

# Radial Leaded, Multilayer Ceramic Capacitors

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**RoHS  
Compliant**

Item	NP0 / C0G	X7R	Z5U	Y5V
Dielectric Type	Stable Class I Dielectric	Stable Class II Dielectric		
Electrical Properties	With negligible dependence of electrical properties on temperature, voltage, frequency and time.	With negligible change of properties with temperature, voltage. Frequency and time, this dielectric is ferroelectric and offers higher capacitance ranges than class I	With higher dielectric constant and greater variation of properties with temperature and test conditions, very high capacitance per unit volume and suited for bypass and coupling application as well as filtering, transient suppression blocking, and charge storage application.	
Application	Used in circuits requiring stable performance, such as temperature compensation circuits and smite circuits.	Used as blocking, coupling, By-Passing frequency and discrimination elements.	Suited for By-passing and coupling application such as store power and memory circuit.	
Operating Temperature	-55°C to +125°C		+10°C to +85°C	-30°C to +85°C
Temperature Coefficient	0±30ppm/°C	±15%	+22% to -56%	+22% to -82%

## Inspection Norm

Capacitance (C)	Test Frequency: =1000pF=1MHz >1000pF=1kHz	Test Frequency: 1kHz		
	Test Voltage: 1 ±0.2Vrms		Test Voltage: 0.5 ±0.1Vrms	Test Voltage: 1 ±0.2Vrms
	In the tolerance: C=±0.25pF D=±0.5pF J=±5pF	In the tolerance: J=±5pF K=±10pF M=±20pF	In the tolerance: M=±20% Z=+80% / -20%	
Dissipation Factor (DF)	Test Frequency: =1000pF=1MHz >1000pF=1kHz	Test Frequency: 1kHz		
	Test Voltage: 1 ±0.2Vrms		Test Voltage: 0.5 ±0.1Vrms	Test Voltage: 1 ±0.2Vrms
	<0.1%	100V, 50V is <2.5% 25V, 16V is <3.5%	4%	100V, 50V is <5% 25V, 16V is <7%
Insulation Resistance Ir	Test Voltage: Rated Voltage			
	Whichever is less: =100GΩ or =1000MΩ×μf		Whichever is less: =10GΩ or =100MΩ×μf	
Voltage (TV)	2.5 × Rated Voltage			

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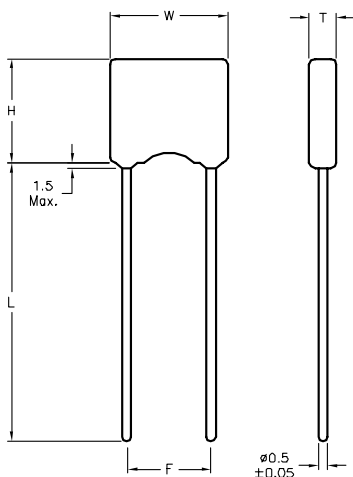
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## Reliability

Item	Test Methods	Test Specifications																																													
Solderability	The lead wire of a capacitor shall be dipped into a resin and then into molten solder of 235±5°C for 5 seconds, in both cases the depth of dipping is up to about 2.5mm to 3mm from the root of lead wires.	Lead wire shall be soldered with uniformly coated on the Axial or Radial direction over 75% of circumferential direction																																													
Resistance to Soldering heat	The lead wire shall be immersed into melted solder of 265 ±5°C, up to about 2.5mm to 3mm from the main body and the specified items shall be measured after leaving for 24±2hours.	1. Appearance: No marked defect 2. Capacitance Change (C/C) <table border="1"> <thead> <tr> <th></th> <th>NP0 / C0G</th> <th>X7R</th> <th>Z5U</th> <th>Y5V</th> </tr> </thead> <tbody> <tr> <td>C/C</td> <td>=±0.5% or ±0.5pF</td> <td>=±7.5%</td> <td>=±20%</td> <td>=±20%</td> </tr> </tbody> </table>		NP0 / C0G	X7R	Z5U	Y5V	C/C	=±0.5% or ±0.5pF	=±7.5%	=±20%	=±20%																																			
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Strength of Lead	Fix the body of capacitor, apply a tensile weight gradually to each lead.	Pull: Axial: >3kg Radial: >1kg																																													

## Diagram



Part Number	Dimensions (mm)				
	W	T	H	F	L
MCR15N101J2AL2L-RH	3 to 3.8	1.8 to 2.8	2.6 to 3.8	2.5 ±0.25	5 ±0.5
MCR15N221J1HL2L-RH					
MCR15W103K2AL2L-RH					
MCR20N102J1HL5L-RH	5	3/3.8	5	5 ±0.5	
MCR30W105K1HL5L-RH	7.6	3.8	7.6		
MCR30Z105M1HL5L-RH					

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## Specification Table

Part Number	Working Voltage (WV DC)	Capacitance	Dielectric	Tolerance (%)
MCR15N101J2AL2L-RH	100	100pF	NP0	5
MCR15N221J1HL2L-RH	50	220pF	NP0	5
MCR15W103K2AL2L-RH	100	0.01mF	X7R	10
MCR20N102J1HL5L-RH	50	1000pF	NP0	5
MCR30W105K1HL5L-RH	50	1mF	X7R	10
MCR30Z105M1HL5L-RH	50	1mF	Z5U	20

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