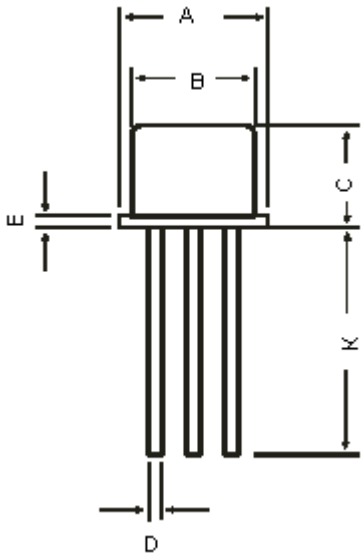
BC109 Series

Low Power Bipolar Transistors

Feature:

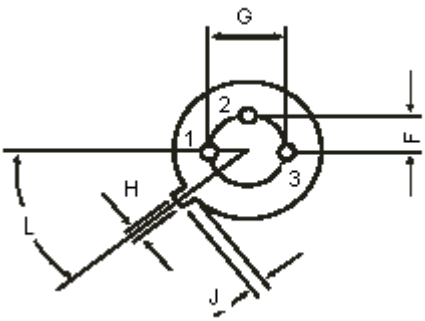
- NPN Silicon Planar Epitaxial Transistors.

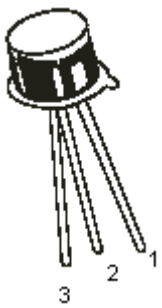
TO-18 Metal Can Package



Dimensions	Minimum	Maximum
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.40	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	BC109	Unit
Collector-Emitter Voltage	V_{CEO}	25	V
Collector-Base Voltage	V_{CBO}	30	
Emitter-Base Voltage	V_{EBO}	5.0	
Collector Current Continuous	I_C	0.2	A
Power Dissipation at T_a = 25°C Derate above 25°C	P_D	0.6 2.28	W mW/°C
Power Dissipation at T_C = 25°C Derate above 25°C		1.0 6.67	
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	°C
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	25	-	V
Emitter Base Voltage	V_{EBO}	I_E = 10µA, I_C = 0	5.0	-	
Collector Cut off Current	I_{CBO}	V_{CB} = 25V, I_E = 0 T_{amb} = 125°C V_{CB} = 25V, I_E = 0	- -	15 4.0	nA µA
DC Current	h_{FE}	I_C = 10µA, V_{CE} = 5V **B Group** **C Group** I_C = 2mA, V_{CE} = 5V **B Group** **C Group**	 40 100 200 200 420	 - 800 450 800	-
Base Emitter Saturation Voltage	$V_{BE\ (Sat)}$	I_C = 10mA, I_B = 0.5mA I_C = 100mA, I_B = 5mA	-	0.83 1.05	V
Collector Emitter Saturation Voltage	$V_{CE\ (Sat)}$		-	0.25 0.60	
Base Emitter On Voltage	$V_{BE\ (on)}$	I_C = 2mA, V_{CE} = 5V I_C = 10mA, V_{CE} = 5V	0.55 -	0.70 0.77	

Electrical Characteristics (T_a = 25°C unless otherwise specified)

Description	Symbol	Test Condition	Minimum	Maximum	Unit
Collector Knee Voltage	$V_{CE\ (K)}$	I_C = 10mA, I_B = The value for which I_C = 11mA at V_{CE} = 1V	-	0.60	V
Transition Frequency	f_t	V_{CE} = 5V, I_C = 10mA, f = 100MHz	150	-	MHz
Noise Figure	NF	V_{CE} = 5V, I_C = 0.2mA R_g = 2kΩ F = 30Hz to 15KHz F = 1kHz,B = 200Hz	-	 4.0 4.0	 dB 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 **B Group** **C Group**	 240 240 450	 900 500 900	-
Input Impedance	h_{ie}	I_C = 2mA, V_{CE} = 5V **B Group** **C Group**	 3.2 6.0	 8.5 15	 KΩ KΩ
Output Admittance	h_{oe}	I_C = 2mA, V_{CE} = 5V **B Group** **C Group**	-	 60 110	 μΩ

Part Number Table

Package	Part Number
TO-18	BC109
	BC109B
	BC109C

Notes:

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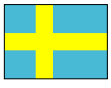

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