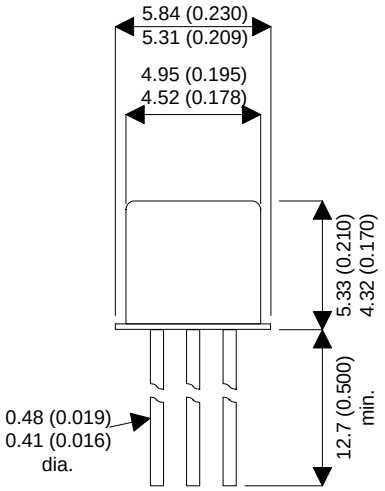
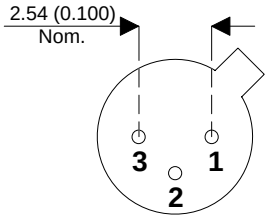
2N2221AX

MECHANICAL DATA
Dimensions in mm (inches)





TO-18 (TO-206AA) CASE

PIN CONFIGURATION

Pin 1 – Emitter Pin 2 – Base Pin 3 – Collector

HIGH SPEED SWITCHING BIPOLAR NPN TRANSISTOR IN A HERMETICALLY SEALED TO-18 PACKAGE

FEATURES

- **SILICON NPN TRANSISTOR**
- **METAL CASE (JEDEC TO-18)**
- **HIGH SPEED SWITCHING**

APPLICATIONS:

SUITABLE FOR HIGH SPEED SWITCHING APPLICATIONS

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

V_{CBO}	Collector-Base Voltage (IE = 0V)	60V
V_{CEO}	Collector-Emitter Voltage (IB = 0V)	40V
V_{EBO}	Emitter Base Voltage (IC = 0V)	5V
I_C	Collector Current	0.8A
P_{tot}	Total Dissipation @ Tamb = 25°C	0.5W
P_{tot}	Total Dissipation @ Tcase = 25°C	1.8W
T_{stg}	Storage Temperature	-65 to 200°C
T_j	Max Operating Junction Temperature	175°C

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Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current	V_{CB}=50V	I_E=0V			10	nA
			T_{amb}=150°C			10	µA
I_{EBO}	Emitter Cutoff Current	V_{EB}=3V	I_C=0V			10	nA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C=10µA	I_E=0A	60			V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage	I_C=10mA	I_B=0V	30			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E=10µA	I_C=0V	5			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C=150mA	I_B=15mA			0.4	V
		I_C=500mA	I_B=50mA			1.6	V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C=150mA	I_B=15mA			1.3	V
		I_C=500mA	I_B=50mA			2.6	V
h_{FE}*	DC Current Gain	I_C=0.1mA	V_{CE}=10V	20			
		I_C=1mA	V_{CE}=10V	25			
		I_C=10mA	V_{CE}=10V	35			
		I_C=150mA	V_{CE}=10V	40		200	
		I_C=500mA	V_{CE}=10V	20			
		I_C=150mA	V_{CE}=1V	20			
f_T	Transition Frequency (f=100MHz)	I_C=20mA	V_{CE}=20V	250			MHz
C_{CBO}	Collector-Base Capacitance (f=100kHz)	I_E=0A	V_{CB}=10V			8	pF
R_{thJC}	Thermal Resistance Junction-Case					83.3	°C/W
R_{thJA}	Thermal Resistance Junction-Ambient					300	

* Pulsed: Pulse duration = 300µs, duty cycle = 1%

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