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# Low Power Bipolar Transistors



## BC107 / BC108 Series

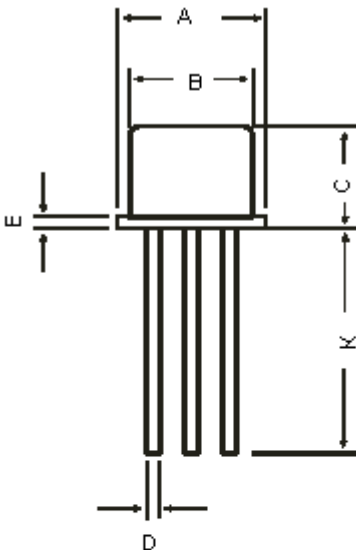
General Purpose Amplifier / Switches

Features:

- NPN Silicon Planar Epitaxial Transistors

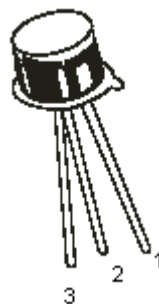
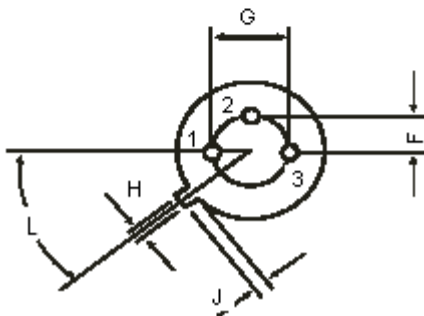


### TO-18 Metal Can Package



Dimensions	Minimum	Maximum
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
G	-	2.97
H	0.91	1.17
J	0.71	1.21
K	12.7	-
L	45°	45°

Dimensions : Millimetres



Pin Configuration:

1. Emitter
2. Base
3. Collector

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## BC107 / BC108 Series

### 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	$I_C$	0.2		A
Power Dissipation at $T_a = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	$P_D$	0.6		W mW / $^\circ\text{C}$
Power Dissipation at $T_C = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$		2.28		
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200		$^\circ\text{C}$
<b>Thermal Resistance</b>				
Junction to Case	$R_{th(j-c)}$	175		$^\circ\text{C} / \text{W}$

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

Description	Symbol	Test Condition	Minimum	Maximum	Unit
Collector-Emitter Voltage	$V_{CEO}$	$I_C = 2 \text{ mA}, I_B = 0$ BC107 BC108	45 25	-	V
Collector-Base Voltage	$V_{EBO}$	$I_E = 10 \mu\text{A}, I_C = 0$ BC107 BC108	6 5	-	
Collector-Cut off Current	$I_{CBO}$	$V_{CB} = 45 \text{ V}, I_E = 0$ BC107	-	15	nA
		$V_{CB} = 25 \text{ V}, I_E = 0$ BC108	-	15	
DC Current	$h_{FE}$	$T_{amb} = 125^\circ\text{C}$	-	4	$\mu\text{A}$
		$V_{CB} = 45 \text{ V}, I_E = 0$ BC107	-	4	
		$V_{CB} = 25 \text{ V}, I_E = 0$ BC108	-	4	
		$I_C = 10 \mu\text{A}, V_{CE} = 5 \text{ V}$ B Group	40	-	-
		C Group	100	-	
		$I_C = 2 \text{ mA}, V_{CE} = 5 \text{ V}$ BC107	110	450	
BC108	110	800			
A Group	110	220			
B Group C Group	200 420	450 800			
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$ $I_C = 100 \text{ mA}, I_B = 5 \text{ mA}$	-	0.83 1.05	V
Collector Emitter Saturation Voltage	$V_{CE(sat)}$		-	0.25 0.6	
Base Emitter on Voltage	$V_{BE(on)}$	$I_C = 2 \text{ mA}, V_{CE} = 5 \text{ V}$ $I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}$	0.55 -	0.7 0.77	

# Low Power Bipolar Transistors



## BC107 / BC108 Series

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

Description	Symbol	Test Condition	Minimum	Maximum	Unit
Collector Knee Voltage	$V_{CE(K)}$	$I_C = 10\text{ mA}$ , $I_B =$ The Value for Which $I_C = 11\text{ mA}$ at $V_{CE} = 1\text{ V}$	-	0.6	V
Transition Frequency	$f_t$	$V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$ $f = 100\text{ MHz}$	150	-	MHz
Noise Figure	NF	$V_{CE} = 5\text{ V}$ , $I_C = 0.2\text{ mA}$ $R_g = 2\text{ k}\Omega$ $F = 1\text{ KHz}$ , $B = 200\text{ Hz}$	-	10	dB
Output Capacitance	$C_{obo}$	$V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	-	4.5	pF
Small Signal Current Gain	$h_{fe}$	All $f = 1\text{ KHz}$ $I_C = 2\text{ mA}$ , $V_{CE} = 5\text{ V}$ BC107 BC108  A Group B Group C Group	125 125  125 240 450	500 900  260 500 900	-
Input Impedance	$h_{ie}$	$I_C = 2\text{ mA}$ , $V_{CE} = 5\text{ V}$ A Group B Group C Group	1.6 3.2 6	4.5 8.5 15	$\text{K}\Omega$ $\text{K}\Omega$
Output Admittance	$h_{oe}$	$I_C = 2\text{ mA}$ , $V_{CE} = 5\text{ V}$ A Group B Group C Group	-	30 60 110	umhos

### Specification Table

$V_{CEO}$ (V)	$V_{CBO}$ Maximum (V)	$I_C$ (V)	$h_{FE}$ Minimum at $I_C = 2\text{ mA}$	$f_T$ Minimum (*Typical) (V)	$P_{tot}$ (mW)	Type	Package	Part Number
45	50	0.1	110	150	600	NPN	TO-18	BC107
			200					BC107A
20	30		110		300			BC107B
			200		600			BC108
								BC108B
								BC108C

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