



NPN HIGH FREQUENCY
SILICON PLANAR EPITAXIAL TRANSISTOR

MICRO ELECTRONICS

GENERAL DESCRIPTION :

The BF314 is a NPN silicon planar epitaxial transistor designed for use as RF amplifier and VHF & UHF input stage in common base configuration.

MECHANICAL OUTLINE

TO-92F



CEB

THERMAL CHARACTERISTICS :

Thermal Resistance from Junction to Ambient, $\theta(j-amb)$	0.35°C/mW
Maximum Collector Junction Temperature, T_j	150°C
Storage Temperature Range, T_{stg}	-55°C to +150°C
Soldering Temperature (10 sec. time limit)	260°C

ABSOLUTE MAXIMUM RATINGS :

Continuous Power Dissipation, @ $T_A \leq 45^\circ C$, P_{tot}	300mW
Continuous Collector Current, I_C max	25mA
Continuous Base Current, I_B max	3mA
Collector-Base Voltage, V_{CBO}	30V
Collector-Emitter Voltage, V_{CEO}	30V
Emitter-Base Voltage, V_{EBO}	4V

ELECTRICAL CHARACTERISTICS @ $T_A = 25^\circ C$ (unless otherwise stated) :

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	V_{CBO}	30			V	$I_C = 10\mu A$ $I_E = 0$
Collector-Emitter Breakdown Voltage	V_{CEO}	30			V	$I_C = 2mA$ $I_B = 0$
Emitter-Base Breakdown Voltage	V_{EBO}	4			V	$I_E = 10\mu A$ $I_C = 0$
Collector-Base Cutoff Current	I_{CBO}			60	nA	$V_{CB} = 20V$ $I_E = 0$
Collector-Base Cutoff Current	I_{CBO}			10	μA	$V_{CB} = 20V$ $T_A = 100^\circ C$
D.C. Current Gain	h_{FE}	29				$V_{CE} = 10V$ $I_C = 4mA$
Transition Frequency	f_T		600		MHz	$V_{CE} = 10V$ $I_C = 1mA$ $f = 100MHz$
Feedback Capacitance (common base)	C_{fb}		0.4		pF	$V_{CE} = 10V$ $I_C = 2mA$ $f = 100MHz$
Noise Figure	N.F.		2		dB	$V_{CE} = 10V$ $I_C = 2mA$ $f = 200MHz$ $R_s = 120\Omega$
Input Conductance	g_{ib}		120		mS	$V_{CB} = 10V$ $I_E = -5mA$ $f = 100MHz$
Input Capacitance	C_{ib}		70		pF	$V_{CB} = 10V$ $I_E = -5mA$ $f = 100MHz$
Feedback Admittance	$ Y_{fb} $		0.6		mS	$V_{CB} = 10V$ $I_E = -5mA$ $f = 100MHz$
Phase Angle of Feedback Admittance	-9_{fb}		90°			
Transfer Admittance	$ Y_{fb} $		130		mS	$V_{CB} = 10V$ $I_E = -5mA$ $f = 100MHz$
Phase Angle of Transfer Admittance	-9_{fb}		28°			
Output Conductance	g_{ob}		0.1		mS	$V_{CB} = 10V$ $I_E = -5mA$ $f = 100MHz$
Output Capacitance	C_{ob}		1.6		pF	$V_{CB} = 10V$ $I_E = -5mA$ $f = 100MHz$

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