SGS-THOMSON MICROELECTRONICS

APPLICATION NOTE

NEW LAYOUT INSULATION REQUIREMENT

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INTRODUCTION

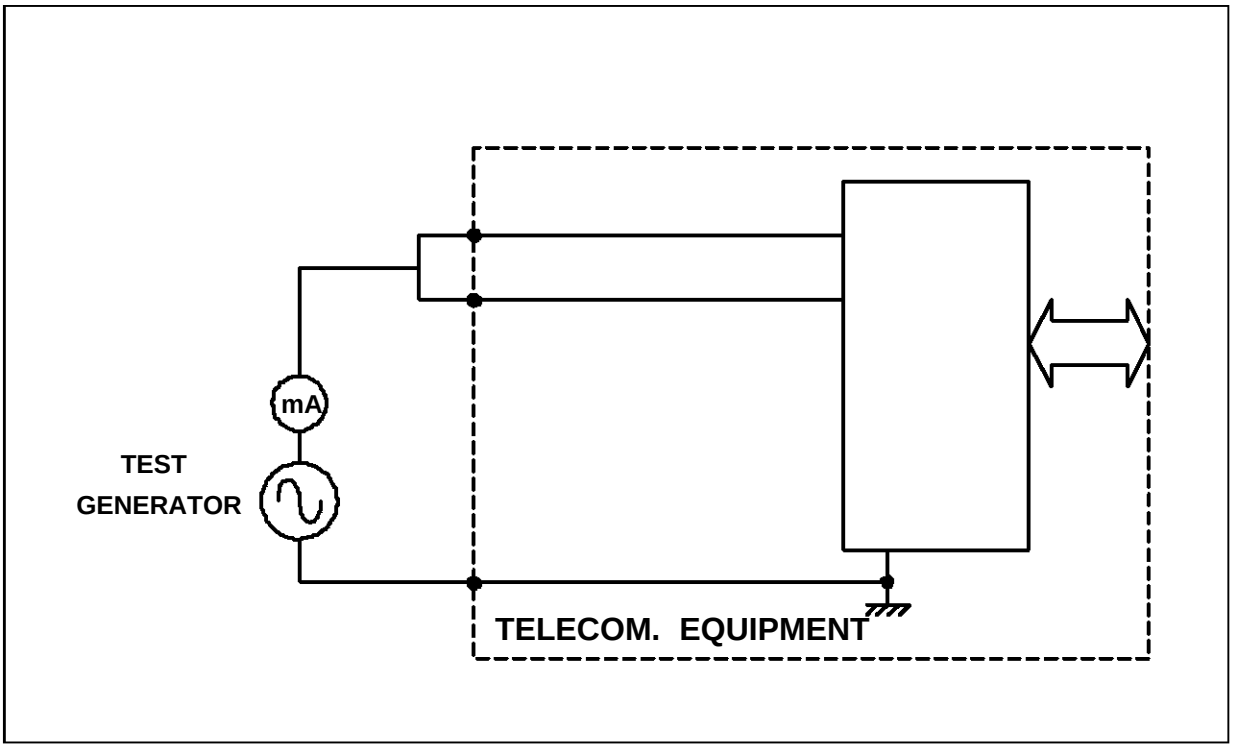
In order to assume better level of security for telecommunication system users, some new rules have been published. This is the case of the IEC950 standard which dedicates one chapter to this subject. This kind of requirement is beginning to be active in Germany for example.

REQUIREMENT

Figure 1 shows the principle of the test circuit. The test consists of the insulation measurement of the telecommunication network and the earth. During this test it is permitted to remove components. In fact in the field the procedure is done as follow:

- The protection device is removed from the board.
- The telecommunication lines are connected together. Tip and Ring lines from all the subscribers for an exchange equipment, or A and B lines for a telephone set.
- A voltage of 2 kv is applied between the lines and ground.
- The current flowing in the test circuit shall not exceed the requested limit, for example 10 mA in the IEC950 case.

Fig. 1 : Test circuit



OUR PROPOSAL

To withstand these new requirements SGS THOMSON proposes an adapted input / output arrangement for the THBT series.

Fig. 2 : SGS-THOMSON Microelectronics proposal

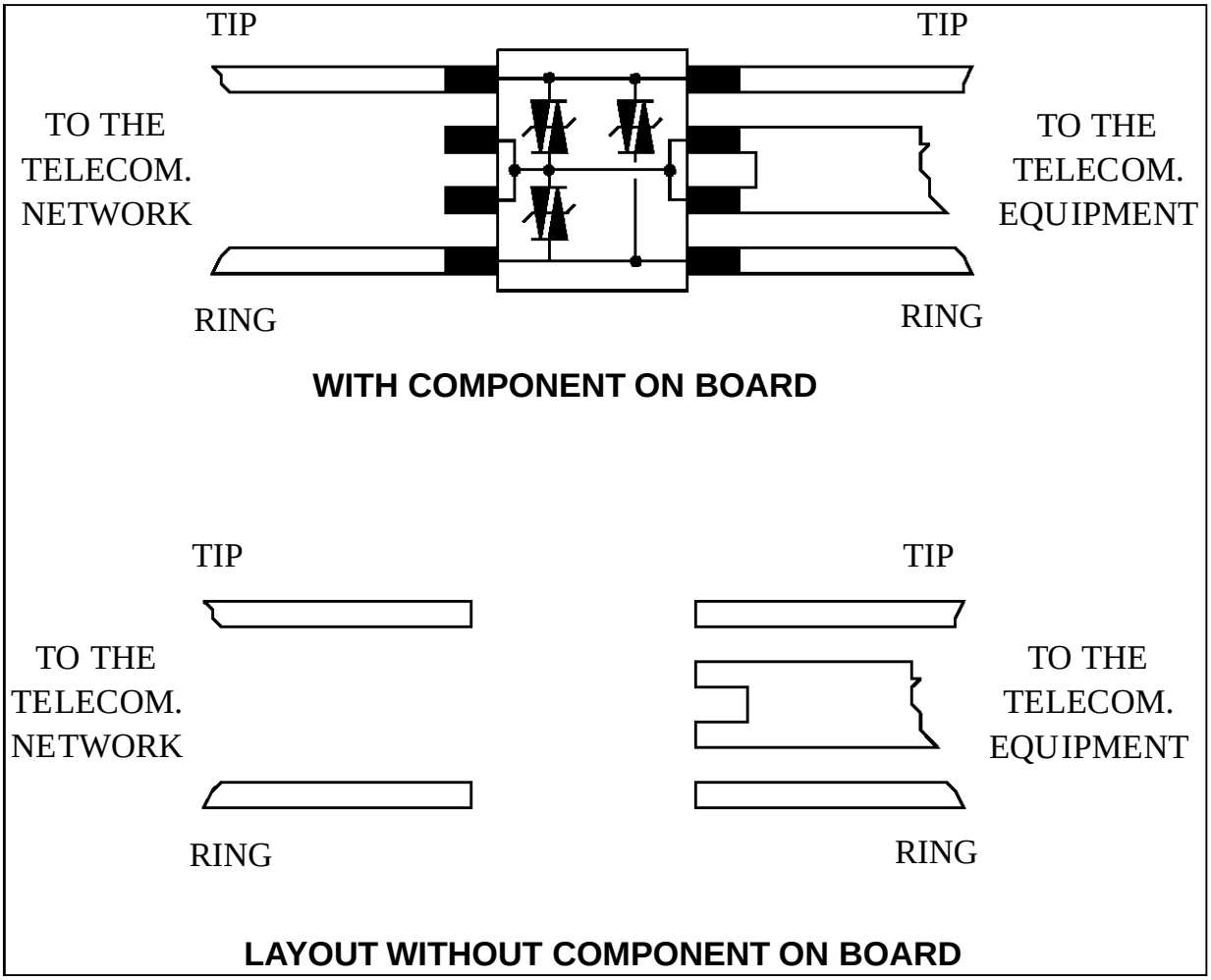


Figure 2 shows our proposal that consists of following points:

- Insulation between inputs and outputs. For example TIP coming from the telecommunication network is isolated from the TIP connected to the sensitive part of the circuit. That means, when the surge suppressor is removed, no current can flow through the telecommunication equipment.
- For the component which has got four ground pins (like the THBT200xx), only two pins are enough to withstand the maximum surge current capability of the component. That means only the two ground pins located on the telecommunication equipment side are connected.

SUMMARY

New standards concerning the protection of the telecommunication network service personnel, and other users of this network, from hazards in the equipment seems to be generalized. SGS THOMSON has taken into account this fact and proposes to meet these requirements by layout like shown in figure 2.