# 2N2484

Silicon NPN Transistor

*Data Sheet*

## Description

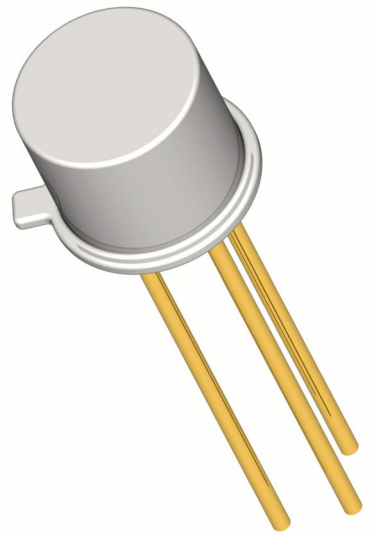
Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N2484J)
- JANTX level (2N2484JX)
- JANTXV level (2N2484JV)
- JANS level (2N2484JS)
- QCI to the applicable level
- 100% die visual inspection per MIL-STD-750 method 2072 for JANTXV and JANS
- Radiation testing (total dose) upon request

Please contact Semicoa for special configurations
www.***SEMICOA***.com or (714) 979-1900

## Applications

- General purpose
- Low power
- NPN silicon transistor



## Features

- Hermetically sealed TO-18 metal can
- Also available in chip configuration
- Chip geometry 0307
- Reference document: MIL-PRF-19500/376

## Benefits

- Qualification Levels: JAN, JANTX, JANTXV and JANS
- Radiation testing available

## Absolute Maximum Ratings

$T_C$ = 25°C unless otherwise specified

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-Emitter Voltage | $V_{CEO}$ | 60 | Volts |
| Collector-Base Voltage | $V_{CBO}$ | 60 | Volts |
| Emitter-Base Voltage | $V_{EBO}$ | 6 | Volts |
| Collector Current, Continuous | $I_C$ | 50 | mA |
| Power Dissipation, $T_A$ = 25°C<br>Derate linearly above 25°C | $P_T$ | 360<br>2.06 | mW<br>mW/°C |
| Thermal Resistance | $R_{\theta JA}$ | 325 | °C/W |
| Operating Junction Temperature | $T_J$ | -65 to +200 | °C |
| Storage Temperature | $T_{STG}$ | -65 to +200 | °C |

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## ELECTRICAL CHARACTERISTICS

characteristics specified at $T_A$ = 25°C

### Off Characteristics

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$ = 10 mA | 60 | | | Volts |
| Collector-Base Cutoff Current | $I_{CBO1}$<br>$I_{CBO2}$<br>$I_{CBO3}$ | $V_{CB}$ = 60 Volts<br>$V_{CB}$ = 45 Volts<br>$V_{CB}$ = 45 Volts, $T_A$ = 150°C | | | 10<br>5<br>10 | µA<br>nA<br>µA |
| Collector-Emitter Cutoff Current | $I_{CEO}$ | $V_{CE}$ = 5 Volts | | | 2 | nA |
| Collector-Emitter Cutoff Current | $I_{CES}$ | $V_{CE}$ = 45 Volts | | | 5 | nA |
| Emitter-Base Cutoff Current | $I_{EBO1}$<br>$I_{EBO2}$ | $V_{EB}$ = 6 Volts<br>$V_{EB}$ = 5 Volts | | | 10<br>2 | µA<br>nA |

### On Characteristics

Pulse Test: Pulse Width = 300 µs, Duty Cycle ≤ 2.0%

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| DC Current Gain | $h_{FE1}$<br>$h_{FE2}$<br>$h_{FE3}$<br>$h_{FE4}$<br>$h_{FE5}$<br>$h_{FE6}$<br>$h_{FE7}$ | $I_C$ = 1 µA, $V_{CE}$ = 5 Volts<br>$I_C$ = 10 µA, $V_{CE}$ = 5 Volts<br>$I_C$ = 100 µA, $V_{CE}$ = 5 Volts<br>$I_C$ = 500 µA, $V_{CE}$ = 5 Volts<br>$I_C$ = 1 mA, $V_{CE}$ = 5 Volts<br>$I_C$ = 10 mA, $V_{CE}$ = 5 Volts<br>$I_C$ = 10 µA, $V_{CE}$ = 5 Volts<br>$T_A$ = -55°C | 45<br>200<br>225<br>250<br>250<br>225<br>35 | | <br>500<br>675<br>800<br>800<br>800 | |
| Base-Emitter Voltage | $V_{BE}$ | $V_{CE}$ = 5 Volts, 100 µA | 0.5 | | 0.7 | Volts |
| Collector-Emitter Saturation Voltage | $V_{CEsat1}$ | $I_C$ = 1 mA, $I_B$ = 100 µA | | | 0.3 | Volts |

### Dynamic Characteristics

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio | $\|h_{FE}\|_1$<br>$\|h_{FE}\|_2$ | $V_{CE}$ = 5 Volts, $I_C$ = 50 µA, f = 5 MHz<br>$V_{CE}$ = 5 Volts, $I_C$ = 500 µA, f = 30 MHz | 3<br>2 | | <br>7 | |
| Small Signal Short Circuit Forward Current Transfer Ratio | $h_{FE}$ | $V_{CE}$ = 5 Volts, $I_C$ = 1 mA, f = 1 kHz | 250 | | 900 | |
| Open Circuit Output Capacitance | $C_{OBO}$ | $V_{CB}$ = 5 Volts, $I_E$ = 0 mA, 100 kHZ < f < 1 MHz | | | 5 | pF |
| Open Circuit Input Capacitance | $C_{IBO}$ | $V_{EB}$ = 0.5 Volts, $I_C$ = 0 mA, 100 kHZ < f < 1 MHz | | | 6 | pF |
| Noise Figure | $NF_1$<br>$NF_2$<br>$NF_3$ | $V_{CE}$ = 5 Volts, $I_C$ = 10 µA, $R_g$ = 10 kΩ<br>f = 100 Hz<br>f = 1 kHz<br>f = 10 kHz | | | <br>7.5<br>3<br>2 | dB |
| Noise Figure (wideband) | $NF_4$ | $V_{CE}$ = 5 Volts, $I_C$ = 10 µA, $R_g$ = 10 kΩ, 10Hz < Noise BW <15.7kHz | | | 3 | dB |
| Short Circuit Input Impedance<br>Open Circuit Output Admittance<br>Open Circuit Rev Volt Transfer Ratio | $h_{ie}$<br>$h_{oe}$<br>$h_{re}$ | $V_{CB}$ = 5V, $I_C$ = 1mA, f = 1kHz | 3.5 | | 24<br>40<br>$8x10^{-4}$ | kΩ<br>µmhos |