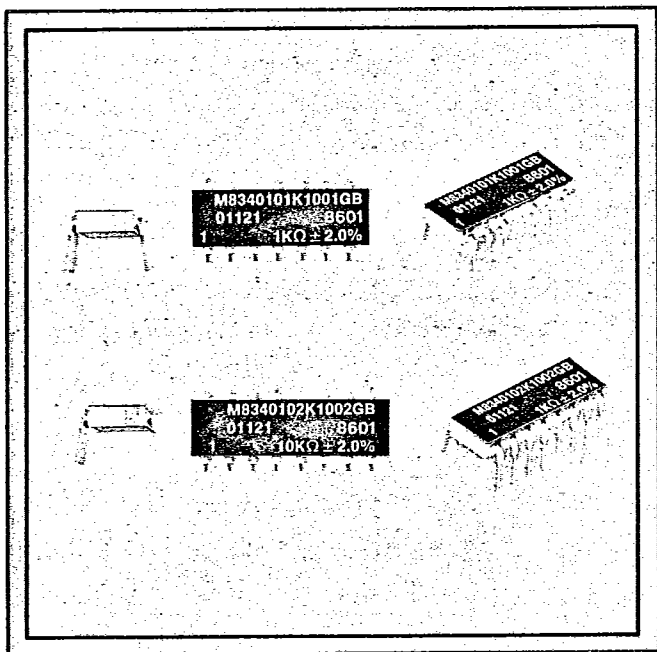




# MIL-R-83401 Military Resistor Networks



I-DIP

Dual In-Line Package

## FEATURES

- Solid Ceramic Body
- 100% Screened per MIL-R-83401
- Low Profile
- 14 and 16 Pin Construction
- Automatically Insertable
- MIL-R-83401 Qualified
- Exclusive Allen-Bradley Cermet Ink Performance

## Applications

Pull-Up resistor arrays for unused TTL gates.  
Parallel high speed circuitry.  
Wired OR configurations.  
Pull-Down applications.  
TTL-MOS interfacing.  
Digital pulse squaring.

Transmission line termination.  
Power gate pull-up.  
Current limiting.  
Logic level translation.

## Applications Information

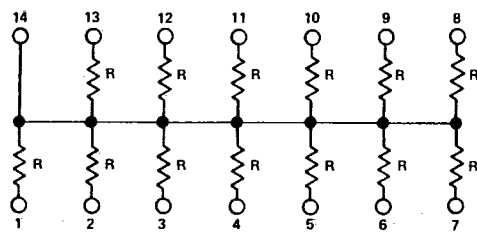
For application information refer to the following Allen-Bradley Application Notes for Networks.

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

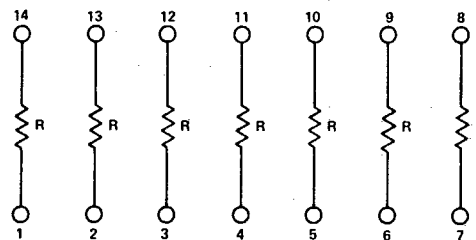
## Custom Resistor Networks

When a standard military network does not meet your requirements, a custom network (Schematic X) can be designed to your specifications.

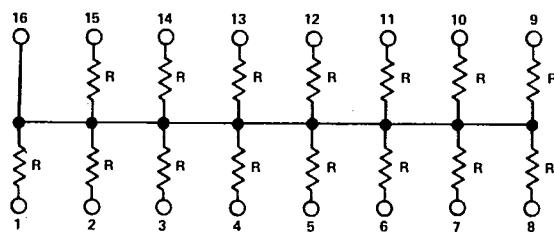
### MIL-R-83401 Network Schematic Diagrams



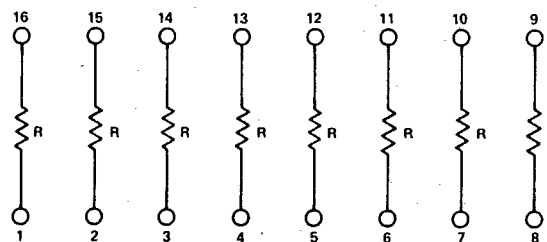
M83401-01-XXXXXX-B



M83401-01-XXXXXX-A



M83401-02-XXXXXX-B



M83401-02-XXXXXX-A

### MIL-R-83041 Network Specifications

Resistor tolerance —  $\pm 2\%$  standard,  $\pm 1\%$  and  $\pm 5\%$  available.

Temperature coefficient of resistance —  $\pm 300$ ppm/ $^{\circ}$ C standard,  $\pm 100$ ppm/ $^{\circ}$ C available.

Operating temperature range —  $-55^{\circ}$ C to  $+125^{\circ}$ C.

Operating voltage — 100 volts DC or AC RMS.

Standard resistance values —

R (Ohms)					
33	100	330	2000	10K	150K
47	120	470	2200	15K	220K
51	150	510	3300	22K	330K
56	180	680	4700	33K	470K
68	200	1000	5100	47K	680K
75	220	1500	6800	100K	1M

Other values available from 33 ohms to 1 megohm.

Power dissipation rating — Up to  $70^{\circ}$ C ambient.

Mil #	Individual Resistor Rating	Total Package Rating
M8340101....B	100 mw <b>2</b>	1.3 watts
M8340101....A	200 mw <b>3</b>	1.4 watts
M8340102....B	100 mw <b>2</b>	1.5 watts
M8340102....A	200 mw <b>3</b>	1.6 watts

**1** At  $+70^{\circ}$ C power derates linearly from full rated power to 0 wattage at  $+125^{\circ}$ C.

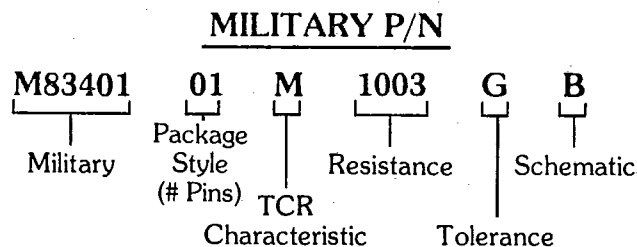
**2** Rated continuous working voltage (RCWV), based on nominal resistance (R) in ohms, is  $\sqrt{.100 \times R}$  or 100 volts, whichever is less.

**3** Rated continuous working voltage (RCWV), based on nominal resistance (R) in ohms, is  $\sqrt{.200 \times R}$  or 100 volts, whichever is less.

### General Capabilities

Package Style	Number of Pins	Description
M83401	01	14 pin DIP
M83401	02	16 pin DIP

Schematic Circuit Layout	Description
M83401 A	Isolated resistors
M83401 B	Resistors with a common buss



Tolerance	Description
M83401 F	$\pm 1\%$
M83401 G	$\pm 2\%$
M83401 J	$\pm 5\%$

Characteristic Temperature Coefficient	Description
M83401 K	$\pm 100$ ppm/ $^{\circ}$ C
M83401 M	$\pm 300$ ppm/ $^{\circ}$ C

**Resistance Value**

First three digits are significant; fourth digit is number of zeros following; letter R is decimal point (33R0).

# MIL-R-83401 Performance Test Specifications

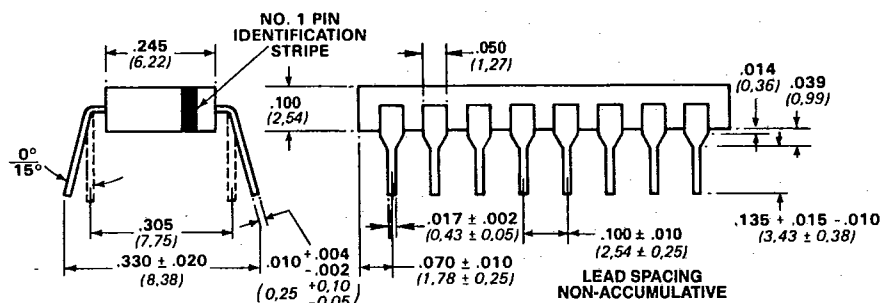
Test Group	Order Of Test	Examination or Test	Test Method Per MIL-R-83401 (Paragraph)	Post Test Requirements	
				K Characteristic	M Characteristic
I	1	Visual and Mechanical Examination	4.6.2	In accordance with applicable requirements	In accordance with applicable requirements
	2	Thermal Shock	4.6.3	$\Delta R \pm 0.5\%$ maximum	$\Delta R \pm 0.5\%$ maximum
	3	Power Conditioning	4.6.4	$\Delta R \pm 0.5\%$ maximum	$\Delta R \pm 0.5\%$ maximum
	4	DC Resistance	4.6.5	In accordance with applicable requirements	In accordance with applicable requirements
II	1	Solderability	4.6.6	In accordance with applicable requirements	In accordance with applicable requirements
	2	Resistance to Solvents	4.6.7	In accordance with applicable requirements	In accordance with applicable requirements
III	1	Resistance Temperature Characteristic	4.6.8	$\pm 100$ PPM/ $^{\circ}$ C	$\pm 300$ PPM/ $^{\circ}$ C
	2	Low Temperature Operation	4.6.9	$\Delta R \pm 0.25\%$ maximum	$\Delta R \pm 0.5\%$ maximum
	3	Short Time Overload	4.6.10	$\Delta R \pm 0.25\%$ maximum	$\Delta R \pm 0.5\%$ maximum
	4	Terminal Strength	4.6.11	$\Delta R \pm 0.25\%$ maximum	$\Delta R \pm 0.25\%$ maximum
IV	1	Dielectric Withstanding Voltage	4.6.12	In accordance with applicable requirements	In accordance with applicable requirements
	2	Insulation Resistance	4.6.13	$10^{10}$ ohms minimum	$10^{10}$ ohms minimum
	3	Resistance to Soldering Heat	4.6.14	$\Delta R \pm 0.25\%$ maximum	$\Delta R \pm 0.25\%$ maximum
	4	Moisture Resistance	4.6.15	$\Delta R \pm 0.5\%$ maximum	$\Delta R \pm 0.5\%$ maximum
V	1	Shock (Specified Pulse)	4.6.16	$\Delta R \pm 0.25\%$ maximum	$\Delta R \pm 0.25\%$ maximum
	2	Vibration, High Frequency	4.6.17	$\Delta R \pm 0.25\%$ maximum	$\Delta R \pm 0.25\%$ maximum
VI	1	Life	4.6.18	$\Delta R \pm 0.5\%$ maximum	$\Delta R \pm 2.0\%$ maximum
VII	1	High Temperature Exposure	4.6.19	$\Delta R \pm 0.5\%$ maximum	$\Delta R \pm 1.0\%$ maximum
	2	Low Temperature Storage	4.6.20	$\Delta R \pm 0.25\%$ maximum	$\Delta R \pm 0.5\%$ maximum

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

- Normal atmospheric pressure.
- Relative humidity of  $40 \pm 10$  percent.
- Ambient temperature of  $24^{\circ} \pm 2^{\circ}$ C.

## Dimensions

"A" Maximum		Number of Leads
Decimal	Metric	
.745	18,92	14
.845	21,46	16

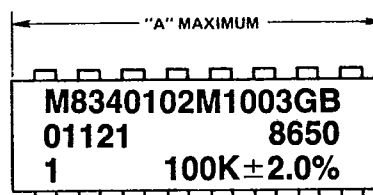


Basic dimensions in inches.  
Dimensions shown in parentheses are in millimeters.

### TOLERANCES

Dimensional Tolerance  $\pm .005$  (0,13)  
Angular Tolerance  $\pm 5^{\circ}$  Except as Specified.

**NOT TO SCALE**



**Standard Markings**  
Military Part Number  
Federal Source Code  
Date Code  
Pin 1