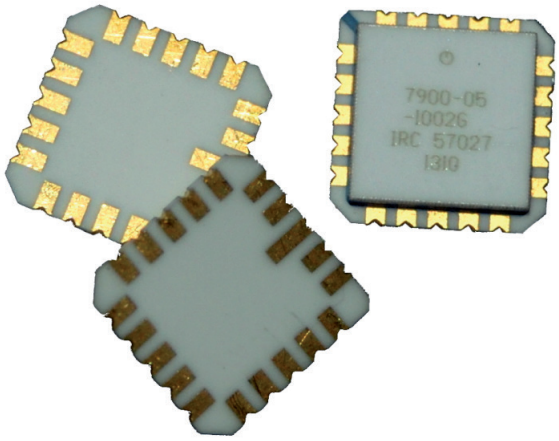
TaNFilm® Chip Carrier Resistor Network

CCN Series

OBSOLETE



Features

- Qualified to DESC 87016 and 87017 military specifications
- Gold, Sn/Pb and RoHS compliant terminations available
- Ideal for all reflow soldering techniques
- Meets JEDEC standard for type 'C' package
- Custom schematics readily available
- Absolute TCR to ±15 ppm/°C

All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

The IRC TaNFilm® Chip Carrier Network offers higher lead density, increased component count, lower installed resistor cost, better reliability, and is ideal for use with all surface mount solder techniques. In addition, the TaNFilm® leadless CCN provides all the unique qualities of our other TaNFilm® package configurations. Testing has demonstrated performance exceeding MIL-PRF-914 Characteristic H.

Precise state-of-the-art laser trimming provides close tolerances and tight ratios. The TaNFilm® process enables IRC to manufacture custom circuit configurations and multiple resistance values without sacrificing the tightest tolerance and tracking characteristics of precision networks. The Tantalum Nitride resistor material is passivated for environmental protection surpassing military requirements and guaranteeing exceptional ratio stability.

For applications requiring a high degree of reliability, stability, accuracy and low noise, plus the advantages of new resistor configurations, specify the IRC Leadless Chip Carrier Configuration Resistor Network.

Electrical Data

Resistance Range	10Ω to 300KΩ
Absolute Resistance Tolerance	To ±0.1%
Ratio Tolerance to R1	to ±0.01%
Power Rating @ 70°C	0.1 watt/resistor, 1.0 watt/network
Operating Temperature Range	-55°C to +150°C
Absolute TCR	To ±15ppm/°C
TCR Tracking	To ±5 ppm/°C
Noise	Less than -25 dB
Termination Options (nickel leach barrier)	Gold 60/40 Sn/Pb 100% matte-tin
Substrate Material	99.5% pure alumina substrate
Construction	Epoxy overcoat (78xx) Ceramic lid (79xx)

Custom circuits and special testing available.

TaNFilm® Chip Carrier Resistor Network

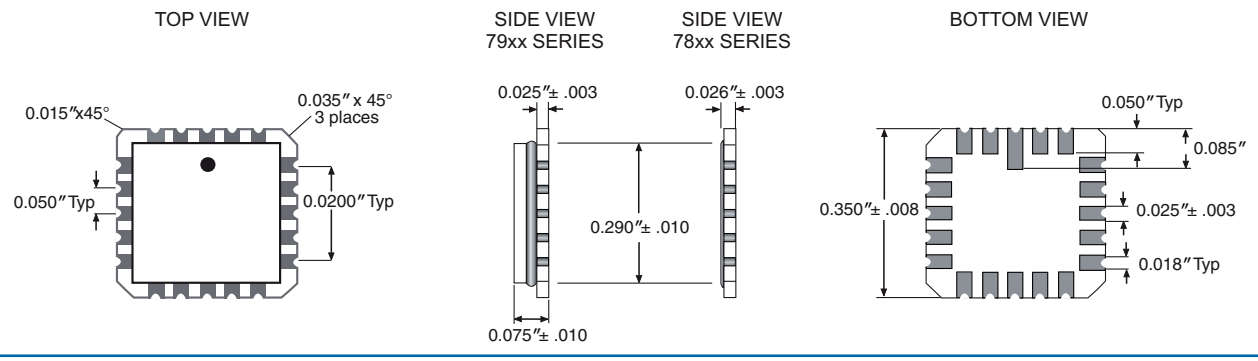
CCN Series

OBSOLETE

Manufacturing Capability Data

Circuit	Resistance Range	Available Absolute Tolerances	Available Ratio Tolerances (Ratio to R1)	Best Absolute TCR	Tracking TCR (Track to R1)
Isolated Schematics 7907/7807 7908/7808	10Ω - 24.9Ω	F G J	D F G	±300 ppm/°C	±50 ppm/°C
	25.0Ω - 49.9Ω	F G J	D F G	±100 ppm/°C	±25 ppm/°C
	50Ω - 199Ω	D F G J	B D F G	±50 ppm/°C	±10 ppm/°C
	200Ω - 999Ω	B D F G J	B D F G	±25 ppm/°C	±5 ppm/°C
	1.0K -50.0K	B D F G J	A B D F G	±25 ppm/°C	±5 ppm/°C
Isolated Schematic 7909/7809	10Ω - 24.9Ω	F G J	D F G	±300 ppm/°C	±50ppm/°C
	25Ω - 74.9Ω	F G J	D F G	±100 ppm/°C	±25 ppm/°C
	75Ω - 379Ω	D F G J	B D F G	±50 ppm/°C	±10 ppm/°C
	380Ω - 999Ω	B D F G J	A B D F G	±25 ppm/°C	±5 ppm/°C
	1.0KΩ - 100KΩ	B D F G J	T Q A B D F G	±25 ppm/°C	±5 ppm/°C
	101KΩ - 250KΩ	B D F G J	A B D F G	±25 ppm/°C	±5 ppm/°C
Bussed Schematic 7900/7800	10Ω - 24.9Ω	F G J	D F G	±300 ppm/°C	±50ppm/°C
	25Ω - 74.9Ω	F G J	D F G	±100 ppm/°C	±25ppm/°C
	75Ω - 149Ω	F G J	B D F G	±50 ppm/°C	±10ppm/°C
	150Ω - 100KΩ	B D F G J	A B D F G	±25 ppm/°C	±5ppm/°C

Physical Data

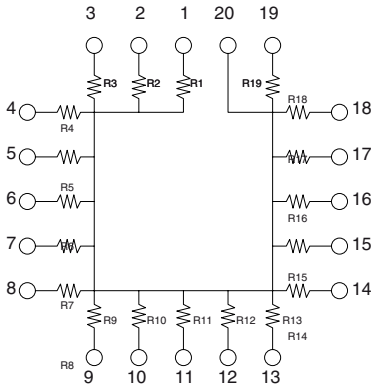


TaNFilm® Chip Carrier Resistor Network

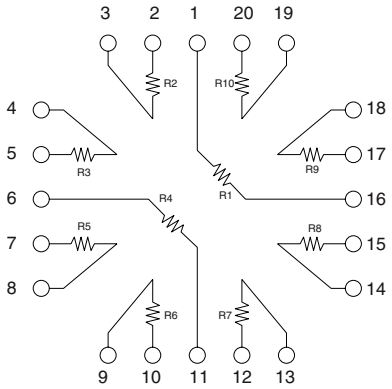
CCN Series

OBSOLETE

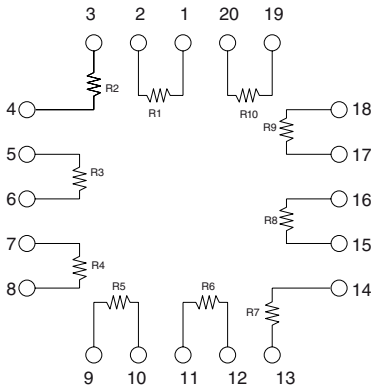
Schematic Data



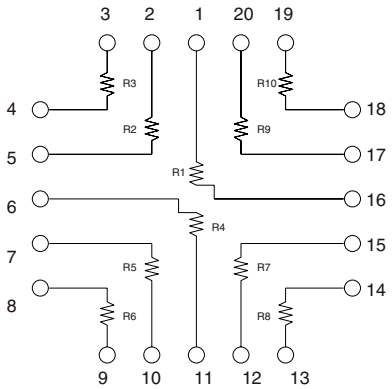
7800/7900



7807/7907



7808/7908



7809/7909

Environmental Data

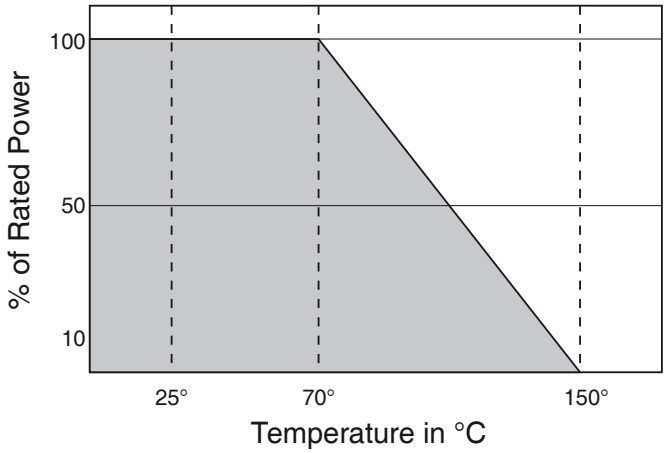
Test Per MIL-PRF-914	MIL-PRF-914 Limits (ΔR%)				TaNFilm® Test Data (ΔR%)	
	M	K	H	V	Max	Typical
Thermal Shock and Power Conditioning	0.7	0.7	0.5	0.25	0.1	0.02
Low Temperature Operation	0.5	0.25	0.1	0.1	0.05	0.02
Short Term Overload	0.5	0.25	0.1	0.1	0.05	0.02
Resistance to Bonding Exposure	0.25	0.25	0.25	0.25	0.1	0.02
Steady State Humidity	0.5	0.5	0.5	0.2	0.1	0.03
Moisture Resistance	0.5	0.5	0.4	0.25	0.1	0.03
Shock	0.25	0.25	0.25	0.25	0.1	0.03
Vibration	0.25	0.25	0.25	0.25	0.1	0.03
Life	2.0	0.5	0.5	0.5	0.1	0.03
High Temperature Exposure	1.0	0.5	0.2	0.1	0.1	0.03
Low Temperature Storage	0.5	0.25	0.1	0.1	0.05	0.01

TaNFilm® Chip Carrier Resistor Network

CCN Series

OBSOLETE

Power Derating Data



Ordering Data

Prefix ..... CCN - 7900 - 01 - 1001 - B - B

Model

7800: 20-pin, 19 resistor schematic, epoxy overcoat construction, 60/40 Sn/Pb solder plate terminations
7800LF: 20-pin, 19 resistor schematic, epoxy overcoat construction, 100% matte-tin (Pb-free) terminations

7807: 20-pin, 10 resistor schematic, epoxy overcoat construction, 60/40 Sn/Pb solder plate terminations
7807LF: 20-pin, 10 resistor schematic, epoxy overcoat construction, 100% matte-tin (Pb-free) terminations

7808: 20-pin, 10 resistor schematic, epoxy overcoat construction, 60/40 Sn/Pb solder plate terminations
7808LF: 20-pin, 10 resistor schematic, epoxy overcoat construction, 100% matte-tin (Pb-free) terminations

7809: 20-pin, 10 resistor schematic, epoxy overcoat construction, 60/40 Sn/Pb solder plate terminations
7809LF: 20-pin, 10 resistor schematic, epoxy overcoat construction, 100% matte-tin (Pb-free) terminations

7900: 20-pin, 19 resistor schematic, ceramic lid construction, gold over nickel plate terminations
7900SD: 20-pin, 19 resistor schematic, ceramic lid construction, Sn/Pb hot solder dipped terminations
7900LF: 20-pin, 19 resistor schematic, ceramic lid construction, 100% matte-tin (Pb-free) terminations

7907: 20-pin, 10 resistor schematic, ceramic lid construction, gold over nickel plate terminations
7907SD: 20-pin, 10 resistor schematic, ceramic lid construction, Sn/Pb hot solder dipped terminations
7907LF: 20-pin, 10 resistor schematic, ceramic lid construction, 100% matte-tin (Pb-free) terminations

7908: 20-pin, 10 resistor schematic, ceramic lid construction, gold over nickel plate terminations
7908SD: 20-pin, 10 resistor schematic, ceramic lid construction, Sn/Pb hot solder dipped terminations
7908LF: 20-pin, 10 resistor schematic, ceramic lid construction, 100% matte-tin (Pb-free) terminations

7909: 20-pin, 10 resistor schematic, ceramic lid construction, gold over nickel plate terminations
7909SD: 20-pin, 10 resistor schematic, ceramic lid construction, Sn/Pb hot solder dipped terminations
7909LF: 20-pin, 10 resistor schematic, ceramic lid construction, 100% matte-tin (Pb-free) terminations

TCR/Screening Code

Code	Classification	Absolute TCR
00	Commercial Grade	±300ppm/°C
01	Commercial Grade	±100ppm/°C
02	Commercial Grade	±50ppm/°C
03	Commercial Grade	±25ppm/°C
04	MIL-PRF-914M Screened	±300ppm/°C
05	MIL-PRF-914K Screened	±100ppm/°C
06	MIL-PRF-914H Screened	±50ppm/°C
07	MIL-PRF-914H Screened	±25ppm/°C
11	Commercial Grade	±15ppm/°C

Resistance Code
Standard 4-Digit MIL Resistance Code. Example: 1001 = 1000Ω, 50R0 - 50Ω

Absolute Tolerance Code
B = ±0.1%; D = ±0.5%; F = ±1%; G = ±2%; J = ±5%

Ratio Tolerance to R_1 (optional)
T = ±0.01%; Q = ±0.02%; A = ±0.05%; B = ±0.1%; D = ±0.5%; F = ±1%; G = ±2%