

PN4248, PN4249, PN4250

PNP SILICON AF LOW NOISE SMALL SIGNAL TRANSISTORS

PN42248, PN4249, PN4250 are PNP silicon planar transistors for AF low noise preamplifier applications.

CASE TO-92A



EBC

ABSOLUTE MAXIMUM RATINGS

| | | PN4248 | PN4250 | PN4249 |
|---|-----------------------------------|--------|--------------|--------|
| Collector-Base Voltage | -V _{CB0} | 40V | 40V | 60V |
| Collector-Emitter Voltage | -V _{CEO} | 40V | 40V | 60V |
| Emitter-Base Voltage | -V _{EB0} | 5V | 5V | 5V |
| Collector Current | -I _C | | 50mA | |
| Total Power Dissipation (T _C ≤ 65°C) | P _{tot} | | 300mW | |
| (T _A ≤ 25°C) | | | 200mW | |
| Operating Junction & Storage Temperature | T _j , T _{stg} | | -55 to 125°C | |

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

| PARAMETER | SYMBOL | PN4248 | | PN4249 | | PN4250 | | UNIT | TEST CONDITIONS |
|--------------------------------------|-----------------------|--------|-----|--------|-----|--------|-----|------|---|
| | | MIN | MAX | MIN | MAX | MIN | MAX | | |
| Collector-Base Breakdown Voltage | -V _{CB0} | 40 | | 60 | | 40 | | V | -I _C =0.01mA I _E =0 |
| Collector-Emitter Breakdown Voltage | -V _{CE0} | 40 | | 60 | | 40 | | V | -I _C =0.01mA V _{BE} =0 |
| Collector-Emitter Breakdown Voltage | -LV _{CEO} | 40 | | 60 | | 40 | | V | -I _C =5mA (Pulsed) I _B =0 |
| Emitter-Base Breakdown Voltage | -V _{EB0} | 5 | | 5 | | 5 | | V | -I _E =0.01mA I _C =0 |
| Collector Cutoff Current | -I _{CBO} | 10 | | 10 | | 10 | | nA | -V _{CB} =40V I _E =0 |
| | | 3 | | 3 | | 3 | | μA | -V _{CB} =40V I _E =0 T _A =65°C |
| Emitter Cutoff Current | -I _{EB0} | 20 | | 20 | | 20 | | nA | -V _{EB} =3V I _C =0 |
| Collector-Emitter Saturation Voltage | -V _{CE(sat)} | 0.25 | | 0.25 | | 0.25 | | V | -I _C =10mA -I _B =0.5mA |
| Base-Emitter Saturation Voltage | -V _{BE(sat)} | 0.9 | | 0.9 | | 0.9 | | V | -I _C =10mA -I _B =0.5mA |
| D.C. Current Gain | H _{FE} | 50 | | 100 | 300 | 250 | 700 | | -I _C =100μA -V _{CE} =5V |
| | | 50 | | 100 | | 250 | | | -I _C =1mA -V _{CE} =5V |
| | | 50 | | 100 | | 250 | | | -I _C =10mA -V _{CE} =5V |

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| PARAMETER | SYMBOL | PN4248 | | PN4249 | | PN4250 | | UNIT | TEST CONDITIONS |
|--------------------------------|----------|--------|------|--------|-----|--------|-----|------------------|---|
| | | MIN | MAX | MIN | MAX | MIN | MAX | | |
| Small Signal Current Gain | h_{fe} | 50 | 1000 | 100 | 550 | 250 | 800 | | $-I_C=1mA$ $-V_{CE}=5V$ $f=1kHz$ |
| Input Impedance | h_{ie} | | | 2.5 | 17 | 6 | 20 | $K\Omega$ | $-I_C=1mA$ $-V_{CE}=5V$ $f=1kHz$ |
| Output Admittance | h_{oe} | | | 5 | 40 | 5 | 50 | μS | $-I_C=1mA$ $-V_{CE}=5V$ $f=1kHz$ |
| Voltage Feedback Ratio | h_{re} | | | | 10 | | 10 | $\times 10^{-4}$ | $-I_C=1mA$ $-V_{CE}=5V$ $f=1kHz$ |
| Current Gain-Bandwidth Product | f_T | 40 | | 40 | | 50 | | MHz | $-I_C=0.5mA$ $-V_{CE}=5V$ |
| Collector-Base Capacitance | C_{ob} | | 6 | | 6 | | 6 | pF | $-V_{CB}=5V$ $I_E=0$ $f=1MHz$ |
| Emitter-Base Capacitance | C_{ib} | | 16 | | 16 | | 16 | pF | $-V_{EB}=0.5V$ $I_C=0$ $f=1MHz$ |
| Noise Figure | NF | | | | 3 | | 2 | dB | $-I_C=20\mu A$ $-V_{CE}=5V$ $R_G=10K\Omega$ $f=1kHz$ |
| | | | | | 3 | | 2 | dB | $-I_C=20\mu A$ $-V_{CE}=5V$ $R_G=10K\Omega$ $f=10Hz-10kHz$ |
| | | | | | 3 | | 2 | dB | $-I_C=250\mu A$ $-V_{CE}=5V$ $R_G=1K\Omega$ $f=1kHz$ |