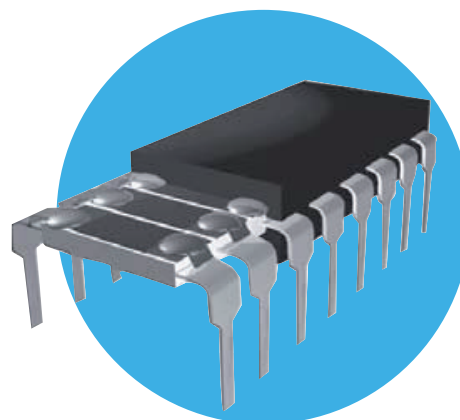


# TaNFilm® Precision Molded DIP Resistor Network

## M900 Series

- Ratios tolerances to  $\pm 0.05\%$
- Absolute TCR to  $\pm 25\text{ppm}/^\circ\text{C}$
- Superior TCR tracking to  $\pm 5\text{ppm}/^\circ\text{C}$
- Custom circuit schematics available
- Sn/Pb and 100% matte tin terminations available



 All Pb-free parts comply with EU Directive 2011/65/EU (RoHS2)

IRC's TaNFilm® M900 series resistor networks are designed for use in applications requiring a high degree of reliability, stability, tight tolerance, excellent TCR tracking, and low noise. The molded construction provides excellent dimensional stability for automatic insertion. Our continuous feed, high vacuum sputtering process insures uniform properties from network to network. Precise state-of-the-art laser trimming enables us to easily zero in the tightest ratios. Passivated Tantalum Nitride resistor film ensures performance far superior to military specifications and provides excellent environmental protection.

The versatile nature of our photo-etch process makes it possible to supply virtually any circuit configuration needed to meet special customer requirements. Custom circuit designs can be easily achieved with a modest set up charge. Military screening available on all units.

## Electrical Data

Schematic	Resistance Range ( $\Omega$ )	Absolute Tolerance	Optional Ratio Tolerance	Absolute TCR ( $\text{ppm}/^\circ\text{C}$ )	Tracking TCR ( $\text{ppm}/^\circ\text{C}$ )	Element Power (mW)
<b>A</b>	10 - 49.9	F, G, J	F, G	$\pm 50; \pm 100; \pm 300$	$\pm 20$	200
	50.0 - 199	F, G, J	D, F, G	$\pm 25; \pm 50; \pm 100; \pm 300$	$\pm 10$	
	200 - 999	B, D, F, G, J	A, B, D, F, G	$\pm 25; \pm 50; \pm 100; \pm 300$	$\pm 5$	
	1.0K - 400K	B, D, F, G, J	A, B, D, F, G	$\pm 25; \pm 50; \pm 100; \pm 300$	$\pm 5$	
<b>B</b>	50 - 149	B, D, F, G, J	B, D, F, G	$\pm 300; \pm 100$	$\pm 50$	100
	150 - 499	B, D, F, G, J	B, D, F, G	$\pm 300; \pm 100; \pm 50$	$\pm 20$	
	500 - 999	B, D, F, G, J	B, D, F, G	$\pm 25; \pm 50; \pm 100; \pm 300$	$\pm 5$	
	1.0K - 200K	B, D, F, G, J	B, D, F, G	$\pm 25; \pm 50; \pm 100; \pm 300$	$\pm 5$	

## Package Specification Data

Schematic	Package Power (W)			Voltage Rating	Temperature Range	Substrate	Lead Finish Options	Noise
	8-pin	14-pin	16-pin					
A	0.8	1.4	1.6	$\sqrt{P \times R}$ not to exceed 100V	$-55^\circ\text{C}$ to $+150^\circ\text{C}$	99.5% Alumina	Sn/Pb solder plate 100% matte tin plate	<-30dB
B	0.7	1.3	1.5					

Custom circuits and special testing available. \*Contact factory for values below 200 $\Omega$ .

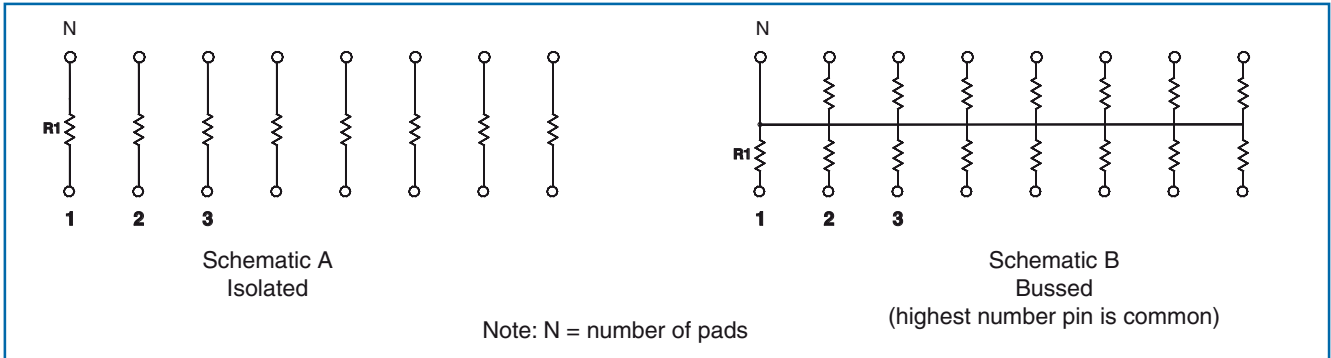
### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.  
 All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

## Environmental Data

Test Per MIL-PRF-83401	MIL-PRF-83401 Limits (Delta R%)			TaNFilm Test Data (Delta R%)	
	M	K	H	Max	Typical
Thermal Shock And Power Conditioning	0.7	0.7	0.5	0.10	0.02
Low Temperature Operation	0.5	0.25	0.1	0.1	0.02
Short-term Overload	0.5	0.25	0.1	0.05	0.02
Terminal Strength	0.25	0.25	0.25	0.1	0.02
Resistance To Solder Heat	0.25	0.25	0.1	0.1	0.02
Moisture Resistance	0.5	0.5	0.4	0.1	0.02
Shock	0.25	0.25	0.25	0.1	0.02
Vibration	0.25	0.25	0.25	0.1	0.02
Life	2.0	0.5	0.5	0.1	0.02
High Temperature Exposure	1.0	0.5	0.2	0.1	0.02
Low Temperature Storage	0.5	0.25	0.1	0.1	0.02
25°C Double Load	2.0	0.5	0.5	0.05	0.02

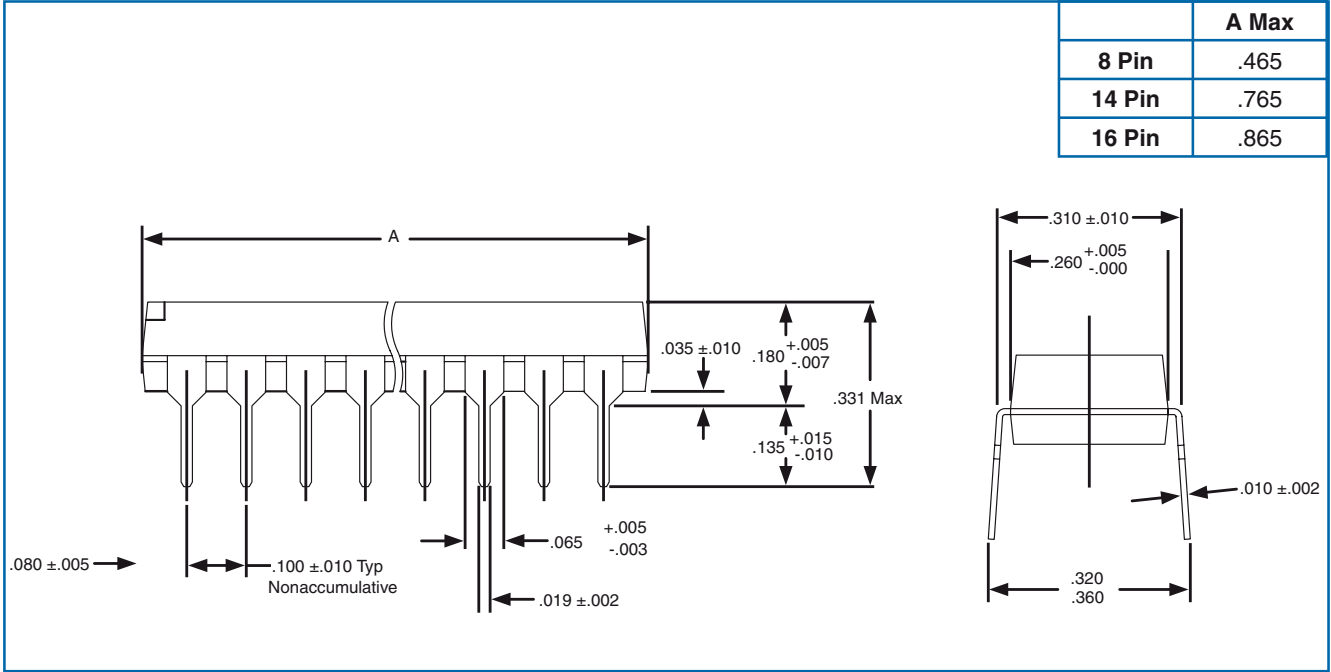
## Schematic Data



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Physical Data



Ordering Data

Sample Part No. .... **DPB** - **M989** - **02** - **1002** - **F** **B**

**Style** .....  
M954, M954LF = 8-pin DIP, schematic B  
M959, M959LF = 8-pin DIP, schematic A

M987, M987LF = 14-pin DIP, schematic B  
M989, M989LF = 14-pin DIP, schematic A

M998, M998LF = 16-pin DIP, schematic B  
M999, M999LF = 16-pin DIP, schematic A

**Note:** LF indicates 100% matte tin terminations

**TCR Code** .....  
01 = ±100ppm/°C; 02 = ±50ppm/°C; 03 = ±25ppm/°C

**Resistance** .....  
4-Digit resistance code  
Ex: 1002 = 10KΩ; 50R1 = 50.1Ω

**Absolute Tolerance Code** .....  
G = ±2%; F = ±1%; D = ±0.5%; C = ±0.25%; B = ±0.1%

**Optional Ratio Tolerance to R<sub>1</sub>** .....  
G = ±2%; F = ±1%; D = ±0.5%; C = ±0.25%; B = ±0.1%; A = ±0.05%

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