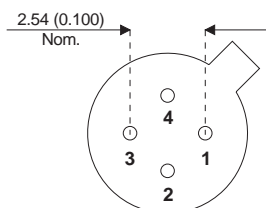
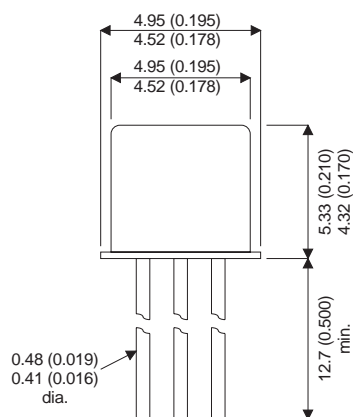


MECHANICAL DATA

Dimensions in mm (inches)


TO72

Pin 1 – Emitter

Pin 3 – Collector

Pin 2 –Base

Pin 4 – Connected to Case

SILICON PLANAR EPITAXIAL NPN TRANSISTOR

DESCRIPTION

The BFY90 is a low noise transistor intended for use in broad and narrow-band amplifiers up to 1GHz.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

V _{CBO}	Collector – Base Voltage	30V
V _{CER}	Collector – Emitter Voltage (R _{BE} ≤ 50Ω)	30V
V _{CEO}	Collector – Emitter Voltage	15V
V _{EBO}	Emitter – Base Voltage	2.5v
I _{C(AV)}	Average Collector Current	25mA
I _{CM}	Peak Collector Current (f ≥ 1MHz)	50mA
P _{tot}	Power Dissipation at T _{amb} = 25°C	200mW°C
T _j	Storage Temperature	200°C
T _{stg}	Junction Temperature	-65 to +200°C

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut Off Current	$V_{CB} = 15\text{V}$	$I_E = 0$			10	nA
$V_{(BR)CEO}^*$	Collector Emitter Breakdown Voltage	$I_C = 10\text{mA}$	$I_B = 0$	15			V
$V_{(BR)CER}^*$	Collector Emitter Breakdown Voltage	$I_C = 10\text{mA}$	$R_{BE} \leq 50\Omega$	30			
V_{CEK}	Collector Emitter Knee Voltage	$I_C = 10\text{mA}$				0.75	
h_{21E}	Static Forward Current Transfer Ratio	$V_{CE} = 1\text{V}$	$I_C = 2\text{mA}$	25		150	—
		$V_{CE} = 1\text{V}$	$I_C = 25\text{mA}$	20		125	
DYNAMIC CHARACTERISTICS							
f_T	Transition Frequency	$V_{CE} = 5\text{V}$	$I_C = 2\text{mA}$	1			GHz
		$f = 500\text{MHz}$					
$C_{22b(1)}$	Output Capacitance	$V_{CE} = 5\text{V}$	$I_C = 25\text{mA}$			1.3	
		$f = 500\text{MHz}$					
$C_{12e(2)}$	Open-Circuit Reverse Transfer Capacitance	$V_{CB} = 10\text{V}$	$I_E = 0$			1.5	pF
		$f = 1\text{MHz}$					
$C_{12e(2)}$	Open-Circuit Reverse Transfer Capacitance	$V_{CE} = 5\text{V}$	$I_C = 0$			0.8	pF
		$f = 1\text{MHz}$					
NF	Noise Figure	$V_{CE} = 5\text{V}$	$I_C = 2\text{mA}$			4	dB
		$f = 100\text{kHz}$	R_G optimum				
		$V_{CE} = 5\text{V}$	$I_C = 2\text{mA}$			3.5	
		$f = 200\text{MHz}$	R_G optimum				
		$V_{CE} = 5\text{V}$	$I_C = 2\text{mA}$			5	
		$f = 500\text{MHz}$	$R_G = 50\Omega$				
		$V_{CE} = 5\text{V}$	$I_C = 2\text{mA}$		5		
		$f = 800\text{MHz}$	R_G optimum				
G_p	Power Gain	$V_{CE} = 10\text{V}$	$I_C = 14\text{mA}$	21			dB
		$f = 200\text{MHz}$					
$P_{O(2)}$	Output Power	$V_{CE} = 10\text{V}$	$I_C = 14\text{mA}$	10			mW
		$f_1 = 202\text{MHz}$	$f_2 = 205\text{MHz}$				
		Output SWR ≤ 2					
		TOS sortie ≤ 2					
		$d_{IM}^* = -30\text{dB}$ at $2f_2 - f_1 = 208\text{MHz}$					

THERMAL DATA

$R_{th(j-a)}$	Junction-ambient thermal resistance	≤ 0.875 Max	$^\circ\text{C/W}$
$R_{th(j-c)}$	Junction-case thermal resistance	≤ 0.575 Max	$^\circ\text{C/W}$

* Pulse test $t_p = 300\mu\text{s}$, $\delta \leq 2\%$

(1) Shield Lead (case) not connected

(2) Shield Lead (case) grounded

* Intermodulation Distortion