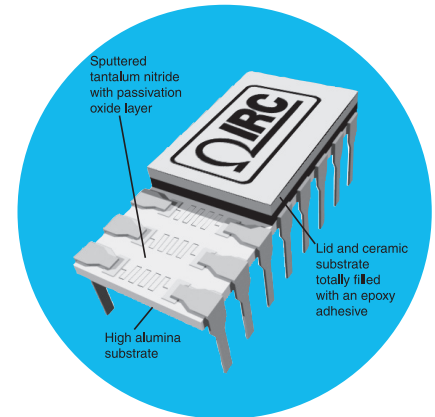


TaNFilm® Precision DIP Network Commercial and MIL Qualified

1900 Series

- Inherent reliability
- MIL-PRF-83401 qualified
- Custom configuration available
- Bonded leads not susceptible to solder reflow problems
- Absolute tolerance to $\pm 0.1\%$ / ratio tolerance to $\pm 0.05\%$
- Absolute TCR to $\pm 15\text{ppm}/^\circ\text{C}$ / ratio tracking to $\pm 5\text{ppm}/^\circ\text{C}$



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

The IRC 1900 Series is the ultimate combination of precision performance, reliability, and long term stability in a low profile, TaNFilm® DIP package. Rugged welded lead construction combined with the inherent passivation characteristics of tantalum nitride ensure superior ongoing performance over the installed life of the part.

Visit our website to view a graphical demonstration of IRC's TaNFilm® reliability and performance features.

Electrical Data

Schematic	Resistance Range (Ω)	Absolute Tolerance	Optional Ratio Tolerance	Absolute TCR ($\text{ppm}/^\circ\text{C}$)	Tracking TCR ($\text{ppm}/^\circ\text{C}$)	Military Characteristic	Element Power (mW)
A Commercial	10 - 49.9	F, G, J	F, G	$\pm 50; \pm 100; \pm 300$	± 20	N/A	200
	50.0 - 199	F, G, J	D, F, G	$\pm 25; \pm 50; \pm 100; \pm 300$	± 10		
	200 - 999	B, D, F, G, J	A, B, D, F, G	$\pm 25; \pm 50; \pm 100; \pm 300$	± 5		
	1.0K - 400K	B, D, F, G, J	A, B, D, F, G	$\pm 15; \pm 25; \pm 50; \pm 100; \pm 300$	± 5		
A Military	50 - 100K	B, D, F, G, J	N/A	N/A	N/A	H, K, M	
B Commercial	50 - 149	B, D, F, G, J	B, D, F, G	$\pm 300; \pm 100$	± 50	N/A	100
	150 - 249	B, D, F, G, J	B, D, F, G	$\pm 300; \pm 100; \pm 50$	± 20		
	250 - 999	B, D, F, G, J	B, D, F, G	$\pm 25; \pm 50; \pm 100; \pm 300$	± 5		
	1.0K - 200K	B, D, F, G, J	B, D, F, G	$\pm 15; \pm 25; \pm 50; \pm 100; \pm 300$	± 5		
B Military	50 - 70K	B, D, F, G, J	N/A	N/A	N/A	H, K, M	

Package Specification Data

Schematic	Package Power (W)		Voltage Rating	Temperature Range	Substrate	Lead Finish	Noise
	14-pin	16-pin					
A	1.4	1.6	\sqrt{PxR} not to exceed 100V	-55°C to $+150^\circ\text{C}$	99.6% Alumina	Gold Plate (60/40 Sn/Pb available)	$< -30\text{dB}$
B	1.3	1.5					

General Note

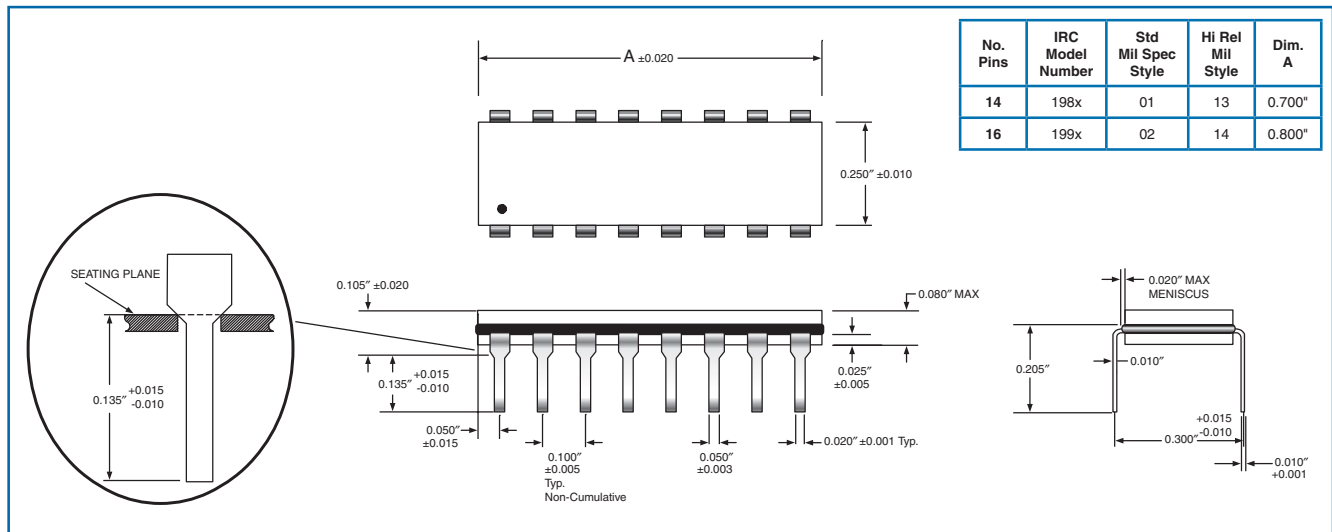
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1900 Series

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

Physical Data

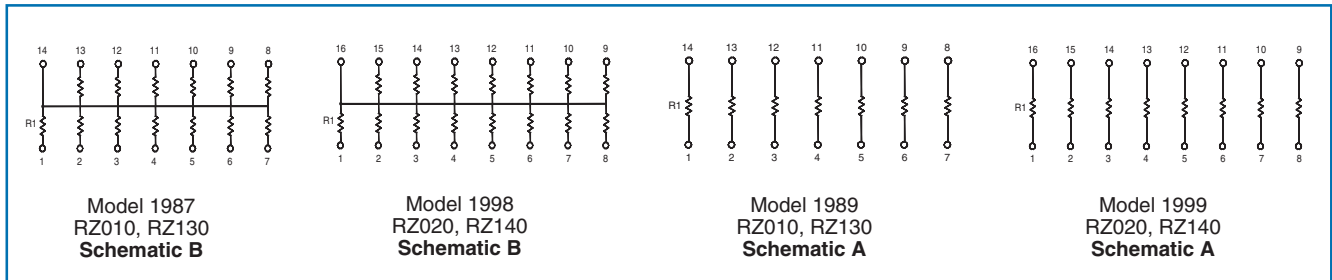


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1900 Series

Schematic Data



Commercial and MIL-Screened (Non-QPL) Ordering Data

Prefix **DIP** **1999** **03** **1001** **B** **F**

Model
 1987 = 14-pin DIP, schematic B, gold terminations
 1987SD = 14-pin DIP, schematic B, 60/40 Sn/Pb terminations
 1989 = 14-pin DIP, schematic A, gold terminations
 1989SD = 14-pin DIP, schematic A, 60/40 Sn/Pb terminations
 1998 = 16-pin DIP, schematic B, gold terminations
 1998SD = 16-pin DIP, schematic B, 60/40 Sn/Pb terminations
 1999 = 16-pin DIP, schematic A, gold terminations
 1999SD = 16-pin DIP, schematic A, 60/40 Sn/Pb terminations

Absolute TCR
 01 = ±100ppm/°C; 02 = ±50ppm/°C; 03 = ±25ppm/°C; 11 = ±15ppm/°C

MIL-PRF-83401 Group A Screening
 04 = ±300ppm/°C Characteristic M; 05 = ±100ppm/°C Characteristic K
 06 = ±50ppm/°C Characteristic H; 07 = ±25ppm/°C Characteristic H

Resistance
 Standard 4-digit MIL resistance code
 Example: 1001 = 1000Ω; 50R0=50Ω

Absolute Tolerance
 J = ±5%; G = ±2%; F = ±1.0%; D = ±0.5%; B = ±0.1%

Optional Ratio Tolerance to R₁
 F = ±1.0%; D = ±0.5%; C = ±0.25%; B = ±0.1%; A = ±0.05%

Custom schematics and screening available.

MIL-PRF-83401 Ordering Data

Prefix **M83401** **01** **K** **1001** **F** **A**

Specification Sheet
 01 = 14-pin DIP
 02 = 16-pin DIP
 13 = 14-pin HI REL DIP
 14 = 16-pin HI REL DIP

Characteristic
 M, K, H

Resistance
 Standard 4-digit MIL resistance code
 Example: 1001 = 1000Ω; 50R0=50Ω

Absolute Tolerance
 J = ±5%; G = ±2%; F = ±1.0%; D = ±0.5%; B = ±0.1%

Schematic
 A = Isolated; B = Bussed Schematic

Standard lead termination is gold plate.
 Contact factory for optional 60/40 Sn/Pb solder dip finish.

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