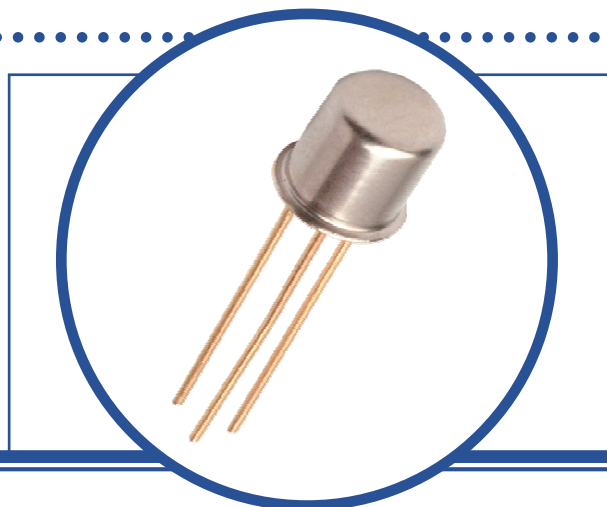


# SILICON EPITAXIAL NPN TRANSISTOR

## BSX52A

- Hermetic TO-18 Metal package.
- Designed For Low Frequency Amplifiers, and Low Current Switching Applications
- Screening Options Available



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

$V_{CBO}$	Collector – Base Voltage	50V
$V_{CEO}$	Collector – Emitter Voltage	50V
$V_{EBO}$	Emitter – Base Voltage	7V
$I_C$	Continuous Collector Current	200mA
$P_D$	Total Power Dissipation at $T_A = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	300mW 2mW/ $^\circ\text{C}$
$T_J$	Junction Temperature Range	-65 to +175 $^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-65 to +175 $^\circ\text{C}$

### THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	500	$^\circ\text{C}/\text{W}$

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.



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

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$I_{CBO}$	Collector-Cut-Off Current	$V_{CB} = 50\text{V}$ $I_E = 0$			0.5	$\mu\text{A}$
		$T_A = 100^\circ\text{C}$			15	
$I_{EBO}$	Emitter-Cut-Off Current	$V_{EB} = 7\text{V}$ $I_C = 0$			0.5	
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$ $I_B = 0$	50			V
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 50\text{mA}$ $I_B = 3\text{mA}$			0.3	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 50\text{mA}$ $I_B = 3\text{mA}$			1.3	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 2\text{mA}$ $V_{CE} = 4.5\text{V}$	180		540	

## DYNAMIC CHARACTERISTICS

$f_T$	Transition Frequency	$I_C = 10\text{mA}$ $V_{CE} = 5\text{V}$ $f = 100\text{MHz}$	150			MHz
$C_{obo}$	Output Capacitance	$V_{CB} = 5\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			8	$\mu\text{F}$
$t_d$	Delay Time	$I_C = 50\text{mA}$ $V_{CC} = 5\text{V}$ $I_{B1} = 3.6\text{mA}$		20		ns
$t_r$	Rise Time			50		
$t_s$	Storage Time	$I_C = 50\text{mA}$ $V_{CC} = 5\text{V}$		200		
$t_f$	Fall Time	$I_{B1} = 3.6\text{mA}$ $I_{B2} = -2.5\text{mA}$		50		

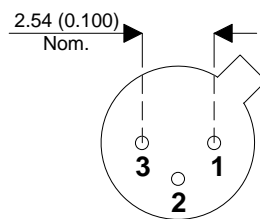
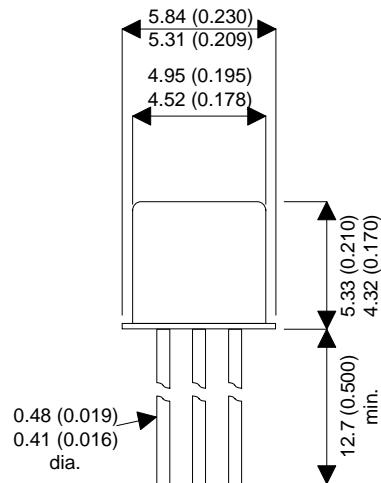
### Notes

(1) Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

# SILICON EPITAXIAL NPN TRANSISTOR BSX52A

## MECHANICAL DATA

Dimensions in mm (inches)



### TO-18 (TO-206AA) METAL PACKAGE Underside View

Pin 1 - Emitter

Pin 2 - Base

Pin 3 - Collector