

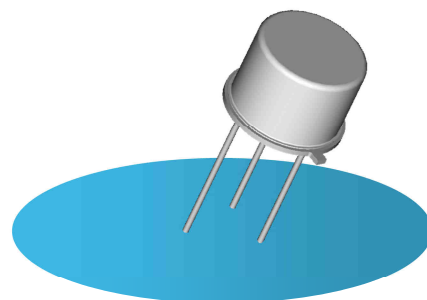
Power and Hybrid

SILICON SWITCHING NPN TRANSISTOR



2N2219A

- High Speed Saturated Switching
- TO-39 Hermetic Package
- Screening Options Available



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

V_{CBO}	Collector – Base Voltage	75V
V_{CEO}	Collector – Emitter Voltage	40V
V_{EBO}	Emitter – Base Voltage	6V
I_C	Continuous Collector Current	0.8A
P_D	Total Power Dissipation at $T_A = 25^\circ\text{C}$ Derate Above 25°C	800mW 5.33mW/ $^\circ\text{C}$
T_J	Junction Temperature Range	-65 to $+175^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65 to $+200^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R\theta_{JA}$	Thermal Resistance, Junction To Ambient	187.5	$^\circ\text{C}/\text{W}$

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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	$I_C = 10\text{mA}$	40			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\mu\text{A}$	75			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}$	6			
I_{CEX}	Collector-Emitter Cut-Off Current	$V_{EB} = 3\text{V}$ $V_{CE} = 60\text{V}$			10	nA
I_{CBO}	Collector-Base Cut-Off Current	$I_E = 0$ $V_{CB} = 60\text{V}$ $T_A = 150^\circ\text{C}$			10	
I_{EBO}	Emitter Cut-Off Current	$I_C = 0$ $V_{EB} = 3\text{V}$			10	nA
$V_{CE(Sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			0.3	V
		$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			1.0	
$V_{BE(Sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			1.2	
		$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			2.0	
$h_{FE}^{(1)}$	DC Current Gain	$I_C = 0.1\text{mA}$ $V_{CE} = 10\text{V}$	35			-
		$I_C = 1.0\text{mA}$ $V_{CE} = 10\text{V}$	50			
		$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$	75			
		$I_C = 150\text{mA}$ $V_{CE} = 10\text{V}$	100		300	
		$I_C = 150\text{mA}$ $V_{CE} = 1.0\text{V}$	50			
		$I_C = 500\text{mA}$ $V_{CE} = 10\text{V}$	40			

DYNAMIC CHARACTERISTICS

C_{obo}	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			8	pF
C_{ibo}	Input Capacitance	$V_{EB} = 0.5\text{V}$ $I_C = 0$ $f = 1.0\text{MHz}$			30	
f_t	Transition Frequency	$I_C = 20\text{mA}$ $V_{CE} = 20\text{V}$ $f = 100\text{MHz}$	300			MHz
h_{fe}	Small Signal Current Gain	$I_C = 1.0\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1.0\text{kHz}$	50		300	-
		$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1.0\text{kHz}$	75		375	
t_d	Delay Time	$V_{CC} = 30\text{V}$ $V_{BE} = 0.5\text{V}$			10	ns
t_r	Rise Time	$I_C = 150\text{mA}$ $I_{B1} = 15\text{mA}$			25	
t_s	Storage Time	$V_{CC} = 30\text{V}$ $V_{BE} = 0.5\text{V}$			225	
t_f	Fall Time	$I_C = 150\text{mA}$ $I_{B1} = I_{B2} = 15\text{mA}$			60	

Note

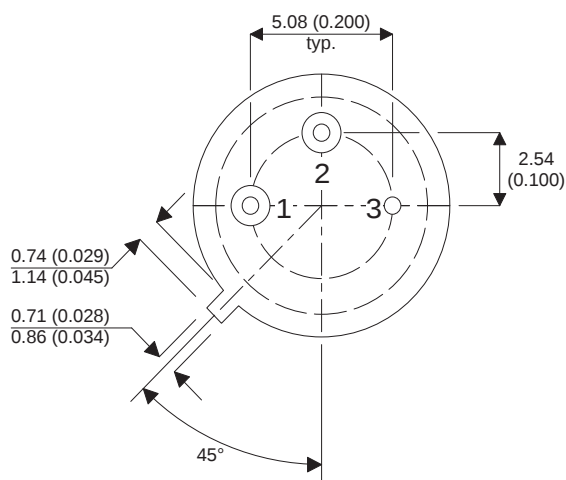
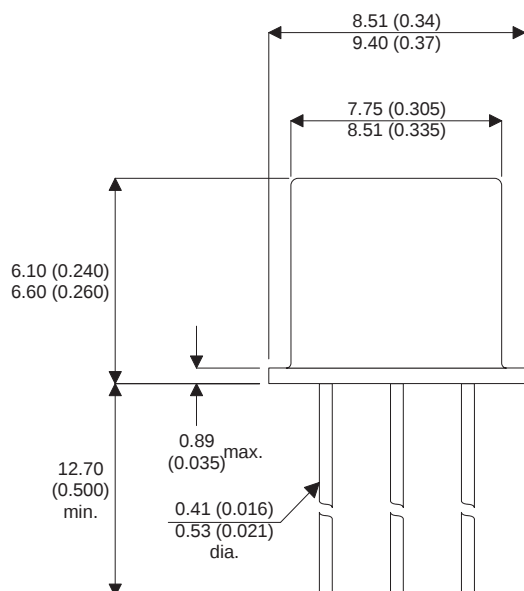
(1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$

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MECHANICAL DATA

Dimensions in mm (inches)



TO-39 (TO-205AD) METAL PACKAGE

Underside View

Pin 1 - Emitter

Pin 2 - Base

Pin 3 - Collector