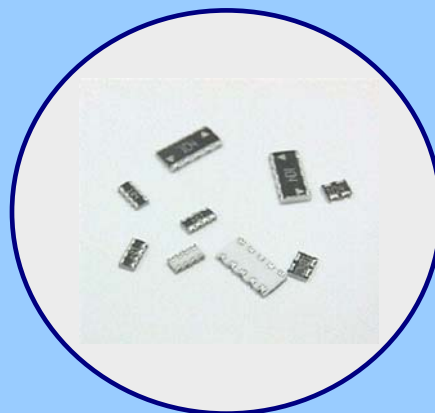
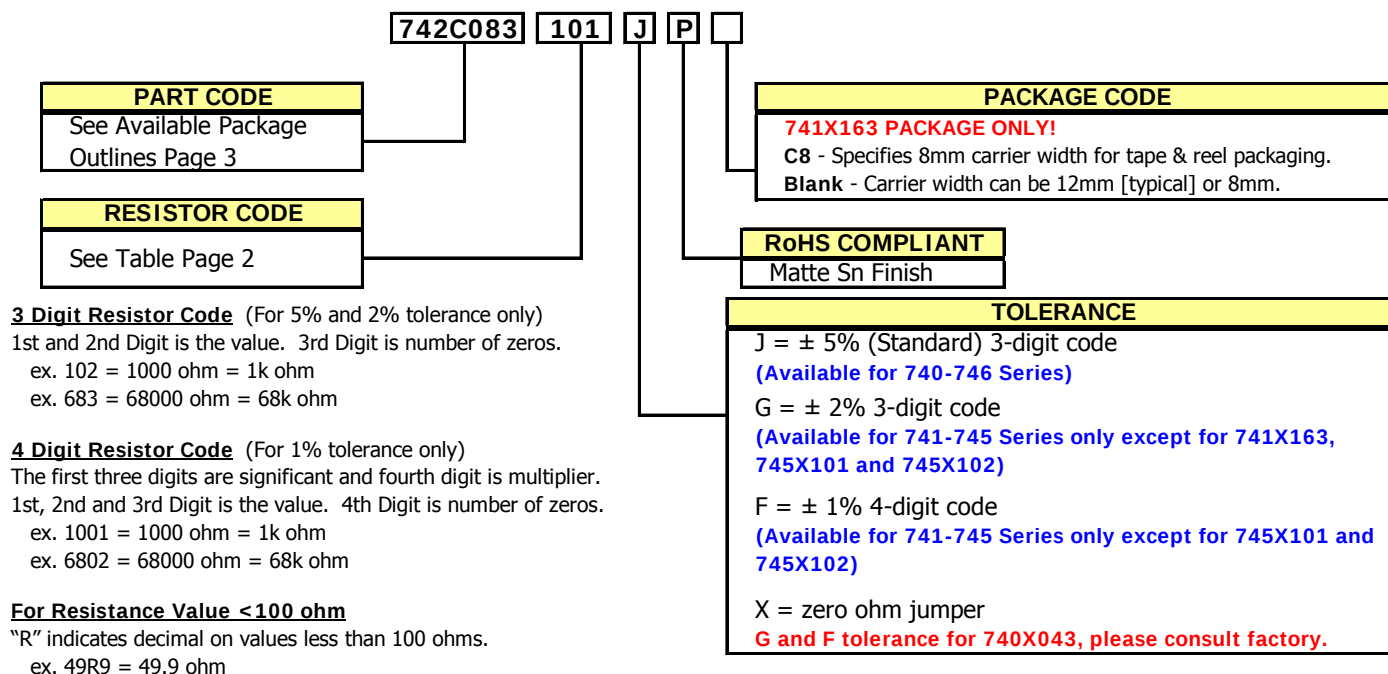


## FEATURES

- **Low Cost**
- **Thick Film Technology**
- **High Density Packaging**
  - Up to 30% less space per resistor than 0603 chip resistors
  - Up to 75% less space per resistor than 0805 chip resistors
- Low Profile; can be used in PCMCIA cards
- Leadless Surface Mount Construction
- Concave or Convex Terminations
- Solder Coated Nickel Barrier Pads
- Isolated and Bussed Circuits
- Resistor Arrays Require Fewer Placements Than Discrete Components
- Tape and Reel Packaging
- **RoHS Compliant in Accordance with EU Directive 2005/95/EC**
  - Lead-Free Termination Finish
  - Exemption 5 for Pb in glass material and resistor elements



## ORDERING INFORMATION



### Part Number Examples

| Value \ Tolerance | 3-Digit Code    |                 | 4-Digit Code    |
|-------------------|-----------------|-----------------|-----------------|
|                   | J ( $\pm 5\%$ ) | G ( $\pm 2\%$ ) | F ( $\pm 1\%$ ) |
| 10 Ohm            | 742C083100JP    | 742C083100GP    | 742C08310R0FP   |
| 49.9 Ohm          | Not Available   | Not Available   | 742C08349R9FP   |
| 120 Ohm           | 742C083121JP    | 742C083121GP    | 742C0831200FP   |
| 1K Ohm            | 742C083102JP    | 742C083102GP    | 742C0831001FP   |
| 68 Kohm           | 742C083683JP    | 742C083683GP    | 742C0836802FP   |

**Not all performance combinations and resistor values may be available.  
Contact your local CTS Representative or CTS Customer Service for availability.**

### ORDERING INFORMATION

#### AVAILABLE RESISTOR VALUES & EIA CODES

| Ohms | Code | Ohms | Code | Ohms | Code | Ohms  | Code | Ohms  | Code | Ohms | Code |
|------|------|------|------|------|------|-------|------|-------|------|------|------|
| 0    | 000X | 68   | 680  | 510  | 511  | 3.9K  | 392  | 30.0K | 303  | 220K | 224  |
| 10   | 100  | 75   | 750  | 560  | 561  | 4.3K  | 432  | 33.0K | 333  | 240K | 244  |
| 11   | 110  | 82   | 820  | 620  | 621  | 4.7K  | 472  | 36.0K | 363  | 270K | 274  |
| 12   | 120  | 91   | 910  | 680  | 681  | 5.1K  | 512  | 39.0K | 393  | 300K | 304  |
| 13   | 130  | 100  | 101  | 750  | 751  | 5.6K  | 562  | 43.0K | 433  | 330K | 334  |
| 15   | 150  | 110  | 111  | 820  | 821  | 6.2K  | 622  | 47.0K | 473  | 360K | 364  |
| 16   | 160  | 120  | 121  | 910  | 911  | 6.8K  | 682  | 51.0K | 513  | 390K | 394  |
| 18   | 180  | 130  | 131  | 1.0K | 102  | 7.5K  | 752  | 56.0K | 563  | 430K | 434  |
| 20   | 200  | 150  | 151  | 1.1K | 112  | 8.2K  | 822  | 62.0K | 623  | 470K | 474  |
| 22   | 220  | 160  | 161  | 1.2K | 122  | 9.1K  | 912  | 68.0K | 683  | 510K | 514  |
| 24   | 240  | 180  | 181  | 1.3K | 132  | 10.0K | 103  | 75.0K | 753  | 560K | 564  |
| 27   | 270  | 200  | 201  | 1.5K | 152  | 11.0K | 113  | 82.0K | 823  | 620K | 624  |
| 30   | 300  | 220  | 221  | 1.6K | 162  | 12.0K | 123  | 91.0K | 913  | 680K | 684  |
| 33   | 330  | 240  | 241  | 1.8K | 182  | 13.0K | 133  | 100K  | 104  | 750K | 754  |
| 36   | 360  | 270  | 271  | 2.0K | 202  | 15.0K | 153  | 110K  | 114  | 820K | 824  |
| 39   | 390  | 300  | 301  | 2.2K | 222  | 16.0K | 163  | 120K  | 124  | 910K | 914  |
| 43   | 430  | 330  | 331  | 2.4K | 242  | 18.0K | 183  | 130K  | 134  | 1M   | 105  |
| 47   | 470  | 360  | 361  | 2.7K | 272  | 20.0K | 203  | 150K  | 154  |      |      |
| 51   | 510  | 390  | 391  | 3.0K | 302  | 22.0K | 223  | 160K  | 164  |      |      |
| 56   | 560  | 430  | 431  | 3.3K | 332  | 24.0K | 243  | 180K  | 184  |      |      |
| 62   | 620  | 470  | 471  | 3.6K | 362  | 27.0K | 273  | 200K  | 204  |      |      |

#### TAPE & REEL INFORMATION

| Reel Diameter 7" | 740X043 | 741X043<br>741C083<br>741X083 | 742C043<br>742C083<br>742X083 | 741X163       | 742C163 | 743C043<br>744C043 | 743C083<br>744C083 | 745C101<br>745C102 | 745X101<br>745X102 | 746X101 |
|------------------|---------|-------------------------------|-------------------------------|---------------|---------|--------------------|--------------------|--------------------|--------------------|---------|
| Parts Per Reel   | 10,000  | 10,000                        | 5,000                         | 5,000         | 4,000   | 4,000              | 4,000              | 4,000              | 4,000              | 5,000   |
| Pitch            | 2mm     | 2mm                           | 4mm                           | 4mm           | 4mm     | 4mm                | 4mm                | 4mm                | 4mm                | 4mm     |
| Carrier Width    | 8mm     | 8mm                           | 8mm                           | 8mm *<br>12mm | 12mm    | 8mm                | 12mm               | 12mm               | 12mm               | 8mm     |
| Material         | Paper   | Paper                         | Paper                         | Paper         | Plastic | Plastic            | Plastic            | Plastic            | Plastic            | Paper   |

\* See Ordering Information for package code indicator.

### ELECTRICAL & ENVIRONMENTAL CHARACTERISTICS

| Series | PCB Area (in <sup>2</sup> ) Per Resistor | Circuit Type | Resistance Range, Ohms | 70°C Power Per Resistor * | Maximum Operating Voltage |
|--------|------------------------------------------|--------------|------------------------|---------------------------|---------------------------|
| 740    | 0.0008                                   | Isolated     | 10 - 1M                | .031W                     | 12.5V                     |
| 741    | 0.0015                                   | Isolated     | 10 - 1M                | .063W                     | 25V                       |
| 742    | 0.0037                                   | Isolated     | 10 - 1M                | .063W                     | 50V                       |
| 743    | 0.0071                                   | Isolated     | 10 - 1M                | .100W                     | 100V                      |
| 744    | 0.0094                                   | Isolated     | 10 - 1M                | .125W                     | 200V                      |
| 745X   | 0.0058                                   | Bussed       | 10 - 330K              | .063W                     | 50V                       |
| 745C   | 0.0058                                   | Bussed       | 100 - 470K             | .063W                     | 50V                       |
| 746    | 0.0013                                   | Bussed       | 10 - 100K              | .031W                     | 25V                       |

Resistance Tolerance: Std.  $\pm 5\%$  or 0.5 $\Omega$  (whichever is greater).

See Ordering Information for other options available.

Operating Temperature Range: -55°C to +125°C.

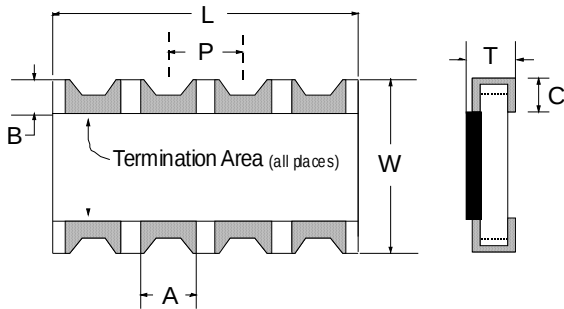
Temperature Coefficient:  $\pm 200$  ppm/°C.

\* Total Rated Package Power equals total number of resistors times rated Power per Resistor

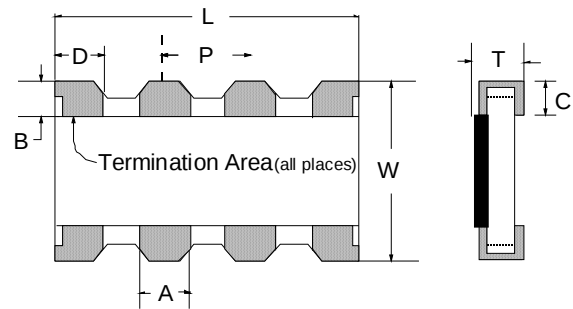
| Test                      | Maximum Delta R |       |         | Test Description                                   |
|---------------------------|-----------------|-------|---------|----------------------------------------------------|
|                           | 740             | 741   | 742-746 |                                                    |
| Thermal Cycle             | 1.00%           | 1.00% | 1.00%   | 5 Cycles -55°C to +125°C                           |
| Short Time Overload       | 2.00%           | 2.50% | 1.00%   | 2½ Times Rated Working Voltage for 5 Seconds       |
| Moisture Resistance       | 2.00%           | 5.00% | 2.00%   | 240 Hours 10% rated load, -10°C to +65°C, 90% R.H. |
| High Temperature Exposure | 3.00%           | 1.00% | 1.00%   | 1000 Hours, no load, +125°C                        |
| Load Life                 | 3.00%           | 5.00% | 2.00%   | 1000 Hours @ +70°C, rated load                     |
| Resistance to Solder Heat | 1.00%           | 2.50% | 1.00%   | 10 Seconds @ +260°C solder                         |
| Resistance to Solvents    |                 |       |         | Isopropyl alcohol, Freon TMC                       |
| Solderability             |                 |       |         | RMA Flux, +230°C, 5 Seconds dip, 95% coverage      |

## PACKAGE OUTLINES

### CONCAVE TERMINATION – TYPE C



### CONVEX TERMINATION – TYPE X

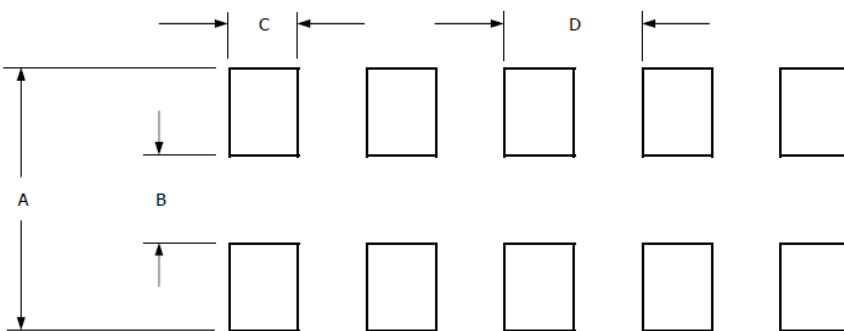


### NOTES

1. Termination pads (e3). Barrier plating is nickel (Ni) with Matte tin (Sn) finish.
2. Reflow conditions per JEDEC-J-STD-020, +260°C maximum.

| Part Code | Configuration | # Pads | # Res. | Circuit  | Dimensions [mm/inch]       |                            |               |                              |                              |                              |                              |                               |
|-----------|---------------|--------|--------|----------|----------------------------|----------------------------|---------------|------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|
|           |               |        |        |          | L                          | W                          | P [Typ.]      | T                            | A                            | B                            | C                            | D                             |
| 740X043   | 0201 x 2      | 4      | 2      | Isolated | 0.80 ±0.10<br>0.031 ±0.004 | 0.60 ±0.10<br>0.024 ±0.004 | 0.50<br>0.020 | 0.35 ±0.10<br>0.014 ±0.004   | 0.35 ±0.10<br>0.014 ±0.004   | 0.175 ±0.125<br>0.007 ±0.005 | 0.15 ±0.10<br>0.006 ±0.004   | -                             |
| 741X043   | 0402 X 2      | 4      | 2      | Isolated | 1.00 ±0.20<br>0.039 ±0.008 | 1.00 ±0.20<br>0.039 ±0.008 | 0.65<br>0.026 | 0.35 ±0.10<br>0.014 ±0.004   | 0.295 ±0.135<br>0.012 ±0.005 | 0.20 ±0.15<br>0.008 ±0.006   | 0.25 ±0.10<br>0.010 ±0.004   | 0.33 ±0.15<br>0.013 ±0.006    |
| 741X083   | 0402 X 4      | 8      | 4      | Isolated | 2.00 ±0.20<br>0.079 ±0.008 |                            | 0.50<br>0.020 | 0.40 ±0.15<br>0.016 ±0.006   | 0.30 ±0.15<br>0.012 ±0.006   |                              | 0.25 ±0.20<br>0.010 ±0.008   | 0.40 ±0.15<br>0.016 ±0.006    |
| 741C083   | 0402 X 4      | 8      | 4      | Isolated |                            |                            |               | 0.375 ±0.125<br>0.015 ±0.005 | 0.29 ±0.11<br>0.011 ±0.004   | 0.20 ±0.10<br>0.008 ±0.004   | 0.265 ±0.115<br>0.011 ±0.005 | N/A                           |
| 741X163   | 0402 X 8      | 16     | 8      | Isolated | 3.95 ±0.25<br>0.156 ±0.01  |                            |               | 1.60 ±0.15<br>0.063 ±0.006   | 0.45 ±0.10<br>0.018 ±0.004   | 0.30 ±0.10<br>0.012 ±0.004   | 0.30 ±0.15<br>0.012 ±0.006   | 0.375 ±0.175<br>0.0147 ±0.007 |
| 742C043   | 0603 X 2      | 4      | 2      | Isolated | 1.60 ±0.20<br>0.063 ±0.008 | 1.60 ±0.20<br>0.063 ±0.008 | 0.80<br>0.032 | 0.525 ±0.175<br>0.021 ±0.007 | 0.50 ±0.15<br>0.020 ±0.006   | 0.30 ±0.20<br>0.012 ±0.008   | 0.40 ±0.15<br>0.016 ±0.006   | N/A                           |
| 742X083   | 0603 X 4      | 8      | 4      | Isolated | 3.20 ±0.20<br>0.126 ±0.008 |                            |               | 0.55 ±0.15<br>0.022 ±0.006   | 0.45 ±0.20<br>0.018 ±0.008   |                              | 0.275 ±0.175<br>0.011 ±0.007 | 0.525 ±0.225<br>0.021 ±0.009  |
| 742C083   |               |        |        |          |                            |                            |               |                              |                              |                              |                              |                               |
| 742C163   | 0603 X 8      | 16     | 8      | Isolated | 6.40 ±0.20<br>0.252 ±0.008 |                            |               |                              | 0.525 ±0.175<br>0.021 ±0.007 |                              | 0.50 ±0.15<br>0.020 ±0.006   |                               |
| 743C043   | 0805 X 2      | 4      | 2      | Isolated | 2.54 ±0.20<br>0.100 ±0.008 | 2.00 ±0.20<br>0.079 ±0.008 | 1.27<br>0.050 | 0.60 ±0.10<br>0.024 ±0.004   | 0.80 ±0.10<br>0.031 ±0.006   | 0.40 ±0.20<br>0.016 ±0.008   | 0.55 ±0.10<br>0.022 ±0.004   | N/A                           |
| 743C083   | 0805 X 4      | 8      | 4      | Isolated | 5.08 ±0.20<br>0.200 ±0.008 |                            |               |                              |                              |                              |                              |                               |
| 744C043   | 1206 X 2      | 4      | 2      | Isolated | 2.54 ±0.20<br>0.100 ±0.008 | 3.20 ±0.20<br>0.126 ±0.008 | 1.27<br>0.050 | 0.60 ±0.10<br>0.024 ±0.004   | 0.80 ±0.10<br>0.031 ±0.006   | 0.50 ±0.30<br>0.020 ±0.012   | 0.55 ±0.10<br>0.022 ±0.004   | N/A                           |
| 744C083   | 1206 X 4      | 8      | 4      | Isolated | 5.08 ±0.20<br>0.200 ±0.008 |                            |               |                              |                              |                              |                              |                               |
| 745C101   | -             | 10     | 8      | Bussed   | 6.40 ±0.20<br>0.252 ±0.008 | 3.10 ±0.30<br>0.126 ±0.012 | 1.27<br>0.050 | 0.575 ±0.125<br>0.025 ±0.005 | 0.60 ±0.15<br>0.024 ±0.006   |                              |                              | 0.55 ±0.30<br>0.022 ±0.012    |
| 745C102   |               |        |        |          |                            |                            |               |                              |                              |                              |                              |                               |
| 745X101   | -             | 10     | 8      | Bussed   | 6.40 ±0.20<br>0.252 ±0.008 | 3.20 ±0.20<br>0.126 ±0.008 |               | 0.60 ±0.10<br>0.024 ±0.004   | 0.95 ±0.20<br>0.037 ±0.008   | 0.50 ±0.15<br>0.020 ±0.006   | 0.50 ±0.15<br>0.020 ±0.006   | 1.10 ±0.15<br>0.043 ±0.006    |
| 745X102   |               |        |        |          |                            |                            |               |                              |                              |                              |                              |                               |
| 746X101   | -             | 10     | 8      | Bussed   | 3.20 ±0.20<br>0.126 ±0.008 | 1.60 ±0.15<br>0.063 ±0.006 | 0.64<br>0.025 | 0.60 ±0.10<br>0.024 ±0.004   | 0.35 ±0.05<br>0.014 ±0.002   | 0.30 ±0.15<br>0.012 ±0.006   | 0.35 ±0.15<br>0.014 ±0.006   | 0.45 ±0.05<br>0.018 ±0.002    |

### RECOMMENDED LAND PATTERNS



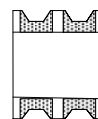
| SERIES  | DIMENSIONS [mm/in] |       |       |       |
|---------|--------------------|-------|-------|-------|
|         | A                  | B     | C     | D     |
| 740     | 0.900              | 0.300 | 0.300 | 0.500 |
|         | 0.035              | 0.012 | 0.012 | 0.020 |
| 741X043 | 1.800              | 0.500 | 0.400 | 0.670 |
|         | 0.071              | 0.020 | 0.016 | 0.026 |
| 741X083 | 1.800              | 0.500 | 0.300 | 0.500 |
|         | 0.071              | 0.020 | 0.012 | 0.020 |
| 741C083 | 1.800              | 0.500 | 0.300 | 0.500 |
|         | 0.071              | 0.020 | 0.012 | 0.020 |
| 741X163 | 1.800              | 0.500 | 0.300 | 0.500 |
|         | 0.071              | 0.020 | 0.012 | 0.020 |
| 742     | 2.600              | 0.800 | 0.450 | 0.800 |
|         | 0.102              | 0.031 | 0.180 | 0.031 |
| 743     | 3.000              | 1.000 | 0.650 | 1.270 |
|         | 0.118              | 0.039 | 0.026 | 0.050 |
| 744     | 4.200              | 2.200 | 0.650 | 1.270 |
|         | 0.165              | 0.087 | 0.026 | 0.050 |
| 745     | 3.900              | 2.100 | 0.900 | 1.270 |
|         | 0.154              | 0.083 | 0.035 | 0.050 |
| 746     | 2.600              | 0.800 | 0.350 | 0.640 |
|         | 0.102              | 0.031 | 0.014 | 0.025 |

**CIRCUIT TYPES**

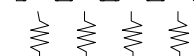
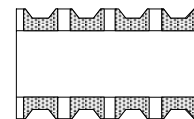


**740X043**  
2 Resistors

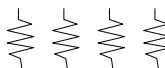
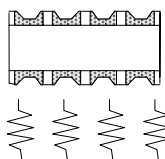
4 Terminations



**744C043**  
2 Resistors  
4 Terminations



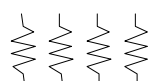
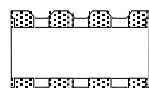
**744C083**  
4 Resistors  
8 Terminations



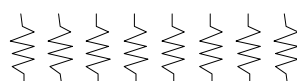
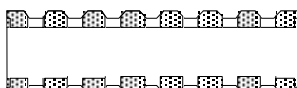
**741C083**  
4 Resistors  
8 Terminations



**741X043**  
2 Resistors  
4 Terminations



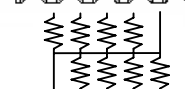
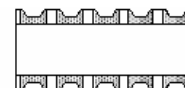
**741X083**  
4 Resistors  
8 Terminations



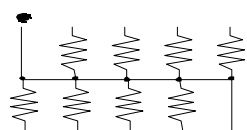
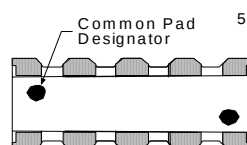
**741X163**  
8 Resistors  
16 Terminations



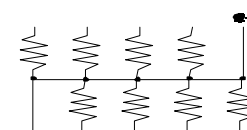
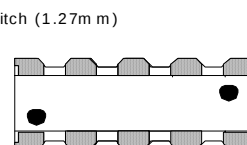
**745C101**  
8 Resistors  
10 Terminations



**745C102**  
8 Resistors  
10 Terminations



**745X101**  
8 Resistors  
10 Terminations

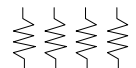


**745X102**  
8 Resistors  
10 Terminations

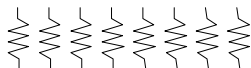
Note: The Marking Concept for Convex and Concave Series 745 is Different.



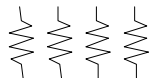
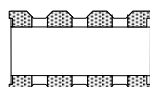
**742C043**  
2 Resistors  
4 Terminations



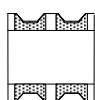
**742C083**  
4 Resistors  
8 Terminations



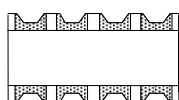
**742C163**  
8 Resistors  
16 Terminations



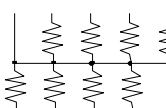
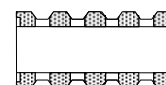
**742X083**  
4 Resistors  
8 Terminations



**743C043**  
2 Resistors  
4 Terminations



**743C083**  
4 Resistors  
8 Terminations



**746X101**  
8 Resistors  
10 Terminations