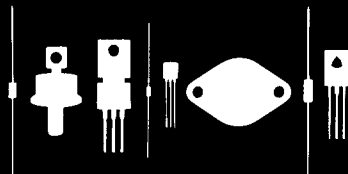


Central
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145 Adams Avenue
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2N2903

2N2903A

NPN SILICON DUAL TRANSISTOR

JEDEC TO-78 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N2903, A types are silicon NPN dual transistors manufactured by the epitaxial planar process utilizing 2 individual chips mounted in a hermetically sealed metal case designed for differential amplifier applications.

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| | SYMBOL | | UNIT |
|--|----------------|-------------|--------------------|
| Collector-Base Voltage | V_{CB0} | 60 | V |
| Collector-Emitter Voltage | V_{CE0} | 30 | V |
| Emitter-Base Voltage | V_{EB0} | 7.0 | V |
| Collector Current | I_C | 50 | mA |
| Power Dissipation (One Die) | P_D | 200 | mW |
| Power Dissipation (Both Dice) | P_D | 300 | mW |
| Power Dissipation (One Die, $T_C=25^{\circ}\text{C}$) | P_D | 600 | mW |
| Power Dissipation (Both Dice, $T_C=25^{\circ}\text{C}$) | P_D | 1200 | mW |
| Operating and Storage | | | |
| Junction Temperature | T_J, T_{STG} | -65 TO +200 | $^{\circ}\text{C}$ |

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| SYMBOL | TEST CONDITIONS | MIN | MAX | UNIT |
|---------------------------|---|------|------|--------------------------------|
| I_{CB0} | $V_{CB}=50\text{V}$ | | 0.01 | μA |
| I_{CB0} | $V_{CB}=50\text{V}, T_A=150^{\circ}\text{C}$ | | 15 | μA |
| I_{EB0} | $V_{BE}=5.0\text{V}$ | | 0.01 | μA |
| BV_{CB0} | $I_C=10\mu\text{A}$ | 60 | | V |
| BV_{CE0} | $I_C=10\text{mA}$ | 30 | | V |
| BV_{EB0} | $I_E=0.1\mu\text{A}$ | 7.0 | | V |
| $V_{CE}(\text{SAT})$ | $I_C=5.0\text{mA}, I_B=0.5\text{mA}$ | | 1.0 | V |
| $V_{BE}(\text{SAT})$ | $I_C=5.0\text{mA}, I_B=0.5\text{mA}$ | | 0.9 | V |
| h_{FE} | $V_{CE}=5.0\text{V}, I_C=10\mu\text{A}$ | 60 | - | |
| h_{FE} | $V_{CE}=5.0\text{V}, I_C=10\mu\text{A}, T_A=-55^{\circ}\text{C}$ | 25 | - | |
| h_{FE} | $V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$ | 125 | 625 | |
| h_{FE} | $V_{CE}=5.0\text{V}, I_C=1.0\text{mA}, T_A=-55^{\circ}\text{C}$ | 60 | - | |
| f_T | $V_{CE}=10\text{V}, I_C=5.0\text{mA}, f=30\text{MHz}$ | 60 | | MHz |
| C_{ob} | $V_{CB}=10\text{V}, I_E=0, f=140\text{kHz}$ | | 8.0 | pF |
| C_{ib} | $V_{BE}=0.5\text{V}, I_C=0, f=140\text{kHz}$ | | 10 | pF |
| NF | $V_{CE}=5.0\text{V}, I_C=10\mu\text{A}, R_S=10\text{k}\Omega, f=1.0\text{kHz}$ | | 7.0 | dB |
| h_{FE1}/h_{FE2} | $V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$ (2N2903) | 0.80 | 1.0 | |
| h_{FE1}/h_{FE2} | $V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$ (2N2903A) | 0.90 | 1.0 | |
| $ V_{BE1}-V_{BE2} $ | $V_{CE}=5.0\text{V}, I_C=10\mu\text{A}$ (2N2903) | - | 10 | mV |
| $ V_{BE1}-V_{BE2} $ | $V_{CE}=5.0\text{V}, I_C=10\mu\text{A}$ (2N2903A) | - | 5.0 | mV |
| $\Delta(V_{BE1}-V_{BE2})$ | | | | |
| ΔT_A | $V_{CE}=5.0\text{V}, I_C=10\mu\text{A}, T_A=-55 \text{ TO } +125^{\circ}\text{C}$ (2N2903) | | 20 | $\mu\text{V}/^{\circ}\text{C}$ |
| $\Delta(V_{BE1}-V_{BE2})$ | | | | |
| ΔT_A | $V_{CE}=5.0\text{V}, I_C=10\mu\text{A}, T_A=-55 \text{ TO } +125^{\circ}\text{C}$ (2N2903A) | | 10 | $\mu\text{V}/^{\circ}\text{C}$ |