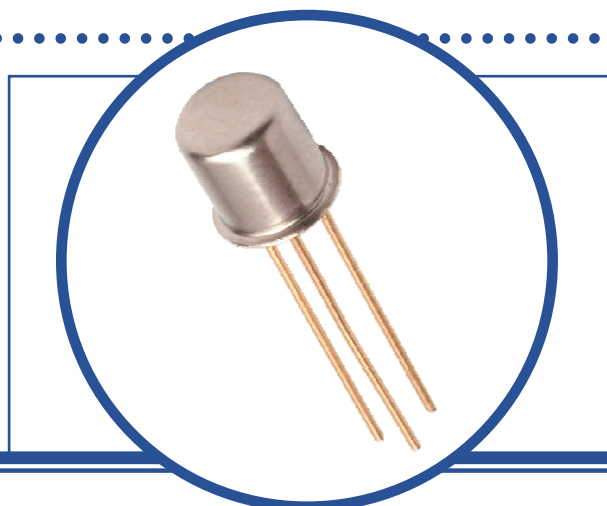


HIGH SPEED SWITCHING PNP SILICON BIPOLAR TRANSISTOR

2N4209

- Hermetic TO18 Metal Package
- Silicon Planar Epitaxial PNP Transistor
- High Speed low Saturation Switching
- High-Reliability Screening Options Available



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

V_{CBO}	Collector – Base Voltage	-15V
V_{CEO}	Collector – Emitter Voltage	-15V
V_{EBO}	Emitter – Base Voltage	-4.5V
I_C	Continuous Collector Current	-50mA
P_D	Total Power Dissipation at $T_A = 25^\circ \text{C}$ Derate Above 25°C	360mW 2.05mW/ $^\circ\text{C}$
T_J	Junction Temperature Range	-65 to +200 $^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65 to +200 $^\circ\text{C}$

THERMAL PROPERTIES

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	250	$^\circ\text{C/W}$

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 an order.

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HIGH SPEED SWITCHING PNP SILICON BIPOLAR TRANSISTOR 2N4209



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	$I_C = -3\text{mA}$	-15			V
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = -100\mu\text{A}$	-15			
I_{CES}	Collector-Emitter Cut-Off Current	$V_{CE} = -10\text{V}$ $T_A = 125^\circ \text{C}$			-10	nA
					-5.0	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = -4.5\text{V}$			-10	μA
		$V_{EB} = -3.5\text{V}$			-10	nA
I_{CBO}	Collector Cut-Off Current	$V_{CB} = -15\text{V}$ $I_E = 0$			-10	μA
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = -1.0\text{mA}$ $V_{CE} = -0.5\text{V}$	35			
		$I_C = -10\text{mA}$ $V_{CE} = -0.3\text{V}$	50		120	
		$I_C = -10\text{mA}$ $V_{CE} = -1.0\text{V}$	55		125	
		$I_C = -10\text{mA}$ $T_A = -55^\circ \text{C}$	25			
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = -1.0\text{mA}$ $I_B = -0.1\text{mA}$			-0.15	V
		$I_C = -10\text{mA}$ $I_B = -1.0\text{mA}$			-0.18	
		$I_C = -50\text{mA}$ $I_B = -5.0\text{mA}$			-0.60	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -1.0\text{mA}$ $I_B = -0.1\text{mA}$			-0.80	V
		$I_C = -10\text{mA}$ $I_B = -1.0\text{mA}$	-0.70		-0.95	
		$I_C = -50\text{mA}$ $I_B = -5.0\text{mA}$			-1.50	

DYNAMIC CHARACTERISTICS

$ h_{fe} $	Small signal forward current transfer ratio	$I_C = -10\text{mA}$ $f = 100\text{MHz}$	$V_{CE} = -10\text{V}$	8.5			
C_{obo}	Output Capacitance $f = 1.0\text{MHz}$	$V_{CB} = -5.0\text{V}$	$I_E = 0$			3.0	pF
C_{ibo}	Input Capacitance $f = 1.0\text{MHz}$	$V_{BE} = 0.5\text{V}$	$I_C = 0$			3.5	
t_{on}	Turn-On Time	$V_{CC} = -3\text{V}$ $I_C = -10\text{mA}$ $I_B = 1.0\text{mA}$				15	ns
t_{off}	Turn-Off Time					20	
t_d	Turn-On Delay Time					10	
t_r	Rise Time					15	

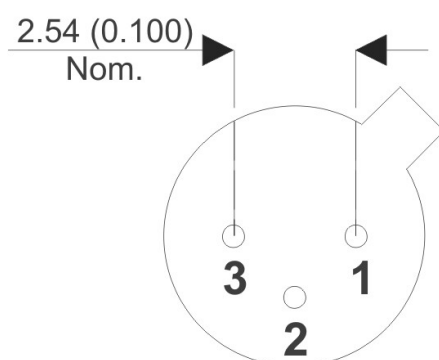
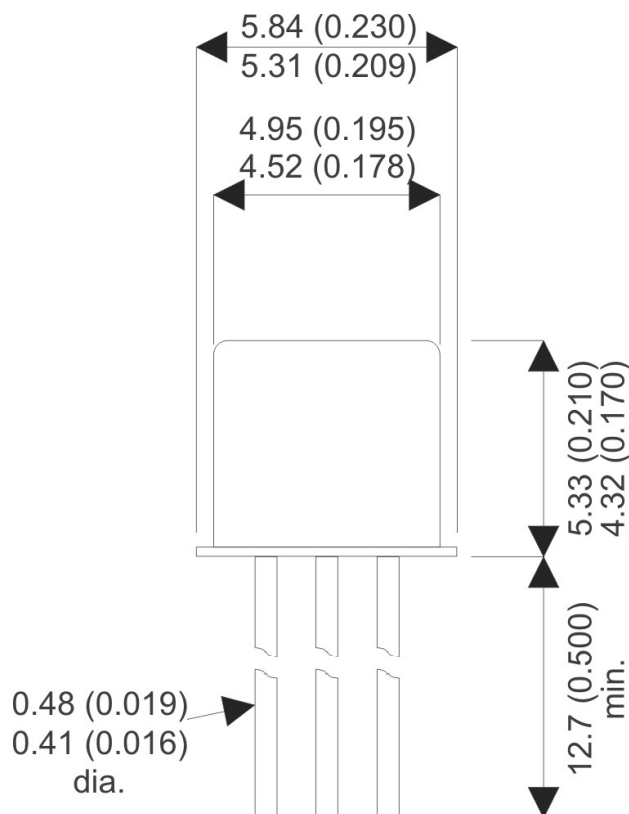
Notes

(1) Pulse Width < 380 μs , Duty Cycle <2%

HIGH SPEED SWITCHING PNP SILICON BIPOLAR TRANSISTOR 2N4209

MECHANICAL DATA

Dimensions in mm (Inches)



TO-18 (TO-206AA)
Underside View

PIN 1 Emitter	PIN 2 Base	PIN 3 (Case) Collector
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