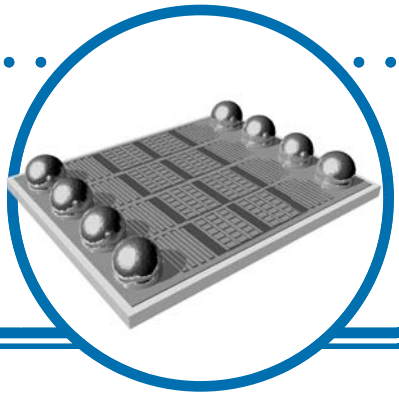
Precision Ceramic Ball Grid Arrays

CHC-Precision Series

- Ratio tolerances to ±0.05%
- Absolute tolerances to ±0.1%
- RoHS compliant terminations available
- Superior TaNFilm® resistors on ceramic substrate
- Same footprint as the industry standard SOIC-N package



IRC's TaNFilm® ceramic Precision Ball Grid Array offers precision tolerances in a ceramic BGA package. In addition, the TaNFilm® CHC Series provides all the unique qualities of our other TaNFilm® package configurations.

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 self-passivating 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 Precision Ceramic Ball Grid Arrays.

Electrical Data

Package	Power Rating at 70°C		Temperature Range	Maximum Voltage	Noise	Substrate	Termination
	Element	Network					
8-Pad	100mW	400mW	-55°C to +150°C	50V (not to exceed $\sqrt{PxR}$)	< -25dB	99.5% Alumina	Solder plated over nickel barrier
16-Pad	100mW	800mW					

Manufacturing Capabilities

Resistance Range	Available Absolute Tolerances	Available Ratio Tolerances (Ratio to R1)	Best Absolute TCR	Tracking TCR (Track to R1)
10Ω - 25Ω	J G F D C	G F D	±100ppm/°C	±20ppm/°C
25.1Ω - 50Ω	J G F D C	G F D C	±50ppm/°C	±10ppm/°C
50.1Ω - 200Ω	J G F D C B	G F D C B	±25ppm/°C	±5ppm/°C
201Ω - 100KΩ	J G F D C B	G F D C B A	±25ppm/°C	±5ppm/°C

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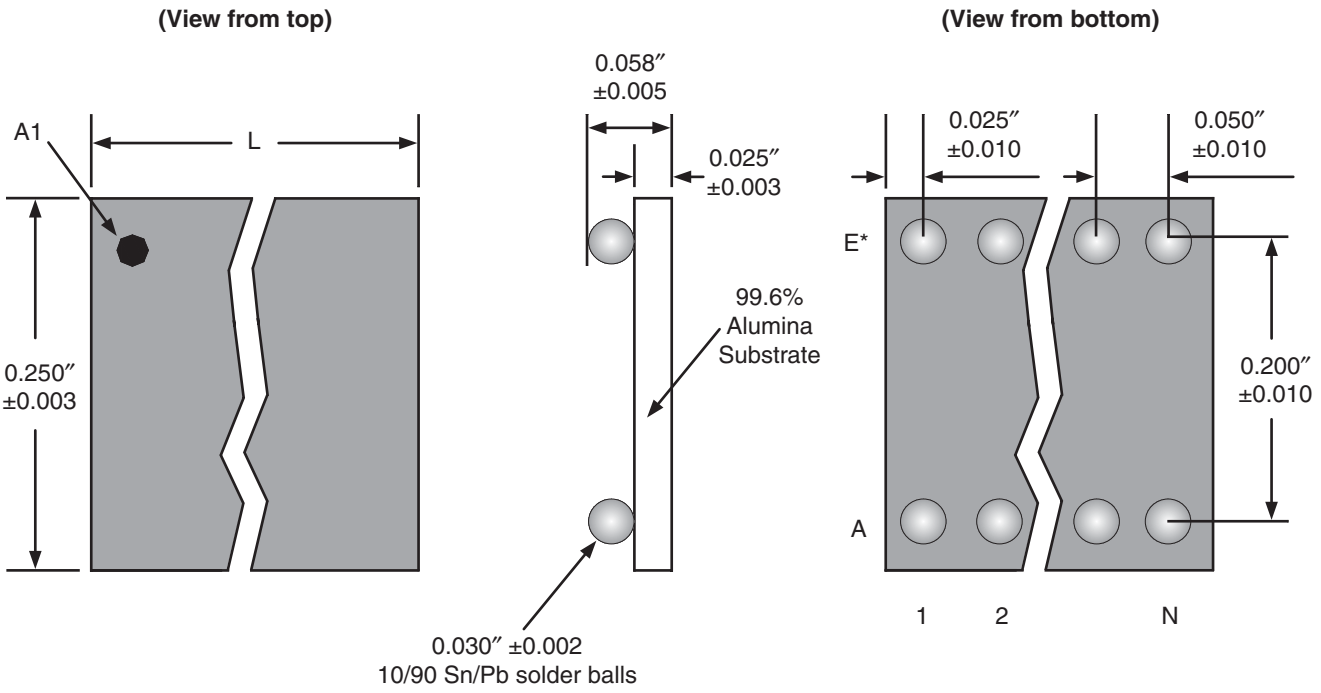
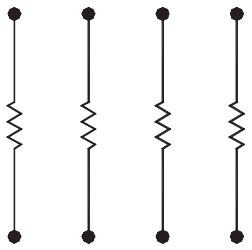
Physical and Schematic Data

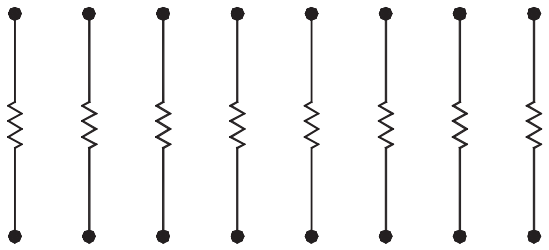


Number of Columns N	Length L
4	0.200″ ±0.003
8	0.400″ ±0.003

Schematic CH4A
(View from top)



Schematic CH8A
(View from top)



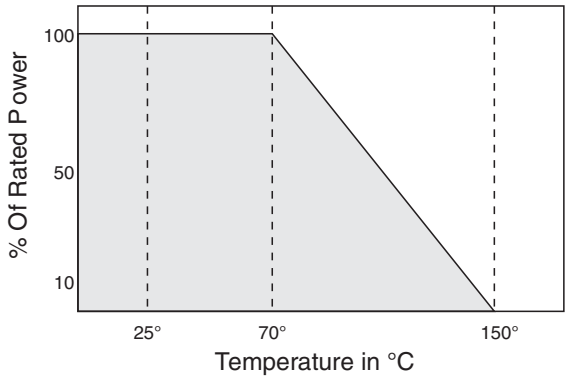
*Rows B, C and D not populated

Precision Ceramic Ball Grid Arrays

Environmental Data

Environmental Test Per MIL-PRF-83401	Maximum ΔR	Typical ΔR
Thermal Shock And Power Conditioning	±0.1%	±0.02%
Low Temperature Operation	±0.05%	±0.02%
Short-time Overload	±0.05%	±0.02%
Moisture Resistance	±0.1%	±0.03%
Shock	±0.1%	±0.03%
Vibration	±0.1%	±0.03%
Life	±0.1%	±0.03%
High Temperature Exposure	±0.1%	±0.03%
Low Temperature Storage	±0.05%	±0.01%

Power Derating Curve



Ordering Data

Prefix CHC - CH8A - 03 - 1002 - B B

Model
CH4A = 8-pad with 10/90 Sn/Pb terminations
CH4ALF = 8-pad with RoHS compliant SnAgCu terminations

CH8A = 16-pad with 10/90 Sn/Pb terminations
CH8ALF = 16-pad with RoHS compliant SnAgCu terminations

TCR Code
01 = ±100 ppm/°C Commercial Grade
02 = ±50 ppm/°C Commercial Grade
03 = ±25 ppm/°C Commercial Grade

Resistor Code
4-digit resistance code
Example: 1002 = 10KΩ; 49R9 = 49.9Ω

Absolute Tolerance Code
J = ±5%; G = ±2%; F = ±1%; D = ±0.5%; C = ±0.25%; B = ±0.1%

Optional R1 Ratio Tolerance Code
F = ±1%; D = ±0.5%; B = ±0.1%; A = ±0.05%

For additional information or to discuss your specific requirements. please contact our Applications Team using the contact details below.