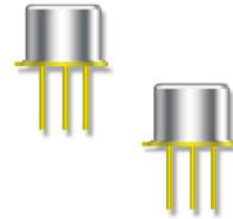


NPN Power Silicon Transistor

Rev. V1

Features

- JAN, JANTX, JANTXV, JANS, and JANSR 100K rads (si) per MIL-PRF-19500/560
- TO-39 (TO-205AD) Package



Electrical Characteristics

| Parameter | Test Conditions | Symbol | Units | Min. | Max. |
|---|---|------------------------|-----------------|----------------|---------------|
| Off Characteristics | | | | | |
| Collector - Emitter Breakdown Voltage | $I_C = 50 \text{ mAdc}$ | $V_{(BR)CEO}$ | Vdc | 100 | — |
| Collector - Emitter Cutoff Current | $V_{CE} = 100 \text{ Vdc}$ $V_{CE} = 90 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$ | I_{CEO} I_{CEX} | μAdc | — | 100 1.0 |
| Collector - Base Cutoff Current | $V_{CB} = 100 \text{ Vdc}$ | I_{CBO} | μAdc | — | 1.0 |
| Emitter - Base Cutoff Current | $V_{EB} = 6.0 \text{ Vdc}$ | I_{EBO} | μAdc | — | 100 |
| On Characteristics¹ | | | | | |
| Forward Current Transfer Ratio | $I_C = 0.5 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 2.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 5.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ | H_{FE} | - | 60 60 40 | — 240 — |
| Collector - Emitter Saturation Voltage | $I_C = 2.0 \text{ Adc}, I_B = 0.2 \text{ Adc}$ $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$ | $V_{CE(SAT)}$ | Vdc | — | 0.7 1.2 |
| Emitter - Base Saturation Voltage | $I_C = 2.0 \text{ Adc}, I_B = 0.2 \text{ Adc}$ $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$ | $V_{BE(SAT)}$ | Vdc | — | 1.2 1.8 |
| Dynamic Characteristics | | | | | |
| Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio | $I_C = 0.5 \text{ Adc}, V_{CE} = 10.0 \text{ Vdc}, f = 10 \text{ MHz}$ | $ H_{FE} $ | - | 3 | 15 |
| Output Capacitance | $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$ | C_{OBO} | pF | — | 250 |
| Input Capacitance | $V_{BE} = 2 \text{ Vdc}, I_C = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$ | C_{IBO} | pF | — | 1000 |
| Safe Operating Area | | | | | |
| DC Tests: | $T_C = +25^\circ\text{C}, 1 \text{ Cycle}, t \geq 0.5 \text{ s}$ | | | | |
| Test 1: | $V_{CE} = 2 \text{ Vdc}, I_C = 5 \text{ Adc}$ | | | | |
| Test 2: | $V_{CE} = 5 \text{ Vdc}, I_C = 2 \text{ Adc}$ | | | | |
| Test 3: | $V_{CE} = 90 \text{ Vdc}, I_C = 55 \text{ mAdc}$ | | | | |

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

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Absolute Maximum Ratings¹

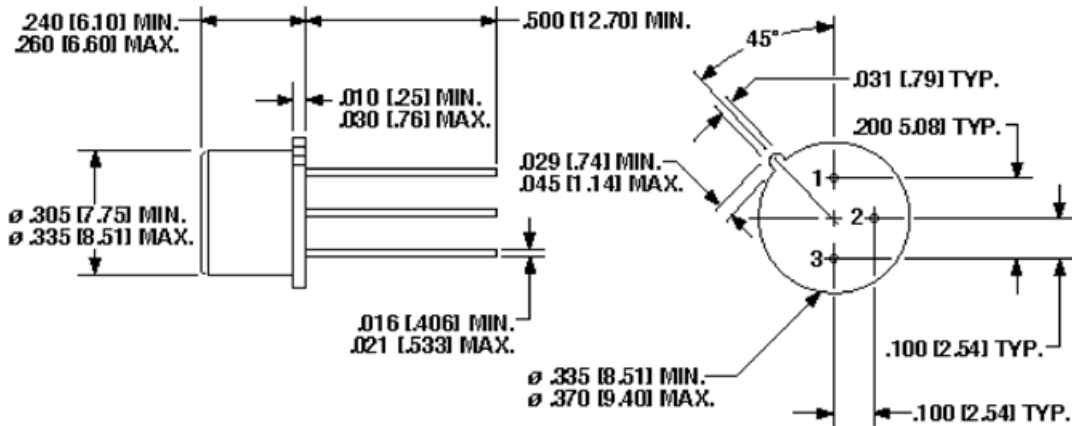
| Ratings | Symbol | Value |
|---|-------------------|---|
| Collector - Emitter Voltage | V_{CEO} | 100 Vdc |
| Collector - Base Voltage | V_{CBO} | 100 Vdc |
| Emitter - Base Voltage | V_{EBO} | 6 Vdc |
| Base Current | I_B | 1 Adc |
| Collector Current | I_C | 5 Adc |
| Total Power Dissipation @ $T_A = 25^\circ\text{C}$ @ $T_C = 25^\circ\text{C}$ | P_T | 1.0 W 17.5 W |
| Operating & Storage Temperature Range | T_{OP}, T_{STG} | -65°C to $+200^\circ\text{C}$ |

1. Derate linearly 434 mW/°C for $T_C > 25^\circ\text{C}$

Thermal Characteristics

| Characteristics | Symbol | Max. Value |
|--------------------------------------|-----------------|------------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 10°C/W |

Outline Drawing



1. Dimensions are in inches [mm].

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