

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHARVAKA DUVVURY

Appeal No. 97-1048
Application No. 08/120,998¹

ON BRIEF

Before THOMAS, HAIRSTON, and FRAHM, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 21.

The disclosed invention relates to a method and apparatus for protecting an integrated circuit from an externally created high-energy pulse.

¹ Application for patent filed September 13, 1993.

Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A high-energy pulse protection apparatus for protecting an integrated circuit from an externally created high-energy pulse, the protection apparatus comprising:

an integrated circuit substrate region associated with the integrated circuit, said integrated circuit substrate region comprising a first conductive substrate;

a protection circuit substrate region being disassociated from said integrated circuit substrate region while being connected in common with said integrated circuit substrate region to electrical ground, said protection circuit substrate region comprising a second conductive substrate;

a primary protection circuit associated with said protection circuit substrate region and having at least one connection with the integrated circuit for receiving a high-energy pulse and dissipating the high-energy pulse through said at least one connection and through said protection circuit substrate region to said electrical ground for protecting the integrated circuit from the high-energy pulse.

The references relied on by the examiner are:²

Schott et al. (Schott) 1975	3,876,926	Apr. 8,
Davies et al. (Davies) 1991	5,008,736	Apr. 16,

² Although the reference to Mistry (U.S. Patent No. 5,021,853) is listed in the prior art of record (Answer, page 3), it is not discussed in the formal statement of the rejection (final rejection, pages 3 through 5).

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Claims 1 through 21 stand rejected under 35 U.S.C. § 103 as being unpatentable over Schott in view of Davies.

Reference is made to the final rejection, the briefs and the answer for the respective positions of the appellant and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse the obviousness rejection of claims 1 through 21.

Schott discloses a thick-film voltage regulator for an alternator of an automobile (Figures 1, 2 and 7). The regulator is assembled on two separate substrates 3 and 4 (Figure 2). The insulative substrate 3 supports all of the regulator circuitry except for a power zener diode 5 and 47 (Figures 2 and 7, respectively) which is mounted on conductive substrate 4 (column 5, lines 59 through 61). The circuitry on the insulative substrate is in the form of a printed circuit

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(column 3, lines 57 through 60). The zener diode protects the regulator and associated circuitry by limiting the voltage across the regulator (column 5, lines 45 through 48; column 6, lines 16 through 20).

Davies discloses a thermally protected power MOSFET transistor 16 (Figures 1 and 2). The power MOSFET transistor 16 is formed on an integrated circuit substrate region of a first conductive substrate chip 11 (column 1, lines 6 through 20; column 2, line 66 through column 3, line 2). A protection circuit substrate region comprising a second conductive substrate chip 21 is disassociated from the first conductive substrate chip 11 by contact bumps 22 (column 3, lines 45 through 50). The contact bumps are used to transmit heat from the chip 11 to the protection chip 21. If the heat on the chip is too great because of a short or because of a large amount of current flowing through the power transistor, the circuitry on protection chip 21 turns off power MOSFET 16 (column 7, line 66 through column 8, line 7).

Appellant argues (Brief, page 4) that:

[C]laim 1 is patentable over Schott et al in view of Davies as there is no disclosure or suggestion in the references of a high energy pulse

protection apparatus comprising an integrated circuit conductive substrate and a separate protection circuit conductive substrate with a primary protection circuit on the protection circuit substrate, the protection circuit having at least one connection with the integrated circuit for receiving the high energy pulse and dissipating the high energy pulse through the protection circuit substrate to ground.

We agree with appellant that "a printed circuit board such as substrate 3 of Schott et al is insulative whereas, an integrated circuit substrate is conductive" (Brief, page 4), and "[t]here is no suggestion in the references of replacing the printed circuit board substrate 3 of Schott with the conductive substrates of Davies" (Brief, page 6). "If the printed circuit board substrate [of Schott] were replaced with a conductive substrate [from Davies], all of the leads on all of the integrated circuit chips would be shorted together and the integrated circuit chips would not operate" (Brief, page 6). Thus, "[p]rinted circuit board substrates such as that taught by Schott are not interchangeable with substrates such as those taught by Davies" (Brief, page 6).

Even if we assume for the sake of argument that it would have been obvious to one of ordinary skill in the art to combine the teachings of the references, the combined

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teachings would still not teach a protection circuit that
dissipates a high-energy pulse to ground (Brief, pages 4 and
7).

DECISION

The decision of the examiner rejecting claims 1 through
21 under 35 U.S.C. § 103 is reversed.

REVERSED

JAMES D. THOMAS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
KENNETH W. HAIRSTON)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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ERIC FRAHM)	
Administrative Patent Judge)	

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JACQUELINE J. GARNER
TEXAS INSTRUMENTS INC.
P.O. BOX 655474, M/S 219
DALLAS, TX 75265

Leticia

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Application No. 08/120,998

APJ HAIRSTON

APJ FRAHM

APJ THOMAS

DECISION: REVERSED
Send Reference(s): Yes No
or Translation (s)
Panel Change: Yes No
Index Sheet-2901 Rejection(s): _____

Prepared: April 19, 2001

Draft Final

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OB/HD GAU

PALM / ACTS 2 / BOOK
DISK (FOIA) / REPORT