

Description

Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N6193J)
- JANTX level (2N6193JX)
- JANTXV level (2N6193JV)
- 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 or (714) 979-1900

Applications

- General purpose switching transistor
- Low power
- PNP silicon transistor



Features

- Hermetically sealed TO-39 metal can
- Also available in chip configuration
- Chip geometry 9700
- Reference document:
MIL-PRF-19500/561

Benefits

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

| Absolute Maximum Ratings | | T _C = 25°C unless otherwise specified | |
|--|------------------------------------|--|------------|
| Parameter | Symbol | Rating | Unit |
| Collector-Emitter Voltage | V _{CEO} | 100 | Volts |
| Collector-Base Voltage | V _{CB0} | 100 | Volts |
| Emitter-Base Voltage | V _{EBO} | 6 | Volts |
| Collector Current, Continuous | I _C | 5 | A |
| Power Dissipation, T _A = 25°C Derate linearly above 25°C | P _T | 1 5.71 | W mW/°C |
| Thermal Resistance | R _{θJC} | 17.5 | °C/W |
| Operating Junction Temperature Storage Temperature | T _J T _{STG} | -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 | $V_{(BR)CEO}$ | $I_C = 50 \text{ mA}$ | 100 | | | Volts |
| Collector-Base Cutoff Current | I_{CBO1} | $V_{CB} = 100 \text{ Volts}$ | | | 10 | μA |
| Collector-Emitter Cutoff Current | I_{CEO} | $V_{CE} = 100 \text{ Volts}$ | | | 100 | μA |
| Collector-Emitter Cutoff Current | I_{CEX1} | $V_{CE} = 90 \text{ Volts}, V_{BE} = 1.5 \text{ Volts}$ | | | 10 | μA |
| | I_{CEX2} | $V_{CE} = 90 \text{ Volts}, V_{BE} = 1.5 \text{ Volts}, T_A = 150^\circ\text{C}$ | | | 1 | mA |
| Emitter-Base Cutoff Current | I_{EBO1} | $V_{EB} = 6 \text{ Volts}$ | | | 100 | μA |

| On Characteristics | | | Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$ | | | |
|--------------------------------------|--------------|--|---|-----|-----|-------|
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Units |
| DC Current Gain | h_{FE1} | $I_C = 0.5 \text{ A}, V_{CE} = 2 \text{ Volts}$ | 60 | | 240 | |
| | h_{FE2} | $I_C = 2 \text{ A}, V_{CE} = 2 \text{ Volts}$ | 60 | | | |
| | h_{FE3} | $I_C = 5 \text{ A}, V_{CE} = 2 \text{ Volts}$ | 40 | | | |
| | h_{FE4} | $I_C = 2 \text{ A}, V_{CE} = 2 \text{ Volts}, T_A = -55^\circ\text{C}$ | 12 | | | |
| Base-Emitter Saturation Voltage | V_{BEsat1} | $I_C = 2 \text{ A}, I_B = 200 \text{ mA}$ | | | 1.2 | Volts |
| | V_{BEsat2} | $I_C = 5 \text{ A}, I_B = 500 \text{ mA}$ | | | 1.8 | |
| Collector-Emitter Saturation Voltage | V_{CEsat1} | $I_C = 2 \text{ A}, I_B = 200 \text{ mA}$ | | | 0.7 | Volts |
| | V_{CEsat2} | $I_C = 5 \text{ A}, I_B = 500 \text{ mA}$ | | | 1.2 | |

| Dynamic Characteristics | | | | | | |
|--|------------|--|-----|-----|-------|-------|
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Units |
| Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio | $ h_{FE} $ | $V_{CE} = 10 \text{ Volts}, I_C = 500 \text{ mA}, f = 10 \text{ MHz}$ | 3 | | 15 | |
| Open Circuit Output Capacitance | C_{OBO} | $V_{CB} = 10 \text{ Volts}, I_E = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$ | | | 300 | pF |
| Open Circuit Input Capacitance | C_{IBO} | $V_{EB} = 2 \text{ Volts}, I_C = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$ | | | 1,250 | pF |

| Switching Characteristics | | | | | | |
|---------------------------|--------|--|-----|-----|-----|---------------|
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Units |
| Delay Time | t_d | $I_C = 2 \text{ A}, I_{B1} = 200 \text{ mA}$ | | | 100 | ns |
| Rise Time | t_r | | | | 100 | |
| Storage Time | t_s | $I_C = 2 \text{ mA}, I_{B1} = I_{B2} = 200 \text{ mA}$ | | | 2 | μs |
| Fall Time | t_f | | | | 200 | |