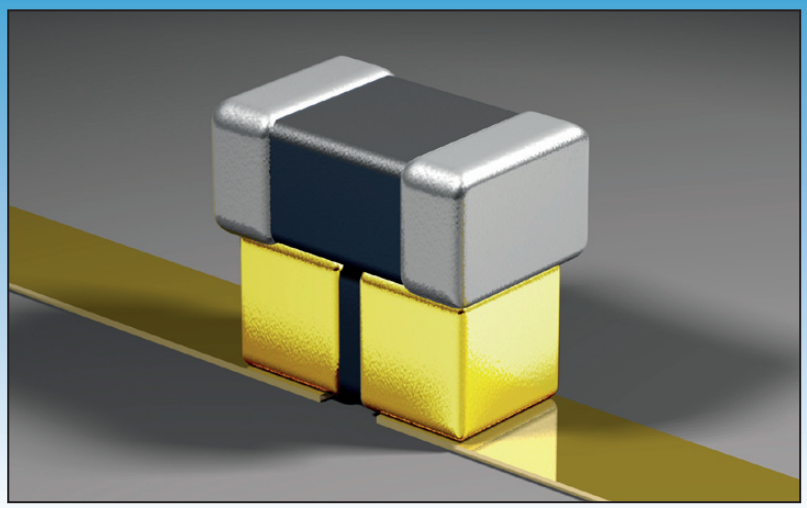
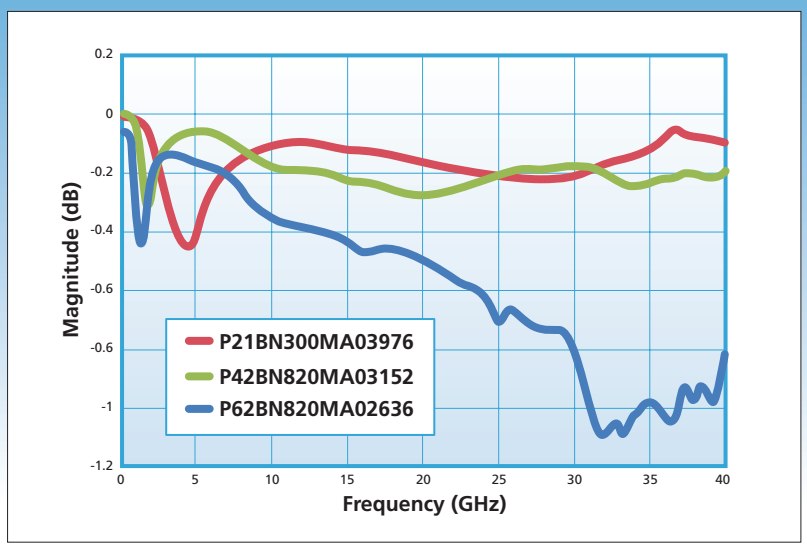
DIELECTRIC LABORATORIES

Opti-Cap®
Ultra Broadband DC Blocking



Insertion Loss



Electrical characteristics - Opti-Cap°

Part Number	Capacitance		Voltage Rating	TCC	DF (Max)	IR (Min)	Frequency Range
	MLC	Milli-Cap®					
P21BN300MA04733	100nF	30pF	10V	X5R	3.5%	>10² MΩ	16KHz - >40GHz
P21BN300MA04282	22nF	30pF			3.5%	>10² MΩ	
P21BN300MA03976	10nF	30pF			3.5%	>10² MΩ	
P21BN300MA04678	1.5nF	30pF	25V	X7R	3.5%	>10² MΩ	
P42BN820MA03152	220nF	82pF	10V	X5R	3.5%	>10² MΩ	
P42BN820MA04679	22nF	82pF	50V	X7R	3.5%	>10² MΩ	
P62BN820MA02636	100nF	82pF	25V	X7R	3.5%	>10² MΩ	

Features

- X7R temperature and voltage stability
- Resonance free DC blocking to >40GHz
- SMT by solder or epoxy bonding
- Low frequency stability over temperature
- Very low series inductance
- 0201, 0402 and 0602 footprints

Functional applications

- Test Equipment, Photonics, SONET, TOSA/ROSA, High Speed Data
- Broadband Microwave/Millimeter Wave
- Transimpedance Amplifiers

Specification

Electrical

Temperature Coefficient of Capacitance

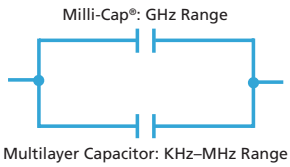
X5R: -55°C to +85°C (TCC ± 15%)
X7R: -55°C to +125°C (TCC ± 15%)

Capacitance Range

1.5nF to 220nF

Maximum Assembly Process Temperature

250°C



knowles
DLI•Novacap•Syfer•Voltronics

www.dilabs.com

North America
Knowles (Cazenovia)
Phone: +1 315 655 8710
DLISales@knowles.com

Europe
Knowles (UK) Ltd
Phone: +44 1603 723300
SyferSales@knowles.com

Far East
Knowles Capacitors
Phone: +86 512 62588258-6243
KCAsiaSales@knowles.com

Dimensional specifications - Opti-Cap°

Case size	Milli-Cap°			MLC		
	Length	Width	Thickness	Length	Width	Thickness
P21 (0201)	0.020″ ± 0.004″	0.012″ ± 0.002″	0.010″ ± 0.002″	0.022 ± 0.002″	0.010 ± 0.001″	0.010 ± 0.002″
P42 (0402)	0.038″ ± 0.004″	0.020″ ± 0.002″	0.020″ ± 0.002″	0.040 ± 0.002″	0.020 ± 0.002″	0.020 ± 0.002″
P62 (0602)	0.058″ ± 0.004″	0.020″ ± 0.002″	0.020″ ± 0.002″	0.067 ± 0.004″	0.031 ± 0.004″	0.031 ± 0.005″

Attachment Methods - Opti-Cap°

Recommended attachment to soft or hard substrate using Conductive Epoxy

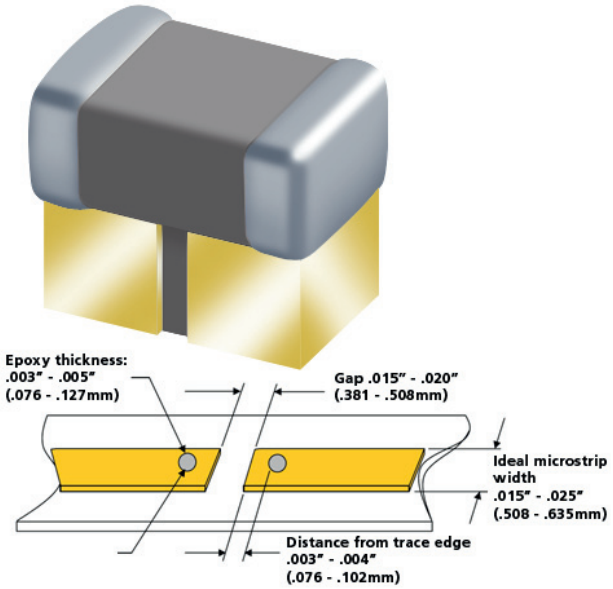
1. Place a single drop of conductive epoxy onto each micro strip as illustrated; the edge of the epoxy shall be at least .003″- .004″ back from the edge of the trace to prevent filling the gap with epoxy.
2. Centering the termination gap of the capacitor within the gap in the micro strip, press with careful, even pressure onto the micro strip ensuring the terminations make good contact with the epoxy drops.
3. Cure according to the epoxy manufacturer's preferred schedule, typically 125°C to 150°C max.
4. After curing, inspect joint for epoxy shorts across the termination and micro strip gaps that would cause a short across the cap.

Isopropanol and Methanol are both safe to use to pre clean Opti-Caps®.

Isopropanol, and Methanol are not to be used after mounting with conductive epoxy as they act as a solvent!

Recommended attachment to soft or hard substrate using Solder

1. Place a single drop of solder paste onto each micro strip as illustrated; the edge of the solder shall be at least .001″- .002″ back from the edge of the trace to prevent filling the gap with solder.
2. Centering the termination gap of the capacitor within the gap in the micro strip, press with careful, even pressure onto the micro strip ensuring the terminations make good contact with the drops of solder paste.
3. Reflow according to the solder manufacturer's preferred profile, ensuring the reflow temperature does not exceed 250°C.



4. After the reflow step is completed, inspect joint for voids or excess flux and non-reflowed solder balls that can degrade performance or cause shorts across the gaps. Proper cleaning after the reflow process is crucial to avoiding performance degradation and discovering poor solder joints.

Isopropanol and Methanol are both safe to use with soldered Opti-Caps®.