

## Description

Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N3485AJ)
- JANTX level (2N3485AJX)
- JANTXV level (2N3485AJV)
- QCI to the applicable level
- 100% die visual inspection per MIL-STD-750 method 2072 for JANTXV
- 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 switching
- Low power
- PNP silicon transistor



## Features

- Hermetically sealed TO-46 metal can
- Also available in chip configuration
- Chip geometry 0600
- Reference document: MIL-PRF-19500/392

## Benefits

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

| Absolute Maximum Ratings  |                                    | $T_C = 25^\circ\text{C}$ unless otherwise specified |                            |
|---|------------------------------------|---|----------------------------|
| Parameter   | Symbol                             | Rating  | Unit                       |
| Collector-Emitter Voltage   | $V_{CEO}$                          | 60  | Volts                      |
| Collector-Base Voltage  | $V_{CBO}$                          | 60  | Volts                      |
| Emitter-Base Voltage  | $V_{EBO}$                          | 5   | Volts                      |
| Collector Current, Continuous   | $I_C$                              | 600   | mA                         |
| Power Dissipation, $T_A = 25^\circ\text{C}$<br>Derate linearly above $37.5^\circ\text{C}$ | $P_T$                              | 0.5<br>3.08   | mW<br>mW/ $^\circ\text{C}$ |
| Power Dissipation, $T_C = 25^\circ\text{C}$<br>Derate linearly above $25^\circ\text{C}$   | $P_T$                              | 2.0<br>11.43  | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance  | $R_{\theta JA}$<br>$R_{\theta JC}$ | 0.325<br>87   | $^\circ\text{C}/\text{W}$  |
| Operating Junction Temperature<br>Storage Temperature                                     | $T_J$<br>$T_{STG}$                 | -65 to +200   | $^\circ\text{C}$           |

## 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 | $V_{(BR)CEO}$ | $I_C = 10\text{ mA}$                                | 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  | $\mu\text{A}$ |
|                                     | $I_{EBO2}$    | $V_{EB} = 3.5\text{ Volts}$                         |     |     | 50  | 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                      | $h_{FE1}$    | $I_C = 0.1\text{ mA}, V_{CE} = 10\text{ Volts}$                              | 40  |     |     |       |
|                                      | $h_{FE2}$    | $I_C = 1.0\text{ mA}, V_{CE} = 10\text{ Volts}$                              | 40  |     |     |       |
|                                      | $h_{FE3}$    | $I_C = 10\text{ mA}, V_{CE} = 10\text{ Volts}$                               | 40  |     |     |       |
|                                      | $h_{FE4}$    | $I_C = 150\text{ mA}, V_{CE} = 10\text{ Volts}$                              | 40  |     | 120 |       |
|                                      | $h_{FE5}$    | $I_C = 500\text{ mA}, V_{CE} = 10\text{ Volts}$                              | 40  |     |     |       |
|                                      | $h_{FE6}$    | $I_C = 1.0\text{ mA}, V_{CE} = 10\text{ Volts}$<br>$T_A = -55^\circ\text{C}$ | 20  |     |     |       |
| Base-Emitter Saturation Voltage      | $V_{BEsat1}$ | $I_C = 150\text{ mA}, I_B = 15\text{ mA}$                                    |   |     | 1.3 | Volts |
|                                      | $V_{BEsat2}$ | $I_C = 500\text{ mA}, I_B = 50\text{ mA}$                                    |   |     | 2.6 |       |
| Collector-Emitter Saturation Voltage | $V_{CEsat1}$ | $I_C = 150\text{ mA}, I_B = 15\text{ mA}$                                    |   |     | 0.4 | Volts |
|                                      | $V_{CEsat2}$ | $I_C = 500\text{ mA}, I_B = 50\text{ mA}$                                    |   |     | 1.6 |       |

| Dynamic Characteristics  |            |  |     |     |     |       |
|--|------------|--|-----|-----|-----|-------|
| Parameter  | Symbol     | Test Conditions  | Min | Typ | Max | Units |
| Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio | $ h_{FE} $ | $V_{CE} = 20\text{ Volts}, I_C = 50\text{ mA}, f = 100\text{ MHz}$               | 2.0 |     | 10  |       |
| Small Signal Short Circuit Forward Current Transfer Ratio                | $h_{FE}$   | $V_{CE} = 10\text{ Volts}, I_C = 1\text{ mA}, f = 1\text{ kHz}$                  | 40  |     |     |       |
| Open Circuit Output Capacitance  | $C_{OBO}$  | $V_{CB} = 10\text{ Volts}, I_E = 0\text{ mA}, 100\text{ kHz} < f < 1\text{ MHz}$ |     |     | 8   | pF    |
| Open Circuit Input Capacitance   | $C_{IBO}$  | $V_{EB} = 2\text{ Volts}, I_C = 0\text{ mA}, 100\text{ kHz} < f < 1\text{ MHz}$  |     |     | 30  | pF    |

| Switching Characteristics |           |                 |     |     |     |       |
|---------------------------|-----------|-----------------|-----|-----|-----|-------|
| Parameter                 | Symbol    | Test Conditions | Min | Typ | Max | Units |
| Saturated Turn-On Time    | $t_{ON}$  |                 |     |     | 45  | ns    |
| Saturated Turn-Off Time   | $t_{OFF}$ |                 |     |     | 175 | ns    |