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EIA STANDARD

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Test Method 24

Solid State Switch Transfer Tests

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STANDARD TEST METHOD 24

SOLID STATE SWITCH TRANSFER TESTS

(From EIA Standards Proposal No. 2382, formulated under the cognizance of the EIA P-13 Committee on Switches.)

1 Purpose

The purpose of this test method is to establish a standard for measuring the transfer time of switches with solid state circuit outputs. This standard applies to devices such as manually operated solid state switches, sensors with solid state outputs, or controllers interfacing between multiple switch arrays and computer processors.

2 Definitions

As they relate to the requirements of this document, the following definitions shall apply (figures 1 through 3 graphically represent the timing relationships):

solid state switch transfer time

The time interval between the instant when switch-actuating sensor detects the switching command and the instant when the output of the switching element has changed state.

NOTE - Typical times are measured in milliseconds or microseconds. Transfer time is represented by t_T in figure 1.

rise time

The interval between the instant when the switch output transistor first reaches the specified lower limit and the instant when it reaches the specified upper limit.

NOTE - Unless otherwise specified, these limits are the 10% and 90% points of the upper limit. Typical times are measured in nanoseconds. Rise time is represented by t_R in figures 1, 2 and 3.

fall time

The interval between the instant when the switch output amplitude first reaches the upper limit and the instant when it reaches the specified lower limit.

NOTE - Fall time is essentially the inverse of rise time. Typical times are measured in nanoseconds. Fall time is represented by t_F in figure 1.