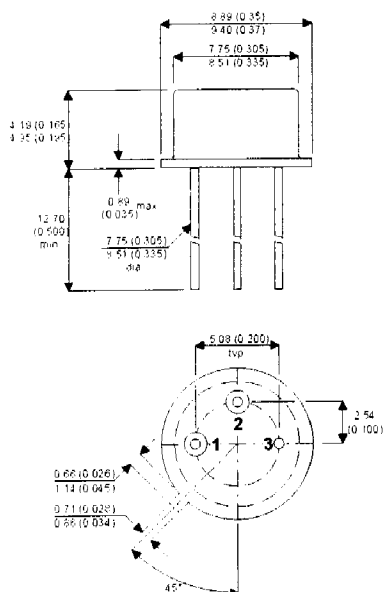


2N2405

MECHANICAL DATA
 Dimensions in mm (inches)

**MEDIUM POWER SILICON
 NPN PLANAR TRANSISTOR**



TO39 PACKAGE

Underside View

Pin 1 = Emitter Pin 2 = Base Pin 3 = Collector

FEATURES

- For Operation at Junction Temperature up to 200°C
- Planar Construction for Low Noise and Low Leakage
- Low Output Capacitance

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

V_{CBO}	Collector - Base Voltage	120V
V_{CEO}	Collector - Emitter Voltage	90V
V_{EBO}	Emitter - Base Voltage	7V
V_{CER}	Collector - Emitter Sustaining Voltage	140V
I_C	Collector Current	1A
P_T	Total Device Dissipation @ T_C up to 25°C	5W
	Free Air Temperatures up to 25°C	1W
T_{stg}, T_j	Storage and Operating Junction Temperature	-65 to 200°C
R_{jc}	Thermal Resistance Junction to Case	35°C / W
R_{ja}	Thermal Resistance Junction to Ambient	175°C / W



ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V _{CEO(SUS)} Collector – Base Breakdown Voltage	I _C = 30mA I _B = 0	90			V
	I _C = 100mA I _B = 0	90			
V _{CER(SUS)} * Emitter – Base Breakdown Voltage	R _{BE} = 10Ω I _C = 100mA	140			V
	R _{BE} = 500Ω I _C = 100mA	120			
V _{(BR)CBO} * Collector – Base Breakdown Voltage	I _C = 0.1mA I _E = 0	120			V
V _{(BR)EBO} * Emitter – Base Breakdown Voltage	I _E = 0.1mA I _C = 0	7			V
I _{CBO} Collector Cut-off Current	V _{CB} = 90V I _E = 0			0.01	μA
	V _{CB} = 90V I _E = 0			10	
	T _C = 150°C				
I _{EBO} Emitter Cut-off Current	V _{BE} = -5V I _C = 0			0.01	μA
V _{CE(sat)} Collector – Emitter Saturation Voltage	I _C = 150mA I _B = 15mA			0.5	V
	I _C = 50mA I _B = 5mA			0.2	
V _{BE(sat)} Base – Emitter Saturation Voltage	I _C = 150mA I _B = 15mA			1.1	V
	I _C = 50mA I _B = 5mA			0.9	
h _{FE} * DC Current Gain	I _C = 10mA V _{CE} = 10V	35			—
	I _C = 150mA V _{CE} = 10V	60		200	
	T _C = -55°C I _C = 10mA V _{CE} = 10V	20			

Pulse Duration = 300μs max, Duty Factor ≤ 2%

DYNAMIC CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
h _{fe} Small Signal Current Gain	V _{CE} = 5 I _C = 5mA f = 1kHz	50	275		—
	V _{CE} = 10 I _C = 50mA f = 20MHz	6			
h _{ib}	V _{CB} = 5V I _C = 1mA f = 1.KHz	24	34		Ω
	V _{CB} = 10V I _C = 5mA f = 1.KHz	4	8		
h _{rb}	V _{CB} = 5V I _C = 1mA f = 1.KHz			3 x 10 ⁻⁴	—
	V _{CB} = 10V I _C = 5mA f = 1.KHz			3 x 10 ⁻⁴	
h _{ob}	V _{CB} = 5V I _C = 1mA f = 1.KHz			0.5	μmho
	V _{CB} = 10V I _C = 5mA f = 1.KHz			0.5	
C _{obo} Output Capacitance	V _{CB} = 10V I _E = 0			15	pF
C _{ib}	V _{BE} = -0.5V I _C = 0			80	