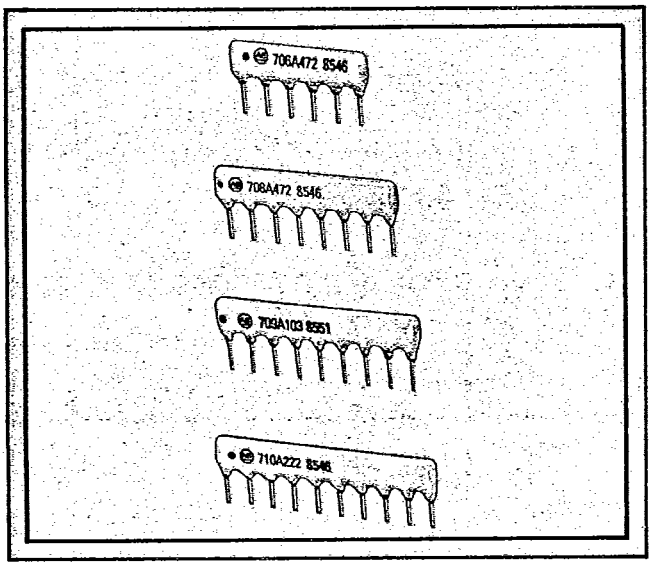
Series 700 Conformal Coated Cermet Resistor Networks



C-SIP
Single In-Line Package

FEATURES

- High Purity Alumina Substrate
- Permanently Marked
- 0.100 Inch (2,54mm) Lead Spacing
- Low Package Height; 0.190 Inch (4,83mm)
- 6, 8, 9 and 10 Pins Standard
  4 Through 14 Pins Available
- Durable Conformal Coating
- Standard Circuits
- High Quality, Low Cost

SPECIFICATIONS

General Capabilities

C-SIP — Single In-Line Package:

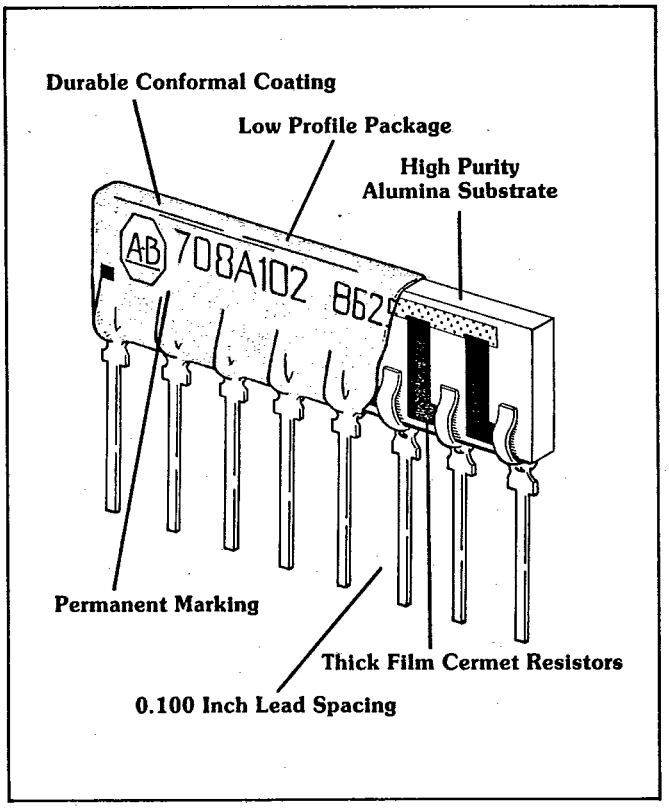
- A conformally coated single in-line resistor network.
- Provides standard cermet resistor network circuits: resistors tied to a common buss, isolated individual resistors, digital line terminator.
- Standard circuits available in 6, 8, 9 and 10 pin packages in a low package height.
- 100% electrical test provides high quality on the board performance.
- Highly stable thick film with low temperature coefficient.

Applications

- Pull-up and pull-down arrays
- Transmission line terminators
- Current limiting resistors
- ECL terminating networks

For Applications Information refer to the following Allen-Bradley Application Notes:

- Digital System Resistor Arrays: EC5410-4.1
- ECL Terminator Networks: EC5410-4.2
- Resistive Attenuator Pads: EC5410-4.3



Standard Resistance Values

Series 706A, 708A, 709A, 710A, 706B and 710B Resistor Networks.

R (Ohms)

22	150	1K	5.6K	33K	220K
27	180	1.2K	6.8K	39K	270K
33	220	1.5K	8.2K	47K	330K
39	270	1.8K	10K	56K	390K
47	330	2K	12K	68K	470K
56	390	2.2K	15K	82K	560K
68	470	2.7K	18K	100K	680K
82	560	3.3K	20K	120K	820K
100	680	3.9K	22K	150K	1M
120	820	4.7K	27K	180K	2.2M
					2.7M

For intermediate values between 22 ohms and 2.7 megohms not listed above, consult Allen-Bradley Co. (see Page 4).

Series 706E, 708E, 709E and 710E Resistor Networks

R1/R2	Zo (Characteristic Impedance)
81/130	50
180/390	123
220/330	132
330/390	179
3K/6.2K	2.02K

Standard Network Specifications

Resistor tolerance — ±2% or ±1 ohm whichever is greater. Tolerance of ±1% or ±5% available.

Temperature coefficient of resistance — ±100 ppm/°C. (For 5% tolerance, ±350 ppm/°C.)

Operating temperature range — –55°C to +125°C.

Power —

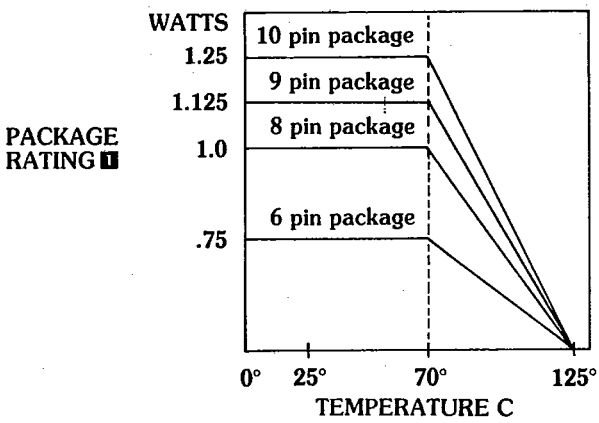
Network Series Designation	[1] Power Dissipation Rating (up to 70°C Ambient)
706A, 708A, 709A, 710A	[2] 200 mw/per resistor
706B, 708B, 710B	[2] 300 mw/per resistor
706E, 708E, 709E, 710E	[3] [2] 200 mw/per resistor

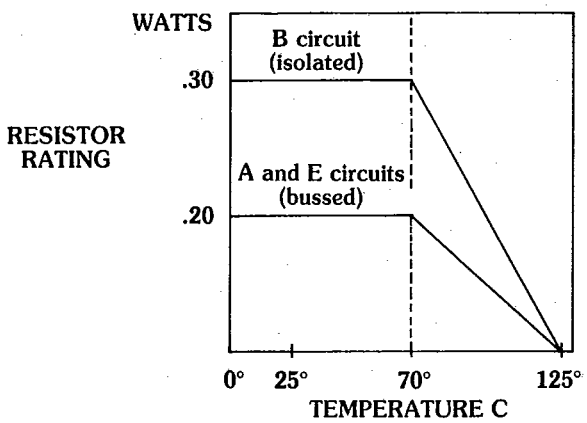
[1] At +70°C power derates linearly from full rated power to 0 wattage at +150°C.

[2] Rated continuous working voltage (RCWV), based on nominal resistance (R) in ohms, is $\sqrt{\text{Individual Resistor Power Rating (see Table)} \times R}$ or 100 volts, whichever is less.

[3] Power dissipation per resistor limited by package power rating shown below.

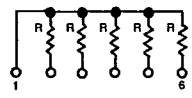
Power Rating Curves



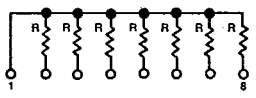


[1] Total package power rating limited by individual resistor power dissipation shown above.

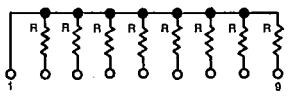
Standard Network Schematic Diagrams



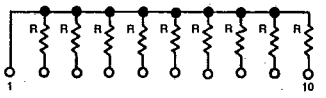
706A



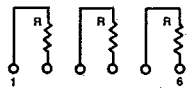
708A



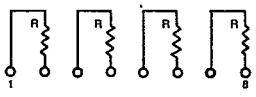
709A



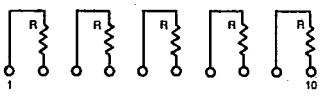
710A



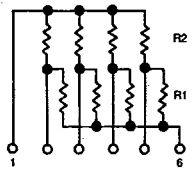
706B



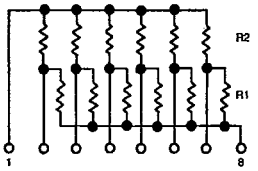
708B



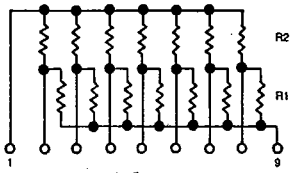
710B



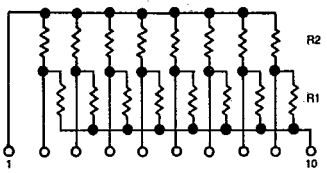
706E



708E



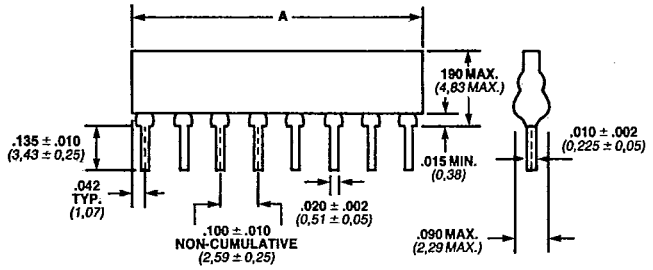
709E



710E

DIMENSIONS

Low Profile 700 Series



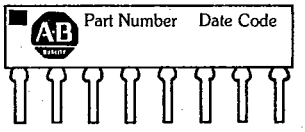
NOT TO SCALE

Basic dimensions in inches.
Dimensions shown in parentheses are in millimeters.

Pkg. Style	No. of Pins	"A" Dimension Max.
706	6	.600 (15,24)
708	8	.800 (20,32)
709	9	.900 (22,86)
710	10	1.000 (25,40)

Standard Markings

A-B Logo
A-B Part Number
Date Code
Pin #1 Indicator ■



Consult factory for custom monogramming capability.

Explanation of Part Numbers

Schematic	Resistance Value	Series Designation	Resistance Value
A = resistors tied to a common buss [2]B = isolated resistors	First two digits are significant figures and the third indicates the number of zeros following the first two digits – Examples: 101 = 100 Ohms 102 = 1000 Ohms 122 = 1200 Ohms	**706E** **708E** **709E** **710E**	First two digits are significant figures and the third indicates the number of zeros following the first two digits – Examples: 101 = 100 Ohms 102 = 1000 Ohms 122 = 1200 Ohms

708A103 — **708E221331** (R1 R2)

Series Designation	Number of Pins	Tolerance
700 Series Conformal Coated SIP	04 05 06 07 08 09 10 11 12 13	±2% = blank ±1% = F ±5% = J

[2] "B" schematics available only with even number of pins.

Typical Performance Test Capabilities

Test Group	Order of Test	Examination or Test	Test Method Per MIL-R-83401 (Paragraph)	Post Test Requirements	±1% & ±2% SIP	±5% SIP
I	1	Visual and Mechanical Examination	4.6.2	In accordance with applicable requirements		
	2	Thermal Shock	4.6.3	Maximum resistance change	±.25%	±.5%
	3	DC Resistance	4.6.5	In accordance with applicable requirements		
II	1	Solderability	4.6.6	Maximum resistance change	±.25%	±.25%
	2	Resistance to Solvents	4.6.7	Maximum resistance change Marking shall remain legible	±.25%	±.25%
III	1	Resistance Temperature Characteristic	4.6.8	Within specified limits	±100ppm/°C	±350ppm/°C
	2	Low Temperature Operation	4.6.9	Maximum resistance change	±.25%	±.5%
	3	Short Time Overload	4.6.10	Maximum resistance change	±.25%	±1.0%
	4	Terminal Strength	4.6.11	Maximum resistance change	±.25%	±.5%
IV	1	Dielectric Withstanding Voltage	4.6.12	Maximum resistance change No mechanical damage, arcing or breakdown	±.25%	±.25%
	2	Insulation Resistance	4.6.13	10^{10} Ohms minimum		
	3	Resistance to Soldering Heat	4.6.14	Maximum resistance change	±.25%	±.5%
	4	Moisture Resistance	4.6.15	Maximum resistance change	±.5%	±2.0%
V	1	Shock (Specified Pulse)	4.6.16	Maximum resistance change	±.25%	±.5%
	2	Vibration, High Frequency	4.6.17	Maximum resistance change	±.25%	±.5%
VI	1	Life	4.6.18	Maximum resistance change	±1.0%	±3.0%
VII	1	High Temperature Exposure	4.6.19	Maximum resistance change	±.5%	±.5%
	2	Low Temperature Storage	4.6.20	Maximum resistance change	±.25%	±.5%

INSPECTION CONDITIONS: Unless otherwise specified, all measurements are understood to be made at the following initial inspection conditions:

Normal atmospheric pressure.
Relative humidity of 40 ± 10 percent.
Ambient temperature of 24° ± 2°C.

NOTE: During an inspection or qualification, all the networks shall be subjected to the inspections of Test Group I. The total samples are then divided into Groups II to VII inclusive, and subjected to the tests and inspections of the particular group.