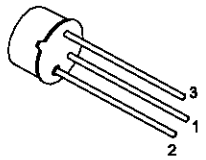
SGS-THOMSON MICROELECTRONICS

BC177

LOW NOISE GENERAL PURPOSE AUDIO AMPLIFIERS

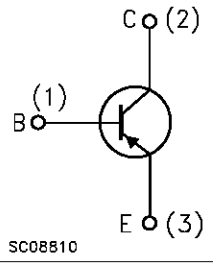
DESCRIPTION

The BC177 is a silicon planar epitaxial PNP transistors in TO-18 metal case. It is suitable for use in driver stages, low noise input stages and signal processing circuits of television reveivers. The NPN complement is BC107.



TO-18

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage (V_{BE} = 0)	-50	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	-45	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	-5	V
I_C	Collector Current	-100	mA
I_{CM}	Collector Peak Current	-200	mA
P_{tot}	Total Dissipation at $T_{amb} \leq 25\ ^oC$	0.3	W
T_{stg}	Storage Temperature	-65 to 175	^oC
T_j	Max. Operating Junction Temperature	175	^oC

THERMAL DATA

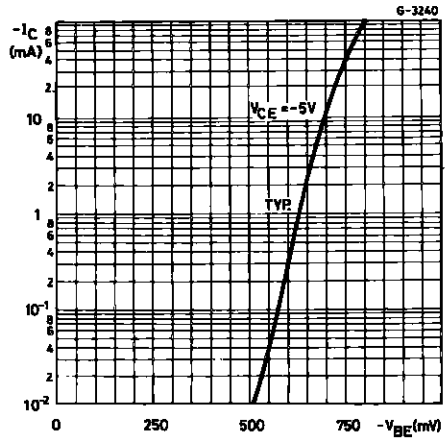
$R_{thj\text{-}case}$	Thermal Resistance Junction-Case Max	200	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-Ambient Max	500	°C/W

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

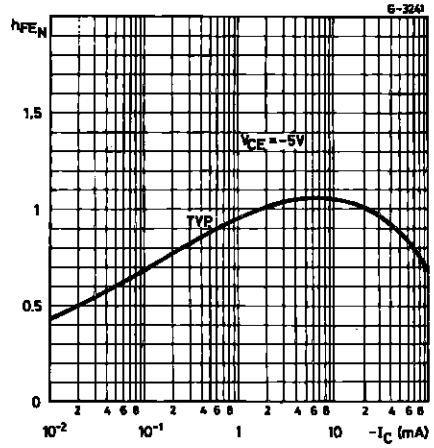
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} =-20 V V_{CE} =-20 V T_{amb} = 150 °C		-1	-100 -10	nA µA
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage (V_{BE} = 0)	I_C = -10 µA	-50			V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = -2 mA	-45			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = -10 µA	-5			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		-75 -200	-250	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		-720 -860		mV mV
$V_{BE(on)}$*	Base-Emitter On Voltage	I_C = -2 mA V_{CE} = -5 V	-550	-640	-750	mV
h_{fe}*	Small Signal Current Gain	I_C = -2 mA V_{CE} = -5 V f = 1KHz Gr. A Gr. B		 125 240	 260 500	
f_T	Transition Frequency	I_C = -10 mA V_{CE} = -5 V f = 100 MHz		200		MHz
C_{CBO}	Collector Base Capacitance	I_E = 0 V_{CB} = -10 V		5		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 Gr. A Gr. B		 2.7 5.2		 KΩ KΩ
h_{re}	Reverse Voltage Ratio	I_C = -2 mA V_{CE} = -5 V f = 1KHz Gr. A Gr. B		 2.7 4.5		 10^{-4} 10^{-4}
h_{oe}	Output Admittance	I_C = -2 mA V_{CE} = -5 V f = 1KHz Gr. A Gr. B		 25 35		 µS µS

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

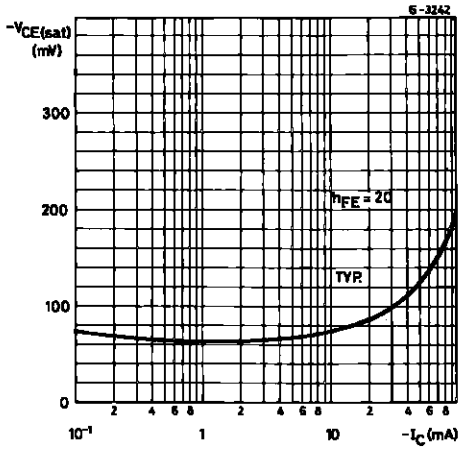
DC Transconductance.



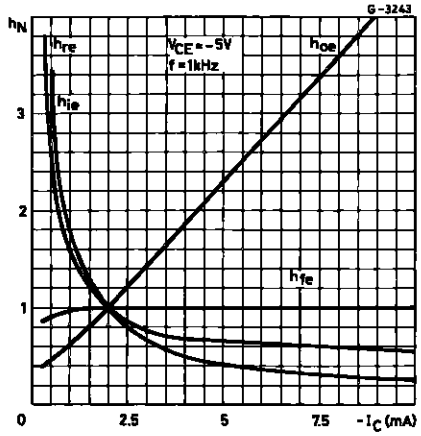
DC Normalized Current Gain.



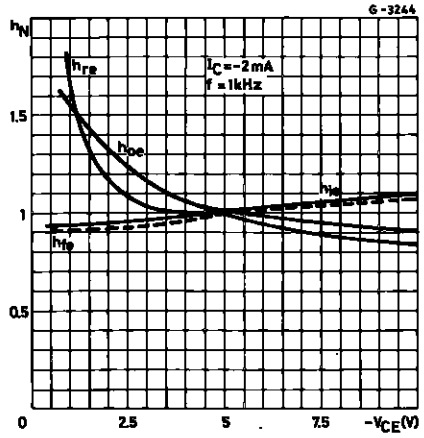
Collector-emitter Saturation Voltage.



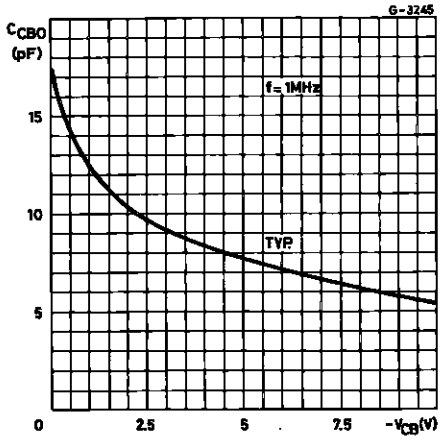
Normalized h Parameters.



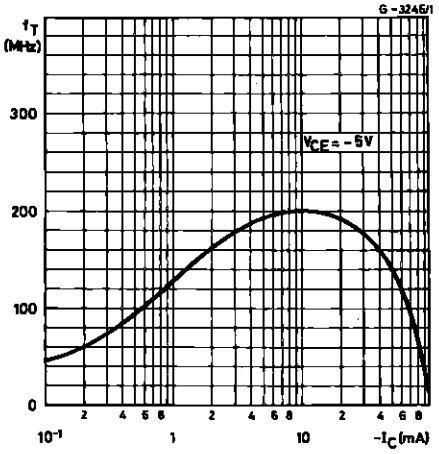
Normalized h Parameters.



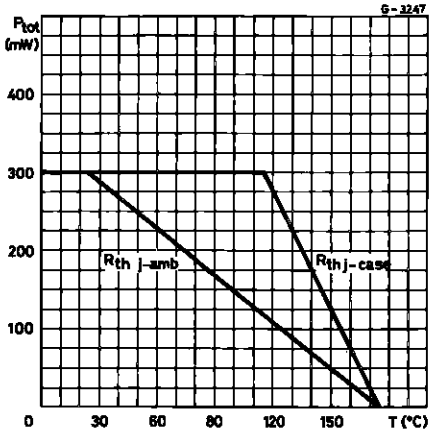
Collector-base Capacitance.



Transition Frequency.

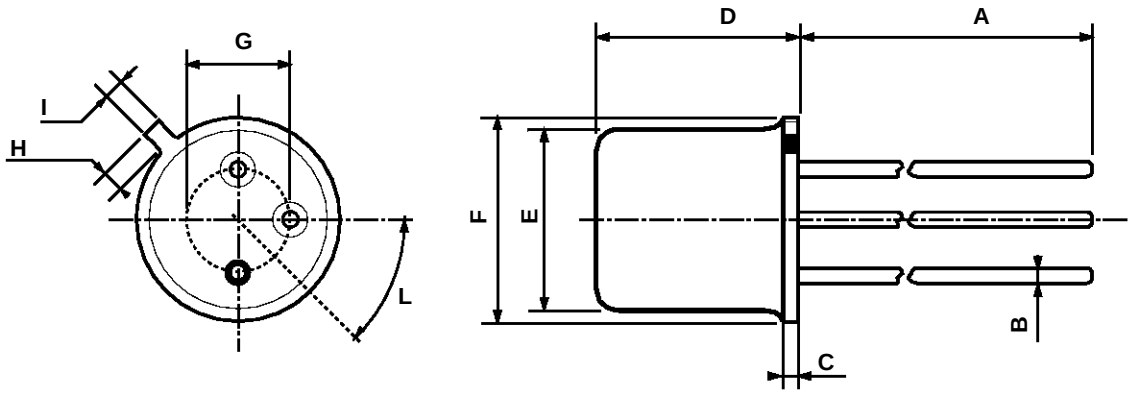


Power Rating Chart.



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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