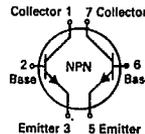


T-29-27

2N2722

CASE 654-07, STYLE 1



DUAL AMPLIFIER TRANSISTOR

NPN SILICON

Refer to 2N2920 for graphs.

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|----------------|----------------|-----------------|
| Collector-Emitter Voltage | V_{CE0} | 45 | Vdc |
| Collector-Base Voltage | V_{CB0} | 45 | Vdc |
| Emitter-Base Voltage | V_{EB0} | 5.0 | Vdc |
| Collector Current — Continuous | I_C | 40 | mAdc |
| | | One Die | Both Die |
| Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 0.3 1.7 | Watt mW/°C |
| Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C | P_D | 0.6 3.4 | Watts mW/°C |
| Operating and Storage Junction Temperature Range | T_J, T_{stg} | -65 to +200 | °C |

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

| Characteristic | Symbol | Min | Max | Unit |
|--|-----------------------------|------------------|---------------|------------------|
| OFF CHARACTERISTICS | | | | |
| Collector-Emitter Breakdown Voltage(1) ($I_C = 10 \text{ mAdc}, I_B = 0$) | $V_{(BR)CEO}$ | 45 | — | Vdc |
| Collector-Base Breakdown Voltage ($I_C = 10 \mu\text{Adc}, I_E = 0$) | $V_{(BR)CBO}$ | 45 | — | Vdc |
| Collector Cutoff Current ($V_{CE} = 5.0 \text{ Vdc}, I_B = 0$) | I_{CEO} | — | 2.0 | nAdc |
| Collector Cutoff Current ($V_{CB} = 30 \text{ Vdc}, I_E = 0$) ($V_{CB} = 30 \text{ Vdc}, I_E = 0, T_A = 150^\circ\text{C}$) | I_{CBO} | — | 0.001 1.0 | μAdc |
| Emitter Cutoff Current ($V_{EB} = 5.0 \text{ Vdc}, I_C = 0$) | I_{EBO} | — | 1.0 | nAdc |
| ON CHARACTERISTICS | | | | |
| DC Current Gain ($I_C = 1.0 \mu\text{Adc}, V_{CE} = 5.0 \text{ Vdc}$) ($I_C = 10 \mu\text{Adc}, V_{CE} = 5.0 \text{ Vdc}$) ($I_C = 0.1 \text{ mAdc}, V_{CE} = 5.0 \text{ Vdc}$) | h_{FE} | 50 100 125 | 250 — — | — |
| Collector-Emitter Saturation Voltage ($I_C = 10 \text{ mAdc}, I_B = 0.5 \text{ mAdc}$) | $V_{CE(sat)}$ | — | 1.0 | Vdc |
| Base-Emitter Saturation Voltage ($I_C = 10 \text{ mAdc}, I_B = 0.5 \text{ mAdc}$) | $V_{BE(sat)}$ | 0.65 | 0.85 | Vdc |
| SMALL-SIGNAL CHARACTERISTICS | | | | |
| Current-Gain — Bandwidth Product ($I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 20 \text{ MHz}$) | f_T | 100 | — | MHz |
| Output Capacitance ($V_{CB} = 5.0 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$) | C_{ob0} | — | 6.0 | pF |
| Input Impedance ($I_E = 1.0 \text{ mAdc}, V_{CB} = 5.0 \text{ Vdc}, f = 1.0 \text{ kHz}$) | h_{ib} | 25 | 32 | ohms |
| Voltage Feedback Ratio ($I_E = 1.0 \text{ mAdc}, V_{CB} = 5.0 \text{ Vdc}, f = 1.0 \text{ kHz}$) | h_{rb} | — | 600 | $\times 10^{-6}$ |
| Small-Signal Current Gain ($I_E = 0.1 \text{ mAdc}, V_{CE} = 5.0 \text{ Vdc}, f = 1.0 \text{ kHz}$) | h_{fe} | 100 | 700 | — |
| Output Admittance ($I_E = 1.0 \text{ mAdc}, V_{CB} = 5.0 \text{ Vdc}, f = 1.0 \text{ kHz}$) | h_{ob} | — | 1.0 | μmhos |
| Noise Figure ($I_C = 10 \mu\text{Adc}, V_{CE} = 5.0 \text{ Vdc}, R_S = 10 \text{ k}\Omega, f = 10 \text{ Hz to } 15.7 \text{ kHz}$) | NF | — | 4.0 | dB |
| MATCHING CHARACTERISTICS | | | | |
| DC Current Gain Ratio(2) ($I_C = 1.0 \mu\text{Adc}, V_{CE} = 5.0 \text{ Vdc}$) | h_{FE1}/h_{FE2} | 0.9 | 1.0 | — |
| Base-Emitter Voltage Differential ($I_C = 10 \mu\text{Adc}, V_{CE} = 5.0 \text{ Vdc}$) | $ V_{BE1} - V_{BE2} $ | — | 5.0 | mVdc |
| Base-Emitter Voltage Differential Change Due to Temperature ($I_C = 10 \mu\text{Adc}, V_{CE} = 5.0 \text{ Vdc}, T_A = -55 \text{ to } +25^\circ\text{C}$) ($I_C = 10 \mu\text{Adc}, V_{CE} = 5.0 \text{ Vdc}, T_A = +25 \text{ to } +125^\circ\text{C}$) | $\Delta(V_{BE1} - V_{BE2})$ | — | 0.8 1.0 | mVdc |

(1) Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

(2) The lower of the two h_{FE} readings is taken as h_{FE1} for the purpose of measurement.

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