

12 V & 5 V Power Port Protection

Solution Products



TISP4025H1BJR-S



TISP4015H1BJR-S

Objective

Power supply safety testing in consumer applications is simplified if circuits are split into sub-circuits of 15 W. A low power circuit is defined by IEC 60335-1 and IEC 60730-1 as such when it generates a maximum of 15 W between its input and output ports. Under abnormal conditions such as an overload, the temperature rise cannot exceed those in table 3 of IEC 60335. For example, Class B transformer windings may not overheat by more than 95 °C. The internal overcurrent protection in power supply controllers may not be sensitive enough to the increase in power demand caused by a test such as the bypassing of one low power circuit as shown below, causing the transformer to overheat. The Model TISP4025H1BJ has a rated voltage of 13 V and will breakover at a maximum of 25 V with a rate of change of current of 0.8 A/ms.

Solution

1 Single Bidirectional Thyristor Surge Protector: TISP4025H1BJR-S
or
1 Single Bidirectional Thyristor Surge Protector: TISP4015H1BJR-S

Compliance*

IEC 60335-1,
IEC 60730 (low power circuit test)

Alternate Recommendations

1 TISP4030H1BJR-S

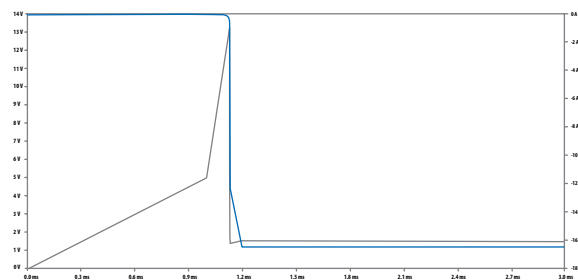
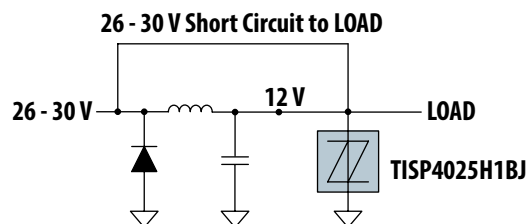
Benefit

Helps designer pass short circuit test of power supply small format (SMB package)

Design Kit



PN-DESIGNKIT-52



*The Bourns® model TISP4xxxH1BJR-S helps ensure an application's compliance to IEC 60335 and IEC 60730 by forcing the over current protection to shut down the power supply during a short circuit event, preventing the circuit from overheating.

IEC 60335-1 (Safety Household Appliances) clause 19.11.1 as well as IEC 60730-1 Clause H.27.1 (Automatic Controls) both define low power circuits and abnormal operations for fault conditions. Model TISP4025H1BJ has been tested on a 12 V port short circuited to a 26 V bus successfully. However, different loads and different output capacitors may affect the rise time and breakover voltage of the TISP® device. It is recommended that the customer test the device in their application.

The schematic shown here illustrates the application protection and does not constitute the complete circuit design. Customers should verify actual device performance in their specific applications.