
Selection Guide for SiBar Thyristor Surge Protectors

Step 1. Determine the circuit's operating parameters.

Fill in the following information about the circuit:

Maximum ambient operating temperature _____

Maximum DC supply voltage (V_{DC} Max.) _____

Maximum ringing (AC) voltage (V_{AC} Max.) _____

System voltage damage threshold _____

Maximum fault current and duration _____

Maximum system operating current _____

Applicable industry requirements _____

Step 2. Calculate the maximum operating voltage of your system.

Maximum operating voltage = V_{DC} Max. + (1.414 x V_{AC} Max.)

Refer to Table V1 to select a SiBar thyristor device with a maximum off-state voltage (V_{DM}) rating that is close to, but greater than, the maximum operating voltage of your system.

Step 3. Verify that the system voltage damage threshold is greater than the rated maximum breakover voltage (V_{BO}).

Refer to Table V1 to confirm that the maximum breakover voltage of the device you selected in Step 2 is less than the system voltage damage threshold.

Selection Guide for SiBar Thyristor Surge Protectors continued

Step 4. Verify that the maximum fault current of the system and its duration or the fault current defined in the industry specification(s) are less than the surge current rating of the device selected. For help in determining which industry specifications may apply, refer to the Protection Application Guide on the next page.

Refer to Table V2 for SiBar thyristor surge current ratings applicable to TIA 968-A (FCC Part 68), Telcordia GR-1089, ITU K.20, K.21, K.45 industry specifications.

Step 5. Verify that the maximum system operating current is less than the minimum hold current rating (I_H) in Table V1 for the device selected.

Using Figure V4, verify that I_H is greater than the maximum system operating current over the entire ambient operating temperature range. (As with I_H , V_{DM} and V_{BO} also vary with ambient temperature, to a lesser degree. Figures V2 and V3 can be used to determine that the device selected continues to meet your requirements over the ambient operating temperature range.)

Step 6. Verify that the dimensions in Table V4 for the SiBar thyristor device are compatible with the application's space requirements.