

## Description

SEMICOA Corporation offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N3866AJ)
- JANTX level (2N3866AJX)
- JANTXV level (2N3866AJV)
- JANS level (2N3866AJS)
- JANSR level (2N3866AJSR)
- JANSF level (2N3866AJSF)
- 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 high frequency
- VHF-UHF amplifier transistor
- NPN silicon transistor



## Features

- Hermetically sealed TO-39 metal can
- Also available in chip configuration
- Chip geometry 1008
- Reference document: MIL-PRF-19500/398

## Benefits

- Qualification Levels: JAN, JANTX, JANTXV, JANS, JANSR and JANSF
- 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> | 30   | Volts      |
| Collector-Base Voltage   | V <sub>CBO</sub> | 60   | Volts      |
| Emitter-Base Voltage   | V <sub>EBO</sub> | 3.5  | Volts      |
| Collector Current, Continuous  | I <sub>C</sub>   | 400  | mA         |
| Power Dissipation, T <sub>A</sub> = 25°C<br>Derate linearly above 25°C | P <sub>T</sub>   | 1<br>5.71  | W<br>mW/°C |
| Power Dissipation, T <sub>C</sub> = 25°C<br>Derate linearly above 25°C | P <sub>T</sub>   | 2.9<br>16.6                                      | W<br>mW/°C |
| Thermal Resistance   | R <sub>θJC</sub> | 60   | °C/W       |
| Operating Junction Temperature   | T <sub>J</sub>   | -65 to +200                                      | °C         |
| Storage Temperature  | T <sub>STG</sub> |  |            |

## ELECTRICAL CHARACTERISTICS

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

### Off Characteristics

| Parameter                           | Symbol        | Test Conditions                                      | Min | Typ | Max | Units         |
|-------------------------------------|---------------|--|-----|-----|-----|---------------|
| Collector-Base Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C = 100 \mu\text{A}$                              | 60  |     |     | Volts         |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 5 \text{ mA}$                                 | 30  |     |     | Volts         |
| Emitter-Base Breakdown Voltage      | $V_{(BR)EBO}$ | $I_E = 100 \mu\text{A}$                              | 3.5 |     |     | Volts         |
| Collector-Emitter Cutoff Current    | $I_{CEO}$     | $V_{CE} = 28 \text{ Volts}$                          |     |     | 20  | $\mu\text{A}$ |
| Collector-Emitter Cutoff Current    | $I_{CES1}$    | $V_{CE} = 55 \text{ Volts}$                          |     |     | 100 | $\mu\text{A}$ |
|                                     | $I_{CES2}$    | $V_{CE} = 55 \text{ Volts}, T_A = 150^\circ\text{C}$ |     |     | 2   | mA            |

### 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                      | $h_{FE1}$    | $I_C = 50 \text{ mA}, V_{CE} = 5 \text{ Volts}$  | 25  |     | 200 |       |
|                                      | $h_{FE2}$    | $I_C = 360 \text{ mA}, V_{CE} = 5 \text{ Volts}$ | 8   |     |     |       |
|                                      | $h_{FE3}$    | $I_C = 50 \text{ mA}, V_{CE} = 5 \text{ Volts}$  | 12  |     |     |       |
|                                      |              | $T_A = -55^\circ\text{C}$                        |     |     |     |       |
| Collector-Emitter Saturation Voltage | $V_{CEsat1}$ | $I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$      |     |     | 1   | Volts |

### Dynamic Characteristics

| Parameter  | Symbol     | Test Conditions   | Min | Typ | Max | Units |
|--|------------|---|-----|-----|-----|-------|
| Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio | $ h_{FE} $ | $V_{CE} = 15 \text{ Volts}, I_C = 50 \text{ mA}, f = 200 \text{ MHz}$         | 4   |     | 7.5 |       |
| Open Circuit Output Capacitance  | $C_{OBO}$  | $V_{CB} = 28 \text{ Volts}, I_E = 0 \text{ mA},$                              |     |     | 3.5 | pF    |
| Collector Efficiency   | $\eta_1$   | $V_{CC} = 28 \text{ Volts}, f = 400 \text{ MHz}$<br>$P_{in} = 0.15 \text{ W}$ | 45  |     |     | %     |
|  | $\eta_2$   | $P_{in} = 0.075 \text{ W}$  | 40  |     |     |       |
| Power Output   | $P_{1out}$ | $V_{CC} = 28 \text{ Volts}, f = 400 \text{ MHz}$<br>$P_{in} = 0.15 \text{ W}$ | 1.0 |     | 2   | Watts |
|  | $P_{1out}$ | $P_{in} = 0.075 \text{ W}$  | 0.5 |     |     |       |