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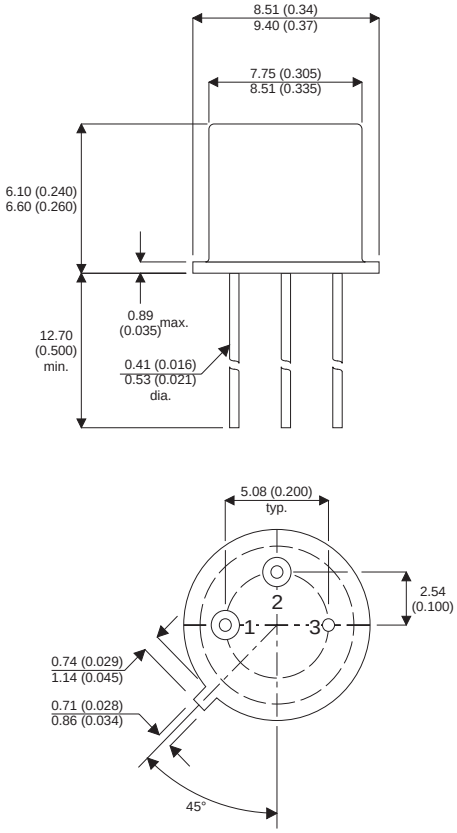
MECHANICAL DATA

Dimensions in mm (inches)



TO–39 (TO-205AD) PACKAGE

Underside View

PIN 1 – Emitter PIN 2 – Base PIN 3 – Collector

NPN EPITAXIAL PLANAR BIPOLAR TRANSISTOR

FEATURES

- **SILICON PLANAR EPITAXIAL NPN TRANSISTOR**
- **CECC SCREENING OPTIONS**
- **JAN LEVEL SCREENING OPTIONS**

APPLICATIONS:

- **General Purpose Amplifier**
- **High Voltage**

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{CEO}	Collector – Emitter Voltage (I_B = 0)	300V
V_{CBO}	Collector – Base Voltage (I_E = 0)	300V
V_{EBO}	Emitter – Base Voltage (I_C = 0)	7V
I_C	Collector Current	150mA
P_D	Total Device Dissipation @ T_A = 25°C	1.0W
	Derate above 25°C	6.67mW / °C
P_D	Total Device Dissipation @ T_C = 25°C	5.0W
	Derate above 25°C	33.3mW / °C
T_J , T_{STG}	Operating and Storage Junction Temperature Range	–65 to +200°C

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)CEO}$*	Collector – Emitter Breakdown Voltage	I_C = 30mA	I_B = 0	300			V
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	I_C = 100µA	I_E = 0	300			
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	I_E = 100µA	I_C = 0	7.0			
I_{CBO}	Collector Cut-off Current	V_{CB} = 100V				0.05	µA
		I_E = 0	T_A = +125°C			20	
I_{EBO}	Emitter Cut-off Current	V_{BE} = 5V	I_C = 0			10	nA
$V_{CE(sat)}$*	Collector – Emitter Saturation Voltage	I_C = 30mA	I_B = 3mA			1.0	V
$V_{BE(sat)}$*	Base – Emitter Saturation Voltage	I_C = 30mA	I_B = 3mA			0.85	
$V_{BE(on)}$*	Base – Emitter On Voltage	I_C = 30mA	V_{CE} = 25V			0.82	
h_{FE}*	DC Current Gain	I_C = 5mA	V_{CE} = 25V	10			—
		I_C = 30mA	V_{CE} = 25V	35		150	
			T_A = -55°C	10			
		I_C = 100mA	V_{CE} = 25V	35			

SMALL SIGNAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

Parameter		Test Conditions			Min.	Typ.	Max.	Unit
f_t	Transistion Frequency [1]	V_{CE} = 25V	I_C = 10mA	f = 20MHz	30		160	MHz
C_{ob}	Output Capacitance	V_{CB} = 10V	I_E = 0	f = 1MHz			10	pF
C_{ib}	Input Capacitance	V_{BE} = 0.5V	I_C = 0	f = 1MHz			75	

THERMAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

Parameter		Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance Junction To Case			30	°C / W
$R_{\theta JA}$	Thermal Resistance Junction To Ambient			150	

* Pulse Test: $t_p \leq 300ms$, $d \leq 2\%$.

1) f_t is defined as the frequency at which $|h_{fe}|$ extrapolates to untity.

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