

## Ceramic Surge Absorbers

### ENC series

14 - 40V AC (Ta=25°C)

| Device type | Nominal varistor peak voltage Vnom* <sup>1</sup><br>Volts | Maximum rating Applied voltage |          | Max. clamping voltage Vc* <sup>2</sup> |       | Average power dissipation<br>Watts | Energy<br>Joules | Peak current* <sup>3</sup><br>(8/20 μs)<br>Amps. | Package |
|-------------|-----------------------------------------------------------|--------------------------------|----------|----------------------------------------|-------|------------------------------------|------------------|--------------------------------------------------|---------|
|             |                                                           | Volts ACrms                    | Volts DC | Volts                                  | Ip(A) |                                    |                  |                                                  |         |
| ENC220D-05B | 22(20 to 24)                                              | 14                             | 18       | 48                                     | 1     | 0.01                               | 0.4              | 125                                              | D05     |
| ENC220D-07B |                                                           |                                |          | 43                                     | 2.5   | 0.02                               | 0.9              | 250                                              | D07     |
| ENC220D-10B |                                                           |                                |          | 43                                     | 5     | 0.05                               | 2.0              | 500                                              | D10     |
| ENC220D-14B |                                                           |                                |          | 43                                     | 10    | 0.1                                | 4.0              | 1000                                             | D14     |
| ENC220D-20B |                                                           |                                |          | 43                                     | 20    | 0.2                                | 13.0             | 2000                                             | D20     |
| ENC270D-05B | 27(24 to 30)                                              | 17                             | 22       | 60                                     | 1     | 0.01                               | 0.5              | 125                                              | D05     |
| ENC270D-07B |                                                           |                                |          | 53                                     | 2.5   | 0.02                               | 1.0              | 250                                              | D07     |
| ENC270D-10B |                                                           |                                |          | 53                                     | 5     | 0.05                               | 2.5              | 500                                              | D10     |
| ENC270D-14B |                                                           |                                |          | 53                                     | 10    | 0.1                                | 5.0              | 1000                                             | D14     |
| ENC270D-20B |                                                           |                                |          | 53                                     | 20    | 0.2                                | 15.0             | 2000                                             | D20     |
| ENC330D-05B | 33(30 to 36)                                              | 20                             | 26       | 73                                     | 1     | 0.01                               | 0.6              | 125                                              | D05     |
| ENC330D-07B |                                                           |                                |          | 65                                     | 2.5   | 0.02                               | 1.2              | 250                                              | D07     |
| ENC330D-10B |                                                           |                                |          | 65                                     | 5     | 0.05                               | 3.0              | 500                                              | D10     |
| ENC330D-14B |                                                           |                                |          | 65                                     | 10    | 0.1                                | 6.0              | 1000                                             | D14     |
| ENC330D-20B |                                                           |                                |          | 65                                     | 20    | 0.2                                | 20.0             | 2000                                             | D20     |
| ENC390D-05B | 39(35 to 43)                                              | 25                             | 31       | 86                                     | 1     | 0.01                               | 0.8              | 125                                              | D05     |
| ENC390D-07B |                                                           |                                |          | 77                                     | 2.5   | 0.02                               | 1.5              | 250                                              | D07     |
| ENC390D-10B |                                                           |                                |          | 77                                     | 5     | 0.05                               | 3.5              | 500                                              | D10     |
| ENC390D-14B |                                                           |                                |          | 77                                     | 10    | 0.1                                | 7.0              | 1000                                             | D14     |
| ENC390D-20B |                                                           |                                |          | 77                                     | 20    | 0.2                                | 24.0             | 2000                                             | D20     |
| ENC470D-05B | 47(42 to 52)                                              | 30                             | 38       | 104                                    | 1     | 0.01                               | 1.0              | 125                                              | D05     |
| ENC470D-07B |                                                           |                                |          | 93                                     | 2.5   | 0.02                               | 1.8              | 250                                              | D07     |
| ENC470D-10B |                                                           |                                |          | 93                                     | 5     | 0.05                               | 4.5              | 500                                              | D10     |
| ENC470D-14B |                                                           |                                |          | 93                                     | 10    | 0.1                                | 8.5              | 1000                                             | D14     |
| ENC470D-20B |                                                           |                                |          | 93                                     | 20    | 0.2                                | 30.0             | 2000                                             | D20     |
| ENC560D-05B | 56(50 to 62)                                              | 35                             | 45       | 123                                    | 1     | 0.01                               | 1.0              | 125                                              | D05     |
| ENC560D-07B |                                                           |                                |          | 110                                    | 2.5   | 0.02                               | 2.2              | 250                                              | D07     |
| ENC560D-10B |                                                           |                                |          | 110                                    | 5     | 0.05                               | 5.5              | 500                                              | D10     |
| ENC560D-14B |                                                           |                                |          | 110                                    | 10    | 0.1                                | 10.0             | 1000                                             | D14     |
| ENC560D-20B |                                                           |                                |          | 110                                    | 20    | 0.2                                | 35.0             | 2000                                             | D20     |
| ENC680D-05B | 68(61 to 75)                                              | 40                             | 56       | 150                                    | 1     | 0.01                               | 1.2              | 125                                              | D05     |
| ENC680D-07B |                                                           |                                |          | 135                                    | 2.5   | 0.02                               | 2.5              | 250                                              | D07     |
| ENC680D-10B |                                                           |                                |          | 135                                    | 5     | 0.05                               | 6.5              | 500                                              | D10     |
| ENC680D-14B |                                                           |                                |          | 135                                    | 10    | 0.1                                | 12.0             | 1000                                             | D14     |
| ENC680D-20B |                                                           |                                |          | 135                                    | 20    | 0.2                                | 40.0             | 2000                                             | D20     |

\*<sup>1</sup> Indicates the varistor terminal voltage measured with 1mA DC applied. (For 05B types, 0.1mA DC applied).

\*<sup>2</sup> Indicates the peak terminal voltage measured with 8/20μs impulse current applied.

\*<sup>3</sup> The peak current rating, I<sub>tm</sub>, is based on 8/20μs test impulse waveform.

This peak current is the maximum peak current at which the nominal varistor voltage shift does not exceed ±10% when the test impulse is applied twice at a 5-minute interval.



# Surge Absorbers

## Ceramic Surge Absorbers

### ENC series

50 - 230V AC (Ta=25°C)

| Device type                  | Nominal varistor peak voltage Vnom* <sup>1</sup><br>Volts | Maximum rating Applied voltage |          | Max. clamping voltage Vc* <sup>2</sup> |       | Average power dissipation<br>Watts | Energy<br>Joules | Peak current* <sup>3</sup><br>(8/20 µs)<br>Amps. | Package |
|------------------------------|-----------------------------------------------------------|--------------------------------|----------|----------------------------------------|-------|------------------------------------|------------------|--------------------------------------------------|---------|
|                              |                                                           | Volts ACrms                    | Volts DC | Volts                                  | Ip(A) |                                    |                  |                                                  |         |
| ENC820D-05A                  | 82(74 to 90)                                              | 50                             | 65       | 145                                    | 5     | 0.1                                | 1.7              | 250                                              | D05     |
| ENC820D-07A* <sup>5</sup>    |                                                           |                                |          | 135                                    | 10    | 0.25                               | 3.5              | 600                                              | D07     |
| ENC820D-10A* <sup>5</sup>    |                                                           |                                |          | 135                                    | 25    | 0.4                                | 8.0              | 1250                                             | D10     |
| ENC820D-14A* <sup>5</sup>    |                                                           |                                |          | 135                                    | 50    | 0.6                                | 14.0             | 2500                                             | D14     |
| ENC820D-20A* <sup>5</sup>    |                                                           |                                |          | 135                                    | 100   | 1.0                                | 27.0             | 4000                                             | D20     |
| ENC101D-05A                  | 100(90 to 110)                                            | 60                             | 85       | 175                                    | 5     | 0.1                                | 2.0              | 250                                              | D05     |
| ENC101D-07A* <sup>5</sup>    |                                                           |                                |          | 165                                    | 10    | 0.25                               | 4.0              | 600                                              | D07     |
| ENC101D-10A* <sup>5</sup>    |                                                           |                                |          | 165                                    | 25    | 0.4                                | 10.0             | 1250                                             | D10     |
| ENC101D-14A* <sup>5</sup>    |                                                           |                                |          | 165                                    | 50    | 0.6                                | 18.0             | 2500                                             | D14     |
| ENC101D-20A* <sup>5</sup>    |                                                           |                                |          | 165                                    | 100   | 1.0                                | 30.0             | 4000                                             | D20     |
| ENC121D-05A                  | 120(108 to 132)                                           | 75                             | 100      | 210                                    | 5     | 0.1                                | 2.5              | 250                                              | D05     |
| ENC121D-07A* <sup>5</sup>    |                                                           |                                |          | 200                                    | 10    | 0.25                               | 5.0              | 600                                              | D07     |
| ENC121D-10A* <sup>5</sup>    |                                                           |                                |          | 200                                    | 25    | 0.4                                | 12.0             | 1250                                             | D10     |
| ENC121D-14A* <sup>5</sup>    |                                                           |                                |          | 200                                    | 50    | 0.6                                | 20.0             | 2500                                             | D14     |
| ENC121D-20A* <sup>5</sup>    |                                                           |                                |          | 200                                    | 100   | 1.0                                | 40.0             | 4000                                             | D20     |
| ENC151D-05A                  | 150(135 to 165)                                           | 95                             | 125      | 260                                    | 5     | 0.1                                | 3.0              | 250                                              | D05     |
| ENC151D-07A* <sup>5</sup>    |                                                           |                                |          | 250                                    | 10    | 0.25                               | 6.0              | 600                                              | D07     |
| ENC151D-10A* <sup>5</sup>    |                                                           |                                |          | 250                                    | 25    | 0.4                                | 16.0             | 1250                                             | D10     |
| ENC151D-14A* <sup>5</sup>    |                                                           |                                |          | 250                                    | 50    | 0.6                                | 25.0             | 2500                                             | D14     |
| ENC151D-20A* <sup>5</sup>    |                                                           |                                |          | 250                                    | 100   | 1.0                                | 50.0             | 4000                                             | D20     |
| ENC201D-05A* <sup>4</sup>    | 200(185 to 225)                                           | 130                            | 170      | 355                                    | 5     | 0.1                                | 4.0              | 250                                              | D05     |
| ENC201D-07A* <sup>4, 5</sup> |                                                           |                                |          | 340                                    | 10    | 0.25                               | 10.0             | 600                                              | D07     |
| ENC201D-10A* <sup>4, 5</sup> |                                                           |                                |          | 340                                    | 25    | 0.4                                | 20.0             | 1250                                             | D10     |
| ENC201D-14A* <sup>4, 5</sup> |                                                           |                                |          | 340                                    | 50    | 0.6                                | 35.0             | 2500                                             | D14     |
| ENC201D-20A* <sup>4, 5</sup> |                                                           |                                |          | 340                                    | 100   | 1.0                                | 70.0             | 4000                                             | D20     |
| ENC221D-05A* <sup>4</sup>    | 220(198 to 242)                                           | 140                            | 180      | 380                                    | 5     | 0.1                                | 4.5              | 250                                              | D05     |
| ENC221D-07A* <sup>4, 5</sup> |                                                           |                                |          | 360                                    | 10    | 0.25                               | 10.0             | 600                                              | D07     |
| ENC221D-10A* <sup>4, 5</sup> |                                                           |                                |          | 360                                    | 25    | 0.4                                | 23.0             | 1250                                             | D10     |
| ENC221D-14A* <sup>4, 5</sup> |                                                           |                                |          | 360                                    | 50    | 0.6                                | 40.0             | 2500                                             | D14     |
| ENC221D-20A* <sup>4, 5</sup> |                                                           |                                |          | 360                                    | 100   | 1.0                                | 75.0             | 4000                                             | D20     |
| ENC241D-05A* <sup>4</sup>    | 240(216 to 264)                                           | 150                            | 200      | 415                                    | 5     | 0.1                                | 5.0              | 250                                              | D05     |
| ENC241D-07A* <sup>4, 5</sup> |                                                           |                                |          | 395                                    | 10    | 0.25                               | 10.0             | 600                                              | D07     |
| ENC241D-10A* <sup>4, 5</sup> |                                                           |                                |          | 395                                    | 25    | 0.4                                | 25.0             | 1250                                             | D10     |
| ENC241D-14A* <sup>4, 5</sup> |                                                           |                                |          | 395                                    | 50    | 0.6                                | 40.0             | 2500                                             | D14     |
| ENC241D-20A* <sup>4, 5</sup> |                                                           |                                |          | 395                                    | 100   | 1.0                                | 80.0             | 4000                                             | D20     |
| ENC271D-05A* <sup>4</sup>    | 270(247 to 303)                                           | 175                            | 225      | 475                                    | 5     | 0.1                                | 6.0              | 250                                              | D05     |
| ENC271D-07A* <sup>4, 5</sup> |                                                           |                                |          | 455                                    | 10    | 0.25                               | 12.0             | 600                                              | D07     |
| ENC271D-10A* <sup>4, 5</sup> |                                                           |                                |          | 455                                    | 25    | 0.4                                | 30.0             | 1250                                             | D10     |
| ENC271D-14A* <sup>4, 5</sup> |                                                           |                                |          | 455                                    | 50    | 0.6                                | 50.0             | 2500                                             | D14     |
| ENC271D-20A* <sup>4, 5</sup> |                                                           |                                |          | 455                                    | 100   | 1.0                                | 90.0             | 4000                                             | D20     |
| ENC361D-05A* <sup>4</sup>    | 360(324 to 396)                                           | 230                            | 300      | 620                                    | 5     | 0.1                                | 7.5              | 250                                              | D05     |
| ENC361D-07A* <sup>4, 5</sup> |                                                           |                                |          | 595                                    | 10    | 0.25                               | 15.0             | 600                                              | D07     |
| ENC361D-10A* <sup>4, 5</sup> |                                                           |                                |          | 595                                    | 25    | 0.4                                | 35.0             | 1250                                             | D10     |
| ENC361D-14A* <sup>4, 5</sup> |                                                           |                                |          | 595                                    | 50    | 0.6                                | 65.0             | 2500                                             | D14     |
| ENC361D-20A* <sup>4, 5</sup> |                                                           |                                |          | 595                                    | 100   | 1.0                                | 120.0            | 4000                                             | D20     |

\*<sup>1</sup> Indicates the varistor terminal voltage measured with 1mA DC applied.  
(For 05A types, 0.1mA DC applied).

\*<sup>2</sup> Indicates the peak terminal voltage measured with 8/20 µs impulse current applied.

\*<sup>3</sup> The peak current rating, I<sub>tm</sub>, is based on 8/20 µs test impulse waveform.

This peak current is the maximum peak current at which the nominal varistor voltage shift does not exceed ±10% when the test impulse is applied twice at a 5-minute interval.

\*<sup>4</sup> UL recognized (UL1414) File No.E66188 UL recognized (UL1449) File No.E123894

\*<sup>5</sup> CSA recognized C22.2 No.1-M90

File No.LR98228

## ■ Ceramic Surge Absorbers

### ENC series

250 - 1000V AC (Ta=25°C)

| Device type                  | Nominal varistor<br>peak voltage Vnom* <sup>1</sup><br>Volts | Maximum rating<br>Applied voltage |          | Max. clamping<br>voltage Vc* <sup>2</sup> |       | Average power<br>dissipation<br>Watts | Energy<br>Joules | Peak current* <sup>3</sup><br>(8/20 μs)<br>Amps. | Package |
|------------------------------|--------------------------------------------------------------|-----------------------------------|----------|-------------------------------------------|-------|---------------------------------------|------------------|--------------------------------------------------|---------|
|                              |                                                              | Volts ACrms                       | Volts DC | Volts                                     | Ip(A) |                                       |                  |                                                  |         |
| ENC391D-05A* <sup>4</sup>    | 390(351 to 429)                                              | 250                               | 320      | 675                                       | 5     | 0.1                                   | 8.0              | 250                                              | D05     |
| ENC391D-07A* <sup>4, 5</sup> |                                                              |                                   |          | 650                                       | 10    | 0.25                                  | 17.0             | 600                                              | D07     |
| ENC391D-10A* <sup>4, 5</sup> |                                                              |                                   |          | 650                                       | 25    | 0.4                                   | 40.0             | 1250                                             | D10     |
| ENC391D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 650                                       | 50    | 0.6                                   | 70.0             | 2500                                             | D14     |
| ENC391D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 650                                       | 100   | 1.0                                   | 130.0            | 4000                                             | D20     |
| ENC431D-05A* <sup>4</sup>    | 430(387 to 473)                                              | 275                               | 350      | 745                                       | 5     | 0.1                                   | 9.0              | 250                                              | D05     |
| ENC431D-07A* <sup>4, 5</sup> |                                                              |                                   |          | 710                                       | 10    | 0.25                                  | 20.0             | 600                                              | D07     |
| ENC431D-10A* <sup>4, 5</sup> |                                                              |                                   |          | 710                                       | 25    | 0.4                                   | 45.0             | 1250                                             | D10     |
| ENC431D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 710                                       | 50    | 0.6                                   | 75.0             | 2500                                             | D14     |
| ENC431D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 710                                       | 100   | 1.0                                   | 140.0            | 4000                                             | D20     |
| ENC471D-05A* <sup>4</sup>    | 470(423 to 517)                                              | 300                               | 385      | 810                                       | 5     | 0.1                                   | 10.0             | 250                                              | D05     |
| ENC471D-07A* <sup>4, 5</sup> |                                                              |                                   |          | 775                                       | 10    | 0.25                                  | 20.0             | 600                                              | D07     |
| ENC471D-10A* <sup>4, 5</sup> |                                                              |                                   |          | 775                                       | 25    | 0.4                                   | 45.0             | 1250                                             | D10     |
| ENC471D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 775                                       | 50    | 0.6                                   | 80.0             | 2500                                             | D14     |
| ENC471D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 775                                       | 100   | 1.0                                   | 150.0            | 4000                                             | D20     |
| ENC621D-10A* <sup>4, 5</sup> | 620(558 to 682)                                              | 385                               | 505      | 1025                                      | 25    | 0.4                                   | 45.0             | 1250                                             | D10     |
| ENC621D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 1025                                      | 50    | 0.6                                   | 85.0             | 2500                                             | D14     |
| ENC621D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 1025                                      | 100   | 1.0                                   | 150.0            | 4000                                             | D20     |
| ENC681D-10A* <sup>4, 5</sup> | 680(612 to 748)                                              | 420                               | 560      | 1120                                      | 25    | 0.4                                   | 45.0             | 1250                                             | D10     |
| ENC681D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 1120                                      | 50    | 0.6                                   | 90.0             | 2500                                             | D14     |
| ENC681D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 1120                                      | 100   | 1.0                                   | 160.0            | 4000                                             | D20     |
| ENC751D-10A* <sup>4, 5</sup> | 750(675 to 825)                                              | 460                               | 615      | 1240                                      | 25    | 0.4                                   | 50.0             | 1250                                             | D10     |
| ENC751D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 1240                                      | 50    | 0.6                                   | 100.0            | 2500                                             | D14     |
| ENC751D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 1240                                      | 100   | 1.0                                   | 175.0            | 4000                                             | D20     |
| ENC781D-10A* <sup>4, 5</sup> | 780(702 to 858)                                              | 485                               | 640      | 1290                                      | 25    | 0.4                                   | 50.0             | 1250                                             | D10     |
| ENC781D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 1290                                      | 50    | 0.6                                   | 105.0            | 2500                                             | D14     |
| ENC781D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 1290                                      | 100   | 1.0                                   | 180.0            | 4000                                             | D20     |
| ENC821D-10A* <sup>4, 5</sup> | 820(738 to 902)                                              | 510                               | 670      | 1355                                      | 25    | 0.4                                   | 55.0             | 1250                                             | D10     |
| ENC821D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 1355                                      | 50    | 0.6                                   | 110.0            | 2500                                             | D14     |
| ENC821D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 1355                                      | 100   | 1.0                                   | 190.0            | 4000                                             | D20     |
| ENC911D-10A* <sup>4, 5</sup> | 910(819 to 1001)                                             | 550                               | 745      | 1500                                      | 25    | 0.4                                   | 60.0             | 1250                                             | D10     |
| ENC911D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 1500                                      | 50    | 0.6                                   | 120.0            | 2500                                             | D14     |
| ENC911D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 1500                                      | 100   | 1.0                                   | 215.0            | 4000                                             | D20     |
| ENC102D-10A* <sup>4, 5</sup> | 1000(900 to 1100)                                            | 625                               | 825      | 1650                                      | 25    | 0.4                                   | 65.0             | 1250                                             | D10     |
| ENC102D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 1650                                      | 50    | 0.6                                   | 130.0            | 2500                                             | D14     |
| ENC102D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 1650                                      | 100   | 1.0                                   | 230.0            | 4000                                             | D20     |
| ENC112D-10A* <sup>4, 5</sup> | 1100(990 to 1210)                                            | 680                               | 895      | 1815                                      | 25    | 0.4                                   | 70.0             | 1250                                             | D10     |
| ENC112D-14A* <sup>4, 5</sup> |                                                              |                                   |          | 1815                                      | 50    | 0.6                                   | 140.0            | 2500                                             | D14     |
| ENC112D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 1815                                      | 100   | 1.0                                   | 250.0            | 4000                                             | D20     |
| ENC182D-14A* <sup>4, 5</sup> | 1800(1620 to 1980)                                           | 1000                              | 1465     | 2970                                      | 50    | 0.6                                   | 240.0            | 2500                                             | D14     |
| ENC182D-20A* <sup>4, 5</sup> |                                                              |                                   |          | 2970                                      | 100   | 1.0                                   | 400.0            | 4000                                             | D20     |

\*<sup>1</sup> Indicates the varistor terminal voltage measured with 1mA DC applied. (For 05A types, 0.1mA DC applied).

\*<sup>2</sup> Indicates the peak terminal voltage measured with 8/20 μs impulse current applied.

\*<sup>3</sup> The peak current rating, I<sub>tm</sub>, is based on 8/20 μs test impulse waveform.

This peak current is the maximum peak current at which the nominal varistor voltage shift does not exceed ±10% when the test impulse is applied twice at a 5-minute interval.

\*<sup>4</sup> UL recognized (UL1414) File No.E66188

UL recognized (UL1449) File No.E123894

\*<sup>5</sup> CSA recognized C22.2 No.1-M90

File No.LR98228