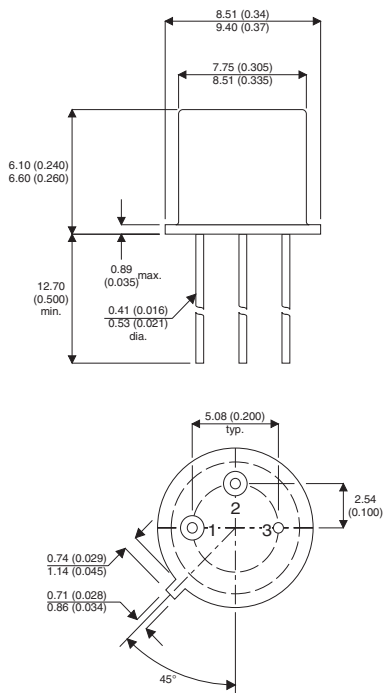


MECHANICAL DATA

Dimensions in mm (inches)



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

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

**SILICON NPN
PLANAR TRANSISTOR**

FEATURES

- $V_{CBO} = 120V$
- $V_{CEO} = 120V$
- $I_C = 1.0A$

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)	120V
V_{CEO}	Collector – Emitter Voltage (open base)	120V
I_C	Collector Current (d.c.)	1.0A
I_{CM}	Collector Current (peak value)	2A
P_{TOT}	Total Device Dissipation @ $T_{amb} \leq 45^{\circ}C$	0.7W
P_{TOT}	Total Device Dissipation @ $T_C \leq 25^{\circ}C$	5W
P_{TOT}	Total Device Dissipation @ $T_C \leq 100^{\circ}C$	2.85W
T_{stg}	Storage Temperature	-65 to 200°C
T_j	Junction Temperature	200°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	35°C / W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	220°C / W

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CEO}^*$ Collector – Emitter Breakdown Voltage	$I_C = 10mA$ $I_B = 0$	120			V
$V_{(BR)CBO}^*$ Collector – Base Breakdown Voltage	$I_C = 100\mu A$ $I_E = 0$	120			V
$V_{(BR)EBO}^*$ Emitter – Base Breakdown Voltage	$I_E = 100\mu A$ $I_C = 0$	6			V
I_{CBO} Collector Cut-off Current	$V_{CB} = 60V$ $I_E = 0$			0.1	μA
	$V_{CB} = 60V$ $I_E = 0$ $T_{amb} = 150^{\circ}C$			50	
$V_{CE(sat)}^*$ Collector – Emitter Saturation Voltage	$I_C = 0.1A$ $I_B = 0.01A$			0.15	V
	$I_C = 0.5A$ $I_B = 0.05A$			0.5	
	$I_C = 1.0A$ $I_B = 0.15A$			1.0	
$V_{BE(sat)}^*$ Base – Emitter Saturation Voltage	$I_C = 0.1A$ $I_B = 0.01A$			0.9	V
	$I_C = 0.5A$ $I_B = 0.05A$			1.1	
	$I_C = 1.0A$ $I_B = 0.15A$			1.2	
h_{FE}^* DC Current Gain	$I_C = 0.1A$ $V_{CE} = 5V$	40			—
	$I_C = 0.5A$ $V_{CE} = 5V$	30			
	$I_C = 1.0A$ $V_{CE} = 5V$	15			

t* Pulse test $t_p = 300\mu s$, $\delta \leq 1.5\%$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
f_T Transition Frequency	$I_C = 100mA$ $V_{CE} = 20V$ $f = 35MHz$	50			MHz
C_{obo} Output Capacitance	$V_{CB} = 10V$ $I_E = 0$ $f = 1.0MHz$			20	pF
C_{ibo} Input Capacitance	$V_{EB} = 0$ $I_E = 0$ $f = 1.0MHz$			300	pF
t_{on} Turn-On Time	$I_C = 0.5A$ $V_{CC} = 20V$ $I_{B1} = - I_{B2} = 0.05A$		0.3		μs
t_{off} Turn-Off Time			1.0		

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