

CentralTM 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 _{CB0}	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	θ _{JA}		500		°C/W
Thermal Resistance	θ _{JC}		200		°C/W

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
I _{CB0}	V _{CB} =30V (BC107)			15	nA
I _{CB0}	V _{CB} =30V, T _A =150°C (BC107)			15	μA
I _{CB0}	V _{CB} =20V, (BC108, BC109)			15	nA
I _{CB0}	V _{CB} =20V, T _A =150°C (BC108, BC109)			15	μA
BV _{CB0}	I _C =10μA (BC107)	50			V
BV _{CB0}	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	

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

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