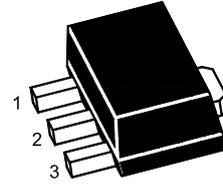


## FEATURES

NPN Complements to BCX54, BCX55, BCX56  
Low Voltage  
High Current

## APPLICATIONS

Medium Power General Purposes  
Driver Stages of Audio Amplifiers



1.Base 2.Collector 3.Emitter  
SOT-89 Plastic Package

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter		Value	Unit
$V_{\text{CBO}}$	Collector-Base Voltage	BCX51	-45	V
		BCX52	-60	
		BCX53	-100	
$V_{\text{CEO}}$	Collector-Emitter Voltage	BCX51	-45	V
		BCX52	-60	
		BCX53	-80	
$V_{\text{EBO}}$	Emitter-Base Voltage		-5	V
$I_{\text{C}}$	Collector Current		-1	A
$P_{\text{C}}$	Collector Power Dissipation		500	mW
$R_{\theta\text{JA}}$	Thermal Resistance From Junction To Ambient		250	$^{\circ}\text{C}/\text{W}$
$T_{\text{J}}, T_{\text{stg}}$	Operation Junction and Storage Temperature Range		-55~+150	$^{\circ}\text{C}$

**ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)**

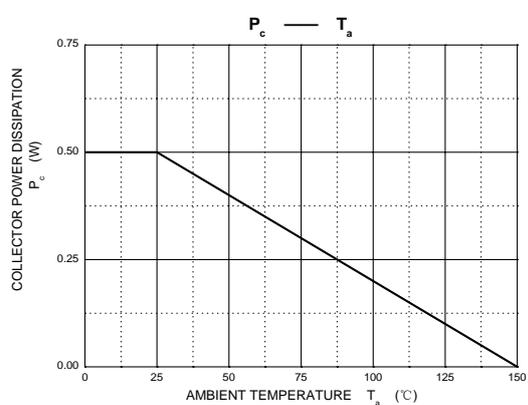
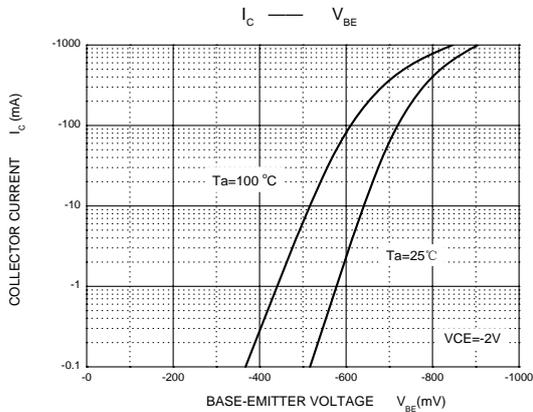
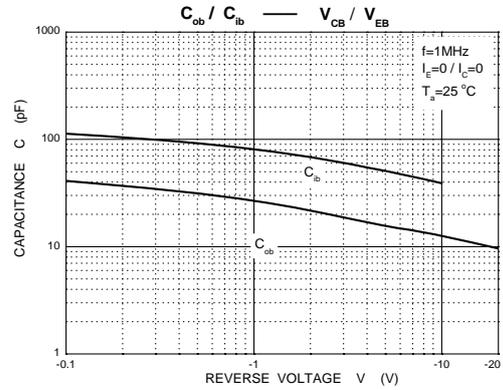
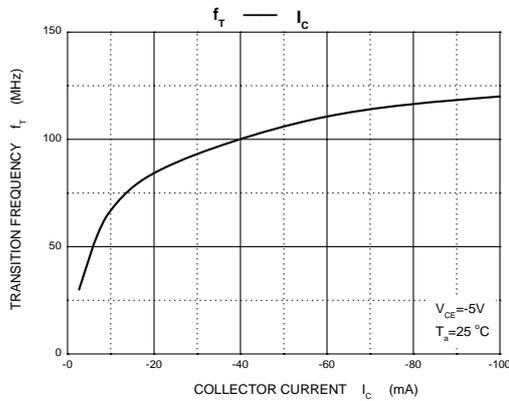
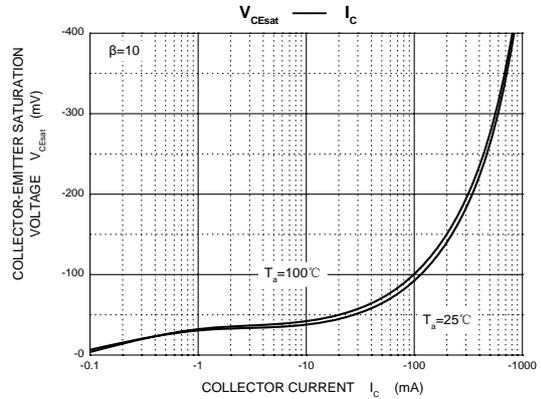
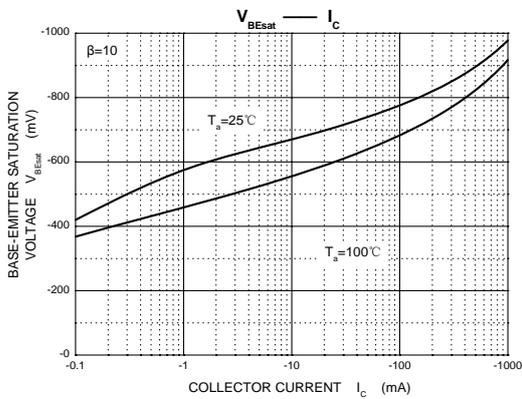
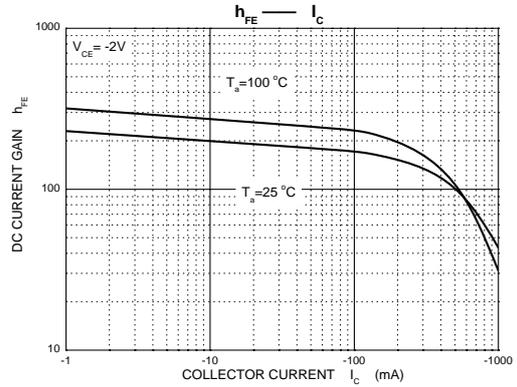
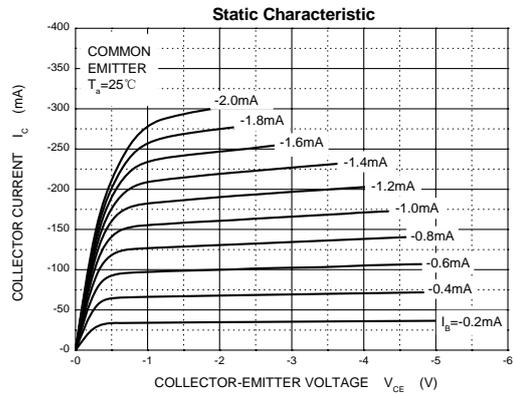
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu A, I_E = 0$	BCX51	-45		V
			BCX52	-60		
			BCX53	-100		
Collector-emitter breakdown voltage	$V_{(BR)CEO^*}$	$I_C = -10mA, I_B = 0$	BCX51	-45		V
			BCX52	-60		
			BCX53	-80		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu A, I_C = 0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -30V, I_E = 0$			-0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5V, I_C = 0$			-0.1	$\mu A$
DC current gain	$h_{FE(1)^*}$	$V_{CE} = -2V, I_C = -5mA$	63			
	$h_{FE(2)^*}$	$V_{CE} = -2V, I_C = -150mA$	63		250	
	$h_{FE(3)^*}$	$V_{CE} = -2V, I_C = -0.5A$	40			
Collector-emitter saturation voltage	$V_{CE(sat)^*}$	$I_C = -0.5A, I_B = -50mA$			-0.5	V
Base-emitter voltage	$V_{BE^*}$	$V_{CE} = -2V, I_C = -0.5A$			-1	V
Transition frequency	$f_T$	$V_{CE} = -5V, I_C = -10mA, f = 100MHz$		50		MHz

\* Pulse Test

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

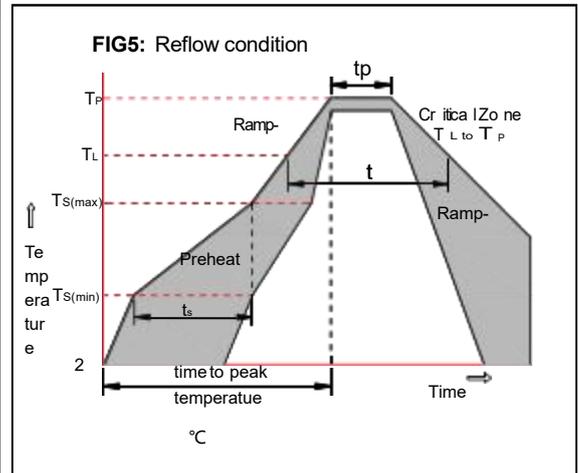
RANK	BCX51 BCX52 BCX53	BCX51-10 BCX52-10 BCX53-10	BCX51-16 BCX52-16 BCX53-16
RANGE	63-250	63-160	100-250

**RATING AND CHARACTERISTIC CURVES**



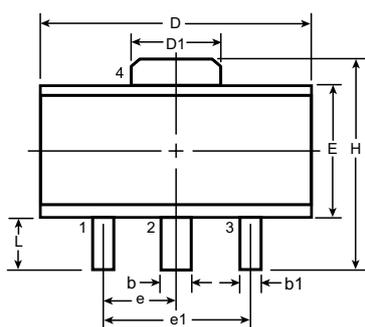
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150 °C
	-Temperature Max ( $T_{s(max)}$ )	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3 °C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature ( $T_L$ ) (Liquid us)	+217 °C
	-Temperature ( $t_L$ )	60-150 secs.
Peak Temp ( $T_P$ )		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260 °C

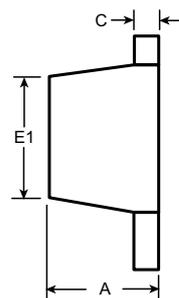


Package Dimensions & Suggested Pad Layout

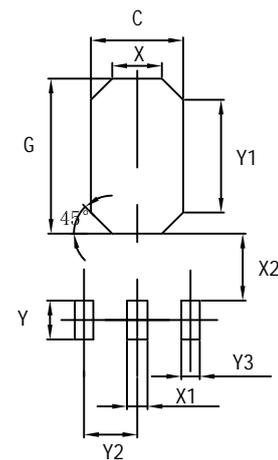
SOT89



Top View



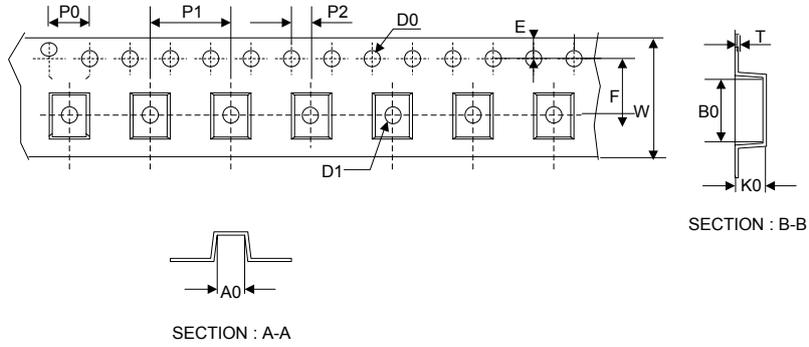
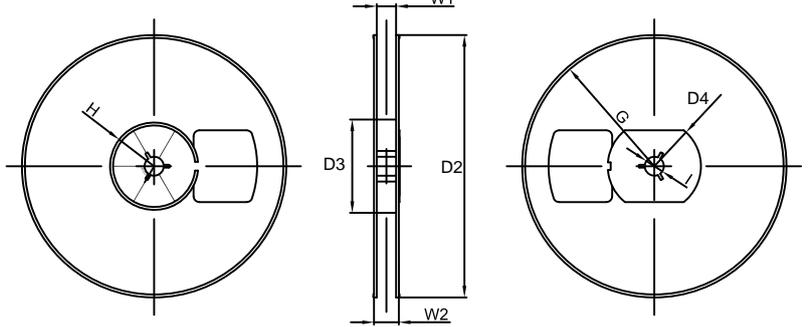
Side View



Symbol	A	b	b1	C	D	D1	E	E1	e	e1	H	L
Dimensions (mm)	MIN	1.40	0.44	0.36	0.3	4.40	1.50	2.29	2.00*	-	3.94	0.89
	NOM	-	-	-	-	-	-	-	1.50	3.00	-	-
	MAX	1.60	0.56	0.48	0.5	4.60	1.75	2.60	2.29	BSC	BSC	4.25

Dimensions	Value (in mm)
C	2.50
G	3.60
X	1.40
X1	0.90
X2	0.90
Y	1.40
Y1	2.60
Y2	1.50
Y3	0.90

Tape & reel specification

Tape	Symbol	Dimension (mm)	
	P0	4.00±0.20	
	P1	8.00±0.20	
	P2	2.00±0.20	
	D0	1.60±0.20	
	D1	1.60±0.20	
	E	1.75±0.20	
	F	7.50±0.15	
	W	16.00±0.20	
	A0	6.30±0.20	
	B0	8.25±0.20	
	K0	2.60±0.20	
	T	0.23±0.10	
	13" Reel	D2	180.0±5.0
		D3	60Min.
		D4	R32.0±2.0
G		R86.5±2.0	
H		R30.0±2.0	
I		13.0±2.0	
W1		13.20±2.0	
W2		16.50±2.0	
Quantity: 1000PCS			