

## Description

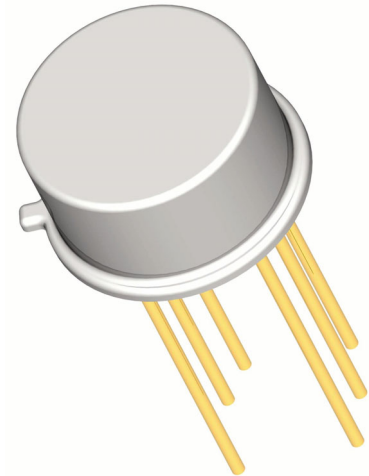
Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N3811LJ)
- JANTX level (2N3811LJX)
- JANTXV level (2N3811LJV)
- JANS level (2N3811LJS)
- 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](http://www.SEMICOA.com) or (714) 979-1900

## Applications

- General purpose
- Matched Dual transistors
- PNP silicon transistor



## Features

- Hermetically sealed TO-77 metal can
- Also available in chip configuration
- Chip geometry 0220
- Reference document: MIL-PRF-19500/336

## Benefits

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

| Absolute Maximum Ratings                 |                  | T <sub>c</sub> = 25°C unless otherwise specified |       |
|--|------------------|--|-------|
| Parameter                                | Symbol           | Rating   | Unit  |
| Collector-Emitter Voltage                | V <sub>CEO</sub> | 60   | Volts |
| Collector-Base Voltage                   | V <sub>CBO</sub> | 60   | Volts |
| Emitter-Base Voltage                     | V <sub>EBO</sub> | 5  | Volts |
| Collector Current, Continuous            | I <sub>C</sub>   | 50   | mA    |
| Power Dissipation, T <sub>A</sub> = 25°C | P <sub>T</sub>   | 300 one section                                  | mW    |
| Derate linearly above 25°C               |                  | 600 both sections                                |       |
| Operating Junction Temperature           | T <sub>J</sub>   | -65 to +200                                      | °C    |
| Storage Temperature                      | T <sub>STG</sub> | -65 to +200                                      | °C    |

## ELECTRICAL CHARACTERISTICS

characteristics specified at  $T_A = 25^\circ\text{C}$

### Off Characteristics

| Parameter                           | Symbol        | Test Conditions                                      | Min | Typ | Max | Units         |
|-------------------------------------|---------------|--|-----|-----|-----|---------------|
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 100 \mu\text{A}$                              | 60  |     |     | Volts         |
| Collector-Base Cutoff Current       | $I_{CBO1}$    | $V_{CB} = 60 \text{ Volts}$                          |     |     | 10  | $\mu\text{A}$ |
|                                     | $I_{CBO2}$    | $V_{CB} = 50 \text{ Volts}$                          |     |     | 10  | nA            |
|                                     | $I_{CBO3}$    | $V_{CB} = 50 \text{ Volts}, T_A = 150^\circ\text{C}$ |     |     | 10  | $\mu\text{A}$ |
| Emitter-Base Cutoff Current         | $I_{EBO1}$    | $V_{EB} = 5 \text{ Volts}$                           |     |     | 10  | $\mu\text{A}$ |
|                                     | $I_{EBO2}$    | $V_{EB} = 4 \text{ Volts}$                           |     |     | 10  | nA            |

### On Characteristics

Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

| Parameter                            | Symbol                | Test Conditions  | Min | Typ | Max  | Units  |
|--------------------------------------|-----------------------|--|-----|-----|------|--------|
| DC Current Gain                      | $h_{FE1}$             | $I_C = 1 \mu\text{A}, V_{CE} = 5 \text{ Volts}$                                | 75  |     |      |        |
|                                      | $h_{FE2}$             | $I_C = 10 \mu\text{A}, V_{CE} = 5 \text{ Volts}$                               | 225 |     |      |        |
|                                      | $h_{FE3}$             | $I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ Volts}$                              | 300 |     | 900  |        |
|                                      | $h_{FE4}$             | $I_C = 1 \text{ mA}, V_{CE} = 5 \text{ Volts}$                                 | 300 |     | 900  |        |
|                                      | $h_{FE5}$             | $I_C = 10 \text{ mA}, V_{CE} = 5 \text{ Volts}$                                | 250 |     |      |        |
|                                      | $h_{FE6}$             | $I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ Volts}$                              | 100 |     |      |        |
|                                      | $h_{FE3-1}/h_{FE3-2}$ | $T_A = -55^\circ\text{C}$<br>$I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ Volts}$ | 0.9 |     | 1.0  |        |
| Base-Emitter Voltage                 | $V_{BE}$              | $V_{CE} = 5 \text{ Volts}, I_C = 100 \mu\text{A}$                              |     |     | 0.7  | Volts  |
|                                      | $ V_{BE1}-V_{BE2} _1$ | $V_{CE} = 5 \text{ Volts}, I_C = 10 \mu\text{A}$                               |     |     | 5    | mVolts |
|                                      | $ V_{BE1}-V_{BE2} _2$ | $V_{CE} = 5 \text{ Volts}, I_C = 100 \mu\text{A}$                              |     |     | 3    | mVolts |
|                                      | $ V_{BE1}-V_{BE2} _3$ | $V_{CE} = 5 \text{ Volts}, I_C = 10 \text{ mA}$                                |     |     | 5    | mVolts |
| Base-Emitter Saturation Voltage      | $V_{BEsat1}$          | $I_C = 100 \mu\text{A}, I_B = 10 \mu\text{A}$                                  |     |     | 0.7  | Volts  |
|                                      | $V_{BEsat2}$          | $I_C = 1 \text{ mA}, I_B = 100 \mu\text{A}$                                    |     |     | 0.8  | Volts  |
| Collector-Emitter Saturation Voltage | $V_{CEsat1}$          | $I_C = 100 \mu\text{A}, I_B = 10 \mu\text{A}$                                  |     |     | 0.20 | Volts  |
|                                      | $V_{CEsat2}$          | $I_C = 1 \text{ mA}, I_B = 100 \mu\text{A}$                                    |     |     | 0.25 | Volts  |

| Dynamic Characteristics  |             |   |     |     |                     |             |
|--|-------------|---|-----|-----|---------------------|-------------|
| Parameter  | Symbol      | Test Conditions   | Min | Typ | Max                 | Units       |
| Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio | $ h_{FE1} $ | $V_{CE} = 5 \text{ Volts}, I_C = 500 \mu\text{A}, f = 30 \text{ MHz}$   | 1   |     |                     |             |
|  | $ h_{FE2} $ | $V_{CE} = 5 \text{ Volts}, I_C = 1 \text{ mA}, f = 100 \text{ MHz}$   | 1   |     | 5                   |             |
| Small Signal Short Circuit Forward Current Transfer Ratio                | $h_{FE}$    | $V_{CE} = 10 \text{ Volts}, I_C = 1 \text{ mA}, f = 1 \text{ kHz}$  | 300 |     | 900                 |             |
| Open Circuit Output Capacitance  | $C_{OBO}$   | $V_{CB} = 5 \text{ Volts}, I_E = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$                               |     |     | 5                   | pF          |
| Open Circuit Input Capacitance   | $C_{IBO}$   | $V_{EB} = 0.5 \text{ Volts}, I_C = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$                             |     |     | 8                   | pF          |
| Noise Figure   | $NF_1$      | $V_{CE} = 10 \text{ Volts}, I_C = 100 \mu\text{A}, R_g = 3 \text{ k}\Omega, f = 100 \text{ Hz}$                   |     |     | 4                   | dB          |
|  | $NF_2$      | $f = 1 \text{ kHz}$   |     |     | 1.5                 |             |
|  | $NF_3$      | $f = 10 \text{ kHz}$  |     |     | 2                   |             |
| Noise Figure (wideband)  | NF          | $V_{CE} = 10 \text{ Volts}, I_C = 100 \mu\text{A}, R_g = 3 \text{ k}\Omega, 10 \text{ Hz} < f < 15.7 \text{ kHz}$ |     |     | 2.5                 | dB          |
| Short Circuit Input Impedance  | $h_{ie}$    | $V_{CB} = 10\text{V}, I_C = 1\text{mA}, f = 1\text{kHz}$  | 3   |     | 40                  | k $\Omega$  |
| Open Circuit Output Admittance   | $h_{oe}$    | $V_{CB} = 10\text{V}, I_C = 1\text{mA}, f = 1\text{kHz}$  | 5   |     | 60                  | $\mu\Omega$ |
| Open Circuit reverse Voltage Transfer Ratio                              | $h_{re}$    | $V_{CB} = 10\text{V}, I_C = 100\mu\text{A}, f = 1\text{kHz}$  |     |     | $25 \times 10^{-4}$ |             |