Central™
Semiconductor Corp.
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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_A=25°C)

	SYMBOL	BC107	BC108	BC109	UNIT
Collector-Base Voltage	V_{CBO}	50	30	30	V
Collector-Emitter Voltage	V_{CES}	50	30	30	V
Collector-Emitter Voltage	V_{CEO}	45	20	20	V
Emitter-Base Voltage	V_{EBO}	6.0	5.0	5.0	V
Collector Current	I_C		100		mA
Collector Current (PEAK)	I_{CM}		200		mA
Base Current (PEAK)	I_{BM}		200		mA
Emitter Current (PEAK)	I_{EM}		200		mA
Power Dissipation	P_D		300		mW
Operating and Storage Junction Temperature	T_J, T_{STG}		-65 to +200		°C
Thermal Resistance	ΘJA		500		°C/W
Thermal Resistance	ΘJC		200		°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
I_{CBO}	V_{CB}=30V (BC107)			15	nA
I_{CBO}	V_{CB}=30V, T_A=150°C (BC107)			15	µA
I_{CBO}	V_{CB}=20V, (BC108, BC109)			15	nA
I_{CBO}	V_{CB}=20V, T_A=150°C (BC108, BC109)			15	µA
BV_{CBO}	I_C=10µA (BC107)	50			V
BV_{CBO}	I_C=10µA (BC108, BC109)	30			V
BV_{CEO}	I_C=10mA (BC107)	45			V
BV_{CEO}	I_C=10mA (BC108, BC109)	20			V
BV_{EBO}	I_E=10µA (BC107)	6.0			V
BV_{EBO}	I_E=10µA (BC108, BC109)	5.0			V
$V_{CE(SAT)}$	I_C=10mA, I_B=0.5mA			.250	V
$V_{CE(SAT)}$	I_C=100mA, I_B=5.0mA			.600	V
$V_{BE(ON)}$	V_{CE}=5.0V, I_C=2.0mA	.550		.700	V
h_{FE}	V_{CE}=5.0V, I_C=10µA (BC107,A, BC108,A)		90		
h_{FE}	V_{CE}=5.0V, I_C=10µA (BC107B, BC108B, BC109B)	40	150		
h_{FE}	V_{CE}=5.0V, I_C=10µA (BC109)	40	210		
h_{FE}	V_{CE}=5.0V, I_C=10µA (BC108C, BC109C)	100	270		
h_{FE}	V_{CE}=5.0V, I_C=2.0mA (BC107)	110		450	
h_{FE}	V_{CE}=5.0V, I_C=2.0mA (BC107A, BC108A)	110		220	
h_{FE}	V_{CE}=5.0V, I_C=2.0mA (BC107B, BC108B, BC109B)	200		450	
h_{FE}	V_{CE}=5.0V, I_C=2.0mA (BC108)	110		800	
h_{FE}	V_{CE}=5.0V, I_C=2.0mA (BC109)	200		800	
h_{FE}	V_{CE}=5.0V, I_C=2.0mA (BC108C, BC109C)	420		800	

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ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted) continued:

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
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=2.0kΩ, B=200Hz, f=1.0kHz (BC107, BC108)			10	dB
NF	V_{CE}=5.0V, I_C=0.2mA, R_g=2.0kΩ, B=200Hz, f=1.0kHz (BC109)			4.0	dB
NF	V_{CE}=5.0V, I_C=0.2mA, R_g=2.0kΩ, f=30Hz to 15kHz (BC109)			4.0	dB

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