SILICON PLANAR PNP

BC 153
BC 154

LOW-NOISE AUDIO AMPLIFIERS

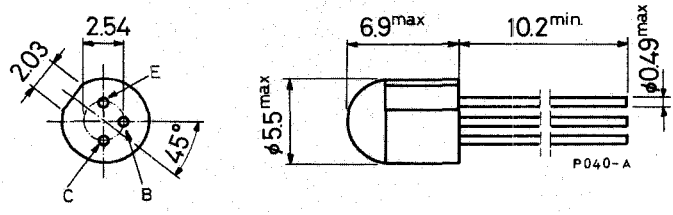
The BC 153 and BC 154 are silicon planar epitaxial PNP transistors in TO-18 epoxy package. They are specifically designed for use in low-noise audio preamplifiers.

ABSOLUTE MAXIMUM RATINGS

V_{CBO}	Collector-base voltage ($I_E = 0$)	-40 V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	-40 V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	-5 V
I_C	Collector current	-100 mA
P_{tot}	Total power dissipation at $T_{amb} \leq 25$ °C	0.2 W
	at $T_{case} \leq 25$ °C	0.5 W
T_{stg}	Storage temperature	-55 to 125 °C
T_j	Junction temperature	125 °C

MECHANICAL DATA

Dimensions in mm



TO-18 epoxy

BC 153
BC 154

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	200	°C/W
$R_{th\ j\text{-}amb}$	Thermal resistance junction-ambient	max	500	°C/W

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

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current (I_E = 0)	V_{CB} = -30 V			-50	nA
$V_{(BR)\ CBO}$	Collector-base breakdown voltage (I_E = 0)	I_C = -10 μA	-40			V
$V_{(BR)\ CEO}$	Collector-emitter breakdown voltage (I_B = 0)	I_C = -5 mA	-40			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			-0.25	V
h_{FE}	DC current gain	I_C = -10 μA V_{CE} = -5 V				
		for **BC 153**		115		—
		for **BC 154**		190		—
		I_C = -100 μA V_{CE} = -5 V				
		for **BC 153**	50	125		—
		for **BC 154**	160	215		—
		I_C = -1 mA V_{CE} = -5 V				
		for **BC 153**	50	135		—
		for **BC 154**	160	230		—
		I_C = -10 mA V_{CE} = -5 V				
		for **BC 153**	50	135		—
		for **BC 154**	160	225		—
f_T	Transition frequency	I_C = -1 mA V_{CE} = -5 V		70		MHz
C_{CBO}	Collector-base capacitance	I_E = 0 V_{CB} = -5 V f = 1 MHz			4	pF

ELECTRICAL CHARACTERISTICS (continued)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
NF	Noise figure	I_C = -20 µA V_{CE} = -5 V R_g = 10 kΩ f = 1 kHz B = 200 Hz				
		for **BC 153**		1		dB
		for **BC 154**		0.75	2.5	dB
		I_C = -250 µA V_{CE} = -5 V R_g = 1 kΩ f = 1 kHz B = 200 Hz				
		for **BC 153**		1		dB
		for **BC 154**		0.75	2.5	dB
h_{ie}	Input impedance	I_C = -1 mA V_{CE} = -5 V f = 1 kHz				
		for **BC 153**		5.2		kΩ
		for **BC 154**		7.1		kΩ
h_{re}	Reverse voltage ratio	I_C = -1 mA V_{CE} = -5 V f = 1 kHz				
		for **BC 153**		1.8×10^{-4}		—
		for **BC 154**		2.9×10^{-4}		—
h_{oe}	Output admittance	I_C = -1 mA V_{CE} = -5 V f = 1 kHz				
		for **BC 153**		15		µS
		for **BC 154**		16		µS