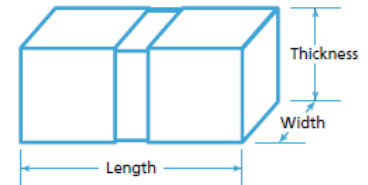
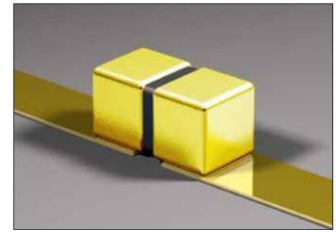


MILLI-CAP® BROADBAND DATASHEET – BNL VERSION

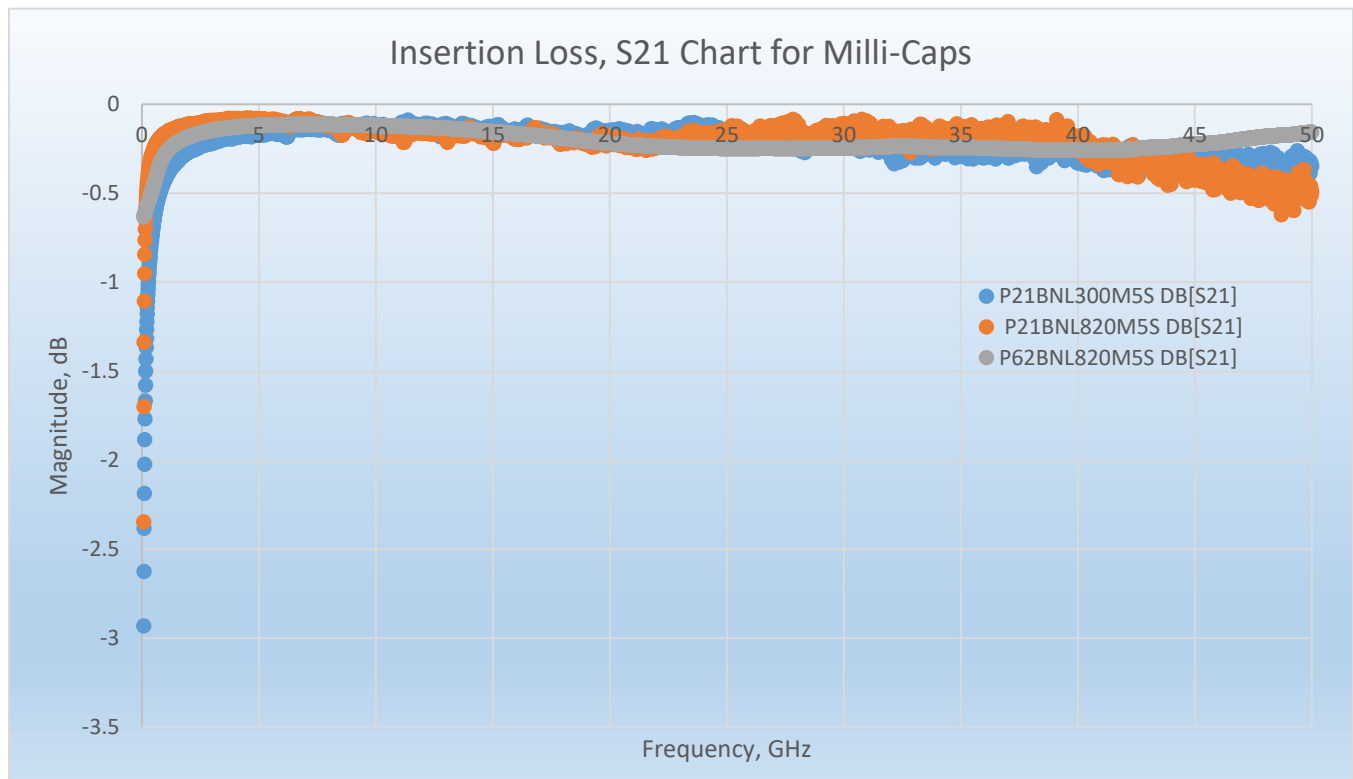
FEATURES

- ✓ Operating frequency range extended up to 50 GHz.
- ✓ Same form, fit and function as previous Milli-Cap.
- ✓ Available in 0201, 0402 and 0602 footprints.
- ✓ Applications:
 - Broadband Microwave/Millimeter Wave
 - Test Equipment, Photonics, SONET, TOSA/ROSA
 - Transimpedance Amplifiers
- ✓ X7R Characteristics – $\pm 15\%$ Capacitance variation over temperature range of -55 to $+125^{\circ}\text{C}$.
- ✓ Low Insertion Loss



Old Part Number	New Part Number	Case Size	TCC	Cap, pF	Voltage Rating, V	Dissipation Factor	Insulation Resistance	Frequency Range
P21BN300x5S	P21BNL300x5S	0201	X7R	30	50	3.5%	$> 10^5 \text{ M}\Omega$	20 MHz – 50 GHz
P42BN820x5S	P42BNL820x5S	0402	X7R	82	50	3.5%	$> 10^5 \text{ M}\Omega$	20 MHz – 50 GHz
P62BN820x5S	P62BNL820x5S	0602	X7R	82	50	3.5%	$> 10^5 \text{ M}\Omega$	20 MHz – 50 GHz

x denotes the tolerance of the part. Available in M ($\pm 20\%$) and Z ($+80\%$, -20%) tolerances.



Packaging Options: Tape & Reel or Waffle Package.

ATTACHMENT METHOD

Using Conductive Epoxy	Using Solder
- Place a single drop of conductive epoxy onto each microstrip. Keep the epoxy back from the edge based on the specific footprint. - Centering the termination gap in the micro strip, press with even pressure on to the micro strip ensuring the end terminations make good contact with the epoxy. - Cure based according to the epoxy manufacturer's preferred schedule (typically 125 to 250°C). - After curing, inspect joint for epoxy shorts across the termination and micro strip gaps to verify cause of short across the capacitor. - It is safe to use Isopropanol and Methanol to pre-clean, but not after mounting with conductive epoxy as they would act as a solvent.	- Place a single drop of solder on to each micro strip. Keep the solder back from the edge based on the specific footprint. - Centering the termination gap in the micro strip, press with even pressure on to the micro strip ensuring the end terminations make good contact with the epoxy. - Reflow according to solder manufacturer's preferred profile, ensuring reflow temperature does not exceed 250°C. - After reflow step is completed, inspect joints for voids or excess flux and solder balls that can degrade performance or cause shorts across the gaps. - It is safe to use Isopropanol and Methanol with soldered Milli-caps.

DIMENSIONAL SPECIFICATIONS

Case Size	Part Dimensions					Mounting Guidelines			
	Length, B	Width	Thickness	Gap, A (typ)	End Block, C (typ)	Epoxy Thickness, Et	Epoxy Diameter	Gap	Distance from Trace Edge
P21 (0201)	0.020" ± 0.004"	0.012" ± 0.002"	0.010" ± 0.002"	0.005"	0.008"	0.003" – 0.005"	0.005" – 0.008"	0.008" – 0.010"	0.003" to 0.004"
P42 (0402)	0.038" ± 0.004"	0.020" ± 0.002"	0.020" ± 0.002"	0.008"	0.015"	0.003" – 0.005"	0.010" – 0.015"	0.015" – 0.020"	0.003" to 0.004"
P62 (0602)	0.058" ± 0.004"	0.020" ± 0.002"	0.020" ± 0.002"	0.008"	0.025"	0.003" – 0.005"	0.010" – 0.015"	0.015" – 0.020"	0.003" to 0.004"

