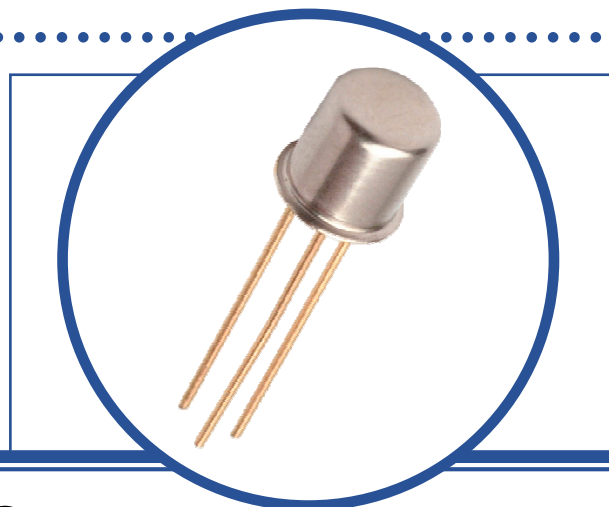


# NPN SWITCHING TRANSISTOR

## 2N2369A

- Silicon Planer Epitaxial NPN Transistor
- Hermetic TO18 Metal Package
- Designed For High Speed Switching Applications
- Screening Options Available



### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise stated)

V <sub>CBO</sub>	Collector – Base Voltage	40V
V <sub>CEO</sub>	Collector – Emitter Voltage	15V
V <sub>CES</sub>	Collector – Emitter Voltage	40V
V <sub>EBO</sub>	Emitter – Base Voltage	4.5V
I <sub>C</sub>	Continuous Collector Current	200mA
P <sub>D</sub>	Total Power Dissipation at T <sub>A</sub> = 25°C	360mW
	Derate Above 25°C	2.06mW/°C
P <sub>D</sub>	Total Power Dissipation at T <sub>C</sub> = 125°C	360mW
	Derate Above 125°C	4.80mW/°C
T <sub>J</sub>	Junction Temperature Range	-65 to +200°C
T <sub>stg</sub>	Storage Temperature Range	-65 to +200°C

### THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
R <sub>θJA</sub>	Thermal Resistance, Junction To Ambient			486	°C/W
R <sub>θJC</sub>	Thermal Resistance, Junction To Case			208.3	°C/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.



# NPN SWITCHING TRANSISTOR 2N2369A

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

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$ $I_B = 0$	15			V
$I_{CES}$	Collector-Cut-Off Current	$V_{CE} = 20\text{V}$ $I_B = 0$			0.4	$\mu\text{A}$
$I_{CBO}$	Collector-Cut-Off Current	$V_{CB} = 40\text{V}$ $I_E = 0$			10	
		$V_{CB} = 32\text{V}$ $I_E = 0$			0.2	
		$V_{CB} = 20\text{V}$ $I_E = 0$ $T_A = 150^\circ\text{C}^{(2)}$			30	
$I_{EBO}$	Emitter-Cut-Off Current	$V_{EB} = 4.5\text{V}$ $I_C = 0$			10	
		$V_{EB} = 4\text{V}$ $I_C = 0$			0.25	
$I_{CEX}$	Collector Cut-Off Current	$V_{CE} = 10\text{V}$ $V_{BE} = -0.25\text{V}$ $T_A = 125^\circ\text{C}$			30	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 10\text{mA}$ $V_{CE} = 0.35\text{V}$	40		120	
		$I_C = 30\text{mA}$ $V_{CE} = 0.4\text{V}$	30		120	
		$I_C = 10\text{mA}$ $V_{CE} = 1.0\text{V}$ $T_A = -55^\circ\text{C}$	40		120	
		$I_C = 100\text{mA}$ $V_{CE} = 1.0\text{V}$	20		120	
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 1.0\text{mA}$ $T_A = 125^\circ\text{C}$			0.2	
		$I_C = 30\text{mA}$ $I_B = 3\text{mA}$			0.3	
		$I_C = 100\text{mA}$ $I_B = 10\text{mA}$			0.25	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 1.0\text{mA}$	0.7		0.85	
		$T_A = 125^\circ\text{C}$	0.59			
		$T_A = -55^\circ\text{C}$			1.02	
		$I_C = 30\text{mA}$ $I_B = 3\text{mA}$			0.9	
		$I_C = 100\text{mA}$ $I_B = 10\text{mA}$	0.8		1.2	

### Notes

- (1) Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$   
(2) By design only, not a production test.

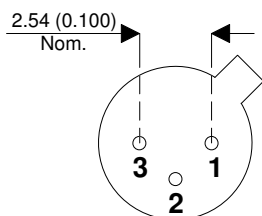
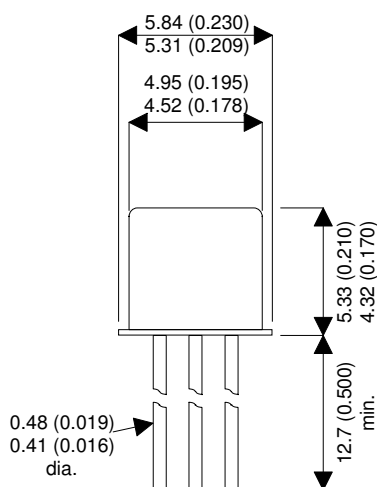
# NPN SWITCHING TRANSISTOR 2N2369A

## DYNAMIC CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
h <sub>fe</sub>	Small signal forward-current transfer ratio	I <sub>C</sub> = 10mA V <sub>CE</sub> = 10V f = 100MHz	5		10	
C <sub>obo</sub>	Output Capacitance	V <sub>CB</sub> = 5V I <sub>E</sub> = 0 f = 1.0MHz			4	pF
C <sub>ibo</sub>	Input Capacitance	V <sub>EB</sub> = 0.5V I <sub>C</sub> = 0 f = 1.0MHz			5	
t <sub>s</sub>	Storage Time	I <sub>C</sub> = 10mA I <sub>B1</sub> = I <sub>B2</sub> = 10mA			13	ns
t <sub>on</sub>	Turn-On Time	I <sub>C</sub> = 10mA V <sub>CC</sub> = 3V I <sub>B1</sub> = 3mA			12	
t <sub>off</sub>	Turn-Off Time	I <sub>C</sub> = 10mA V <sub>CC</sub> = 3V I <sub>B1</sub> = 3mA I <sub>B2</sub> = -1.5mA			18	

## MECHANICAL DATA

Dimensions in mm (inches)



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

Pin 1 - Emitter

Pin 2 - Base

Pin 3 - Collector