

TN2907A

PNP General Purpose Amplifier

- This device is designed for use as a general purpose amplifier and switch requiring collector currents to 500 mA.
- Sourced from process 63.



TO-226

1. Collector 2. Base 3. Emitter

Absolute Maximum Ratings* $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|----------------|--|-----------|------------------|
| V_{CBO} | Collector-Base Voltage | 60 | V |
| V_{CEO} | Collector-Emitter Voltage | 60 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current - Continuous | 800 | mA |
| T_J, T_{STG} | Operating and Storage Junction Temperature Range | -55 ~ 150 | $^\circ\text{C}$ |

* This ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These rating are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- 3) All voltages (V) and currents (A) are negative polarity for PNP transistors.

Thermal Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Max. | Units |
|-----------------|---|------|---------------------------|
| P_D | Total Device Dissipation | 625 | mW |
| | Derate above 25°C | 5.0 | mW/ $^\circ\text{C}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | 83.3 | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 200 | $^\circ\text{C}/\text{W}$ |

Electrical Characteristics* $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|--------|-----------|----------------|------|------|-------|
|--------|-----------|----------------|------|------|-------|

Off Characteristics

| | | | | | |
|---------------|-------------------------------------|---|----|----------|---------------------|
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage | $I_C = 10\mu\text{A}, I_E = 0$ | 60 | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_C = 10\mu\text{A}, I_E = 0$ | 60 | | V |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | $I_C = 10\text{mA}, I_E = 0$ | 5 | | V |
| I_{CBO} | Collector Cut-off Current | $V_{CB} = 50\text{V}, I_E = 0$ $V_{CB} = 50\text{V}, I_E = 0, T_A = 150^\circ\text{C}$ | | 10 10 | nA μA |
| I_{CEX} | Collector Cut-off Current | $V_{CE} = 30\text{V}, V_{BE} = 0.5\text{V}$ | | 50 | nA |

On Characteristics

| | | | | | |
|---------------|--------------------------------------|--|-------------------------------|------------|--------|
| h_{FE} | DC Current Gain | $I_C = 0.1\text{mA}, V_{CE} = 10\text{V}$ $I_C = 1.0\text{mA}, V_{CE} = 10\text{V}$ $I_C = 10\text{mA}, V_{CE} = 10\text{V}$ $I_C = 150\text{mA}, V_{CE} = 10\text{V}^*$ $I_C = 500\text{mA}, V_{CE} = 10\text{V}^*$ | 75 100 100 100 50 | 300 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 150\text{mA}, I_B = 15\text{mA}^*$ $I_C = 500\text{mA}, I_B = 50\text{mA}^*$ | | 0.4 1.6 | V V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = 150\text{mA}, I_B = 15\text{mA}^*$ $I_C = 500\text{mA}, I_B = 50\text{mA}$ | | 1.3 2.6 | V V |

Small Signal Characteristics

| | | | | | |
|-----------|--------------------|--|--|-----|----|
| C_{obo} | Output Capacitance | $V_{CB} = 10\text{V}, I_E = 0, f = 100\text{kHz}$ | | 8.0 | pF |
| C_{ibo} | Input Capacitance | $V_{EB} = 2.0\text{V}, I_C = 0, f = 100\text{kHz}$ | | 30 | pF |




* Pulse Test: Pulse Width \leq 300ms, Duty Cycle = 2%**NOTES:**

1) All voltages (V) and currents (A) are negative polarity for PNP transistors.



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