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## Correction To "Analysis Of The N-wire Exponential Line"

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100 pF or  $10^5$  pF/cm<sup>2</sup>. If the specific capacitances (i.e., capacitance per unit area) of these diodes do not vary appreciably as the junction size decreases, the capacitance on an estimated effective area of  $5 \times 10^{-8}$  cm<sup>2</sup> should be on the order of  $10^{-2}$  pF, which is approximately the value observed.

The reverse breakdown characteristic of these diodes is comparatively abrupt and occurs at a larger applied bias than is observed with conventional contacts. This does not appear to be simply a size effect, since the breakdown voltage for each of four samples examined is taken at the current corresponding to a current density of 20 A/cm<sup>2</sup>, based on an estimated contact for the microcontact specimens of  $5 \times 10^{-8}$  cm<sup>2</sup>. For example, microcontact diodes prepared on GaAs ( $1 \times 10^{17}$  Te/cm<sup>3</sup>) exhibit breakdown at 12 V at 1  $\mu$ A while the breakdown characteristic of Schottky barrier diodes made with 10 by 10 mil contacts occurs at about 9 V at 12 mA. The microcontact diodes prepared on GaAs ( $5 \times 10^{17}$  Sn/cm<sup>3</sup>) exhibit breakdown at 7 V at 1  $\mu$ A as opposed to a breakdown at about 4 V at 12 mA observed with 10 by 10 mil contacts. This breakdown behavior is not understood at present. Assuming that the observed differences in the breakdown characteristics are not primarily due to errors in estimating the effective microcontact area, it is possible that the effect may be due to the increased probability of making contact to uniform semiconductor material because of the very small sample taken. The effect might also be associated with preferential growth of the metal particles on sites on the semiconductor surface which are different in their electrical properties on a very small scale.

#### ACKNOWLEDGMENT

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#### Correction to "Analysis of the *n*-Wire Exponential Line"

The author of the above<sup>1</sup> has called the following to the attention of the Editor.

On page 1225, Fig. 1 should have appeared as:

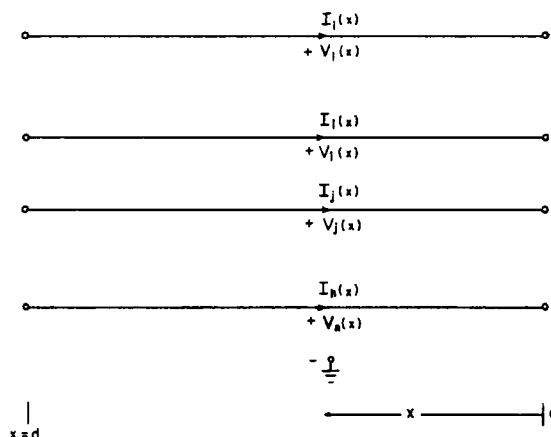


Fig. 1. *n*-wire line.

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<sup>1</sup> E. C. Bertnolli, *Proc. IEEE (Letters)*, vol. 55, p. 1225, July 1967.

## Standard Frequency and Time Notices

### Notice of No Change in the Phase of Seconds Pulses from NBS Radio Station WWVB and No Change in Phase of Time Pulses from NBS Radio Stations WWV and WWVH on October 1, 1967

In accordance with National Bureau of Standards policy of giving monthly notices regarding changes of phases in seconds pulses, notice is hereby given that there was no change in the phase of seconds pulses emitted from radio station WWVB, Fort Collins, Colo., on October 1, 1967. The carrier frequency of WWVB is 60 kHz and is broadcast without offset. These emissions are made following the stepped atomic time (SAT) system as coordinated by the Bureau International de l'Heure (BIH).

Notice is also hereby given that there was no change in the phase of time pulses emitted from radio stations WWV, Fort Collins, Colo., and WWVH, Maui, Hawaii, on October 1, 1967. These pulses at present occur at intervals which are longer than one second by 300 parts in  $10^{10}$ . This is due to the offset maintained in the carrier frequencies of these stations following the universal time (UTC) system as coordinated by the BIH.

### Monthly Fractional Frequency Offsets and Time Deviations for NBS Radio Stations WWV, WWVH, WWVL, and WWVB

Because of wide interest in accurate values presently available as a result of improved monitoring and control techniques, the National Bureau of Standards' Radio Standards Laboratory furnishes each month frequency and time correction data relating to its broadcasts from radio stations WWV, WWVH, WWVL, and WWVB. The first of these notices exhibited data beginning January 1, 1965, and was published in the PROCEEDINGS in the April, 1965, issue.

**Frequency:** The frequencies of WWV, Fort Collins, Colo., WWVH, Maui, Hawaii, and WWVL, Fort Collins, Colo., were offset from their nominal values by  $-150$  parts in  $10^{10}$  during 1965, were offset by  $-300$  parts in  $10^{10}$  during 1966, and will be offset by the same amount during 1967. Determination of the offset to be used each year is coordinated by the Bureau International de l'Heure (BIH). The frequency of WWVB, Fort Collins, Colo., is not offset.

The frequencies of WWV and WWVH are kept constant at their intended values, within 2 parts in  $10^{11}$  and 1 part in  $10^{10}$ , respectively. The frequencies of WWVL and WWVB, Fort Collins, Colo., are controlled to within 2 parts in  $10^{11}$  of their intended values.