

Low Power Bipolar Transistors



BC107 / BC108 Series

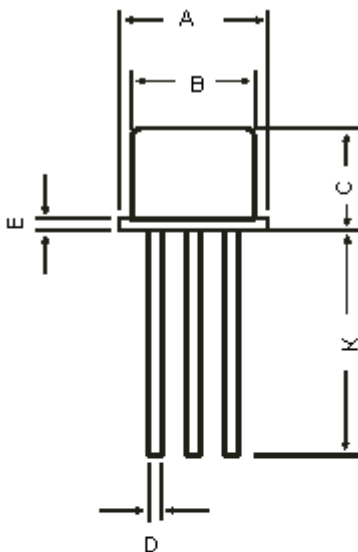
General Purpose Amplifier / Switches

Features:

- NPN Silicon Planar Epitaxial Transistors

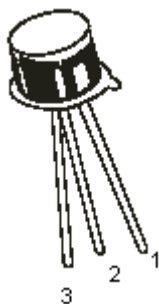
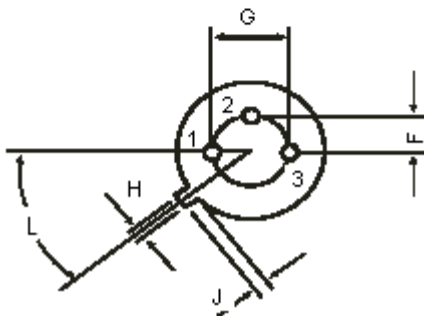


TO-18 Metal Can Package



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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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°C	P_D	0.6 2.28		W mW / $^\circ\text{C}$
Power Dissipation at $T_C = 25^\circ\text{C}$ Derate Above 25°C		1 6.67		
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^\circ\text{C}$
Thermal Resistance				
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	
		$T_{amb} = 125^\circ\text{C}$			
		$V_{CB} = 45 \text{ V}, I_E = 0$ BC107 $V_{CB} = 25 \text{ V}, I_E = 0$ BC108		4 4	μA
DC Current	h_{FE}	$I_C = 10 \mu\text{A}, V_{CE} = 5 \text{ V}$ 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	

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

Description	Symbol	Test Condition	Minimum	Maximum	Unit
Collector Knee Voltage	$V_{CE(K)}$	$I_C = 10\text{ mA}$, $I_B = \text{The Value for Which } I_C = 11\text{ mA at } V_{CE} = 1\text{ V}$	-	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	$K\Omega$ $K\Omega$
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
								BC107B
20	30		110		300			BC108
								BC108B
			200		600			BC108C

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