

### Features

- Low Cost
- Thick Film Technology
- High Density Packaging
- Leadless Surface Mount Construction
- Tape and Reel Packaging
- Solder Coated Nickel Barrier Pads
- Isolated and Bussed Circuits
- Concave and Convex Terminations
- RoHS Compliant Version Available



### Product Benefits

- 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
- Placement Efficiency
  - Networks require fewer placements than discrete components
  - Larger overall size eases handling compared to discrete components
- Low Profile; Can be used in PCMCIA cards

### Electrical and Mechanical Specifications

| Series | PCB Area (in <sup>2</sup> )<br>Per Resistor | Circuit Type | Resistance  | 70°C Power    | Maximum<br>Operating<br>Voltage |
|--------|---|--------------|-------------|---------------|---------------------------------|
|        |   |              | Range, Ohms | Per Resistor* |                                 |
| 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                            |
| 745    | 0.0058                                      | Bussed       | 33 - 470K   | .063W         | 50V                             |
| 746    | 0.0013                                      | Bussed       | 33 - 100K   | .031W         | 25V                             |

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

#### Resistance Tolerance

Standard:  $\pm 5\%$  or  $.5\Omega$  (whichever is greater)

#### Operating Temperature Range

$-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

#### Temperature Coefficient

Standard: 200PPM/ $^{\circ}\text{C}$

## Package Outlines

### Concave Termination – Type C



### Convex Termination – Type X



| Dimensions: mm/inch |               |        |        |          |                          |                          |                          |  |                          |                          |                          |                          |
|---------------------|---------------|--------|--------|----------|--------------------------|--------------------------|--------------------------|--|--------------------------|--------------------------|--------------------------|--------------------------|
| Part Code           | Configuration | # Pads | # Res. | Circuit  | L                        | W                        | P                        | T  | A                        | B                        | C                        | D                        |
| 741X043             | 0402 X 2      | 4      | 2      | Isolated | 1.00 ±0.10<br>.039 ±.004 | 1.00 ±0.10<br>.039 ±.004 | 0.65 ±0.10<br>.026 ±.004 | 0.35 ±0.10<br>.014 ±.004                   | 0.33 ±0.10<br>.013 ±.004 | 0.15 ±0.10<br>.006 ±.004 | 0.38 Max.<br>.015 Max.   | N/A                      |
| 741X083             | 0402 X 4      | 8      | 4      | Isolated | 2.00 ±0.10<br>.079 ±.004 |                          | 0.50 ±0.10<br>.020 ±.004 |  | 0.30 ±0.15<br>.012 ±.006 |                          |                          |                          |
| 741C083             | 0402 X 4      | 8      | 4      | Isolated |                          |                          |                          |  | 0.28 ±0.10<br>.011 ±.004 |                          |                          |                          |
| 741X163             | 0402 X 8      | 16     | 8      | Isolated | 3.80 ±0.10<br>.150 ±.004 | 1.60 ±0.10<br>.063 ±.004 |                          | 0.45 ±0.10<br>.018 ±.004                   | 0.30 ±0.10<br>.012 ±.004 | 0.30 ±0.10<br>.012 ±.004 | 0.30 ±0.10<br>.012 ±.004 |                          |
| 742C043             | 0603 X 2      | 4      | 2      | Isolated | 1.60 ±0.20<br>.063 ±.008 | 1.60 ±0.20<br>.063 ±.008 | 0.80 ±0.05<br>.032 ±.002 | 0.60 ±0.10<br>-0.25<br>.024 ±.004<br>-0.10 | 0.50 ±0.15<br>.020 ±.006 | 0.30 ±0.20<br>.012 ±.008 | 0.40 ±0.15<br>.016 ±.006 | N/A                      |
| 742X083             | 0603 X 4      | 8      | 4      | Isolated | 3.20 ±0.20<br>.126 ±.008 |                          |                          |  |                          |                          | 0.30 ±0.15<br>.012 ±.006 |                          |
| 742C163             | 0603 X 8      | 16     | 8      | Isolated | 6.40 ±0.20<br>.252 ±.008 |                          |                          |  |                          |                          | 0.40 ±0.15<br>.016 ±.006 |                          |
| 743C043             | 0805 X 2      | 4      | 2      | Isolated | 2.54 ±0.20<br>.100 ±.008 | 2.00 ±0.20<br>.079 ±.008 | 1.27 ±0.05<br>.050 ±.002 | 0.60 ±0.10<br>.024 ±.004                   | 0.80 ±0.10<br>.031 ±.006 | 0.40 ±0.20<br>.016 ±.008 | 0.40 ±0.15<br>.016 ±.006 | N/A                      |
| 743C083             | 0805 X 4      | 8      | 4      | Isolated | 5.08 ±0.30<br>.200 ±.012 |                          |                          |  |                          |                          |                          |                          |
| 744C043             | 1206 X 2      | 4      | 2      | Isolated | 2.54 ±0.20<br>.100 ±.008 | 3.20 ±0.20<br>.126 ±.008 | 1.27 ±0.05<br>.050 ±.002 | 0.60 ±0.10<br>.024 ±.004                   | 0.80 ±0.10<br>.031 ±.006 | 0.50 ±0.20<br>.020 ±.008 | 0.50 ±0.15<br>.020 ±.006 | N/A                      |
| 744C083             | 1206 X 4      | 8      | 4      | Isolated | 5.08 ±0.30<br>.200 ±.012 |                          |                          |  |                          |                          |                          |                          |
| 745C101             |               | 10     | 8      | Bussed   | 6.40 ±0.20<br>.252 ±.008 | 3.20 ±0.20<br>.126 ±.008 | 1.27 ±0.05<br>.050 ±.002 | 0.60 ±0.10<br>.024 ±.004                   | 0.60 ±0.15<br>.024 ±.006 | 0.35 ±0.15<br>.013 ±.006 | 0.55 ±0.15<br>.022 ±.006 | N/A                      |
| 745C102             |               |        |        |          |                          |                          |                          |  |                          |                          |                          |                          |
| 745X101             |               | 10     | 8      | Bussed   | 6.40 ±0.20<br>.252 ±.008 | 3.20 ±0.20<br>.126 ±.008 | 1.27 ±0.05<br>.050 ±.002 | 0.60 ±0.10<br>.024 ±.004                   | 0.90 ±0.15<br>.035 ±.006 | 0.50 ±0.20<br>.020 ±.008 | 0.50 ±0.15<br>.020 ±.006 | 1.10 ±0.15<br>.043 ±.006 |
| 745X102             |               |        |        |          |                          |                          |                          |  |                          |                          |                          |                          |
| 746X101             |               | 10     | 8      | Bussed   | 3.30 ±0.10<br>.130 ±.004 | 1.65 ±0.15<br>.065 ±.006 | 0.64 ±0.05<br>.025 ±.002 | 0.60 ±0.10<br>.024 ±.004                   | 0.35 ±0.05<br>.014 ±.002 | 0.40 ±0.10<br>.016 ±.004 | 0.45 ±0.10<br>.018 ±.004 | 0.50 ±0.05<br>.020 ±.002 |

## Types of Circuits



**741C083**  
4 Resistors  
8 Terminations



**741X043**  
2 Resistors  
4 Terminations

**741X083**  
4 Resistors  
8 Terminations

**741X163**  
8 Resistors  
16 Terminations



**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



**744C043**  
2 Resistors  
4 Terminations



**744C083**  
4 Resistors  
8 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.



**746X101**  
8 Resistors  
10 Terminations

## Recommended Land Patterns



| SERIES  | DIMENSIONS mm/in |       |       |       |
|---------|------------------|-------|-------|-------|
|         | A                | B     | C     | D     |
| 741X043 | 1.00             | 0.65  | 0.33  | 0.50  |
|         | 0.039            | 0.026 | 0.013 | 0.020 |
| 741X083 | 1.00             | 0.50  | 0.30  | 0.50  |
|         | 0.039            | 0.020 | 0.012 | 0.020 |
| 741C083 | 1.00             | 0.50  | 0.28  | 0.50  |
|         | 0.039            | 0.020 | 0.011 | 0.020 |
| 741X163 | 1.60             | 0.50  | 0.30  | 0.80  |
|         | 0.063            | 0.020 | 0.012 | 0.031 |
| 742     | 1.60             | 0.80  | 0.50  | 0.90  |
|         | 0.063            | 0.032 | 0.020 | 0.035 |
| 743     | 2.00             | 1.27  | 0.80  | 1.00  |
|         | 0.079            | 0.050 | 0.031 | 0.051 |
| 744     | 3.20             | 1.27  | 0.80  | 1.00  |
|         | 0.126            | 0.050 | 0.031 | 0.039 |
| 745     | 3.20             | 1.27  | 0.90  | 1.30  |
|         | 0.126            | 0.050 | 0.035 | 0.039 |
| 746     | 1.65             | 0.64  | 0.35  | 0.80  |
|         | 0.065            | 0.025 | 0.014 | 0.032 |

## Environmental Performance Specifications

| Test                      | Max. Delta R |         | Test Description                                   |
|---------------------------|--------------|---------|--|
|                           | 741          | 742-746 |  |
| Thermal Cycle             | 1.00%        | 1.00%   | 5 Cycles -55°C to +125°C                           |
| Short Time Overload       | 2.50%        | 1.00%   | 2½ X Rated Working Voltage for 5 Seconds           |
| Moisture Resistance       | 5.00%        | 2.00%   | 240 Hours 10% rated load, -10°C to +65°C, 90% R.H. |
| High Temperature Exposure | 1.00%        | 1.00%   | 1000 Hours, no load, +125°C                        |
| Load Life                 | 5.00%        | 2.00%   | 1000 Hours @ 70°C, rated load                      |
| Resistance to Solder Heat | 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       |

## Standard Resistor Values & EIA Code

| Ohms | Code | Ohms | Code | Ohms | Code | Ohms | Code | Ohms | Code | Ohms | Code |
|------|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 000X | 68   | 680  | 470  | 471  | 3.9K | 392  | 33K  | 333  | 270K | 274  |
| 10   | 100  | 75   | 750  | 510  | 511  | 4.7K | 472  | 39K  | 393  | 330K | 334  |
| 12   | 120  | 82   | 820  | 560  | 561  | 5.1K | 512  | 47K  | 473  | 390K | 394  |
| 15   | 150  | 100  | 101  | 680  | 681  | 5.6K | 562  | 51K  | 513  | 470K | 474  |
| 18   | 180  | 110  | 111  | 820  | 821  | 6.8K | 682  | 56K  | 563  | 510K | 514  |
| 22   | 220  | 120  | 121  | 1K   | 102  | 8.2K | 822  | 68K  | 683  | 560K | 564  |
| 27   | 270  | 150  | 151  | 1.2K | 122  | 10K  | 103  | 82K  | 823  | 680K | 684  |
| 33   | 330  | 180  | 181  | 1.5K | 152  | 12K  | 123  | 100K | 104  | 820K | 824  |
| 39   | 390  | 220  | 221  | 1.8K | 182  | 15K  | 153  | 120K | 124  | 1M   | 105  |
| 47   | 470  | 270  | 271  | 2.2K | 222  | 18K  | 183  | 150K | 154  |      |      |
| 51   | 510  | 330  | 331  | 2.7K | 272  | 22K  | 223  | 180K | 184  |      |      |
| 56   | 560  | 390  | 391  | 3.3K | 332  | 27K  | 273  | 220K | 224  |      |      |

### How to Order

#### Part Code

See Standard Package Outlines (Page 2)

742C083 101 J P

**RoHS Compliant** (matte Sn finish)  
Insert "P" for RoHS; Otherwise blank

#### Resistor Code

3 Digit Resistor Code – Refer to the EIA Code noted above

#### Tolerance

J = ±5% (Standard) 3-digit code  
G = ±2% 3-digit code (741-745 only)  
F = ±1% 4-digit code (741-745 only)  
X for zero ohm jumper

4 Digit Resistor Code (used only for 1% tolerance) – The first three digits are significant and fourth digit is multiplier; "R" indicates decimal on values less than 100 ohms.

Examples: 10R0 = 10 ohms  
49R9 = 49.9 ohms  
1000 = 100 ohms  
1001 = 1,000 ohms  
1002 = 10,000 ohms

Example: 742C08310R0F

| Part Marking | J & G tol. | F tol.     |            |
|--------------|------------|------------|------------|
|              | E-24 Value | E-24 Value | E-96 Value |
| 741          | 3 Digit    | 3 Digit    | 4 Digit    |
| 742          | 3 Digit    | 3 Digit    | 4 Digit    |
| 743          | 3 Digit    | 4 Digit    | 4 Digit    |
| 744          | 3 Digit    | 4 Digit    | 4 Digit    |
| 745          | 3 Digit    | 4 Digit    | 4 Digit    |
| 746          | 3 Digit    | 4 Digit    | 4 Digit    |

### Tape & Reel Information

| Reel Diameter 7" | 741X043<br>741C083<br>741X083 | 742C043<br>741X163 | 742C083<br>742X083 | 742C163 | 743C043 | 743C083 | 744C043 | 744C083 | 745C101<br>745C102 | 745X101<br>745X102 | 746X101 |
|------------------|-------------------------------|--------------------|--------------------|---------|---------|---------|---------|---------|--------------------|--------------------|---------|
| Parts/Reel       | 10000                         | 5000               | 5000               | 4000    | 4000    | 4000    | 4000    | 2000    | 4000               | 4000               | 5000    |
| Pitch            | 2mm                           | 4mm                | 4mm                | 4mm     | 4mm     | 4mm     | 4mm     | 8mm     | 4mm                | 4mm                | 4mm     |
| Carrier Width    | 8mm                           | 8mm                | 8mm                | 12mm    | 8mm     | 12mm    | 8mm     | 12mm    | 12mm               | 12mm               | 8mm     |
| Material         | Paper                         | Paper              | Paper              | Plastic | Plastic | Plastic | Plastic | Plastic | Plastic            | Plastic            | Paper   |