

# BF506

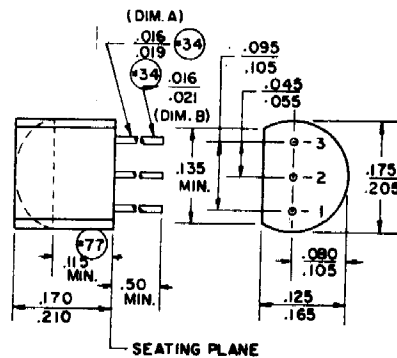
## SILICON PLANAR PNP

### VHF OSCILLATOR MIXER

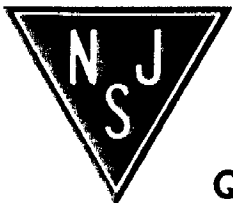
The BF 506 is a silicon planar epitaxial PNP transistor in Jedec TO-92 plastic package. It is intended for use as mixer and oscillator in the VHF range. However, it may also be used as not controlled preamplifier at low noise.

### ABSOLUTE MAXIMUM RATINGS

$V_{CBO}$	Collector-base voltage ( $I_E = 0$ )	-40	V
$V_{CEO}$	Collector-emitter voltage ( $I_B = 0$ )	-35	V
$V_{EBO}$	Emitter-base voltage ( $I_C = 0$ )	-4	V
$I_C$	Collector current	-30	mA
$I_B$	Base current	-5	mA
$P_{tot}$	Total power dissipation at $T_{amb} \leq 45^\circ\text{C}$	250	mW
$T_{stg}$	Storage temperature	-55 to 150	$^\circ\text{C}$
$T_J$	Junction temperature	150	$^\circ\text{C}$



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## THERMAL DATA

$R_{th \text{ j-amb}}$	Thermal resistance junction-ambient	max	420 °C/W
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## ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$ Collector cutoff current ( $I_E = 0$ )	$V_{CB} = -20\text{V}$			-200	nA
$V_{(BR)CEO}$ Collector-emitter breakdown voltage ( $I_B = 0$ )	$I_C = -5\text{ mA}$	-35			V
$V_{(BR)EBO}$ Emitter-base breakdown voltage ( $I_C = 0$ )	$I_E = -10\ \mu\text{A}$	-4			V
$h_{FE}$ DC current gain	$I_C = -3\text{ mA}$ $V_{CE} = -10\text{V}$		40		—
$f_T$ Transition frequency	$I_C = -1\text{ mA}$ $V_{CE} = -10\text{V}$ $f = 100\text{ MHz}$		400		MHz
$C_{CBO}$ Collector-base capacitance	$I_E = 0$ $V_{CB} = -10\text{V}$ $f = 1\text{ MHz}$		0.8		pF
$C_{rb}$ Reverse capacitance	$I_C = 0$ $V_{CB} = -10\text{V}$ $f = 1\text{ MHz}$		0.13		pF
NF*/** Noise figure	$I_C = -1\text{ mA}$ $V_{CC} = -6\text{V}$ $R_g = 50\ \Omega$ $f = 200\text{ MHz}$		2.5	4	dB
$G_{pb}^*$ Power gain	$I_C = -3\text{ mA}$ $V_{CC} = -10.8\text{V}$ $R_L = 1\text{ k}\Omega$ $f = 200\text{ MHz}$	14	17		dB

\* See TEST CIRCUIT

\*\* Input adapting for optimum source admittance