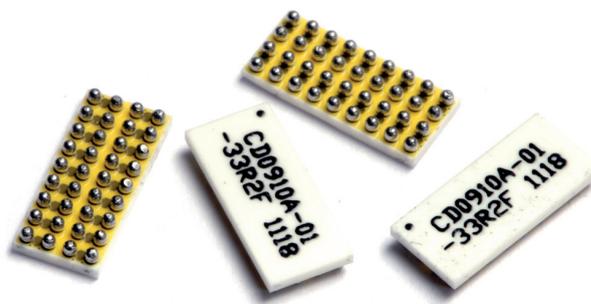


Ceramic Ball Grid Termination Arrays

CHC Series

Features

- Superior TaNFilm® resistors on ceramic substrate
- High density networks on a reduced footprint
- Excellent high frequency performance
- Standard tolerances to $\pm 1\%$
- RoHS compliant terminations available



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

TT Electronics' chipscale on ceramic CHC offers a high-performance termination array in a small surface mount BGA package. Solder balls placed on a ceramic substrate permit very low parasitic inductance and capacitance. This improves speeds, lowers propagation delays, and reduces ground bounce. Also, TT Electronics' proven tantalum nitride thin film technology can handle the most demanding environmental conditions.

Package	Resistance Range (Ω)	Absolute Tolerances	Absolute TCR	Package Power Rating 70°C*	Element Power Rating 70°C*	Operating Temperature
CB0565A	10R to 4.7K	$\pm 1\%$, $\pm 2\%$	$\pm 100\text{ppm}/^\circ\text{C}$	0.6W		
	10R to 10.0K	$\pm 5\%$				
CB0565B	10R to 2.2K	$\pm 1\%$, $\pm 2\%$	$\pm 100\text{ppm}/^\circ\text{C}$	0.6W		
	10R to 4.7K	$\pm 5\%$				
CD0865A	10R to 4.7K	$\pm 1\%$, $\pm 2\%$	$\pm 100\text{ppm}/^\circ\text{C}$	1.2W		
	10R to 10.0K	$\pm 5\%$				
CD0865B	10R to 2.2K	$\pm 1\%$, $\pm 2\%$	$\pm 100\text{ppm}/^\circ\text{C}$	1.2W		
	10R to 4.7K	$\pm 5\%$				
CD1065A	10R to 4.7K	$\pm 1\%$, $\pm 2\%$	$\pm 100\text{ppm}/^\circ\text{C}$	1.6W	0.1W	-40°C to $+85^\circ\text{C}$
	10R to 10.0K	$\pm 5\%$				
CD1065B	10R to 2.2K	$\pm 1\%$, $\pm 2\%$	$\pm 100\text{ppm}/^\circ\text{C}$	1.6W	0.1W	-40°C to $+85^\circ\text{C}$
	10R to 4.7K	$\pm 5\%$				
CC0910A	10R to 4.7K	$\pm 1\%$, $\pm 2\%$	$\pm 100\text{ppm}/^\circ\text{C}$	1.2W		
	10R to 10.0K	$\pm 5\%$				
CC0910B	10R to 2.2K	$\pm 1\%$, $\pm 2\%$	$\pm 100\text{ppm}/^\circ\text{C}$	1.2W		
	10R to 4.7K	$\pm 5\%$				
CD0910A	10R to 4.7K	$\pm 1\%$, $\pm 2\%$	$\pm 100\text{ppm}/^\circ\text{C}$	1.2W		
	10R to 10.0K	$\pm 5\%$				
CD0910B	10R to 2.2K	$\pm 1\%$, $\pm 2\%$	$\pm 100\text{ppm}/^\circ\text{C}$	1.2W		
	10R to 4.7K	$\pm 5\%$				
CC0910L	R1	50R – 75R	$\pm 100\text{ppm}/^\circ\text{C}$	1.0W @ 85°C	50mW @ 85°C	-40°C to $+150^\circ\text{C}$
	R2	22R – 25R				

*Rated power is at 70°C de-rated linearly to 0W at 85°C except for CC0910L, for which rated power is at 85°C de-rated linearly to 0W at 150°C

General Note

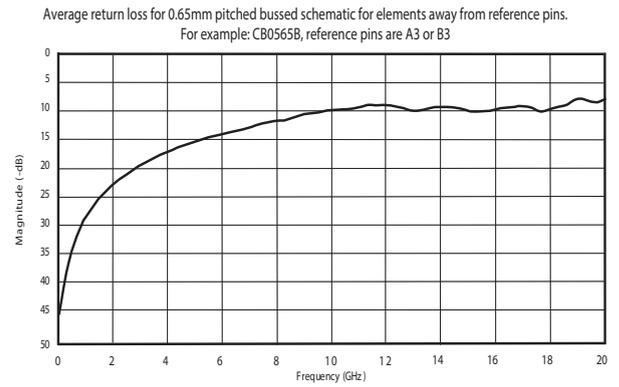
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CHC Series

Return Loss Data (50Ω Nominal)

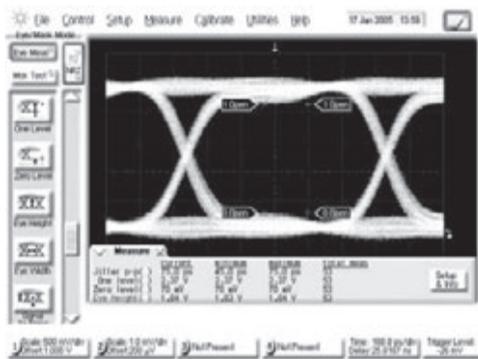


Typical Return Loss For CC0910B-01-50R0-F

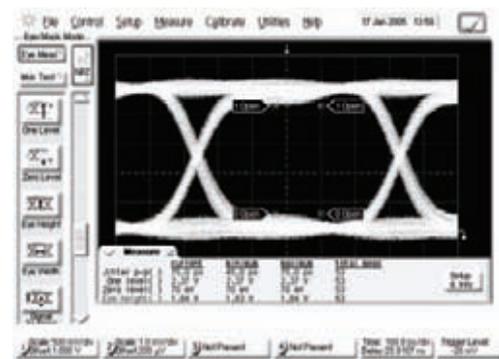


Typical Return Loss For CD1065B-01-50R0-F

Eye Diagram Data

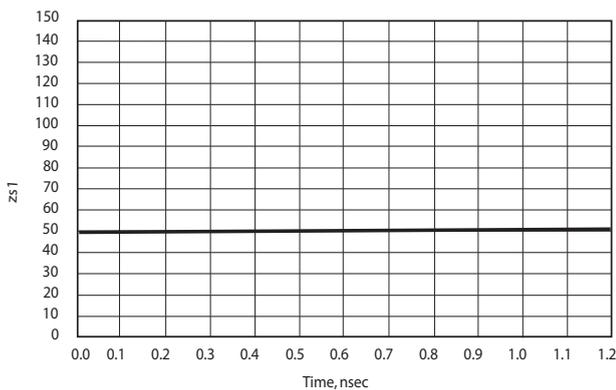


Ideal Terminator

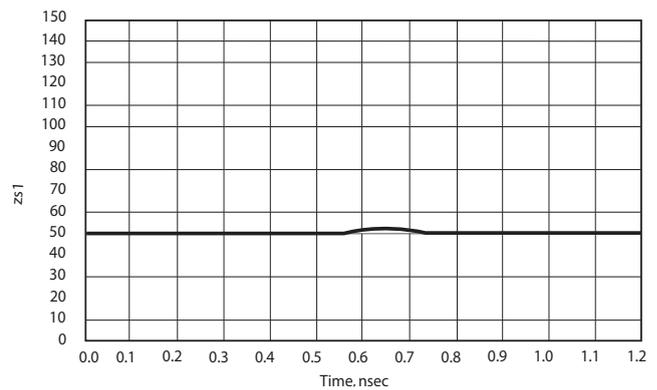


IRC CHC-CC0910B-01-50R0-F Terminator

Impedance Response Data



Ideal 50Ω Terminator
Impedance response to 100psec rising edge



IRC CHC-CC0910B-01-50R0-F Terminator
Impedance response to 100psec rising edge

General Note

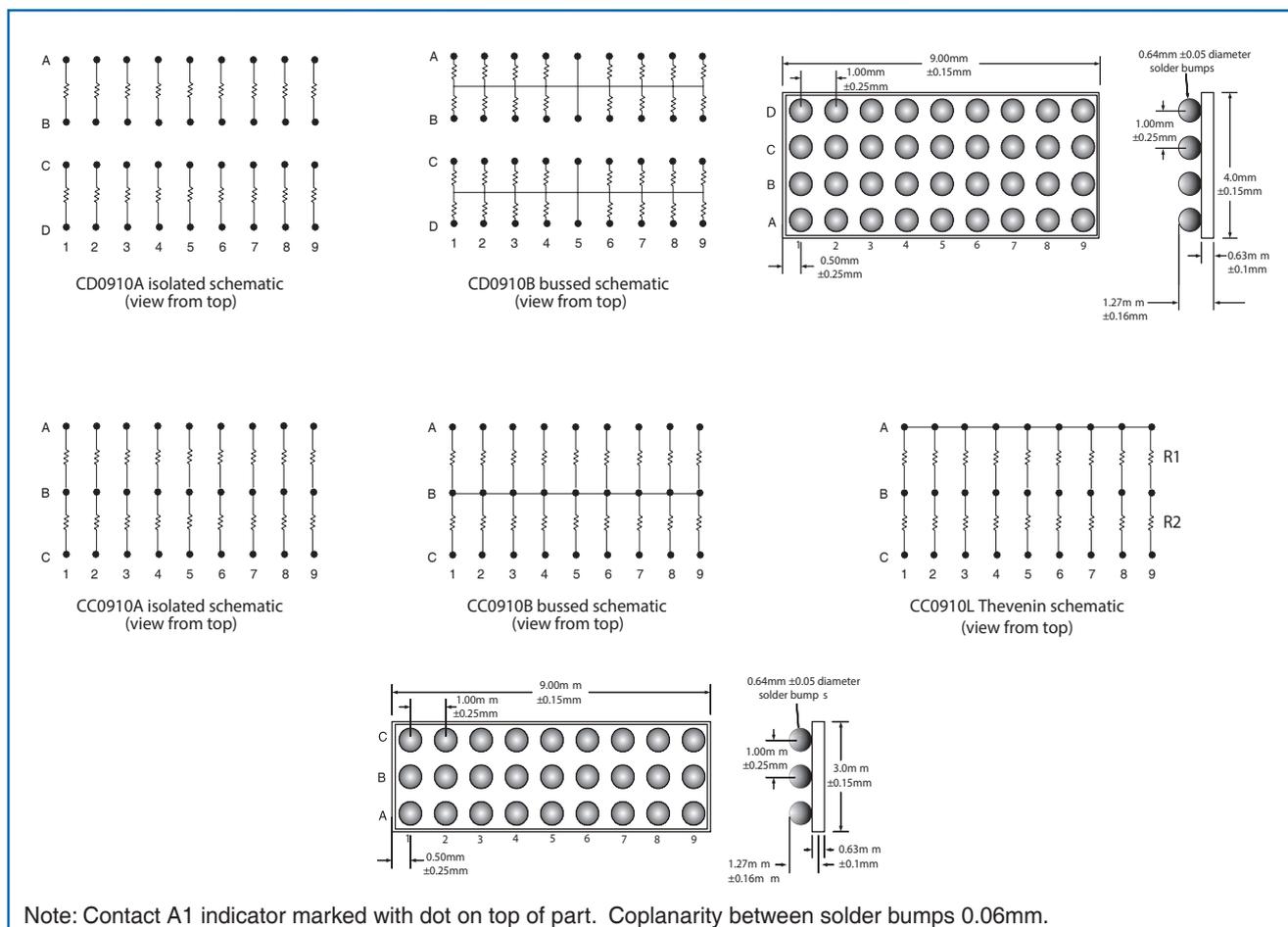
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CHC Series

Environmental Data

Environmental Test	Specification	Typical	Maximum
Thermal shock	MIL-PRF-83401	±0.01%	±0.02%
Low temperature operation	MIL-PRF-83401	±0.01%	±0.05%
Short time overload	MIL-PRF-83401	±0.01%	±0.05%
High temperature exposure	MIL-PRF-83401	±0.03%	±0.05%
Effects of solder	MIL-PRF-83401	±0.01%	±0.05%
Moisture resistance	MIL-STD-202, Method 206 65°C, 45% RH, with bias	±0.02%	±0.01%
Life	MIL-PRF-83401	±0.01%	±0.02%

Physical Data and Schematic Diagrams for 1.0mm Pitch Series



General Note

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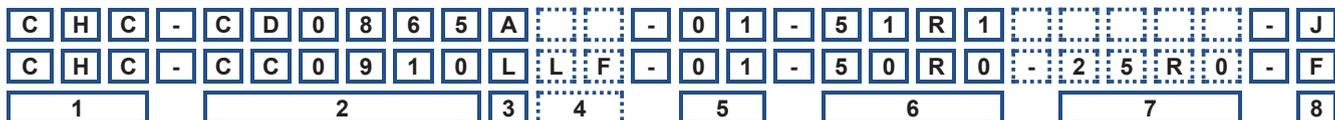
CHC Series

Physical Data and Schematic Diagrams for 0.65mm Pitch Series

Note: Contact A1 indicator marked with dot on top of part. Coplanarity between solder bumps 0.06mm.

Ordering Procedure

Examples: CHC-CD0865A-01-51R1-J (4 x 8, 0.65mm pitch SnPb array, isolated schematic, 51.1Ω ±5%)
 CHC-CC0910LLF-01-50R0-25R0-F (3 x 9, 1mm pitch Pb-free array, Thevenin schematic, R1=50Ω ±1%, R2=25Ω ±1%)



1	2	3	4	5	6	7	8
Prefix	Model	Schematic	Termination ²	Absolute TCR	Value (Value R1 ¹)	Value R2 ¹	Absolute Tolerance
CHC	CB0565 = 2 x 5, 0.65mm pitch array	A = Isolated	Omit for SnPb	01 = ±100ppm/°C	3 digits + multiplier		F = ±1%
	CD0865 = 4 x 8, 0.65mm pitch array	B = Bussed	LF = Pb-free		R = ohms for values <100ohms		G = ±2%
	CD1065 = 4 x 10, 0.65mm pitch array	L = Thevenin ¹					J = ±5%
	CC0910 = 3 x 9, 1mm pitch array						
	CD0910 = 4 x 9, 1mm pitch array						

Note 1: Applies only to CC0910L. Note 2: SnPb solder is 60/40 for 0.65mm pitch and 10/90 for 1mm pitch. Pb-free solder is SnAgCu (SAC).

Standard resistance values						
10R0 = 10Ω	15R0 = 15Ω	22R0 = 22Ω	25R0 = 25Ω	33R0 = 33Ω	47R0 = 47Ω	50R0 = 50Ω
51R1 = 50.1Ω	75R0 = 75Ω	1000 = 100Ω	1001 = 1kΩ	2201 = 2.2kΩ	4701 = 4.7kΩ	1002 = 10kΩ

General Note

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