

SILICON PLANAR PNP

BC 153 BC 154

LOW-NOISE AUDIO AMPLIFIERS

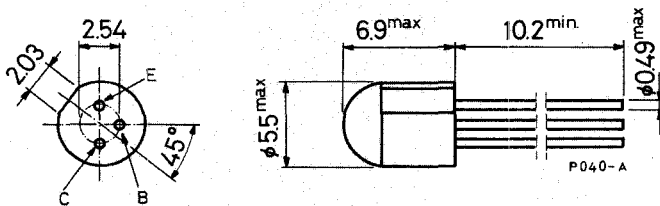
The BC 153 and BC 154 are silicon planar epitaxial PNP transistors in TO-18 epoxy package. They are specifically designed for use in low-noise audio preamplifiers.

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 $T_{amb} \leq 25\text{ }^\circ\text{C}$	0.2 W
	at $T_{case} \leq 25\text{ }^\circ\text{C}$	0.5 W
T_{stg}	Storage temperature	-55 to 125 $^\circ\text{C}$
T_j	Junction temperature	125 $^\circ\text{C}$

MECHANICAL DATA

Dimensions in mm



TO-18 epoxy

BC 153 BC 154

THERMAL DATA

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

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

Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO} Collector cutoff current ($I_E = 0$)	$V_{CB} = -30\text{ V}$			-50	nA
$V_{(BR)\ CBO}$ Collector-base breakdown voltage ($I_E = 0$)	$I_C = -10\ \mu\text{A}$	-40			V
$V_{(BR)\ CEO}$ Collector-emitter breakdown voltage ($I_B = 0$)	$I_C = -5\text{ mA}$	-40			V
$V_{(BR)\ EBO}$ Emitter-base breakdown voltage ($I_C = 0$)	$I_E = -10\ \mu\text{A}$	-5			V
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_C = -10\text{ mA}$ $I_B = -0.5\text{ mA}$			-0.25	V
h_{FE} DC current gain	$I_C = -10\ \mu\text{A}$ $V_{CE} = -5\text{ V}$ for BC 153 for BC 154 $I_C = -100\ \mu\text{A}$ $V_{CE} = -5\text{ V}$ for BC 153 for BC 154 $I_C = -1\text{ mA}$ $V_{CE} = -5\text{ V}$ for BC 153 for BC 154 $I_C = -10\text{ mA}$ $V_{CE} = -5\text{ V}$ for BC 153 for BC 154		115 190 50 125 160 215 50 135 160 230 50 135 160 225		— — — — — — — —
f_T Transition frequency	$I_C = -1\text{ mA}$ $V_{CE} = -5\text{ V}$		70		MHz
C_{CBO} Collector-base capacitance	$I_E = 0$ $V_{CB} = -5\text{ V}$ $f = 1\text{ MHz}$		4		pF

BC 153 BC 154

ELECTRICAL CHARACTERISTICS (continued)

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