



Isolated Resistor Termination Network

Features

- Stable resistor network
- High speed termination network
- 8 or 12 terminating lines/package
- Saves board space and reduces assembly cost

Applications

- Series termination
- Parallel termination
- Pull up/pull down
- Digital pulse squaring
- Coding and decoding
- Telemetry

Refer to AP-201 Termination Application Note for further information.

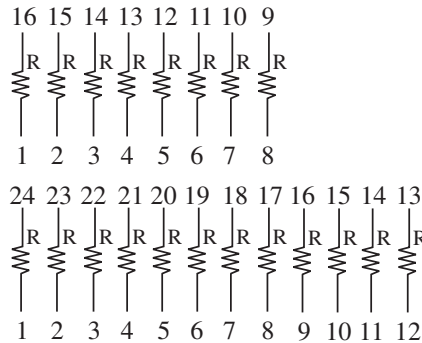
Product Description

CAMD's PRN100/110 Isolated Resistor Termination Networks offer high integration and performance in a miniature QSOP or SOIC package, which saves critical board area and provides manufacturing cost and reliability efficiencies.

Why thin film resistor networks? A terminating resistor is used to reduce or eliminate unwanted reflections on a transmission line or in some cases provide DC pull-up/pull-down. It can perform this function only when its

resistance value is closely matched to the characteristic impedance of the transmission line. The resistors used for terminating transmission lines must be noiseless, stable, and functional at high frequencies. Unlike thin film-based resistor networks, conventional thick film resistors used for this purpose are not stable over temperature and time, and may have functional limitations when used in high frequency applications.

SCHEMATIC CONFIGURATION



STANDARD SPECIFICATIONS

| | |
|-------------------------------|---------------------------------------|
| Absolute Tolerance (R) | ±5% |
| TCR | ±100ppm |
| Operating Temperature Range | -55°C to 125°C |
| Power Rating/Resistor | 100mW for R < 1KΩ 25mW for R ≥ 1KΩ |
| Minimum Insulation Resistance | 10,000 MΩ |
| Storage Temperature | -65°C to +150°C |
| Package Power Rating | 1W, max. |

STANDARD VALUES

| R (Ω) Isolated | Code | R (Ω) Isolated | Code |
|----------------|------|----------------|------|
| 10 | 10R0 | 470 | 4700 |
| 22 | 22R0 | 1K | 1001 |
| 33 | 33R0 | 2K | 2001 |
| 39 | 39R0 | 4.7K | 4701 |
| 100 | 1000 | 10K | 1002 |
| 330 | 3300 | | |

NON-STANDARD SPECIFICATIONS

| | |
|------------------------|-----------|
| Absolute Tolerance (R) | ±2% , ±1% |
|------------------------|-----------|

NON-STANDARD VALUES

| | |
|------------------|------------|
| Resistance Range | 10 to 10KΩ |
|------------------|------------|



| STANDARD PART ORDERING INFORMATION | | | | | |
|------------------------------------|---------|-------------|----------------------|------------------|----------------|
| Package | Package | | Ordering Part Number | | |
| R Code | Pins | Style | Tubes | Tape & Reel | Part Marking |
| 10R0 | 16 | Narrow SOIC | PRN10016N10R0J/T | PRN10016N10R0J/R | PRN10016N10R0J |
| 22R0 | 16 | Narrow SOIC | PRN10016N22R0J/T | PRN10016N22R0J/R | PRN10016N22R0J |
| 33R0 | 16 | Narrow SOIC | PRN10016N33R0J/T | PRN10016N33R0J/R | PRN10016N33R0J |
| 39R0 | 16 | Narrow SOIC | PRN10016N39R0J/T | PRN10016N39R0J/R | PRN10016N39R0J |
| 1000 | 16 | Narrow SOIC | PRN10016N1000J/T | PRN10016N1000J/R | PRN10016N1000J |
| 3300 | 16 | Narrow SOIC | PRN10016N3300J/T | PRN10016N3300J/R | PRN10016N3300J |
| 4700 | 16 | Narrow SOIC | PRN10016N4700J/T | PRN10016N4700J/R | PRN10016N4700J |
| 1001 | 16 | Narrow SOIC | PRN10016N1001J/T | PRN10016N1001J/R | PRN10016N1001J |
| 2001 | 16 | Narrow SOIC | PRN10016N2001J/T | PRN10016N2001J/R | PRN10016N2001J |
| 4701 | 16 | Narrow SOIC | PRN10016N4701J/T | PRN10016N4701J/R | PRN10016N4701J |
| 1002 | 16 | Narrow SOIC | PRN10016N1002J/T | PRN10016N1002J/R | PRN10016N1002J |
| 10R0 | 16 | QSOP | PRN1101610R0J/T | PRN1101610R0J/R | PRN1101610R0J |
| 22R0 | 16 | QSOP | PRN1101622R0J/T | PRN1101622R0J/R | PRN1101622R0J |
| 33R0 | 16 | QSOP | PRN1101633R0J/T | PRN1101633R0J/R | PRN1101633R0J |
| 39R0 | 16 | QSOP | PRN1101639R0J/T | PRN1101639R0J/R | PRN1101639R0J |
| 1000 | 16 | QSOP | PRN110161000J/T | PRN110161000J/R | PRN110161000J |
| 3300 | 16 | QSOP | PRN110163300J/T | PRN110163300J/R | PRN110163300J |
| 4700 | 16 | QSOP | PRN110164700J/T | PRN110164700J/R | PRN110164700J |
| 1001 | 16 | QSOP | PRN110161001J/T | PRN110161001J/R | PRN110161001J |
| 2001 | 16 | QSOP | PRN110162001J/T | PRN110162001J/R | PRN110162001J |
| 4701 | 16 | QSOP | PRN110164701J/T | PRN110164701J/R | PRN110164701J |
| 1002 | 16 | QSOP | PRN110161002J/T | PRN110161002J/R | PRN110161002J |
| 10R0 | 24 | QSOP | PRN1102410R0J/T | PRN1102410R0J/R | PRN1102410R0J |
| 22R0 | 24 | QSOP | PRN1102422R0J/T | PRN1102422R0J/R | PRN1102422R0J |
| 33R0 | 24 | QSOP | PRN1102433R0J/T | PRN1102433R0J/R | PRN1102433R0J |
| 39R0 | 24 | QSOP | PRN1102439R0J/T | PRN1102439R0J/R | PRN1102439R0J |
| 1000 | 24 | QSOP | PRN110241000J/T | PRN110241000J/R | PRN110241000J |
| 3300 | 24 | QSOP | PRN110243300J/T | PRN110243300J/R | PRN110243300J |
| 4700 | 24 | QSOP | PRN110244700J/T | PRN110244700J/R | PRN110244700J |
| 1001 | 24 | QSOP | PRN110241001J/T | PRN110241001J/R | PRN110241001J |
| 2001 | 24 | QSOP | PRN110242001J/T | PRN110242001J/R | PRN110242001J |
| 4701 | 24 | QSOP | PRN110244701J/T | PRN110244701J/R | PRN110244701J |
| 1002 | 24 | QSOP | PRN110241002J/T | PRN110241002J/R | PRN110241002J |

| NON-STANDARD PART ORDERING INFORMATION | | | |
|----------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------|-----------|
| PRN100 (Example) | 16 | XXXX | T |
| Part Series | Pin Count | Value Code | Tolerance |
| PRN100 -SOIC | 16 =16-pins | First 3 digits are significant value. (R indicates decimal point) Fourth digit represents number of zeroes to follow. | J = ±5% |
| PRN110-QSOP | 16 =16-pins | | G = ±2% |
| | 24 =24-pins | | F = ±1% |

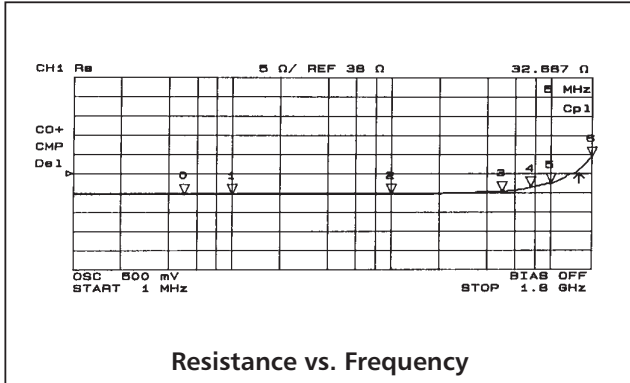
California Micro Devices can develop a fully customized solution which embodies the configuration shown in this data sheet or modified to suit specific application requirements. Very precise TCR, TCR tracking and resistor tolerances, and resistor-to-resistor ratio matching can also be provided. A Non-Recurring Engineering (NRE) charge will apply for all fully customized requirements and a minimum order/lot will be required.

Please direct your detailed circuit configuration and specification requirements to your local CMD representative or to the factory for a quotation.



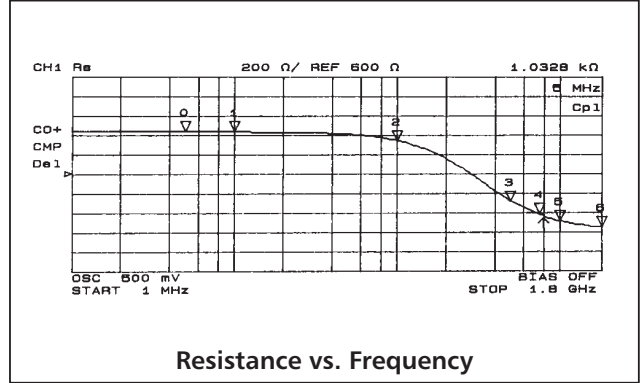
TYPICAL FREQUENCY RESPONSE CHARACTERISTICS

33 Ohms SOIC Package

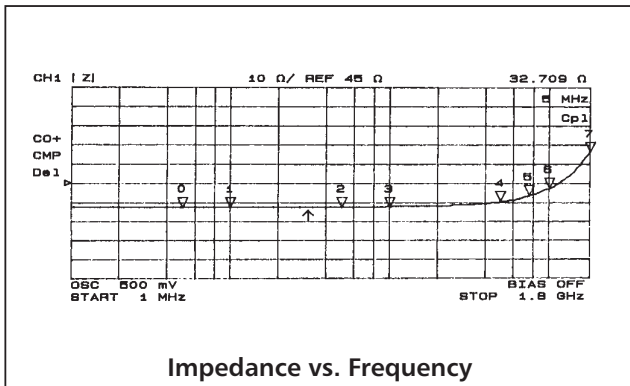


Resistance vs. Frequency

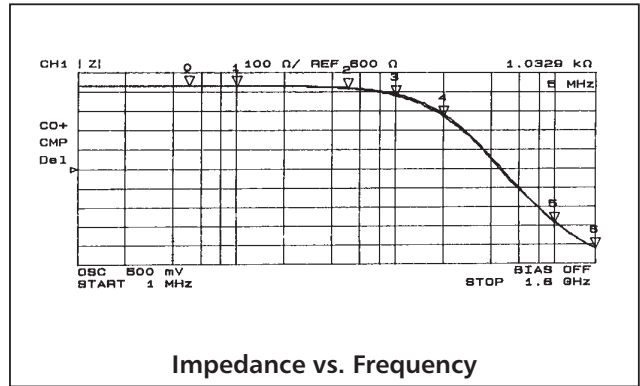
1K Ohms SOIC Package



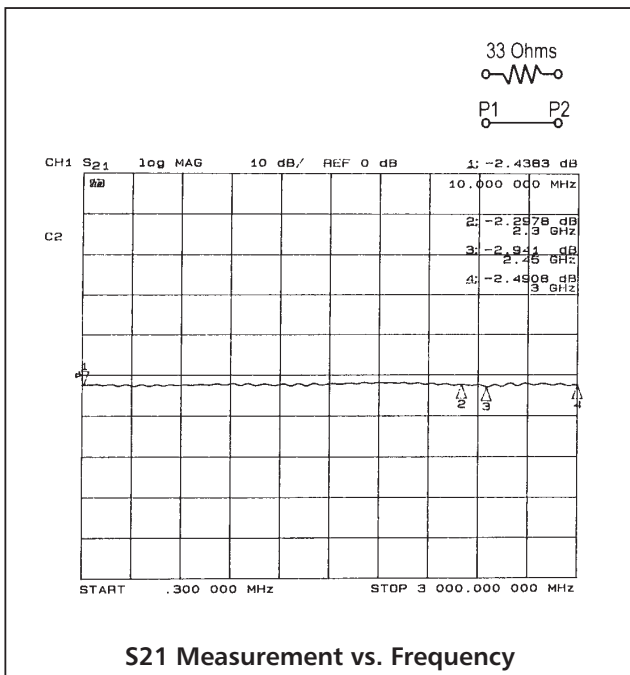
Resistance vs. Frequency



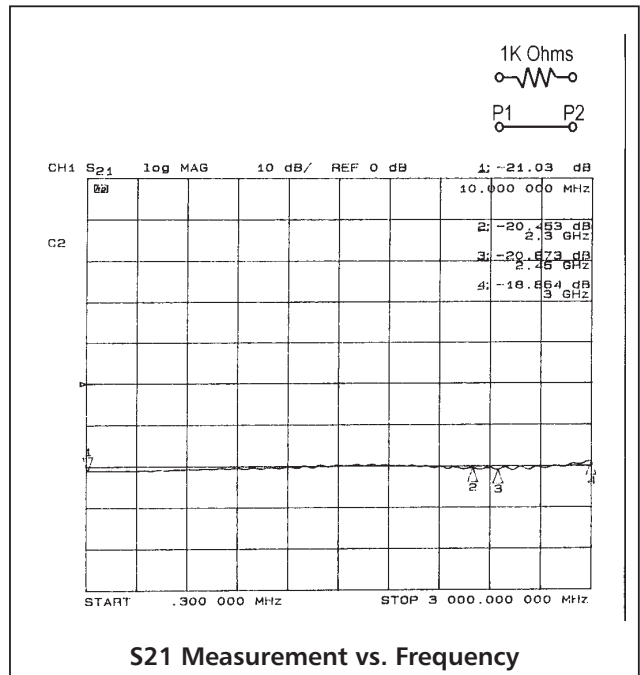
Impedance vs. Frequency



Impedance vs. Frequency



S21 Measurement vs. Frequency



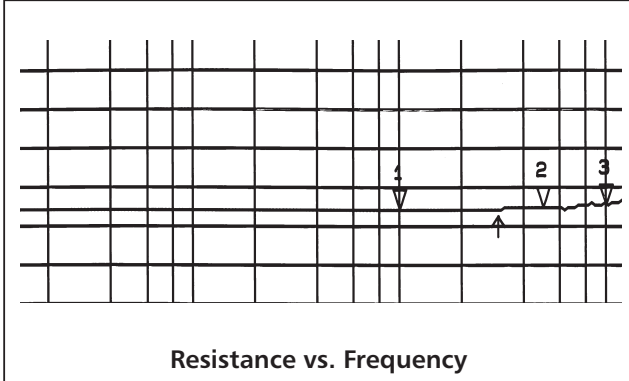
S21 Measurement vs. Frequency

Impedance is measured using an HP4291A
S-Parameters are measured using an HP8753C

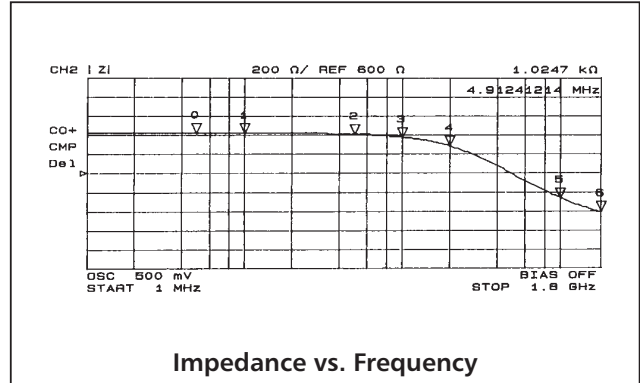
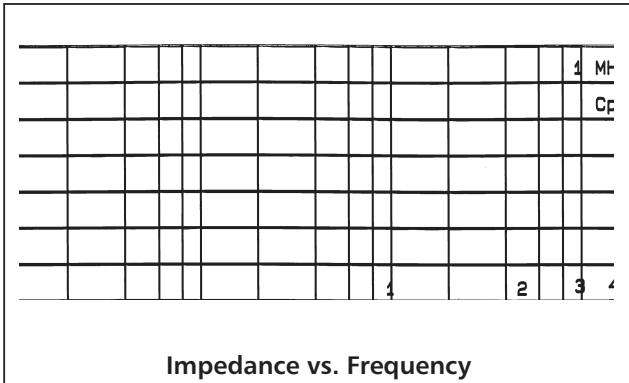
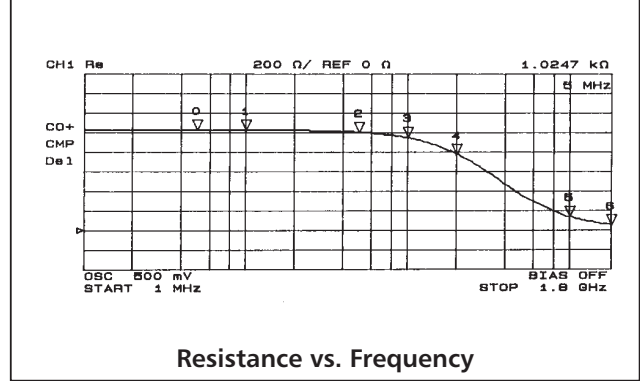


TYPICAL FREQUENCY RESPONSE CHARACTERISTICS

33 Ohms
QSOP Package



1K Ohms
QSOP Package



Impedance is measured using an HP4291A