

NPN Power Silicon Transistor

Rev. V1

Features

- Available in JAN, JANTX, JANTXV per MIL-PRF-19500/526
- TO-66 (TO-213AA) Package



Electrical Characteristics

| Parameter | Test Conditions | Symbol | Units | Min. | Max. |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|----------------|----------------|
| Off Characteristics | | | | | |
| Collector - Emitter Breakdown Voltage | $I_C = 200 \text{ mA dc}$ | $V_{(BR)CEO}$ | Vdc | 75 | — |
| Collector - Emitter Cutoff Current | $V_{CE} = 50 \text{ Vdc}$ | I_{CEO} | mA dc | — | 5 |
| Collector - Emitter Cutoff Current | $V_{CE} = 80 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$ | I_{CEX} | mA dc | — | 4 |
| Collector - Base Cutoff Current | $V_{CB} = 120 \text{ Vdc}$ | I_{CBO} | mA dc | — | 25 |
| Emitter - Base Cutoff Current | $V_{EB} = 7 \text{ Vdc}$ | I_{EBO} | mA dc | — | 10 |
| On Characteristics¹ | | | | | |
| Forward Current Transfer Ratio | $I_C = 0.5 \text{ Adc}, V_{CE} = 5 \text{ Vdc}$ $I_C = 4.0 \text{ Adc}, V_{CE} = 5 \text{ Vdc}$ $I_C = 4.0 \text{ Adc}, V_{CE} = 2 \text{ Vdc}$ | H_{FE} | - | 30 20 12 | — 80 100 |
| Collector - Emitter Saturation Voltage | $I_C = 4.0 \text{ Adc}, I_B = 0.4 \text{ Adc}$ | $V_{CE(SAT)}$ | Vdc | — | 1.2 |
| Base - Emitter Saturation Voltage | $I_C = 4.0 \text{ Adc}, I_B = 0.4 \text{ Adc}$ | $V_{BE(SAT)}$ | Vdc | — | 2.0 |
| Base - Emitter Voltage | $I_C = 4.0 \text{ Adc}, I_B = 2.0 \text{ Adc}$ | $V_{BE(ON)}$ | Vdc | — | 1.8 |
| Dynamic Characteristics | | | | | |
| Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio | $I_C = 500 \text{ mA dc}, V_{CE} = 10 \text{ Vdc}, f = 10 \text{ MHz}$ | $ h_{FE} $ | - | 4 | 20 |
| Output Capacitance | $V_{CB} = 10 \text{ Vdc}, I_E = 0, 0.1 \text{ MHz} \leq f \leq 1 \text{ MHz}$ | C_{OBO} | pF | — | 175 |
| Switching Characteristics | | | | | |
| Turn-On Time | $V_{CC} = 30 \text{ Vdc}; I_C = 4.0 \text{ Adc}; I_{B1} = 0.4 \text{ Adc}$ | T_{ON} | μs | — | 0.25 |
| Turn-Off Time | $V_{CC} = 30 \text{ Vdc}; I_C = 4.0 \text{ Adc}; I_{B1} = -I_{B2} = 0.4 \text{ Adc}$ | T_{OFF} | μs | — | 2.5 |
| Safe Operating Area | | | | | |
| DC Tests: | $T_C = +25 \text{ }^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$ | | | | |
| Test 1: | $V_{CE} = 5 \text{ Vdc}, I_C = 7 \text{ Adc}$ | | | | |
| Test 2: | $V_{CE} = 28 \text{ Vdc}, I_C = 1.25 \text{ Adc}$ | | | | |
| Test 3: | $V_{CE} = 40 \text{ Vdc}, I_C = 500 \text{ Adc}$ | | | | |
| Test 4: | $V_{CE} = 75 \text{ Vdc}, I_C = 100 \text{ Adc}$ | | | | |

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

1

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DC-0015046

Absolute Maximum Ratings

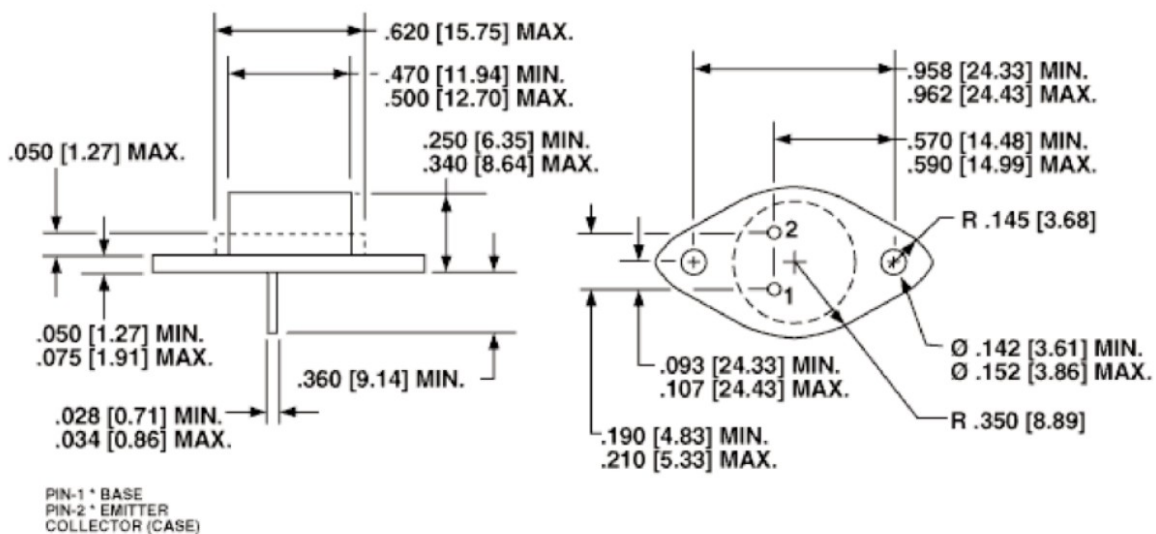
| Ratings | Symbol | Value |
|------------------------------------------------------|-------------------|---------------------------------------------|
| Collector - Emitter Voltage | V_{CEO} | 75 Vdc |
| Collector - Base Voltage | V_{CBO} | 120 Vdc |
| Emitter - Base Voltage | V_{EBO} | 7 Vdc |
| Base Current | I_B | 5 Vdc |
| Collector Current | I_C | 7 Adc |
| Total Power Dissipation @ $T_C = 25^\circ\text{C}^1$ | P_T | 35 W |
| Operating & Storage Temperature Range | T_{OP}, T_{STG} | -65°C to $+200^\circ\text{C}$ |

1. Derate linearly @ 200 mW / °C between $T_C = 25^\circ\text{C}$ and $T_C = 200^\circ\text{C}$

Thermal Characteristics

| Characteristics | Symbol | Max. Value |
|--------------------------------------|-----------------|---------------------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 5°C/W |

Outline Drawing



NOTE: Dimensions in Inches [mm]

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