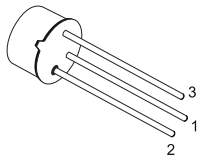
BC107
BC107B

LOW NOISE GENERAL PURPOSE AUDIO AMPLIFIERS

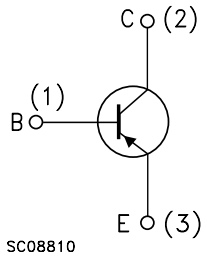
DESCRIPTION

The BC107 and BC107B are silicon Planar Epitaxial NPN transistors in TO-18 metal case. They are suitable for use in driver stages, low noise input stages and signal processing circuits of television reveivers. The PNP complementary types are BC177 and BC177B respectively.



TO-18

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	50	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	45	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	6	V
I_C	Collector Current	100	mA
P_{tot}	Total Dissipation at $T_{amb} \leq 25\ ^oC$ at $T_C \leq 25\ ^oC$	0.3 0.75	W W
T_{stg}	Storage Temperature	-55 to 175	^oC
T_j	Max. Operating Junction Temperature	175	^oC

THERMAL DATA

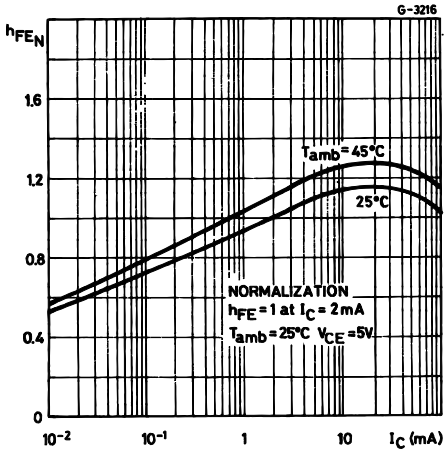
$R_{thj\text{-}case}$	Thermal Resistance Junction-Case Max	200	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-Ambient Max	500	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

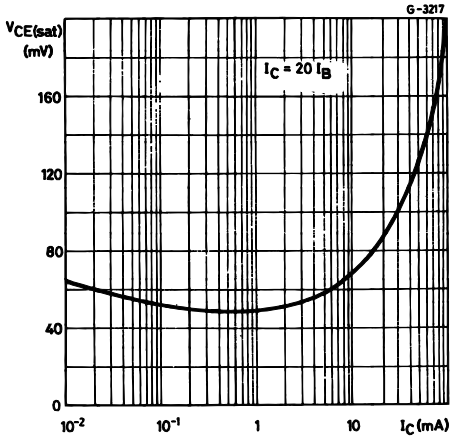
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 40 V V_{CB} = 40 V T_C = 150 °C			15 15	nA µA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_E = 0)	I_C = 10 µA	50			V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = 10 mA	45			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = 10 µA	6			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 10 mA I_B = 0.5 mA I_C = 100 mA I_B = 5 mA		70 200	250 600	mV mV
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 10 mA I_B = 0.5 mA I_C = 100 mA I_B = 5 mA		750 950		mV mV
$V_{BE(on)}$*	Base-Emitter On Voltage	I_C = 2 mA V_{CE} = 5 V I_C = 10 mA V_{CE} = 5 V	550	650 700	700 770	mV mV
h_{FE}*	DC Current Gain	I_C = 2 mA V_{CE} = 5 V for **BC107** for **BC107B** I_C = 10 µA V_{CE} = 5 V for **BC107** for **BC107B**	 110 200 40	 120 150	 450 450	
h_{fe}*	Small Signal Current Gain	I_C = 2 mA V_{CE} = 5 V f = 1 KHz for **BC107** for **BC107B** I_C = 10 mA V_{CE} = 10 V f = 100 MHz		 250 300 2		
C_{CBO}	Collector-Base Capacitance	I_E = 0 V_{CB} = 10 V f = 1MHz		4	6	pF
C_{EBO}	Emitter-Base Capacitance	I_C = 0 V_{EB} = 0.5 V f = 1MHz		12		pF
NF	Noise Figure	I_C = 0.2 mA V_{CE} = 5 V f = 1KHz R_g = 2KΩ B = 200Hz		2	10	dB
h_{ie}	Input Impedance	I_C = 2 mA V_{CE} = 5 V f = 1KHz for **BC107** for **BC107B**		 4 4.8		 KΩ KΩ
h_{re}	Reverse Voltage Ratio	I_C = 2 mA V_{CE} = 5 V f = 1KHz for **BC107** for **BC107B**		 2.2 2.7		 10^{-4} 10^{-4}
h_{oe}	Output Admittance	I_C = 2 mA V_{CE} = 5 V f = 1KHz for **BC107** for **BC107B**		 30 26		 µS µS

* Pulsed: Pulse duration = 300 µs, duty cycle ≤ 1 %

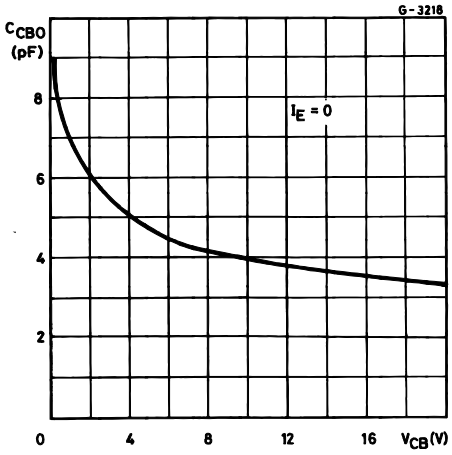
DC Normalized Current Gain.



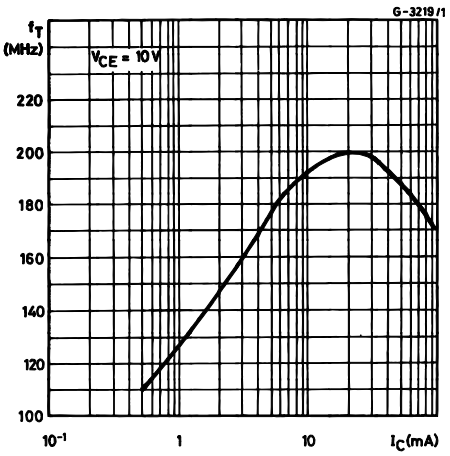
Collector-Emitter Saturation Voltage



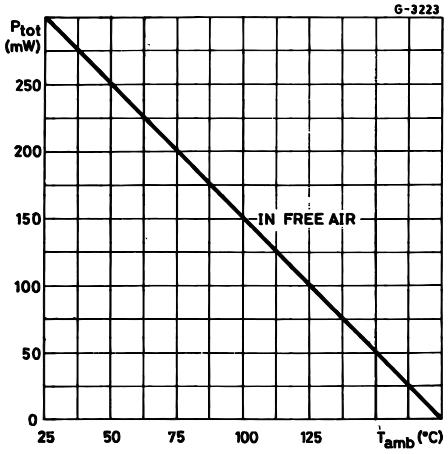
Collector-Base Capacitance



Transition Frequency

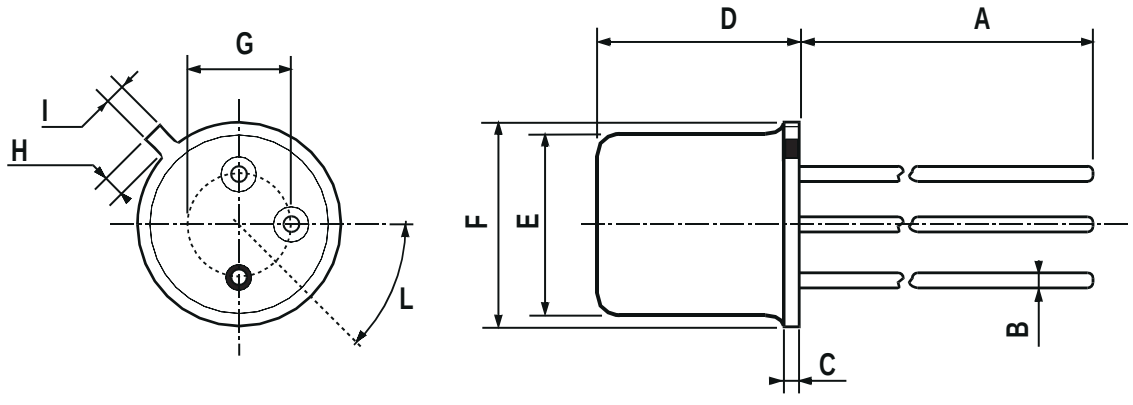


Power Rating Chart



TO-18 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		12.7			0.500	
B			0.49			0.019
D			5.3			0.208
E			4.9			0.193
F			5.8			0.228
G	2.54			0.100		
H			1.2			0.047
I			1.16			0.045
L	45^o			45^o		



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