

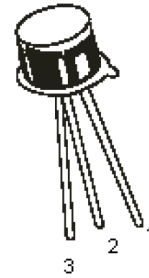
# NPN Silicon Planar Transistors

## BC107 / BC108 Series

**multicomp** PRO

Low Noise General Purpose Audio Amplifiers

**RoHS  
Compliant**



### Pin Configuration

1. Emitter
2. Base
3. Collector

### Absolute Maximum Ratings

Description	Symbol	BC107	BC108	Unit
Collector-Emitter Voltage	$V_{CEO}$	45	25	V
Collector-Base Voltage	$V_{CBO}$	50	30	
Emitter-Base Voltage	$V_{EBO}$	6	5	
Collector Current Continuous	$I_C$	200		mA
Power Dissipation at $T_A = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	$P_D$	300		mW mW / $^\circ\text{C}$
Power Dissipation at $T_c = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$		1.72		
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-65 to +200		$^\circ\text{C}$
<b>Thermal Characteristics</b>				
Junction to Ambient in free air	$R_{th(j-a)}$	583		$^\circ\text{C} / \text{W}$
Junction to Case	$R_{th(j-c)}$	233		

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

Description	Symbol	Test Condition	BC107	BC108	Unit
Collector-Emitter Voltage	$V_{CEO}$	$I_C = 2 \text{ mA}, I_B = 0$	>45	>25	V
Collector-Base Voltage	$V_{EBO}$	$I_E = 10 \mu\text{A}, I_C = 0$	>6	>5	
Collector-Cut off Current	$I_{CBO}$	$V_{CB} = 45\text{V}, I_E = 0$	<15	<15	nA
		$V_{CB} = 25\text{V}, I_E = 0$ $V_{CB} = 45\text{V}, I_E = 0, T_A = 125^\circ\text{C}$ $V_{CB} = 25\text{V}, I_E = 0, T_A = 125^\circ\text{C}$	<4	<4	$\mu\text{A}$
DC Current	$h_{FE}$	$I_C = 10 \mu\text{A}, V_{CE} = 5\text{V}$	-		-
		B Group	40		
		C Group	100		
		BC107	110-450		
		BC108	110-800		
A Group	110-220				
B Group	200-450				
C Group	420-800				

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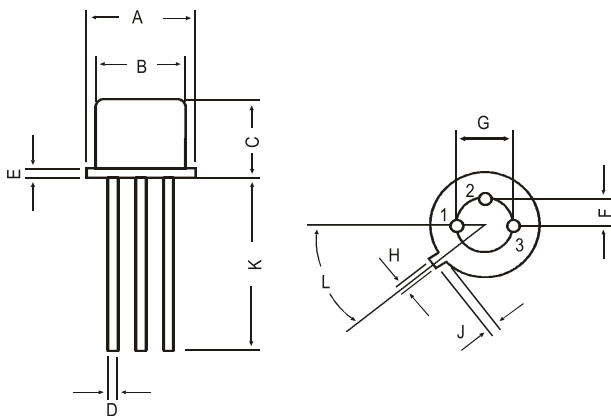
### Electrical Characteristics (T<sub>A</sub>=25°C unless specified otherwise)

Description	Symbol	Test Condition	Min.	Max.	Unit
Collector Emitter Saturation Voltage	V <sub>CE (sat)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA I <sub>C</sub> =100mA, I <sub>B</sub> =5mA		0.25 0.6	V
Base Emitter Saturation Voltage	V <sub>BE (sat)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA I <sub>C</sub> =100mA, I <sub>B</sub> =5mA		0.83 1.05	V
Base Emitter on Voltage	V <sub>BE (on)</sub>	I <sub>C</sub> =2mA, V <sub>CE</sub> =5V I <sub>C</sub> =10mA, V <sub>CE</sub> =5V	0.55	0.7 0.77	V
Collector Knee Voltage	V <sub>CE (K)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =the value for which I <sub>C</sub> =11mA @ V <sub>CE</sub> =1V		0.6	V
Transition Frequency	f <sub>T</sub>	I <sub>C</sub> =10mA, V <sub>CE</sub> =5V, f=100MHz	150		MHz
Output Capacitance	C <sub>obo</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz		4.5	pF
Noise Figure	NF	I <sub>C</sub> =0.2mA, V <sub>CE</sub> =5V, R <sub>g</sub> =2kΩ		10	dB

### Small Signal Characteristics

Description	Symbol	Test Condition	Min.	Max.	Unit
Small Signal Current Gain	h <sub>fe</sub>	I <sub>C</sub> =2mA, V <sub>CE</sub> =5V, f=1kHz			
		BC107	125	500	
		BC108	125	900	
		A Group	125	260	
Input Impedance	h <sub>ie</sub>	I <sub>C</sub> =2mA, V <sub>CE</sub> =5V, f=1kHz			
		A Group	1.6	4.5	kΩ
		B Group	3.2	8.5	
Output Admittance	h <sub>oe</sub>	I <sub>C</sub> =2mA, V <sub>CE</sub> =5V, f=1kHz			
		A Group		30	μΩ
		B Group		60	
		C Group		110	

### TO-18 Metal Can Package



Dim.	Min.	Max.
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.4	0.53
E	-	0.76
F	-	1.27

Dim.	Min.	Max.
G	-	2.97
H	0.91	1.17
J	0.71	1.21
K	12.7	-
L	45°	

Dimensions : Millimetres

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### Part Number Table

Description	Part Number
NPN Silicon Planar Transistors, NPN, 45V, 150MHz, 600mW, 100mA, 110h <sub>FE</sub>	BC107
NPN Silicon Planar Transistors, NPN, 45V, 150MHz, 600mW, 100mA, 110h <sub>FE</sub>	BC107A
NPN Silicon Planar Transistors, NPN, 45V, 150MHz, 600mW, 100mA, 200h <sub>FE</sub>	BC107B
NPN Silicon Planar Transistors, NPN, 25V, 150MHz, 600mW, 200mA, 110h <sub>FE</sub>	BC108
NPN Silicon Planar Transistors, NPN, 25V, 150MHz, 600mW, 200mA, 200h <sub>FE</sub>	BC108B
NPN Silicon Planar Transistors, NPN, 25V, 150MHz, 600mW, 200mA, 420h <sub>FE</sub>	BC108C

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