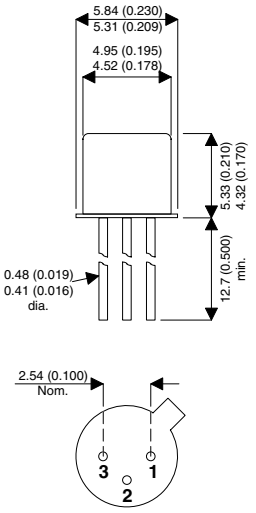
# 2N2484

# NPN SILICON AMPLIFIER TRANSISTOR

**MECHANICAL DATA**
Dimensions in mm (inches)




**TO18**

## FEATURES

- **SILICON PLANAR EPITAXIAL NPN TRANSISTOR**

PIN 1 = Emitter PIN 2 = Base PIN 3 = Collector

## ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C unless otherwise stated)

| | | | |
|---|---|---|---|
| $V_{CBO}$ | Collector – Base Voltage | | 60V |
| $V_{CEO}$ | Collector – Emitter Voltage | | 60V |
| $V_{EBO}$ | Emitter – Base Voltage | | 6V |
| $I_C$ | Collector Current Continuous | | 50mA |
| $P_D$ | Total Device Dissipation | @ $T_A$ =25°C | 360mW |
| | | Derate above 25°C | 2.06mW / °C |
| $P_D$ | Total Device Dissipation | @ $T_C$ =25°C | 1.2W |
| | | Derate above 25°C | 6.85mW / °C |
| $T_{STG}$ , $T_J$ | Operating and Storage Temperature Range | | –65 to +200°C |



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

Document. 2359
Issue 1

SEME LAB

# 2N2484

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

| Parameter | | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | | |
| $V_{(BR)CBO*}$ | Collector – Base Breakdown Voltage | $I_C$ = 10μA | $I_B$ = 0 | 60 | | | V |
| $V_{(BR)CEO}$ | Collector – Emitter Breakdown Voltage | $I_C$ = 10mA | $I_E$ = 0 | 60 | | | |
| $V_{(BR)EBO}$ | Emitter – Base Breakdown Voltage | $I_E$ = 10μA | $I_C$ = 0 | 6 | | | |
| $I_{CBO}$ | Collector Cut-off Current | $V_{CB}$ = 45V | $I_E$ = 0 | | | 10 | nA |
| | | | TA = 150°C | | | 10 | μA |
| $I_{EBO}$ | Emitter Cut-off Current | $V_{BE}$ = 5V | $I_C$ = 0 | | | 10 | nA |
| **ON CHARACTERISTICS** | | | | | | | |
| $V_{CE(sat)}$ | Collector – Emitter Saturation Voltage | $I_C$ = 1mA | $I_B$ = 0.1mA | | 0.25 | 0.35 | V |
| $V_{BE(on)}$ | Base – Emitter On Voltage | $I_C$ = 0.1mA | $V_{CE}$ = 5V | 0.5 | 0.65 | 0.7 | V |
| $h_{FE}$ | DC Current Gain | $I_C$ = 1μA | $V_{CE}$ = 5V | 30 | 190 | | — |
| | | $I_C$ = 10μA | $V_{CE}$ = 5V | 100 | 250 | 500 | |
| | | | TA = 55°C | 20 | 40 | | |
| | | $I_C$ = 100μA | $V_{CE}$ = 5V | 175 | 275 | | |
| | | $I_C$ = 500μA | $V_{CE}$ = 5V | 200 | 300 | | |
| | | $I_C$ = 1mA | $V_{CE}$ = 5V | 250 | 350 | | |
| | | $I_C$ = 10mA | $V_{CE}$ = 5V | | 400 | 800 | |
| **SMALL SIGNAL CHARACTERISTICS** | | | | | | | |
| $f_T$ | Current Gain Bandwidth Product | $I_C$ = 0.05mA f = 5MHz | $V_{CE}$ = 5V | 15 | 50 | | MHz |
| | | $I_C$ = 0.05mA f = 30MHz | $V_{CE}$ = 5V | 60 | 100 | | |
| $C_{obo}$ | Output Capacitance | $V_{CB}$ = 5V | $I_E$ = 0 | | 3 | 6 | pF |
| $C_{ibo}$ | Input Capacitance | f = 140KHz | $I_C$ = 0.5mA | | 4 | 6 | |
| $h_{ie}$ | Input Impedance | $I_C$ = 1.0mA f = 1.0KHz | $V_{CE}$ = 5V | 3.5 | | 24 | kΩ |
| $h_{re}$ | Voltage Feedback Ratio | | | | | 800 | x $10^{-6}$ |
| $h_{fe}$ | Small Signal Current Gain | | | 150 | | 900 | — |
| $h_{oe}$ | Small Signal Current Gain | | | | | 40 | μmhos |



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

Document. 2359
Issue 1

SEME LAB

# 2N2484

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

| Parameter | | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| **SMALL SIGNAL CHARACTERISTICS** | | | | | | |
| $N_F$ | Noise Figure | $I_C$ = 10μA $V_{CE}$ = 5V<br>RS = 10KΩ f = 100Hz<br>BW = 20Hz | | 8.0 | 10 | dB |
| | | $I_C$ = 10μA $V_{CE}$ = 5V<br>RS = 10KΩ f = 1.0kHz<br>BW = 200Hz | | | 3.0 | |
| | | $I_C$ = 10μA $V_{CE}$ = 5V<br>RS = 10KΩ f = 10kHz<br>BW = 2.0kHz | | | 2.0 | |
| | | $I_C$ = 10μA $V_{CE}$ = 5V<br>RS = 10KΩ<br>f = 10Hz to 15.7kHz<br>BW = 15.7kHz | | | 3.0 | |

## THERMAL CHARACTERISTICS

| | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | | | | 146 | °C/W |
| $R_{\theta JA(1)}$ | Thermal Resistance, Junction to Case | | | | 485 | |
| $T_L$ | Lead Temperature 1/16 from Case for 10 seconds | | | | 300 | °C |

* Pulse Test: $t_p \leq 300\mu s$, $\delta \leq 2\%$.



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

Document. 2359
Issue 1