

## SILICON PLANAR PNP

### 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.

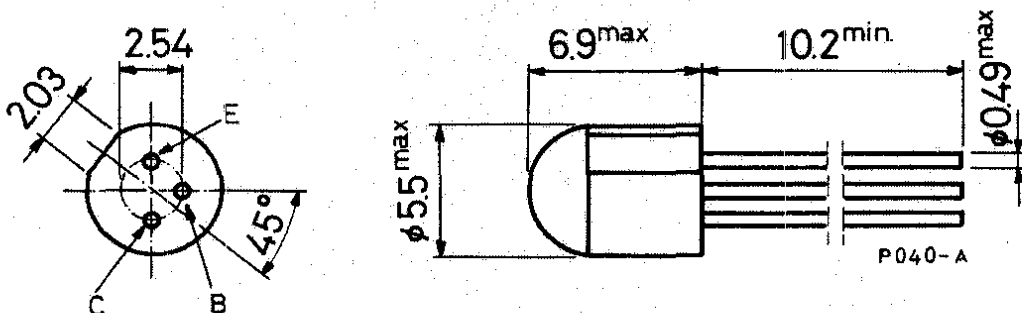
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### ABSOLUTE MAXIMUM RATINGS

$V_{CBO}$	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 $T_{amb} \leq 25^\circ\text{C}$	0.2	W
	at $T_{case} \leq 25^\circ\text{C}$	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



# 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 <b>BC 153</b> for <b>BC 154</b> $I_C = -100\ \mu\text{A}$ $V_{CE} = -5\text{ V}$ for <b>BC 153</b> for <b>BC 154</b> $I_C = -1\text{ mA}$ $V_{CE} = -5\text{ V}$ for <b>BC 153</b> for <b>BC 154</b> $I_C = -10\text{ mA}$ $V_{CE} = -5\text{ V}$ for <b>BC 153</b> for <b>BC 154</b>		115 190 50 160 50 160 50 160	125 215 135 230 135 225	— — — — — — — —
$f_T$ Transition frequency	$I_C = -1\text{ mA}$ $V_{CE} = -5\text{ V}$		70		MHz
$C_{CBO}$ Collector-base capacitance	$I_E = 0$ $V_{CB} = -5\text{ V}$ $f = 1\text{ MHz}$				pF

# BC 153 BC 154

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## ELECTRICAL CHARACTERISTICS (continued)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
NF	$I_C = -20 \mu A$ $R_g = 10 k\Omega$ $B = 200 \text{ Hz}$ $V_{CE} = -5 \text{ V}$ $f = 1 \text{ kHz}$ for <b>BC 153</b> for <b>BC 154</b>		1		dB
	$I_C = -250 \mu A$ $R_g = 1 k\Omega$ $B = 200 \text{ Hz}$ $V_{CE} = -5 \text{ V}$ $f = 1 \text{ kHz}$ for <b>BC 153</b> for <b>BC 154</b>		0.75	2.5	dB
$h_{i,e}$	$I_C = -1 \text{ mA}$ $f = 1 \text{ kHz}$ $V_{CE} = -5 \text{ V}$ for <b>BC 153</b> for <b>BC 154</b>		1		dB
			0.75	2.5	dB
$h_{r,e}$	$I_C = -1 \text{ mA}$ $f = 1 \text{ kHz}$ $V_{CE} = -5 \text{ V}$ for <b>BC 153</b> for <b>BC 154</b>		5.2		$k\Omega$
			7.1		$k\Omega$
$h_{o,e}$	$I_C = -1 \text{ mA}$ $f = 1 \text{ kHz}$ $V_{CE} = -5 \text{ V}$ for <b>BC 153</b> for <b>BC 154</b>		1.8x10 <sup>-4</sup>		---
			2.9x10 <sup>-4</sup>		---
			15		$\mu S$
			16		$\mu S$