BC107/BC108/ BC109

Low Power Bipolar Transistors

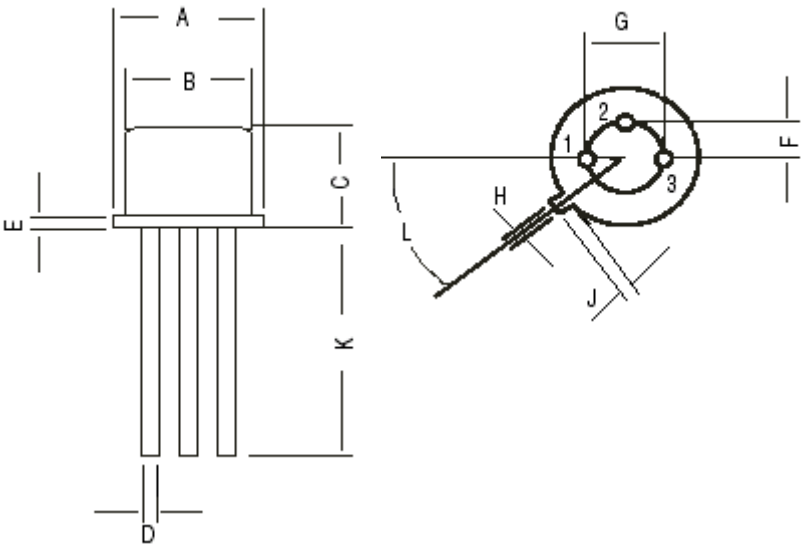
TO-18

Features:

NPN Silicon Planar Epitaxial Transistors.

Suitable for applications requiring low noise and good h_{FE} linearity, eg. audio pre-amplifiers, and instrumentation.

TO-18 Metal Can Package



Dimension	Minimum	Maximum
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.40	0.53
E	-	0.76
F	-	1.27
G	-	2.97
H	0.91	1.17
J	0.71	1.21
K	12.70	-
L	45°	

Dimensions : Millimetres

Pin Configuration

1. Emitter.
2. Base.
3. Collector.

Absolute Maximum Ratings

DESCRIPTION	SYMBOL	BC107	BC108	BC109	UNIT
Collector-Emitter Voltage	V_{CEO}	45	25	25	V
Collector-Base Voltage	V_{CBO}	50	30	30	V
Emitter-Base Voltage	V_{EBO}	6.0	5.0	5.0	V
Collector Current Continuous	I_C		0.2		A
Power Dissipation at Ta = 25°C	P_D		0.6		W
Derate Above 25°C			2.28		mW/°C
Power Dissipation at Tc = 25°C	P_D		1.0		W
Derate Above 25°C			6.67		mW/°C
Operating And Storage Junction	T_j, T_{stg}		-65 to +200		°C
Temperature Range					
Thermal Resistance					
Junction to Case	$R_{th\ (j-c)}$		175		°C/W

Electrical Characteristics (T_a = 25°C Unless Otherwise Specified)

Description	Symbol	Test Condition		Minimum	Maximum	Unit
Collector-Emitter Voltage	V_{CEO}	I_C = 2mA, I_B = 0	BC107	45		V
			BC108/109	20		V
Emitter-Base Voltage	V_{EBO}	I_E = 10uA, I_C = 0	BC107	6.0		V
			BC108/109	5.0		V
Collector-Cut off Current	I_{CBO}	V_{CB} = 45V, I_E = 0	BC107		15	nA
		V_{CB} = 25V, I_E = 0	BC108/109		15	nA
		T_{amb} = 125°C				
		V_{CB} = 45V, I_E = 0	BC107		4.0	uA
		V_{CB} = 25V, I_E = 0	BC108/109		4.0	uA

Description	Symbol	Test Condition		Minimum	Maximum	Unit
DC Current	h_{FE}	I_C = 10uA, V_{CE} = 5V	B Group	40		
			C Group	100		
		I_C = 2mA, V_{CE} = 5V	BC107	110	450	
			BC108	110	800	
			BC109	200	800	
			A Group	110	220	
			B Group	200	450	
			C Group	420	800	
Base Emitter Saturation Voltage	$V_{BE\ (Sat)}$	Ic = 10mA, I_B = 0.5mA			0.83	V
		Ic = 100mA, I_B = 5mA			1.05	V
Collector Emitter Saturation Voltage	$V_{CE\ (Sat)}$	Ic = 10mA, I_B = 0.5mA			0.25	V
		Ic = 100mA, I_B = 5mA			0.60	V
Base Emitter on Voltage	$V_{BE\ (on)}$	Ic = 2mA, V_{CE} = 5V		0.55	0.70	V
		Ic = 10mA, V_{CE} = 5V			0.77	V
Collector Knee Voltage	$V_{CE\ (K)}$	Ic = 10mA, I_B = The Value for which Ic = 11mA, at V_{CE} = 1V			0.60	V
Transition Frequency	f_t	V_{CE} = 5V, Ic =10mA, f = 100MHz		150		MHz
Noise Figure	NF	V_{CE} = 5V, I_C = 0.2mA R_g = 2kohms,				
		F = 30Hz to 15 KHz	BC109		4.0	dB
		F = 1kHz, B = 200Hz	BC109		4.0	dB
			BC107/108		10	dB
Output Capacitance	C_{obo}	V_{CB} = 10V, f = 1MHz			4.5	pF
Small Signal Current Gain	h_{FE}	ALL f = 1kHz I_C = 2mA,V_{CE} = 5V	BC107	125	500	
			BC108	125	900	
			BC109	240	900	
			A Group	125	260	
			B Group	240	500	
			C Group	450	900	
Input Impedance	h_{ie}	ALL f = 1kHz I_C = 2mA,V_{CE} = 5V	A Group	1.6	4.5	KΩ
			B Group	3.2	8.5	KΩ
			C Group	6.0	15	KΩ
Output Admittance	hoe	ALL f = 1kHz I_C = 2mA,V_{CE} = 5V	A Group		30	umhos
			B Group		60	umhos
			C Group		110	umhos

Specifications

V_{CEO} maximum (V)	V_{CBO} maximum (V)	I_C maximum (A)	h_{FE} minimum at I_C = 2 (mA)	Noise Figure maximum (dB)	Transition Frequency minimum (MHz)	P_{tot} at T_a = 25°C (mW)	Package and pin out	Part Number (NPN)
45	50	0.2	125	10	150	600	TO-18	BC107
								BC107A
								BC107B
25	30							BC108
								BC108B
								BC108C
			240	4				BC109
								BC109B
								BC109C

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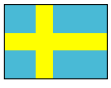

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