

BC107/BC108/ BC109



Low Power Bipolar Transistors

TO-18

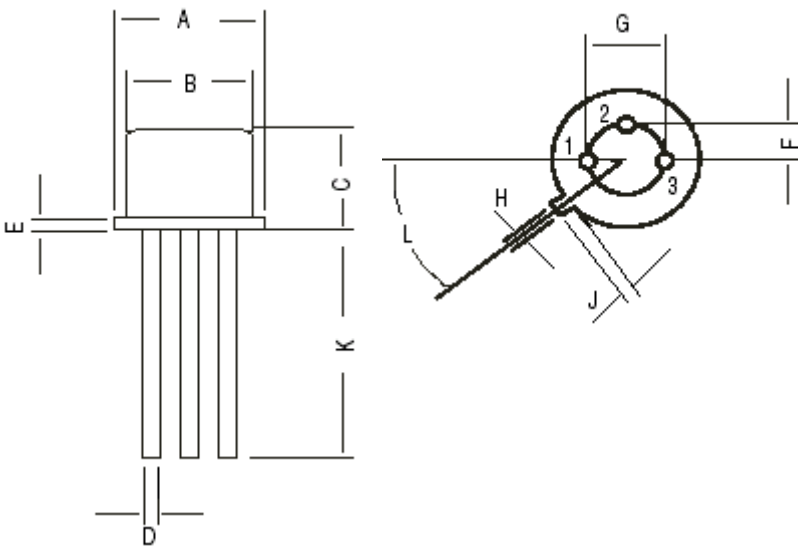


Features:

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.



BC107/BC108/ BC109

Low Power Bipolar Transistors



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 $T_a = 25^\circ\text{C}$	P_D		0.6		W
Derate Above 25°C			2.28		mW/ $^\circ\text{C}$
Power Dissipation at $T_c = 25^\circ\text{C}$	P_D		1.0		W
Derate Above 25°C			6.67		mW/ $^\circ\text{C}$
Operating And Storage Junction	T_j, T_{stg}		-65 to +200		$^\circ\text{C}$
Temperature Range					
Thermal Resistance					
Junction to Case	$R_{th(j-c)}$		175		$^\circ\text{C/W}$

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	45	V	
			BC108/109	20	V	
Emitter-Base Voltage	V_{EBO}	$I_E = 10\mu\text{A}, I_C = 0$	BC107	6.0	V	
			BC108/109	5.0	V	
Collector-Cut off Current	I_{CBO}	$V_{CB} = 45\text{V}, I_E = 0$	BC107	15	nA	
		$V_{CB} = 25\text{V}, I_E = 0$	BC108/109	15	nA	
		$T_{amb} = 125^\circ\text{C}$				
		$V_{CB} = 45\text{V}, I_E = 0$	BC107	4.0	μA	
		$V_{CB} = 25\text{V}, I_E = 0$	BC108/109	4.0	μA	

BC107/BC108/ BC109

Low Power Bipolar Transistors



Description	Symbol	Test Condition	Minimum	Maximum	Unit
DC Current	h_{FE}	$I_C = 10\mu A, V_{CE} = 5V$	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	$V_{BE(Sat)}$	$I_C = 10mA, I_B = 0.5mA$		0.83	V
		$I_C = 100mA, I_B = 5mA$		1.05	V
Collector Emitter Saturation Voltage	$V_{CE(Sat)}$	$I_C = 10mA, I_B = 0.5mA$		0.25	V
		$I_C = 100mA, I_B = 5mA$		0.60	V
Base Emitter on Voltage	$V_{BE(on)}$	$I_C = 2mA, V_{CE} = 5V$	0.55	0.70	V
		$I_C = 10mA, V_{CE} = 5V$		0.77	V
Collector Knee Voltage	$V_{CE(K)}$	$I_C = 10mA, I_B = \text{The Value for which } I_C = 11mA, \text{ at } V_{CE} = 1V$		0.60	V
Transition Frequency	f_t	$V_{CE} = 5V, I_C = 10mA, f = 100MHz$	150		MHz
Noise Figure	NF	$V_{CE} = 5V, I_C = 0.2mA$ $R_g = 2k\Omega,$ $F = 30Hz \text{ to } 15 KHz$ $F = 1kHz, B = 200Hz$	BC109	4.0	dB
			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	$K\Omega$
			B Group	3.2	$K\Omega$
			C Group	6.0	$K\Omega$
Output Admittance	h_{oe}	ALL $f = 1kHz$ $I_C = 2mA, V_{CE} = 5V$	A Group	30	umhos
			B Group	60	umhos
			C Group	110	umhos

BC107/BC108/BC109

Low Power Bipolar Transistors



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 $T_a = 25^\circ C$ (mW)	Package and pin out	Part Number (NPN)
45	50	0.2	125	10	150	600	TO-18	BC107
								BC107A
BC107B								
BC108								
25	30		240	4				BC108B
								BC108C
								BC109
								BC109B
							BC109C	

BC107/BC108/ BC109

Low Power Bipolar Transistors



Notes:

International Sales Offices:



AUSTRALIA – Farnell InOne
Tel No: ++ 61 2 9645 8888
Fax No: ++ 61 2 9644 7898



FINLAND – Farnell InOne
Tel No: ++ 358 9 560 7780
Fax No: ++ 358 9 345 5411



NETHERLANDS – Farnell InOne
Tel No: ++ 31 30 241 7373
Fax No: ++ 31 30 241 7333



SWITZERLAND – Farnell InOne
Tel No: ++ 41 1 204 64 64
Fax No: ++ 41 1 204 64 54



AUSTRIA – Farnell InOne
Tel No: ++ 43 662 2180 680
Fax No: ++ 43 662 2180 670



FRANCE – Farnell InOne
Tel No: ++ 33 474 68 99 99
Fax No: ++ 33 474 68 99 90



NEW ZEALAND – Farnell InOne
Tel No: ++ 64 9 357 0646
Fax No: ++ 64 9 357 0656



UK – Farnell InOne
Tel No: ++ 44 8701 200 200
Fax No: ++ 44 8701 200 201



BELGIUM – Farnell InOne
Tel No: ++ 32 3 475 2810
Fax No: ++ 32 3 227 3648



GERMANY – Farnell InOne
Tel No: ++ 49 89 61 39 39 39
Fax No: ++ 49 89 613 59 01



NORWAY – Farnell InOne
Tel No: ++ 45 44 53 66 66
Fax No: ++ 45 44 53 66 02



UK – BuckHickman InOne
++ 44 8450 510 150
++ 44 8450 510 130



BRAZIL – Farnell-Newark InOne
Tel No: ++ 55 11 4066 9400
Fax No: ++ 55 11 4066 9410



HONG KONG – Farnell-Newark InOne
Tel No: ++ 852 2268 9888
Fax No: ++ 852 2268 9899



PORTUGAL – Farnell InOne
Tel No: ++ 34 93 475 8804
Fax No: ++ 34 93 474 5288



UK – CPC
++ 44 8701 202 530
++ 44 8701 202 531



CHINA – Farnell-Newark InOne
Tel No: ++86 10 6238 5152
Fax No: ++86 10 6238 5022



IRELAND – Farnell InOne
Tel No: ++ 353 1 830 9277
Fax No: ++ 353 1 830 9016



SINGAPORE – Farnell-Newark InOne
Tel No: ++ 65 6788 0200
Fax No: ++ 65 6788 0300



EXPORT – Farnell InOne
Tel No: ++ 44 8701 200 208
Fax No: ++ 44 8701 200 209

For enquiries from all other markets



DENMARK – Farnell InOne
Tel No: ++ 45 44 53 66 44
Fax No: ++ 45 44 53 66 06



ITALY – Farnell InOne
Tel No: ++ 39 02 93 995 200
Fax No: ++ 39 02 93 995 300



SPAIN – Farnell InOne
Tel No: ++ 34 93 475 8805
Fax No: ++ 34 93 474 5107



ESTONIA – Farnell InOne
Tel No: ++ 358 9 560 7780
Fax No: ++ 358 9 345 5411



MALAYSIA – Farnell-Newark InOne
Tel No: ++ 60 3 7873 8000
Fax No: ++ 60 3 7873 7000



SWEDEN – Farnell InOne
Tel No: ++ 46 8 730 50 00
Fax No: ++ 46 8 83 52 62

<http://www.farnellinone.com>

<http://www.buckhickmaninone.com>

<http://www.cpc.co.uk>

Disclaimer This data sheet and its contents (the "Information") belong to the Premier Farnell Group (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp is the registered trademark of the Group. © Premier Farnell plc 2004.

