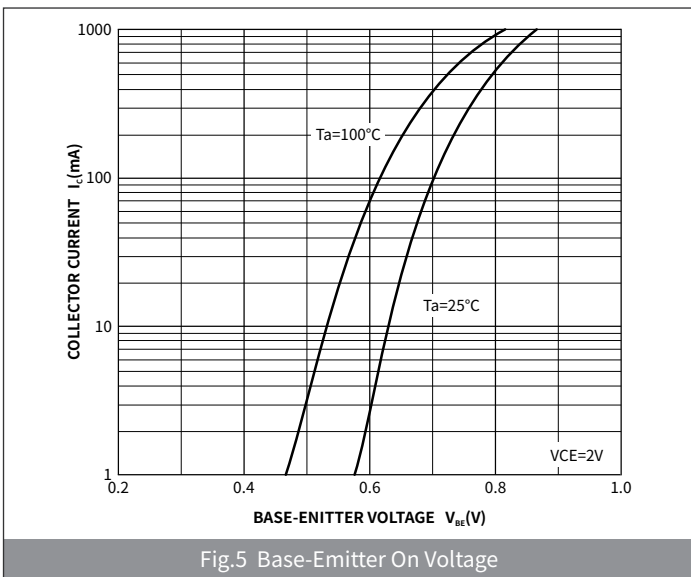
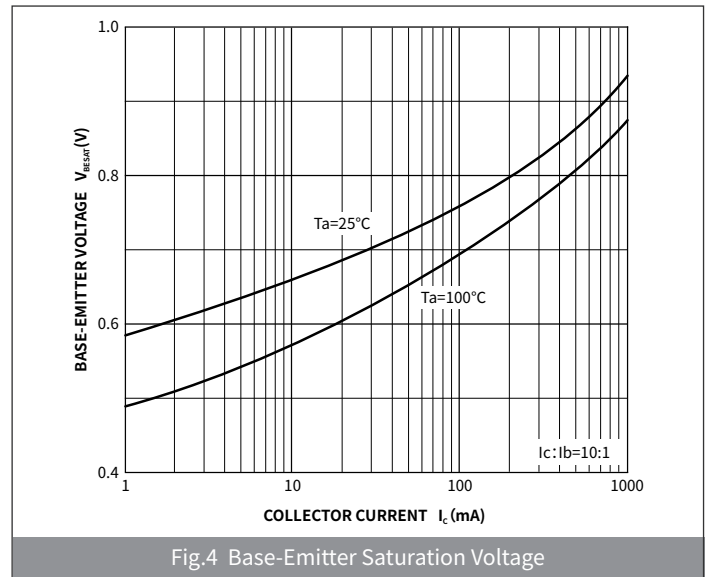
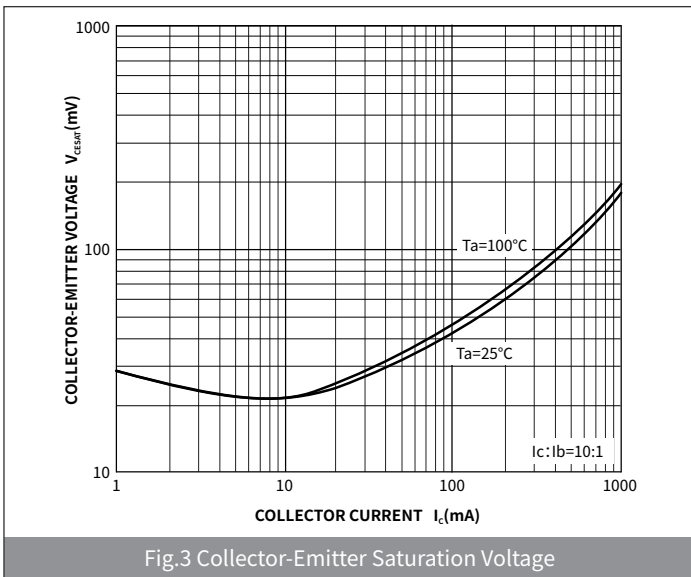
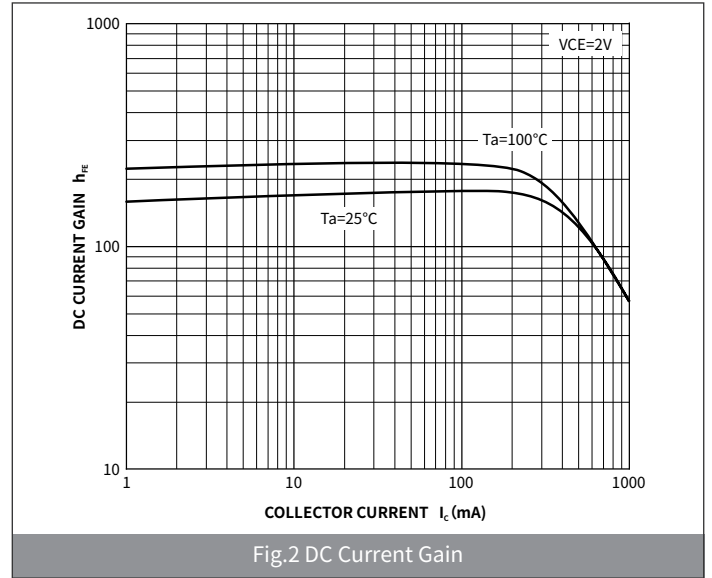
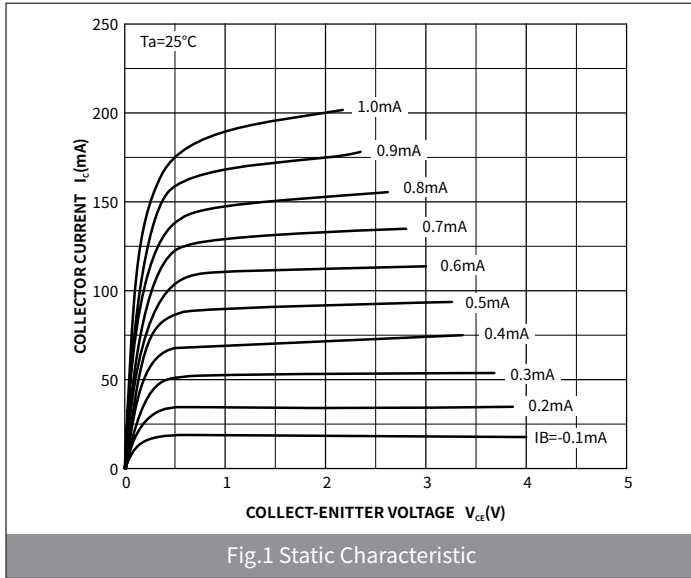
## ● Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Max
Transition frequency	$f_T$	$I_C=10mA, V_{CE}=5V, f=100MHz$	MHz	130	—

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



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## ● Package Outline Dimensions (SOT-89)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.176	0.184
B	1.6	1.8	0.064	0.072
C	3.9	4.1	0.156	0.164
D	2.4	2.6	0.096	0.104
E	2.9	3.1	0.116	0.124
a	0.41	0.43	0.0164	0.018
b	0.35	0.45	0.014	0.018
L	0.95	1.05	0.037	0.041
G	0.3	0.5	0.012	0.020
H	1.4	1.5	0.055	0.059

## ● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
c	0.80	1.00	0.032	0.04
d	1.30	1.50	0.052	0.060
e	0.70	0.90	0.028	0.036
J	1.80	2.00	0.072	0.080
K	1.40	1.60	0.056	0.064
X	2.50	2.70	0.100	0.108
X1	1.30	1.50	0.052	0.060
Y	4.30	4.50	0.172	0.180
Y1	3.10	3.30	0.124	0.132
$\theta$	-	45°	-	45°