NPN BC107 – BC108 – BC109

LOW NOISE GENERAL PURPOSE AUDIO AMPLIFIERS

The BC107, BC108 and BC109 are silicon planar epitaxial NPN transistors mounted in TO-18 metal package.
They are suitable for use in drive audio stages, low-noise input audio stages and as low power, high gain general purpose transistors.
The complementary PNP are BC177, BC178 and BC179.
Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol		BC107	BC108	BC109	Unit
V_{CEO}	Collector-Emitter Voltage (I_B =0)	45	20	20	V
V_{CBO}	Collector-Base Voltage (I_E =0)	50	30	30	V
V_{EBO}	Emitter-Base Voltage (I_C =0)	6	5	5	V
I_C	Collector Current	100			mA
I_{CM}	Collector Peak Current	200			mA
P_D	Total Power Dissipation @ T_{amb} = 25°	300			mW
T_J	Junction Temperature	175			℃
T_{Stg}	Storage Temperature range	-65 to +150			℃

ELECTRICAL CHARACTERISTICS

Tj=25℃ unless otherwise specified

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
I_{CBO}	Collector Cutoff Current	V_{CB} = 20 V, I_E = 0	BC107	-	-	15	nA
			BC108				
			BC109				
		V_{CB} = 20 V, I_E = 0 V, T_j = 150℃	BC107	-	-	15	µA
			BC108				
			BC109				
I_{EBO}	Emitter Cutoff Current	V_{EB} = 5 V, I_C = 0	BC107	-	-	50	nA
			BC108				
			BC109				
V_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	BC107	45	-	-	V
			BC108	20	-	-	
			BC109	20	-	-	
V_{CBO}	Collector-Base Breakdown Voltage	I_C = 10 µA, V_{BE} = 0	BC107	50	-	-	V
			BC108	30	-	-	
			BC109	30	-	-	
V_{EBO}	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	BC107	5	-	-	V
			BC108				
			BC109				

COMSET SEMICONDUCTORS

NPN BC107 – BC108 – BC109

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage	I_C = 10 mA I_B = 0.5 mA	BC107	-	0.09	0.25	V
			BC108				
			BC109				
		I_C = 100 mA I_B = 5 mA	BC107	-	0.2	0.6	
			BC108				
			BC109				
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage	I_C = 10 mA I_B = 0.5 mA	BC107	-	0.70	-	V
			BC108				
			BC109				
		I_C = 100 mA I_B = 5 mA	BC107	-	0.9	-	
			BC108				
			BC109				
V_{BE}	Base-Emitter Voltage	I_C = 2 mA V_{CE} = 5 V	BC107	0.55	0.65	0.7	V
			BC108				
			BC109				
		I_C = 10 mA V_{CE} = 5	BC107	-	-	0.77	
			BC108				
			BC109				
h_{FE}	DC Current Gain (*)	I_C= 10 µA V_{CE}= 5 V	BC107A	-	90	-	-
			BC108A				
			BC109A				
			BC107B	40	150	-	
			BC108B				
			BC109B				
			BC107C	100	270	-	
			BC108C				
			BC109C				
		I_C= 2 mA V_{CE}= 5 V	BC107A	110	-	220	
			BC108A				
			BC109A				
			BC107B	200	-	450	
			BC108B				
			BC109B				
			BC107C	420	-	800	
			BC108C				
			BC109C				
f_T	Transition frequency	I_C =10 mA, V_{CE} = 5 V f = 100 MHz	BC107	100	-	-	MHz
			BC108				
			BC109				
F	Noise figure	I_C = 200 µA V_{CE} = 5 V f = 1kHz R_g= 2kΩ B = 200Hz	BC107	-	-	10	db
			BC108	-	-	10	
			BC109	-	-	4	
C_C	Collector capacitance	I_E = 0 V_{CB} = 10 V f = 1MHz	BC177	-	4	6	pF
			BC178				
			BC179				

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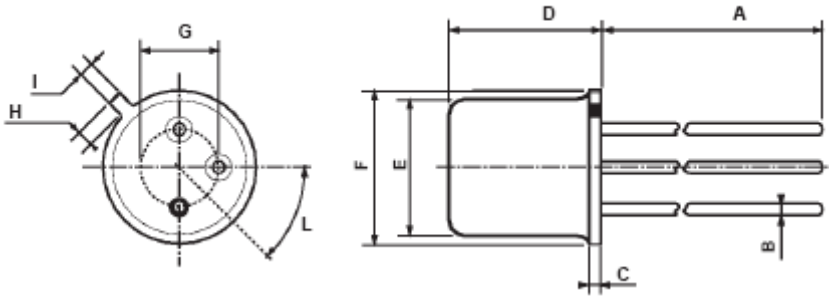
THERMAL CHARACTERISTICS

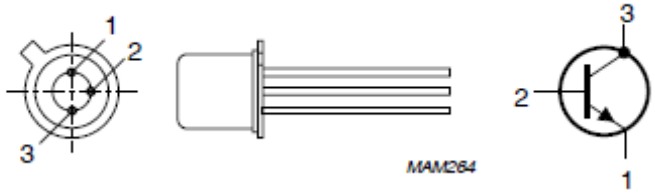
Symbol	Ratings	Value	Unit
R_{thJ-a}	Thermal Resistance, Junction to mounting base	500	℃/W
R_{thJ-c}	Thermal Resistance, Junction to ambient in free air	200	℃/W

MECHANICAL DATA CASE TO-18

DIMENSIONS (mm)		
	min	max
A	12.7	-
B	-	0.49
C	0.9	-
D	-	5.3
E	-	4.9
F	-	5.8
G	2.54	-
H	-	1.2
I	-	1.16
L	45°	-



Pin 1 :	emitter
Pin 2 :	base
Pin 3 :	Collector
Case :	Collector



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