

# Central<sup>TM</sup> Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA  
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

BC107, A, B  
BC108, A, B, C  
BC109, B, C

NPN SILICON TRANSISTOR

JEDEC TO-18 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR BC107, BC108, BC109 series types are silicon NPN small signal transistors manufactured by the epitaxial planar process designed for general purpose amplifier applications.

## MAXIMUM RATINGS (T<sub>A</sub>=25°C)

	SYMBOL	BC107	BC108	BC109	UNIT
Collector-Base Voltage	V <sub>CB0</sub>	50	30	30	V
Collector-Emitter Voltage	V <sub>CES</sub>	50	30	30	V
Collector-Emitter Voltage	V <sub>CEO</sub>	45	20	20	V
Emitter-Base Voltage	V <sub>EBO</sub>	6.0	5.0	5.0	V
Collector Current	I <sub>C</sub>		100		mA
Collector Current (PEAK)	I <sub>CM</sub>		200		mA
Base Current (PEAK)	I <sub>BM</sub>		200		mA
Emitter Current (PEAK)	I <sub>EM</sub>		200		mA
Power Dissipation	P <sub>D</sub>		300		mW
Operating and Storage					
Junction Temperature	T <sub>J</sub> , T <sub>STG</sub>		-65 to +200		°C
Thermal Resistance	θ <sub>JA</sub>		500		°C/W
Thermal Resistance	θ <sub>JC</sub>		200		°C/W

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
I <sub>CB0</sub>	V <sub>CB</sub> =30V (BC107)			15	nA
I <sub>CB0</sub>	V <sub>CB</sub> =30V, T <sub>A</sub> =150°C (BC107)			15	μA
I <sub>CB0</sub>	V <sub>CB</sub> =20V, (BC108, BC109)			15	nA
I <sub>CB0</sub>	V <sub>CB</sub> =20V, T <sub>A</sub> =150°C (BC108, BC109)			15	μA
BV <sub>CB0</sub>	I <sub>C</sub> =10μA (BC107)	50			V
BV <sub>CB0</sub>	I <sub>C</sub> =10μA (BC108, BC109)	30			V
BV <sub>CEO</sub>	I <sub>C</sub> =10mA (BC107)	45			V
BV <sub>CEO</sub>	I <sub>C</sub> =10mA (BC108, BC109)	20			V
BV <sub>EBO</sub>	I <sub>E</sub> =10μA (BC107)	6.0			V
BV <sub>EBO</sub>	I <sub>E</sub> =10μA (BC108, BC109)	5.0			V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA			.250	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =100mA, I <sub>B</sub> =5.0mA			.600	V
V <sub>BE(ON)</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.0mA	.550		.700	V
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =10μA (BC107, A, BC108, A)		90		
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =10μA (BC107B, BC108B, BC109B)	40	150		
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =10μA (BC109)	40	210		
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =10μA (BC108C, BC109C)	100	270		
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.0mA (BC107)	110		450	
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.0mA (BC107A, BC108A)	110		220	
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.0mA (BC107B, BC108B, BC109B)	200		450	
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.0mA (BC108)	110		800	
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.0mA (BC109)	200		800	
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.0mA (BC108C, BC109C)	420		800	

continued on other side

ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$  unless otherwise noted) continued:

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNIT</u>
$h_{fe}$	$V_{CE}=5.0V$ , $I_C=2.0mA$ , $f=1.0kHz$ (BC107)		250		
$h_{fe}$	$V_{CE}=5.0V$ , $I_C=2.0mA$ , $f=1.0kHz$ (BC107A, BC108A)		190		
$h_{fe}$	$V_{CE}=5.0V$ , $I_C=2.0mA$ , $f=1.0kHz$ (BC107B, BC108B, BC109B)		300		
$h_{fe}$	$V_{CE}=5.0V$ , $I_C=2.0mA$ , $f=1.0kHz$ (BC108, BC109)		370		
$h_{fe}$	$V_{CE}=5.0V$ , $I_C=2.0mA$ , $f=1.0kHz$ (BC108C)		500		
$h_{fe}$	$V_{CE}=5.0V$ , $I_C=2.0mA$ , $f=1.0kHz$ (BC109C)		550		
$f_T$	$V_{CE}=10V$ , $I_C=10mA$ , $f=100MHz$		200		MHz
$C_{ob}$	$V_{CB}=10V$ , $I_E=0$ , $f=1.0MHz$		4.0	6.0	pF
$C_{ib}$	$V_{EB}=0.5V$ , $I_C=0$ , $f=1.0MHz$		12		pF
NF	$V_{CE}=5.0V$ , $I_C=0.2mA$ , $R_g=2.0k\Omega$ , $B=200Hz$ , $f=1.0kHz$ (BC107, BC108)			10	dB
NF	$V_{CE}=5.0V$ , $I_C=0.2mA$ , $R_g=2.0k\Omega$ , $B=200Hz$ , $f=1.0kHz$ (BC109)			4.0	dB
NF	$V_{CE}=5.0V$ , $I_C=0.2mA$ , $R_g=2.0k\Omega$ , $f=30Hz$ to $15kHz$ (BC109)			4.0	dB

**Central**<sup>TM</sup>  
**Semiconductor Corp.**

145 Adams Avenue  
 Hauppauge, NY 11788 USA  
 Tel: (631) 435-1110 • Fax: (631) 435-1824  
[www.centralsemi.com](http://www.centralsemi.com)