



CERTIFICATION RECORD

The company named below has been authorized by CSA International to represent the products listed in this record as "CSA Certified" and to affix the CSA Mark to these products according to the terms and conditions of the CSA Service Agreement and applicable CSA program requirements (including additional Markings).

File No: 091788_0_000

Class No: 2221 01 AUDIO AND VIDEO EQUIPMENT Accessories and Parts for Electronic Equipment

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May 10, 2006(Replaces:June 29, 2005)

- Metal oxide varistors, for use as across the line transient protectors on up to 250V system:

Series V**LA***, rated 130 to 1000V ac (RMS), varistor voltage 175 to 1200V dc, surge rating

1200 to 9000A;

Series V**PA***, rated 130 to 660V (RMS), varistor voltage 175 to 850V dc, surge rating 6500A; Series V**RA***, rated 130 to 275V ac (RMS), varistor voltage 175 to 369V dc, surge rating 1200 to 6500A;

Series V**HA*** or V**HC***, (where ** denotes RMS voltage and *** is a combination number and letter denoting relative energy and clamping voltage selection), rated 110 to 750V (RMS), varistor voltage 148 to 970V dc, surge current rating 25,000 to 70,000A.

Series V14SC*** and V20SC***, where "****" are changeable numbers 130, 140, 150, 175, 230, 250, 275, 300, 385 and 420 indicating the rated voltage from 130 to 420V ac, varistor voltage 205 to 680V dc, surge current rated 8kA for Series V14SC*** and 15kA for Series V20SC***.

Series V**E***L*XX (where "***" denotes the uncoated disk diameter in mm, "****" denotes the RMS voltage, "L*" denotes the lead formation and "XX" is a combination letter and number denoting packaging and lead spacing information, rated 130 to 625V ac (RMS), varistor voltage 205 to 1000V dc, surge current rating 1200 to 6500A.

Series V20D*** L*XX, where "****" are changeable numbers 130, 140, 150, 175, 230, 250, 275, 300 and 320 indicating the rated voltage from 130 to 320V ac, "L*" denotes the lead formation and "XX" is a combination letter and number denoting packaging and lead spacing information, varistor voltage from 205 to 510V dc, surge current rating 12kA.

Series V14S***L*XX and V20S***L*XX, where "****" are changeable numbers 130, 140, 150, 175, 230, 250, 275, 300, 320, 385 and 420 indicating the rated voltage from 130 to 420V ac, "L*" denotes the lead formation and "XX" is a combination letter and number denoting packaging and lead spacing information, varistor voltage from 205 to 680V ac, surge current rated 8kA for Series V14S***L*XX and 15kA for Series V20S***L*XX.

Notes:

1. These varistors are Certified for use only as components of other Certified equipment where the suitability of the combination is to be determined by CSA International.
 2. Fuse protection may be required in combustible enclosure, where the varistor is surge rated 6000A or less.
 3. L*XX may not be marked on the varistors.
 4. The model designation may be followed by the suffix P indicating that the model is leadfree.
- Metal oxide varistors, for use as across-the-line transient protectors on up to 250V ac systems.

Series V***HB34, V***HF34, V***HG34, and V***DHB34, where ** * are changeable numbers 111, 131, 141, 151, 181, 201, 251, 271, 301, 321, 331, 351, 391, 421, 441, 481, 511, 551, 571, 661, 681 and 751 indicating the rated voltage from 110 to 750V ac, varistor voltage from 173 to 1200V dc, surge current rated 40,000A.

Notes:

1. The model designation may be followed by a suffix P indicating that the model is leadfree.
2. These varistors are Certified for use only as components of other Certified equipment where the suitability of the combination is to be determined by CSA International.
3. The surge current rating of Models V111HB34, V111HF34, V111HG34 and V111DHB34

is 40,000A when used in applications up to 97V rms. If the application voltage is higher than 97V rms, the rating is 30,000A.

4. The surge current rating of Models V131HB34, V131HF34, V131HG34 and V131DHB34 is 40,000A when used in applications rated up to 115V rms. If the application voltage is higher than 115V rms, the rating is 30,000A.
 5. The surge current rating of Models V141HB34, V141HF34, V141HG34 and V141DHB34 is 40,000A when used in applications rated up to 123V rms. If the application voltage is higher than 123V rms, the rating is 30,000A.
 6. The surge current rating of Models V151HB34, V151HF34, V151HG34 and V151DHB34 is 40,000A when used in applications rated up to 132V rms. If the application voltage is higher than 132V rms, the rating is 30,000A.
- Thermally protected metal oxide varistors, for use as across-the-line transient protectors on up to 250V ac systems.
TMOV Series, 14mm disc diameter, models TMOV14R***E, where "***" are changeable numbers 115, 130, 140, 150, 175, 200, 230, 250, 275, 300, 320, 385 and 420 indicating the rated voltage from 115 to 420V ac, varistor voltage from 180 to 680V dc, surge current rated 6000A.
TMOV Series, 20mm disc diameter, models TMOV20R***E, where "***" are changeable numbers 115, 130, 140, 150, 175, 200, 230, 250, 275, 300, 320, 385, 420, 460, 510, 550, 575, 625 and 750 indicating the rated voltage from 115 to 750V ac, varistor voltage from 180 to 1200V dc, surge current rated 10000A.
TMOV Series, models TMOV**R***M, where "**" are changeable numbers 14 and 20 indicating the disc diameter in mm, "***" are changeable numbers 115, 130, 140, 150, 175, 200, 230, 250, 275, 300, 320, 385 and 420 indicating the rated voltage from 115 to 420V ac, varistor voltage from 180 to 680V dc, surge current rated 6000A for 14mm dia. varistors and 10000A for 20mm dia. varistors.

Notes:

1. These varistors are Certified for use only as components of other Certified equipment where the suitability of the combination is to be determined by the CSA International.
2. For varistors, having a rating less than 250V ac, used in equipment intended for operation on a nominal 120V ac system, the internal wiring of the equipment shall be dressed away from these varistors.
3. The model nos of these varistors may be followed by additional suffixes to indicate lead style, packing and lead spacing.
4. The thermal cut-off inside the TMOV14R***E and TMOV14R***M series varistors is not relied for thermal protection.

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