

SWITCH PANEL OF A GENERAL PCB TESTER FOR BEING ADAPTED
BETWEEN A SPECIFIC TEST HEAD AND A GENERAL PURPOSE TEST HEAD
FIELD OF THE INVENTION

This invention relates to a switch panel of a general PCB
5 . tester for being adapted between a specific test head having
first pins thereon and a general purpose test head having
second pins, particularly to a switch panel which connects the
specific test head to the general purpose test head and by
which the printed circuit boards (PCB) can be tested by using
10 specific PCB tester and general purpose test head in order to
increase the test speed and to reduce the manufacture cost of
the test head.

BACKGROUND OF THE INVENTION

After the PCBs are produced, a quality control must be
15 carried out to determine whether the produced PCBs are good or
bad. Conventionally, the PCBs are tested on an automatic tester
comprising a personal computer and two specific test heads. The
computer sends a signal through one pin and receives the signal
from the other pin in order to determine whether the circuit
20 therebetween is open, short or normal. When the specific test
head is produced, it must be tested to make sure that any of
two pins on the specific test head is not open or short. If the
specific test head is broken down, it can not be used to test
the PCBs.

25 Generally, a plurality of test points which are formed at

a corresponding location to the throughholes or contact points, should be formed on the specific test head which is used to test a special kind of PCB. The test points are generally metal rods. Two PCB points, i.e., the throughhole or contact point, on the produced PCB are conducted on or off by contacting the PCB points with the test points which drive a signal to one of the PCB points and receive the signal from the other PCB point. The species of the PCB test heads are divided into specific test head and general purpose test head. The specific test head comprises a panel on which a plurality of pins are disposed. The upper ends of the pins which are connected to springs are elastically extensible. The lower ends of the pins which extend from the lower surface of the panel are connected to a specific PCB tester through wires. Because the pins of the specific test head are quite small in diameter, the pins are worn away or damaged easily. After use, the specific test head is thrown away because the pins are damaged. The manufacture time is long and the specific test head is costly because wires should be connected to the pins. The test speed of the specific test head is faster than that of the general purpose test head due to the characteristics of the PCB testers. Further, the specific PCB test is cheap. To use a specific test head or to use a specific PCB tester is a topic to be considered by the user.

Conventionally, the general purpose test head comprises an upper panel and a lower panel between which panels a plurality of test pins are disposed. The upper and lower ends of the test

pins extend from the upper surface of the upper panel and lower surfaces of the lower panel respectively. A circuit for connecting to the general PCB tester is disposed on the lower panel, then, wires are not needed to be connected to the general purpose test head. Because the upper and lower ends of the test pins are fixed by two panels, the diameter and length of the test pins can be larger than those of the pins of the specific head. When the PCBs are mounted on the general purpose test head to be tested, the test pins do not insert into the throughholes on the PCB and contact with the peripheral of the contact points of the PCB. The test pins are not worn away or damaged by the test points on the PCB. The general purpose test head can be repeatedly used and is much cheaper than the specific test head.

Generally, the user wants to obtain the maximum efficiency at the cheapest cost. When the dealer of the PCB tester orders, the manufacture do not know whether the dealer will order the same kind of the test head. It bother the user to buy a specific test head or a general purpose test head under the consideration of economic efficiency.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a switch panel of a general PCB tester for being adapted between a specific test head having first pins thereon and a general purpose test head having second pins. When the switch panel which is used as an connection interface between the general

purpose test head and the specific test head is mounted, the switch panel conducts electricity between the specific test head and the general purpose test head. Then, the specific test head is mounted on the specific PCB tester and the PCBs are mounted on the general purpose test head. The PCB is tested by using the general purpose test head which is mounted on the specific PCB tester in order to obtain the advantages of both the specific PCB tester and the general purpose test head and to achieve the maximum efficiency.

It is another object of the present invention to provide a switch panel of a general PCB tester. The conventional pins are replaced by rod pins on the specific test head of the present invention in order to reduce the manufacture cost.

It is another object of the present invention to provide a switch panel of a general PCB tester. In the switch panel which comprises three panel bodies, a plurality of pores and holes are formed on the panel bodies. After assembling, a plurality of conductive spring components are disposed in the holes. The specific test head which uses the rod pins to substitute the conventional pins is aligned and mounted on one surface of switch panel. The rod pins of the specific test head contact the conductive spring components. The other surface of the switch panel is aligned and mounted on the general purpose test head so that the general pins of the general purpose test head may insert into pores of the switch panel and contact the spring components. The general PCB tester can test the PCBs by

using the specific test head in order to swiftly test the PCBs and to reduce the cost.

BRIEF DESCRIPTIONS OF THE DRAWINGS

Fig. 1 is an exploded view showing the connection between the switch panel, the general purpose test head, and the specific test head.

Fig. 2 is a partial cross-section view of the switch panel of the present invention.

Fig. 3 is a partial cross-section view showing that the switch panel is mounted on the general purpose test head and the specific test head.

DETAILED DESCRIPTIONS OF THE INVENTION

As shown in Fig. 1, in the present invention, the switch panel 1 to be placed between a specific test head 2 of a specific PCB tester and a general purpose test head 3 of a general PCB tester, is provided to be used as a switch interface apparatus between the specific test head 2 and the general purpose test head 3. The structure of the specific test head 2 comprises a plurality of rod pins 22 on the pin bed 21 to replace conventional pins in order to reduce the manufacture cost of the specific test head 2. The lower end of the rod pins 22 which extend downward from the pin bed 21 are connected to a plurality of wires 23 which are electrically connected to the specific PCB tester (not shown).

The general purpose test head 3 comprises an upper general

panel 311 and a lower general panel 312 between which a plurality of general pins 33 are disposed vertical to the general panels 311,312. The general pins 33 are divided into middle pins 331, upper face pins 332, and lower face pins 333.

5 The upper face pins 332 protrude upwardly from the upper general panel 311. The lower face pins 332 protrude downward from the lower general panel 312. A wire circuitry (not shown) is disposed on the lower general panel 312. A plurality of conductive wires are not needed to connect the lower face pins
10 333 to the upper face pins 332. The general pins 33 of the general purpose test head 3 are fixed by the general panels 311,312. The diameter and the length of the general pins 33 are larger than those of the rod pins 22. When the PCB 4 is disposed on the general purpose test head 3 to be tested, the
15 general pins 33 are not inserted into the throughholes 41 on the PCB 4 and the upper face pins 332 contact the copper contact around the throughholes 41.

As shown in Fig. 2, the switch panel 1 of the present invention comprises an upper panel body 11, a lower panel body
20 12 and a middle panel body 13. A plurality of upper pores 110 are formed on the upper panel body 11. A plurality of lower pores 120 which are at corresponding locations to the upper pores 110, are formed on the lower panel body 12. A plurality of the large holes 130 which are at corresponding locations to
25 the upper pores 110 and to the lower pores 120 and which have a larger inner aperture than those of the upper pores 110 and

lower pores 120, are disposed in the middle panel body 13. When the switch panel 1 is assembled, a plurality of conductive spring components 14 are disposed inside of the large holes 130. Then, the upper pores 110 and the lower pores 120 align with the large holes 130 of the middle panel body 13 to combine the panel bodies 11, 12 and 13 together so that the upper pores 110, lower pores 120 are in alignment with the large holes 130. Thus, the conductive spring components 14 are disposed between the upper pores 110 and the lower pores 120, and disposed in the large holes 130.

Please see Fig. 3. When the switch panel 1 is assembled to be used, one surface of the switch panel 1 is mounted on the specific test head 2. The rod pins 22 of the specific test head 2 are inserted through the lower pores 120 to contact the conductive spring components 14. The general purpose test head 3 is aligned with the switch panel 1 and mounted on it. Then, the general pins 33 of the general purpose test head 3 are inserted into the upper pore 110 of the switch panel 1 to contact the conductive spring components 14. By means of the switch panel 1, the specific test head 2 is combined with and electrically connected to the general purpose test head 3. Furthermore, because the specific test head 2 may be mounted on specific PCB tester, the PCBs may be tested by means of the general purpose test head 3 so as to obtain the maximum economic efficiency.

While the invention has been particularly shown and

described with reference to these preferred embodiments, it
will be understood by those skilled in the art that various
changes in form and details may be made without departing from
the spirit and scope of the invention. Although only the
5 preferred embodiment of this invention were shown and described
in the above description, it is requested that any modification
or combination that comes within the spirit of this invention
be protected.

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We claims:

1. A switch panel of a general PCB tester for being adapted between a specific test head having first pins thereon and a general purpose test head having second pins, comprising three panel bodies having pores and holes thereon, a plurality of conductive spring components being disposed in the holes so that the specific test head being mounted on a surface of the switch panel and the general purpose test head being mounted on a opposite surface of the switch panel, after being assembled, the first pins being connected to the spring components and to the second pins thereby the general purpose test head being used on the specific PCB tester to test a PCB.

2. The switch panel of claim 1, wherein the switch panel comprises:

an upper panel body having a plurality of upper pores;
a lower panel body having a plurality of lower pores which are formed at corresponding locations to the upper pores;
a middle panel body having a plurality of holes which are formed at corresponding locations to the upper and lower pores;
and

a plurality of spring components which are respectively mounted in the holes of the middle panel body into which first and second pins are inserted to contact the spring components.

3. The switch panel as claimed in claim 2, wherein the inner diameter of the holes is larger than that of the pores.

4. The switch panel as claimed in claim 2, wherein the outer



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diameter of the spring components is larger than the inner diameter of the pores and is smaller than the inner diameter of the holes.

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