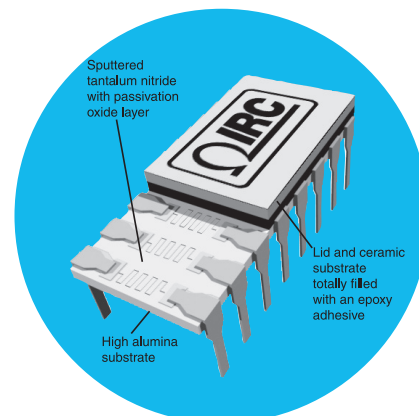



TaNFilm® Precision DIP Network

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	± 50 ; ± 100 ; ± 300	± 20	N/A	200
	50.0 - 199	F, G, J	D, F, G	± 25 ; ± 50 ; ± 100 ; ± 300	± 10		
	200 - 999	B, D, F, G, J	A, B, D, F, G	± 25 ; ± 50 ; ± 100 ; ± 300	± 5		
	1.0K - 400K	B, D, F, G, J	A, B, D, F, G	± 15 ; ± 25 ; ± 50 ; ± 100 ; ± 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	± 300 ; ± 100	± 50	N/A	100
	150 - 249	B, D, F, G, J	B, D, F, G	± 300 ; ± 100 ; ± 50	± 20		
	250 - 999	B, D, F, G, J	B, D, F, G	± 25 ; ± 50 ; ± 100 ; ± 300	± 5		
	1.0K - 200K	B, D, F, G, J	B, D, F, G	± 15 ; ± 25 ; ± 50 ; ± 100 ; ± 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

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.

BI Technologies IRC Welwyn

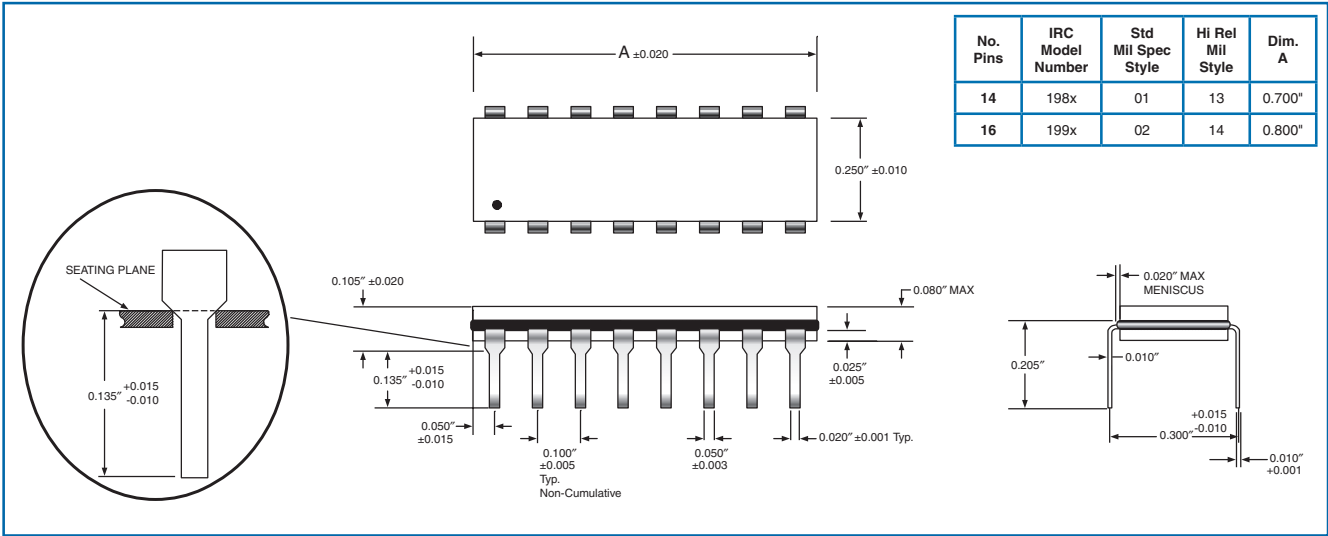
www.ttelectronics.com/resistors

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



General Note

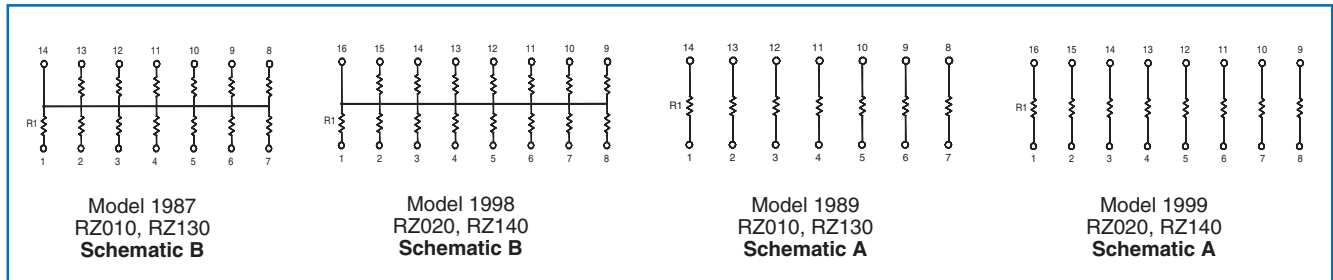
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1900 Series

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 = $\pm 100\text{ppm}/^{\circ}\text{C}$; 02 = $\pm 50\text{ppm}/^{\circ}\text{C}$; 03 = $\pm 25\text{ppm}/^{\circ}\text{C}$; 11 = $\pm 15\text{ppm}/^{\circ}\text{C}$						
MIL-PRF-83401 Group A Screening						
04 = $\pm 300\text{ppm}/^{\circ}\text{C}$ Characteristic M; 05 = $\pm 100\text{ppm}/^{\circ}\text{C}$ Characteristic K						
06 = $\pm 50\text{ppm}/^{\circ}\text{C}$ Characteristic H; 07 = $\pm 25\text{ppm}/^{\circ}\text{C}$ Characteristic H						
Resistance						
Standard 4-digit MIL resistance code						
Example: 1001 = 1000 Ω ; 50R0=50 Ω						
Absolute Tolerance						
J = $\pm 5\%$; G = $\pm 2\%$; F = $\pm 1.0\%$; D = $\pm 0.5\%$; B = $\pm 0.1\%$						
Optional Ratio Tolerance to R₁						
F = $\pm 1.0\%$; D = $\pm 0.5\%$; C = $\pm 0.25\%$; B = $\pm 0.1\%$; A = $\pm 0.05\%$						
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 = $\pm 5\%$; G = $\pm 2\%$; F = $\pm 1.0\%$; D = $\pm 0.5\%$; B = $\pm 0.1\%$					
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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