

OPERATING INSTRUCTIONS

TYPE 874-G



FIXED ATTENUATORS

Non-locking types 874-G3, -G6, -G10, -G20

Locking types 874-G3L, -G6L, -G10L, -G20L

DESCRIPTION. The Type 874-G Fixed Attenuators are single-section, T-type resistance pads which can be mounted in a coaxial line to obtain a low VSWR over a frequency range from dc to 4 Gc/s. The resistance element consists of a disk resistor and two cylindrical resistors soldered together into a single unit. The VSWR and attenuation characteristics as functions of frequency are shown in Figures 1 and 2, respectively

The Type 874-GL Fixed Attenuators are identical to the Type 874-G except that they employ Type 874-BL Locking Connectors. These connectors are compatible with both locking and non-locking Type 874 Connectors. When two locking connectors are mated with each other, a firm mechanical coupling is obtained. Also the shielding is improved significantly over that of the standard connectors, and, in general, the leakage is reduced by at least 50 dB. The quick-disconnect feature of the standard Type 874-Coaxial Connectors is retained in the locking type if the locking nut is not engaged. However, in this case, the shielding is less effective.

In terms of VSWR, a locking connector mated with a non-locking connector is equivalent to two non-locking connectors mated. The VSWR characteristics of the basic Type 874-BL Locking Connector are similar to those of the basic Type 874-B (non-locking) Connector, and both are described in the General Radio Catalog.

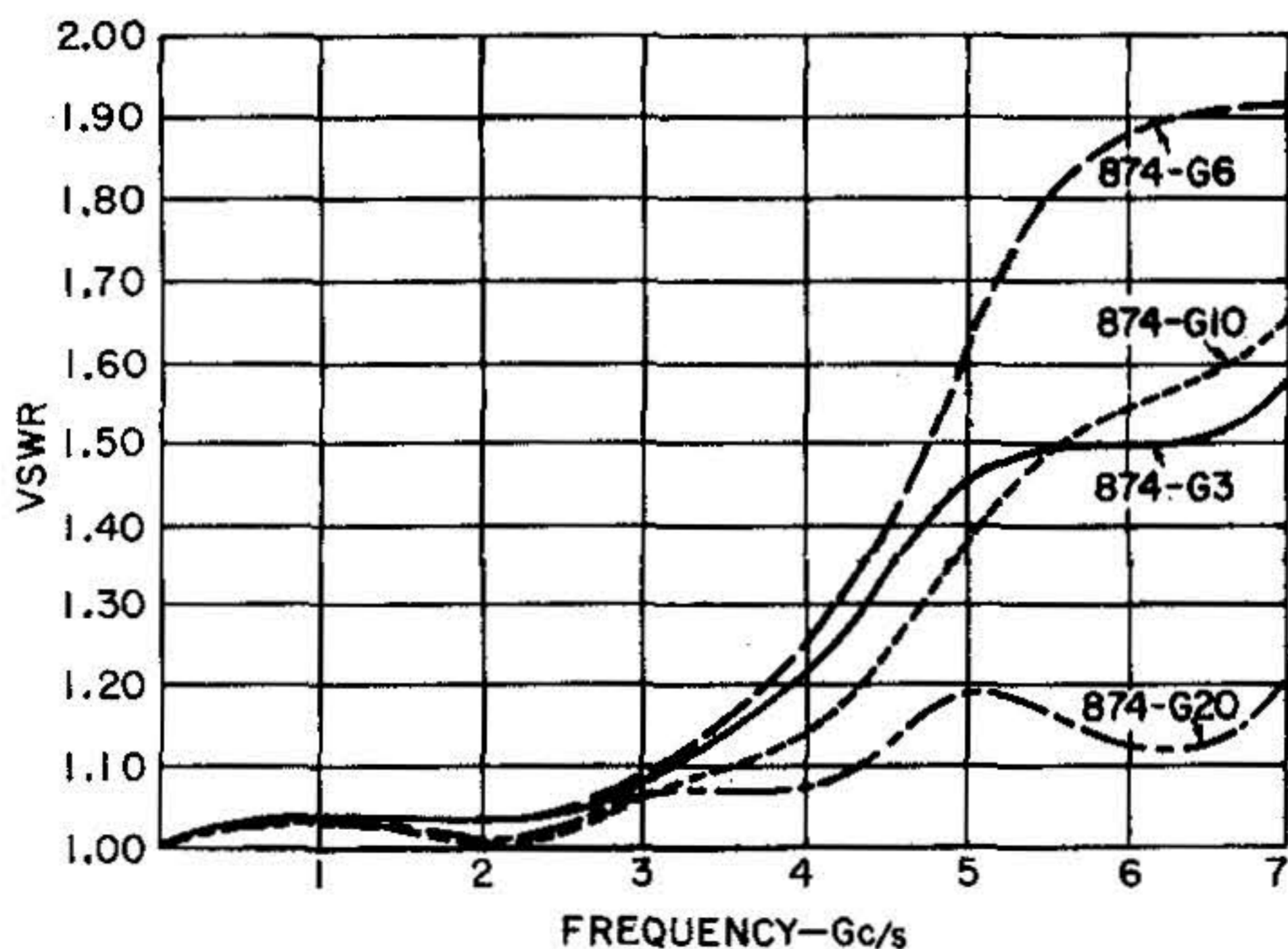


Figure 1. Typical VSWR of Type 874-G Attenuators.

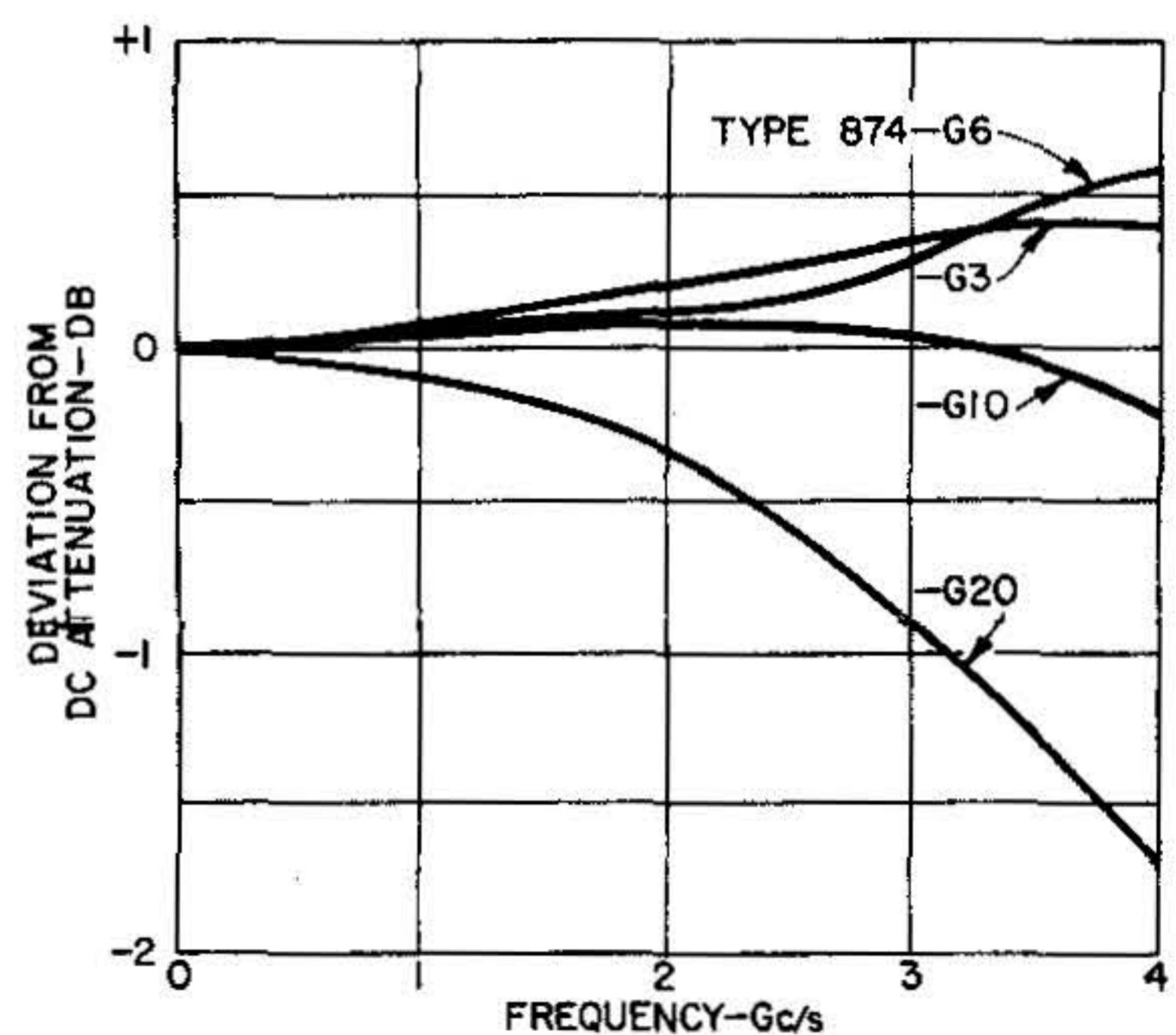


Figure 2. Attenuation Characteristic.

USES. These attenuators can be used as pads to reduce the VSWR of a generator or load. Figure 3 shows the input VSWR obtained when a pad is inserted ahead of a load of a given VSWR. The same effect will be produced on the source impedance of a generator or oscillator.

The attenuators can also be used to reduce the signal level by a known amount. The attenuation characteristics of each attenuator are shown in Figure 2. The attenuation indicated is that produced in a matched 50-ohm system. If the system is not matched, the insertion loss will not necessarily be the same as the attenuation produced in a matched 50-ohm system. If either the source or the load is matched, the insertion loss will be equal to the indicated attenuation.

Inserted between a signal source and load, the attenuators will isolate the source from changes in the load to prevent frequency pulling or amplitude variations.

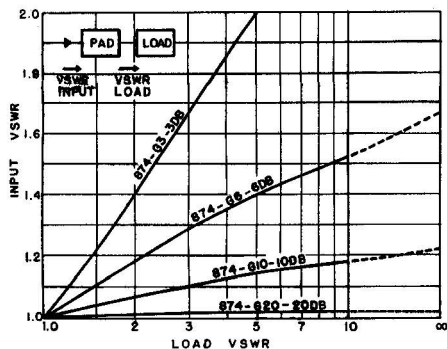


Figure 3. Effectiveness of pads in reducing the VSWR of sources or loads. These curves do not include the VSWR introduced by the pads alone at the higher frequencies.

SPECIFICATIONS

Dc Resistance: 50 ohms $\pm 1\%$ when terminated in 50 ohms.

VSWR: Less than 1.1 to 1 Gc/s, 1.2 to 3 Gc/s for all units; to 4 Gc/s, less than 1.4 for -G3 and -G6, 1.35 for -G10, and 1.30 for G-20.

Accuracy of Attenuation in 50-ohm system: $\pm 1.5\%$ of nominal attenuation at dc; ± 0.2 dB from value indicated on curve to 1 Gc/s, ± 0.4 dB to 2 Gc/s, ± 0.6 dB to 4 Gc/s.

Temperature Coefficient: Less than 0.0003 dB/ $^{\circ}$ C/dB.

Maximum Power: CW - 1 watt continuous; pulse - 3000 watts peak, 1 watt average.

Physical Length: 3-1/2 inches (90 mm) over-all.

Net Weight: 874-G - 3 ounces (85g)
874-GL - 4 ounces (115g).

U.S. Patent No. 2,548,457

GENERAL RADIO COMPANY

Form 0874-0212-E WEST CONCORD, MASSACHUSETTS, USA

November, 1964

Printed in U.S.A.