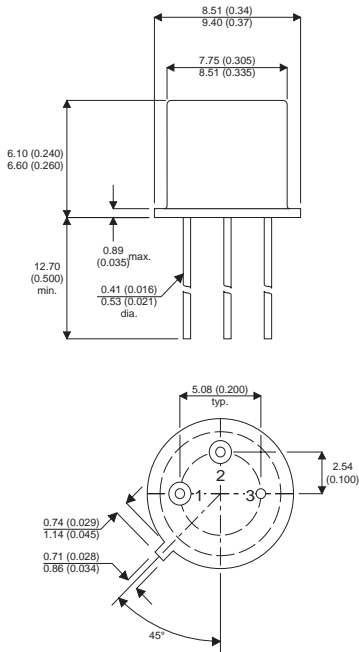


MECHANICAL DATA

Dimensions in mm (inches)



**Underside View
TO39 PACKAGE (TO-205AD)**

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

**SILICON NPN
PLANAR TRANSISTOR**

FEATURES

- $V_{CBO} = 150V$
- $V_{CEO} = 150V$
- $I_C = 1.5A$

DESCRIPTION

General Purpose NPN Transistor in a Hermetic TO39 Package

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

V_{CBO}	Collector – Base Voltage (open emitter)	150V
V_{CEO}	Collector – Emitter Voltage (open base)	150V
I_C	Collector Current (d.c.)	1.5A
I_{CM}	Collector Current (peak value)	2A
P_{TOT}	Total Device Dissipation @ $T_{amb} = <45^{\circ}C$	0.7W
P_{TOT}	Total Device Dissipation @ $T_{Case} = <25^{\circ}C$	5W
P_{TOT}	Total Device Dissipation @ $T_{amb} = <100^{\circ}C$	2.85W
T_{stg} ,	Storage Temperature	-65 to 200°C
T_j	Junction Temperature	200°C
$R_{\theta j-c}$	Thermal Resistance Junction to Case	35°C / W
$R_{\theta j-a}$	Thermal Resistance Junction to Ambient	220°C / W

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(\text{BR})\text{CEO}}$ Collector – Emitter Breakdown Voltage	$I_{\text{C}} = 100\text{mA}$ $I_{\text{B}} = 0$	150			V
$V_{(\text{BR})\text{CBO}^*}$ Collector – Base Breakdown Voltage	$I_{\text{C}} = 100\mu\text{A}$ $I_{\text{E}} = 0$	150			V
$V_{(\text{BR})\text{EBO}^*}$ Emitter – Base Breakdown Voltage	$I_{\text{E}} = 100\mu\text{A}$ $I_{\text{C}} = 0$	6			V
I_{CBO} Collector Cut-off Current	$V_{\text{CB}} = 75\text{V}$ $I_{\text{E}} = 0$			0.1	μA
	$V_{\text{CB}} = 75\text{V}$ $I_{\text{E}} = 0$ $T_{\text{amb}} = 150^{\circ}\text{C}$			50	
$V_{\text{CE}(\text{sat})}^*$ Collector – Emitter Saturation Voltage	$I_{\text{C}} = 0.1\text{A}$ $I_{\text{B}} = 0.01\text{A}$			0.15	V
	$I_{\text{C}} = 0.5\text{A}$ $I_{\text{B}} = 0.05\text{A}$			0.5	
	$I_{\text{C}} = 1\text{A}$ $I_{\text{B}} = 0.15\text{A}$			1	
$V_{\text{BE}(\text{sat})}^*$ Base – Emitter Saturation Voltage	$I_{\text{C}} = 0.1\text{A}$ $I_{\text{B}} = 0.01\text{A}$			0.9	V
	$I_{\text{C}} = 0.5\text{A}$ $I_{\text{B}} = 0.05\text{A}$			1.1	
	$I_{\text{C}} = 1\text{A}$ $I_{\text{B}} = 0.15\text{A}$			1.2	
h_{FE}^* DC Current Gain	$I_{\text{C}} = 0.1\text{A}$ $V_{\text{CE}} = 5\text{V}$	40			—
	$I_{\text{C}} = 0.5\text{A}$ $V_{\text{CE}} = 5\text{V}$	30			
	$I_{\text{C}} = 1\text{A}$ $V_{\text{CE}} = 5\text{V}$	15			

* Pulse test $t_{\text{p}} = 300\mu\text{s}$, $\delta \leq 1.5\%$

DYNAMIC CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
f_{T} Transition Frequency	$I_{\text{C}} = 100\text{mA}$ $V_{\text{CE}} = 20\text{V}$ $f = 1.0\text{MHz}$		80		MHz
C_{cbo} Collector-Base Capacitance	$V_{\text{CB}} = 10\text{V}$ $I_{\text{E}} = 0$ $f = 1.0\text{MHz}$			35	pF
t_{on} Turn-On Time	$I_{\text{C}} = 0.5\text{A}$ $V_{\text{CC}} = 20\text{V}$ $I_{\text{B1}} = - I_{\text{B2}} = 0.05\text{A}$		0.3		μs
t_{off} Turn-Off Time			1		

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