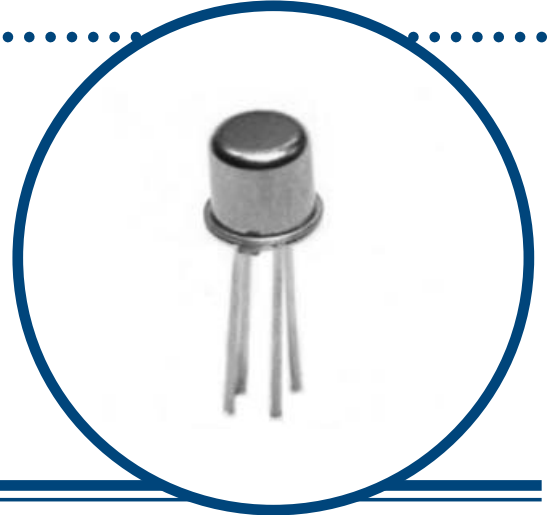


SILICON PLANAR EPITAXIAL NPN TRANSISTOR

SMLBFY90

- **LOW NOISE TRANSISTOR**
- **FOR USE IN BROAD AND NARROW-BAND AMPLIFIERS UP TO 1GHz**



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

V_{CBO}	Collector - Base Voltage	30V
V_{CER}	Collector - Emitter Voltage ($R_{BE} \leq 50\Omega$)	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 ($f \geq 1\text{MHz}$)	50mA
P_{tot}	Power Dissipation at $T_A = 25^\circ\text{C}$	200mW
T_{stg}	Storage Temperature	200°C
T_j	Junction Temperature	-65 to $+200^\circ\text{C}$

THERMAL PROPERTIES

Parameters	Min.	Typ.	Max.	Unit
$R_{\theta JA}$ Junction - ambient thermal resistance			≤ 880	$^\circ\text{C/W}$
$R_{\theta JC}$ Junction - case thermal resistance			≤ 580	$^\circ\text{C/W}$

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

(1) Shield Lead (case) not connected

(2) Shield Lead (case) grounded

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

SEMELAB 

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

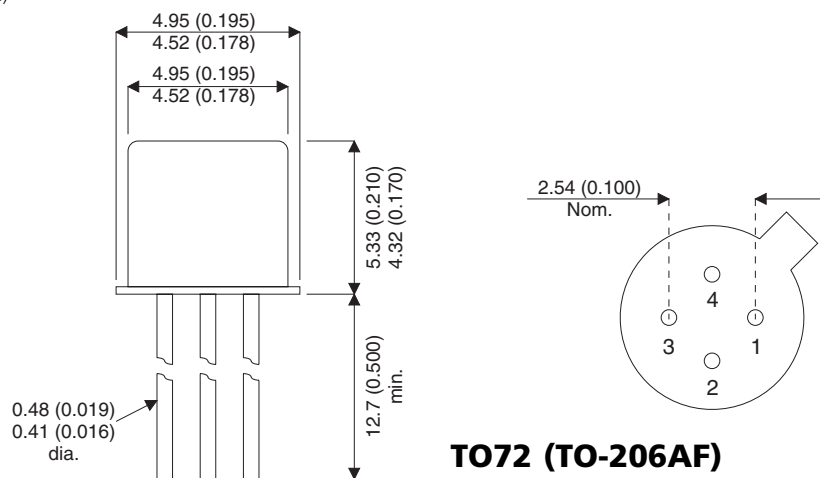
Parameters	Test Conditions	Min.	Typ.	Max.	Unit.
I_{CBO}	Collector Cut Off Current $V_{CB} = 15\text{V}$ $I_E = 0$			10	nA
$V_{(BR)CEO}^*$	Collector Emitter Breakdown Voltage $I_C = 10\text{mA}$ $I_B = 0$	15			V
$V_{(BR)CER}^*$	Collector Emitter Breakdown Voltage $I_C = 10\text{mA}$ $R_{BE} \leq 50\Omega$	30			
h_{21E}	Static Forward Current $V_{CE} = 1\text{V}$ $I_C = 2\text{mA}$	25		150	-
	Transfer Ratio $V_{CE} = 1\text{V}$ $I_C = 25\text{mA}$	20		125	

DYNAMIC CHARACTERISTICS

Parameters	Test Conditions	Min.	Typ.	Max.	Unit.
f_T	Transition Frequency $V_{CE} = 5\text{V}$ $I_C = 2\text{mA}$ $f = 100\text{MHz}$	0.6			GHz
	$V_{CE} = 5\text{V}$ $I_C = 25\text{mA}$ $f = 100\text{MHz}$	1.0			
$C_{22b}^{(1)}$	Output Capacitance $V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1\text{MHz}$			1.5	pF
$C_{12e}^{(2)}$	Open Circuit Reverse Transfer Capacitance $V_{CE} = 5\text{V}$ $I_C = 0$ $f = 1\text{MHz}$			0.8	pF
$ S_{21} ^2$	Insertion Gain $V_{CE} = 10\text{V}$ $I_C = 14\text{mA}$ $f = 200\text{MHz}$	10.0			dB

Mechanical Data

Dimensions in mm (inches)



TO72 (TO-206AF)

Pin 1 - Emitter Pin 3 - Collector
Pin 2 - Base Pin 4 - Connected to Case