COVER SHEET FOR TECHNICAL MEMORANDA

SUBJECT: Terminology for Semiconductor Triodes - Committee Recommendations - Case 38139-8

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MM - 48-130-10
DATE May 28, 1948
AUTHOR L.A.Meacham
C.O.Mallinckoodt
H.L.Barney

Surface States - Terminology

~~APPENDIX~~

ABSTRACT

Recommendations are made for an equivalent circuit representation, and terminology relating to semiconductor triodes.

~~B.T.L.—CONFIDENTIAL~~

Terminology for Semiconductor Triodes - Committee Recommendations - Case 38139-8

MM-48-130-10

May 28, 1948

MEMORANDUM FOR FILE

This memorandum is a report of the recommendations of a committee which was set up* for the purpose of standardizing the terminology relating to semiconductor triodes. The need for such standardization is apparent, and it is hoped that these recommendations will be useful either in providing a generally acceptable terminology, or in stimulating discussion which will lead to nomenclature which can be standardized.

1. Name

On the subject of a generic name to be applied to this class of devices, the committee is unable to make an unanimous recommendation. A discussion of some proposed names is given here.

Semiconductor triode. This is considered to be a fairly good name, being satisfactorily descriptive, but a shorter name would be preferable. The "triode" describes the three element device; if more elements were added it might be a tetrode or pentode, for instance. A single point contact rectifier might be referred to as a semiconductor diode in line with this terminology.

Surface States triode. This is in the same class as the first name suggested above; it is descriptive, but is not brief.

Crystal triode. The objection to this is that the term "crystal" is usually associated with the piezoelectric types, such as quartz.

Solid triode. This has the advantage of brevity, and is descriptive in the sense that the device may be explained by the physics of the solid state, and also that the active

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*At a conference held May 6, 1948, reported in a letter to Messrs. J. W. McRae and R. K. Potter dated May 10, 1948 - Case 38139-8 by W. E. Kock.

element is a solid rather than vacuum or gas filled. However, the word "solid" also commonly means sturdy, massive, rugged, or strong, which terms are contradictory to the actual physical characteristics of the unit.

Iotatron. This term satisfactorily conveys the sense of a minute element, as contrasted to the previous name. However, in view of the many vacuum or gas filled devices such as thyratrons, dynatrons, transitrons, etc., it lacks the distinguishing property which would differentiate it from such devices.

Transistor. This is an abbreviated combination of the words "transconductance" or "transfer", and "varistor". The device logically belongs in the varistor family, and has the transconductance or transfer impedance of a device having gain, so that this combination is descriptive.

If a general term ("transistor", for example) were adopted for the entire class of semiconductive devices, there would be considerable merit in having additional descriptive terms for particular sub-classes. To illustrate, there might someday be a "120B transistor", which was a "germanium triode", and a "196A transistor" which was a "silicon diode", etc. A "germanium tetrode" has already been explored with some promise, and many other variations are likely to appear as time goes on.

In view of these considerations, it is the recommendation of the committee that the particular device with which we have worked so far; that is, a germanium block with two point contacts, be referred to as a germanium triode.

For the purposes of this memorandum, the device will be referred to in more general terms as a semiconductor triode.

Accompanying this memorandum is a ballot. It is suggested that each person to whom the memorandum is routed, fill out the ballot and return it, in order that the resultant vote may be used by the committee as the basis of a recommendation for a generic name.

BALLOT

Designate by the numbers 1, 2 and 3, the order of your preference for the names listed below:

____ Semiconductor Triode

____ Surface States Triode

____ Crystal Triode

____ Solid Triode

____ Iotatron

____ Transistor

____ _____(Other suggestion)

Comments:_____

Signed _____

Please return this ballot to Miss G. R. Callender in 1A-323 at Murray Hill.