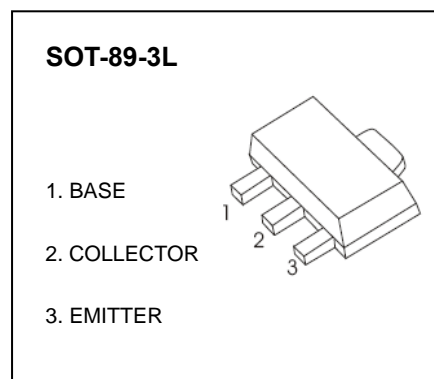


TRANSISTOR (NPN)

SOT-89-3L Plastic-Encapsulate Transistors

FEATURES

- PNP Complements to BCX51,BCX52,BCX53
- Low Voltage
- High Current
- Driver Stages of Audio Amplifiers
- AEC-Q101 qualified (Automotive grade with suffix "Q")
- Exsemi technology



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

Symbol	Parameter	Value	Unit	
V_{CBO}	Collector-Base Voltage	BCX54	45	V
		BCX55	60	
		BCX56	100	
V_{CEO}	Collector-Emitter Voltage	BCX54	45	V
		BCX55	60	
		BCX56	80	
V_{EBO}	Emitter-Base Voltage	5	V	
I_{C}	Collector Current	1	A	
I_{B}	Base Current	0.1	A	
I_{BM}	Peak base Current (tp<1ms)	0.2	A	
P_{C}	Collector Power Dissipation	500	mW	
$R_{\theta\text{JA}(1)}$	Thermal Resistance From Junction To Ambient	250	$^{\circ}\text{C}/\text{W}$	
$R_{\theta\text{JA}(2)}$	Thermal Resistance From Junction To Ambient	80	$^{\circ}\text{C}/\text{W}$	
$R_{\theta\text{JC}(3)}$	Thermal Resistance From Junction To Case	27	$^{\circ}\text{C}/\text{W}$	
$T_{\text{J}}, T_{\text{stg}}$	Operation Junction and Storage Temperature Range	-55~+150	$^{\circ}\text{C}$	
T_{opr}	Operation Temperature Range	-25~+125	$^{\circ}\text{C}$	

(1) Device mounted with the exposed collector pad on 8mm x 8mm 1oz copper that is on a single-sided 1.6mm FR4 PCB
(2) Device mounted with the exposed collector pad on 25mm x 25mm 1oz copper that is on a single-sided 1.6mm FR4 PCB
(3) Thermal resistance from junction to the top of the case.

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	BCX54	45		V
			BCX55	60		
			BCX56	100		
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C=10\text{mA}, I_B=0$	BCX54	45		V
			BCX55	60		
			BCX56	80		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=30\text{V}, I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}^*$	$V_{CE}=2\text{V}, I_C=5\text{mA}$	40			
	$h_{FE(2)}^*$	$V_{CE}=2\text{V}, I_C=150\text{mA}$	63		250	
	$h_{FE(3)}^*$	$V_{CE}=2\text{V}, I_C=0.5\text{A}$	25			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=0.5\text{A}, I_B=50\text{mA}$			0.5	V
Base-emitter voltage	V_{BE}^*	$V_{CE}=2\text{V}, I_C=0.5\text{A}$			1	V
Transition frequency	f_T	$V_{CE}=5\text{V}, I_C=10\text{mA}, f=100\text{MHz}$		130		MHz

* Pulse Test

CLASSIFICATION OF $h_{FE(2)}$

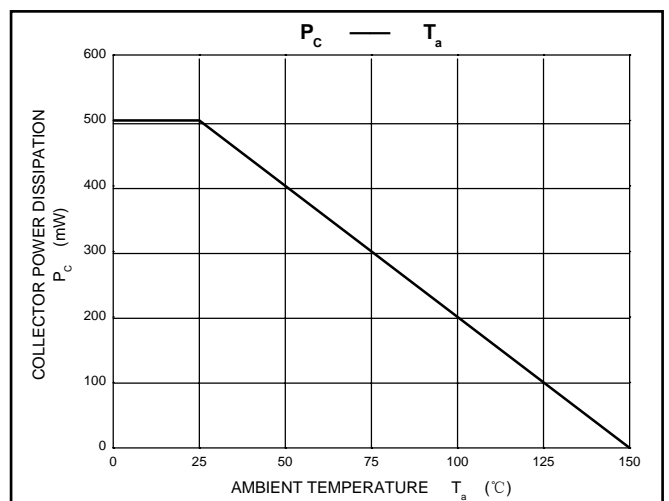
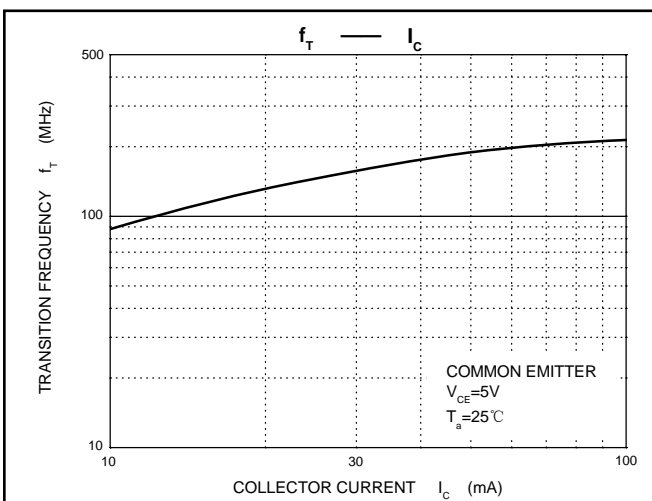
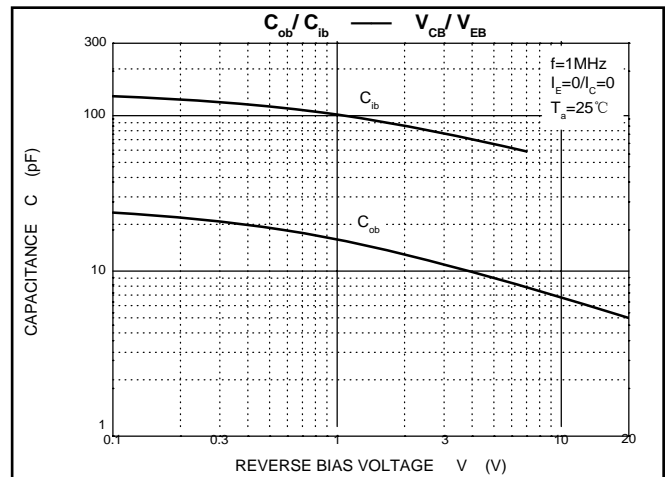
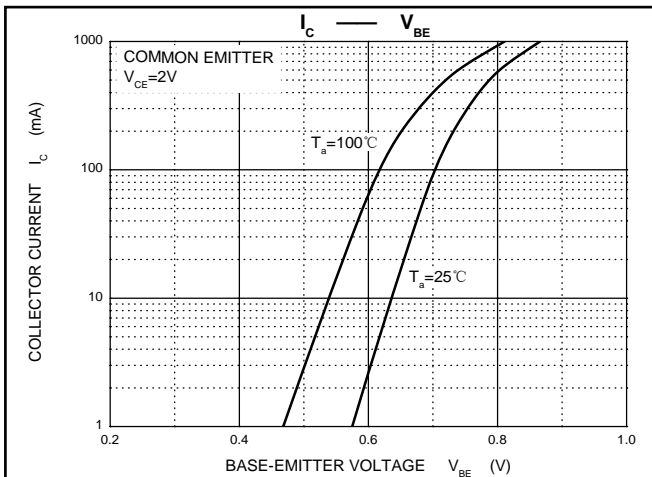
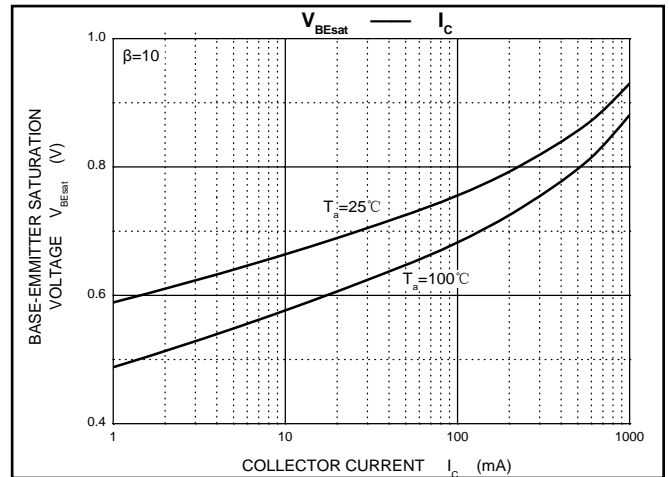
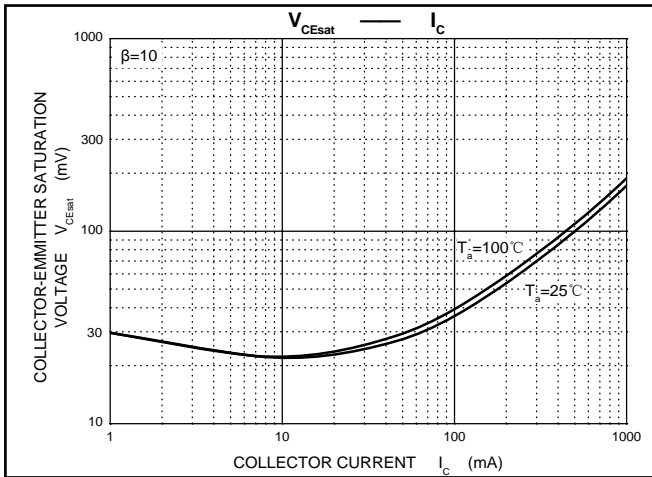
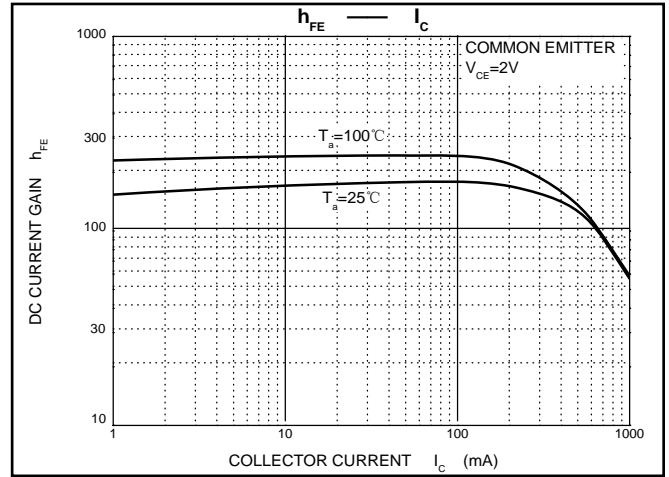
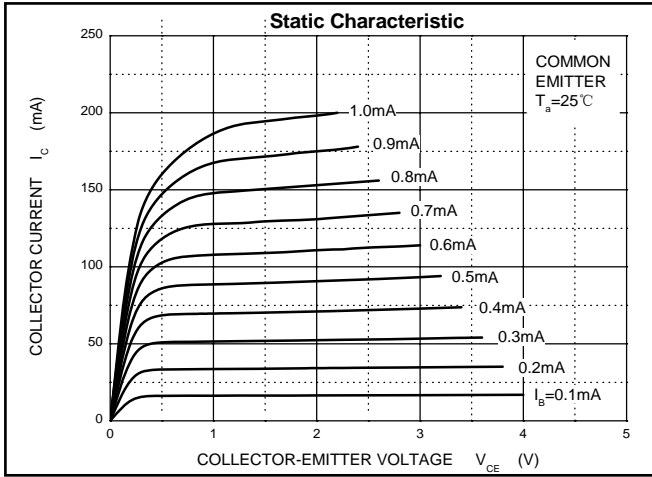
RANK	BCX54 BCX55 BCX56	BCX54-10 BCX55-10 BCX56-10	BCX54-16 BCX55-16 BCX56-16
RANGE	63 - 250	63 - 160	100 - 250

TYPE	BCX54	BCX54-10	BCX54-16
Marking	BA	BC	BD

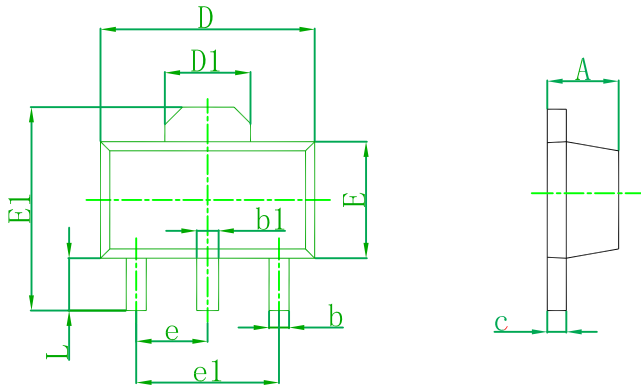
TYPE	BCX55	BCX55-10	BCX55-16
Marking	BE	BG	BM

TYPE	BCX56	BCX56-10	BCX56-16
Marking	BH	BK	BL

Typical Characteristics

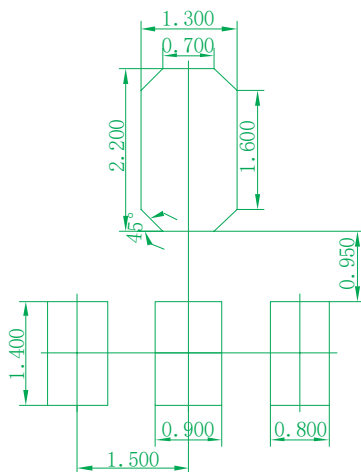


SOT-89-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

SOT-89-3L Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

Ordering information

Device	Package	Reel
BCX54 55 56	SOT-89-3L	1000/Tape