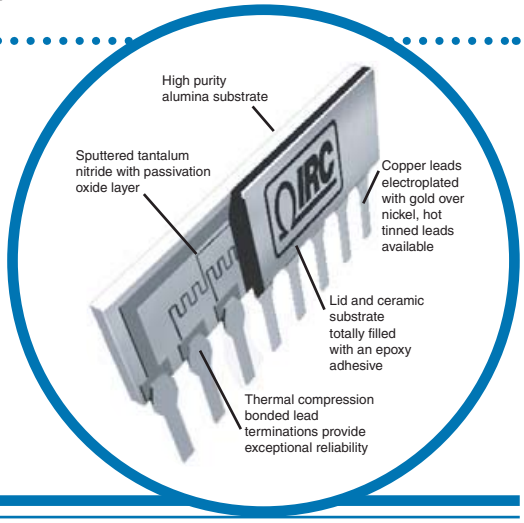
TaNFilm® Precision SIP Network Commercial and MIL Qualified

4700 Series

- **Inherent reliability**
- **MIL-PRF-83401 qualified**
- **Custom configuration available**
- **Bonded leads not susceptible to solder reflow problems**
- **Absolute tolerance to ±0.1% - ratio accuracy to ±0.01%**
- **Absolute TCR to ±15ppm/°C - TC tracking to ±5ppm/°C**



The IRC 4700 Series is the ultimate combination of precision performance, reliability, and long term stability in a low profile, TaNFilm® SIP package. Rugged welded lead construction combined with the inherent passivation characteristics of tantalum nitride insure 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.

Commercial Product Capability Data

Schematic	Resistance Range (Ω)	Absolute Tolerance	Ratio Tolerance	Absolute TCR (ppm/°C)	Tracking TCR (ppm/°C)	Element Power (mW)
C	49.9 - 99.9	F, G, J	F, G	±50; ±100; ±300	±20	120
	100 - 200	B, D, F, G, J	D, F, G	±25; ±50; ±100; ±300	±15	
	201 - 1.9K	B, D, F, G, J	B, D, F, G	±25; ±50; ±100; ±300	±10	
	2.0K - 200K	B, D, F, G, J	A, B, D, F, G	±15; ±25; ±50; ±100; ±300	±5	
G	20 - 49.9	F, G, J	F, G	±50; ±100; ±300	±20	200
	50.0 - 199	D, F, G, J	B, D, F, G	±25; ±50; ±100; ±300	±5	
	200 - 999	B, D, F, G, J	A, B, D, F, G	±25; ±50; ±100; ±300	±5	
	1.0K - 100K	B, D, F, G, J	T, Q, A, B, D, F, G	±15; ±25; ±50; ±100; ±300	±5	
	101K - 400K	B, D, F, G, J	A, B, D, F, G	±15; ±25; ±50; ±100; ±300	±5	
F	49.9 - 99.9	F, G, J	F, G	±50; ±100; ±300	±20	120
	100 - 199	F, G, J	D, F, G	±25; ±50; ±100; ±300	±10	
	200 - 999	B, D, F, G, J	B, D, F, G	±25; ±50; ±100; ±300	±5	
	1.0K - 200K	B, D, F, G, J	A, B, D, F, G	±15; ±25; ±50; ±100; ±300	±5	

Consult factory for tighter tolerances and TCR. Custom circuits and special testing available.

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.

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MIL-PRF-83401 QPL Capability Data

Schematic	Resistance Range	Absolute Tolerance	Element Power	Size	Characteristic
C	100 - 100K	B, F, G, J	120	6, 8, 10	M, H, K
G	100 - 100K	B, F, G, J	200	6, 8, 10	M, H, K

Package Specification Data

Schematic	Package Power (mW)			Voltage Rating	Temperature Range	Substrate	Lead Finish	Noise
	6-pin	8-pin	10-pin					
C, F (MIL and Commercial)	600	840	1080	$\sqrt{PxR}$ not to exceed 100V	-65°C to +125°C	99.6% Alumina	Gold Plate (60/40 Sn/Pb available)	<-30dB
G (MIL)	360	480	800					
G (Commercial)	600	800	1000					

Environmental Data

Test Per MIL-PRF-83401	MIL-PRF-83401 ΔR Limits			TaNFilm® Test Data ΔR	
	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%	±0.05%	±0.02%
Short-term Overload	±0.5%	±0.25%	±0.1%	±0.1%	±0.02%
Terminal Strength	±0.25%	±0.25%	±0.1%	±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%

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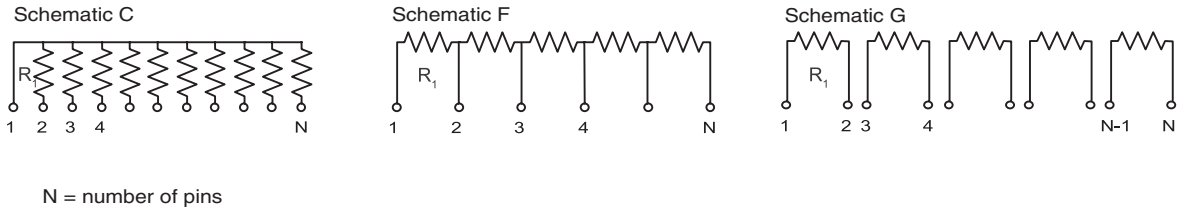
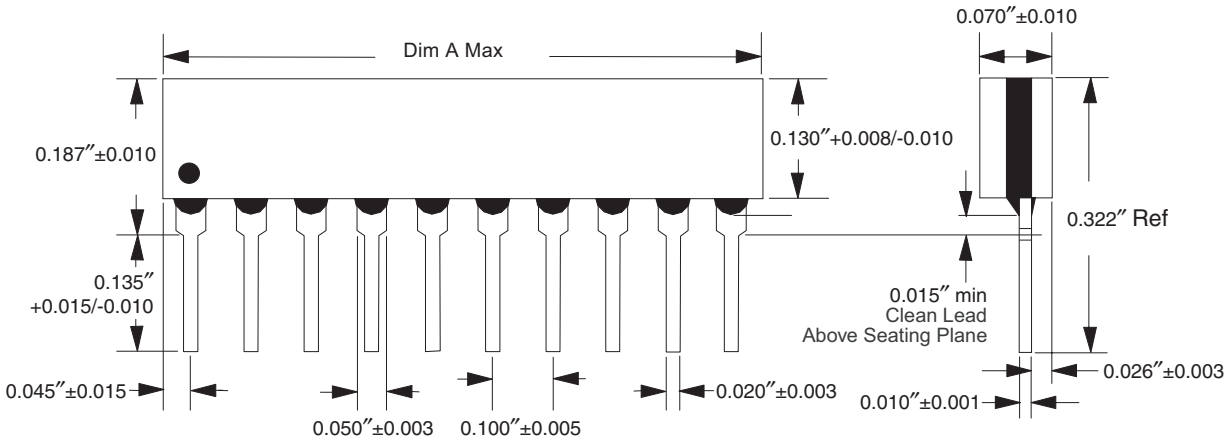
Schematic Data



Physical Data

No. Pins	IRC Model Number	Std Mil Spec Style	Hi Rel Mil Style	Dim. A
6	476X	RZ070	RZ210	0.598
8	478X	RZ080	RZ220	0.798
10	470X	RZ090	RZ230	0.998



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Ordering Data - Commercial

Sample Part No. SIP - 4781 - 03 - 1001 F B

Model
4761 = 6-pin SIP, schematic C, gold terminations
4761SD = 6-pin SIP, schematic C, 60/40 Sn/Pb terminations
4768 = 6-pin SIP, schematic F, gold terminations
4768SD = 6-pin SIP, schematic F, 60/40 Sn/Pb terminations
4769 = 6-pin SIP, schematic G, gold terminations
4769SD = 6-pin SIP, schematic G, 60/40 Sn/Pb terminations

4781 = 8-pin SIP, schematic C, gold terminations
4781SD = 8-pin SIP, schematic C, 60/40 Sn/Pb terminations
4788 = 8-pin SIP, schematic F, gold terminations
4788SD = 8-pin SIP, schematic F, 60/40 Sn/Pb terminations
4789 = 8-pin SIP, schematic G, gold terminations
4789SD = 8-pin SIP, schematic G, 60/40 Sn/Pb terminations

4701 = 10-pin SIP, schematic C, gold terminations
4701SD = 10-pin SIP, schematic C, 60/40 Sn/Pb terminations
4708 = 10-pin SIP, schematic F, gold terminations
4708SD = 10-pin SIP, schematic F, 60/40 Sn/Pb terminations
4709 = 10-pin SIP, schematic G, gold terminations
4709SD = 10-pin SIP, schematic G, 60/40 Sn/Pb terminations

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

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 R_1
F = ±1.0%; D = ±0.5%; C = ±0.25%; B = ±0.1%; A = ±0.05%; Q = ±0.02%, T = ±0.01%

Custom schematics and screening available.
Screening available for non-QPL values and tolerances. Contact factory for ordering information.

Ordering Data - Military (MIL-PRF-83401)

Sample Part No. M83401 - 08 - H - 1002 - F - G

Model
M83401 = Military qualified resistor network

Size
07 = RZ060 6-pin SIP
08 = RZ080 8-pin SIP
09 = RZ090 10-pin SIP
21 = RZ210 Hi-Rel 6-pin SIP
22 = RZ220 Hi-Rel 8-pin SIP
23 = RZ230 Hi-Rel 10-pin SIP

Characteristic per MIL-PRF-83401
M; K; H

Resistance
Standard 4-digit MIL resistance code
Example: 1000 = 100Ω; 1001=1000Ω

Absolute Tolerance Code
J = ±5%; G = ±2%; F = ±1%; B = ±0.1%

Schematic
C; G

Standard termination is gold plate. Contact factory for optional 60/40 Sn/Pb hot solder dip finish.
Screening available for non-QPL values and tolerances. Contact factory for ordering information.

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