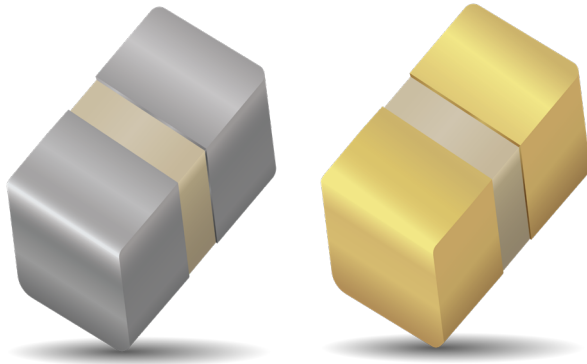


# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 550-560 Series UBC™ Ultra-Broadband Capacitor



## GENERAL DESCRIPTION

KYOCERA AVX new Ultra-Broadband Capacitor is manufactured with highest quality materials to provide reliable and repeatable Ultra-Broadband performance from 7KHz through 110GHz. It exhibits ultra-low insertion loss, flat frequency response and excellent return loss, and is ideal for D.C. Blocking, Coupling, Bypassing and Feedback applications requiring Ultra-Broadband performance.

## TYPICAL CIRCUIT APPLICATIONS

- Optoelectronics/High Speed Data
- Transimpedance amplifiers
- Receive and Transmit Optical Sub-Assembly (ROSA/TOSA)
- Synchronous Optical Network (SONET)
- Broadband test equipment
- Broadband Microwave/Millimeter Wave

## ADVANTAGES

- Ultra-Broadband performance
- Ultra-Low Insertion Loss
- Flat Frequency Response
- Excellent Return Loss
- Unit-to-Unit Performance Repeatability
- Rugged Ceramic Construction
- Operating Temperature: -55°C to +125°C  
*Note: See voltage below on the table at certain temp.*

## HOW TO ORDER

<b>550</b> T Series 550	<b>Z</b> T Case Size W = 01005 Z = 0201 L = 0402	<b>104</b> T Capacitance Code EIA Capacitance Code in pF. First two digits = significant figures or "R" for decimal place. Third digit = number of zeros or after "R" significant figures	<b>K</b> T Capacitance Tolerance Code K = ±10% M = ±20% P = +100%, -0% V = +20%, -10% Y = +25%, -20%	<b>T</b> T Termination Style Code T = Tin Plated over Nickel Barrier (Standard) CA = Gold Plated over Nickel Barrier	<b>T</b> T Packaging T = 1000 pc qty. T/500 = 500 pc qty. T/4k = 4000 pc qty. Z = 15K pc for 0201, 20kpc for 01005
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## ELECTRICAL SPECIFICATIONS

Series	Size (EIA)	Min Frequency	Max Frequency	Cap (nF)	WVDC (85C)	WVDC (105C)	WVDC (125C)	Finish	Packaging
550W103M	01005	160kHz	110GHz	10	35	25	16	Tin	T, Z
560W104M	01005	16kHz	40GHz	100	6.3	4	--	Tin	
560Z104M	0201	16kHz	40GHz	100	25	16	6.3	Tin	
550Z104M	0201	16kHz	110GHz	100	25	16	6.3	Tin	
560Z224M	0201	7.2kHz	40GHz	220	16	10	--	Tin	
550Z224M	0201	7.2kHz	70GHz	220	16	10	--	Tin	
550Z103P	0201	160kHz	100GHz	10	10	10	6.3	Tin/Gold	T T/500 T/4K
560L104Y	0402	16kHz	40GHz	100	16	16	16	Tin	
550L104K	0402	16kHz	70GHz	100	16	16	16	Tin/Gold	

Click on part number to see performance data and download files

# RF/Microwave Capacitors

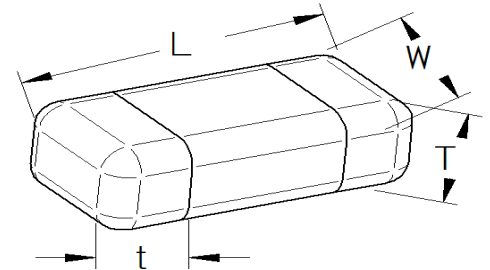
## RF/Microwave Multilayer Capacitors (MLC)

### 550-560 Series UBC™ Ultra-Broadband Capacitor



#### GENERAL DIMENSIONS

		560W104	560Z104	560Z224	560L104
L (Length)	mm	0.40 ± 0.02	0.60 ± 0.03	0.60 ± 0.03	1.0 ± 0.1
	(in)	(0.016 ± 0.0008)	(0.024 ± 0.001)	(0.024 ± 0.001)	(0.040 ± 0.004)
W (Width)	mm	0.20 ± 0.02	0.30 ± 0.03	0.30 ± 0.03	0.5 ± 0.1
	(in)	(0.008 ± 0.0008)	(0.011 ± 0.001)	(0.011 ± 0.001)	(0.020 ± 0.004)
T (Thickness)	mm	0.22 Max	0.22 Max	0.33 Max	0.6 Max
	(in)	0.009 Max	0.009 Max	0.013 Max	0.024 Max
t (Terminal)	mm	0.135 ± 0.035	0.15 ± 0.05	0.15 ± 0.05	0.36 ± 0.08
	(in)	(0.005 ± 0.0014)	(0.006 ± 0.002)	(0.006 ± 0.002)	(0.014 ± 0.003)

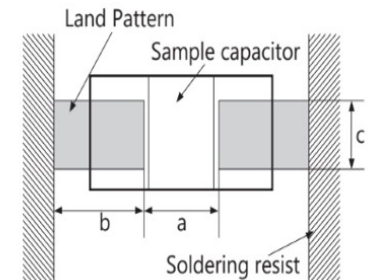


		550W103	550Z103	550Z104	550Z224	550L104
L (Length)	mm	0.40 ± 0.02	0.58 ± 0.03	0.60 ± 0.03	0.60 ± 0.03	1.0 ± 0.1
	(in)	(0.016 ± 0.0008)	(0.023 ± 0.001)	(0.024 ± 0.001)	(0.024 ± 0.001)	(0.040 ± 0.004)
W (Width)	mm	0.20 ± 0.02	0.30 ± 0.03	0.30 ± 0.03	0.30 ± 0.03	0.5 ± 0.1
	(in)	(0.008 ± 0.0008)	(0.011 ± 0.001)	(0.011 ± 0.001)	(0.011 ± 0.001)	(0.020 ± 0.004)
T (Thickness)	mm	0.2 Max	0.33 Max	0.22 Max	0.33 Max	0.6 Max
	(in)	0.008 Max	0.013 Max	0.009 Max	0.013 Max	0.024 Max
t (Terminal)	mm	0.135 ± 0.035	0.20 ± 0.04	0.23 ± 0.05	0.23 ± 0.05	0.42 ± 0.08
	(in)	(0.005 ± 0.0014)	(0.008 ± 0.0015)	(0.009 ± 0.002)	(0.009 ± 0.002)	(0.0165 ± 0.0030)

#### REFLOW SOLDERING

560		01005	0201	0402
a	mm	0.10 - 0.15	0.20 - 0.25	0.40 - 0.60
	(in)	(0.004 - 0.006)	(0.008 - 0.010)	(0.016 - 0.024)
b	mm	0.13 - 0.19	0.25 - 0.35	0.40 - 0.50
	(in)	(0.005 - 0.007)	(0.010 - 0.014)	(0.016 - 0.020)
c	mm	0.20 - 0.23	0.30 - 0.40	0.50 - 0.75
	(in)	(0.008 - 0.009)	(0.012 - 0.016)	(0.020 - 0.030)

550		01005	0201	0402
a	mm	0.10 - 0.15	0.10 - 0.15	0.15 - 0.20
	(in)	(0.004 - 0.006)	(0.004 - 0.006)	(0.006 - 0.008)
b	mm	0.13 - 0.19	0.30 - 0.40	0.50 - 0.62
	(in)	(0.005 - 0.007)	(0.012 - 0.016)	(0.020 - 0.025)
c	mm	0.20 - 0.23	0.30 - 0.40	0.50 - 0.75
	(in)	(0.008 - 0.009)	(0.012 - 0.016)"	(0.020 - 0.030)



Parts are sensitive to orientation. Maintain packaging orientation for typical performance.

# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 550-560 Series UBC™ Ultra-Broadband Capacitor



Size (EIA)	Min Frequency	Max Frequency	Cap (nF)	WVDC (85C)	WVDC (105C)	WVDC (125C)	Finish
01005	160kHz	110GHz	10	35	25	16	Tin

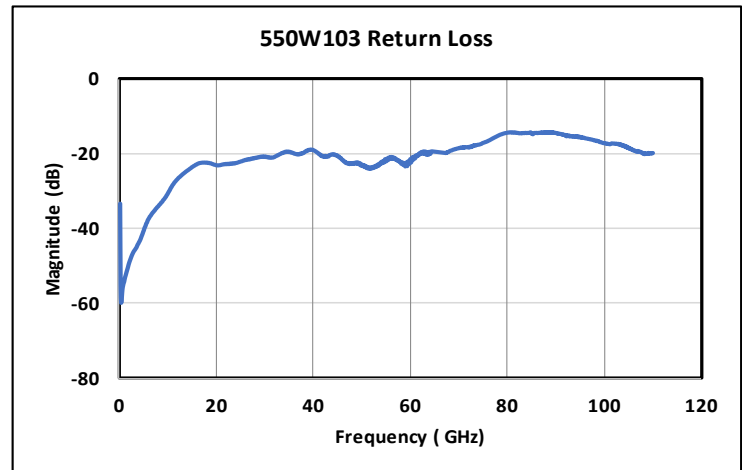
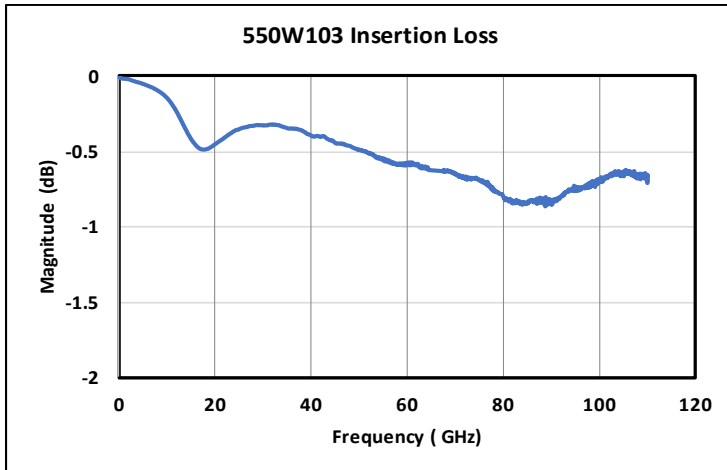


**CLICK HERE TO DOWNLOAD DATA FILES**

\*Data files contain DXF and S2P files

[Click here to return to main table](#)

## PERFORMANCE DATA



### 550W Data Sheet Test Condition Description

All testing performed on 5-mil-thick Rogers RO3003 board using recommended footprint.(nominal 50-ohm characteristic impedance) @ Modelithics.

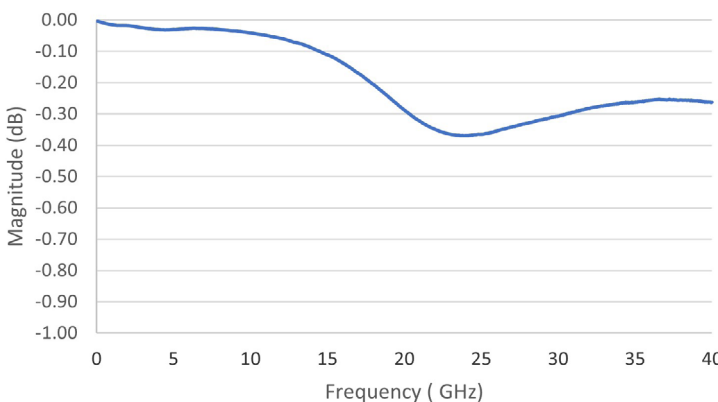
## 560W104M

Size (EIA)	Min Frequency	Max Frequency	Cap (nF)	WVDC (85C)	WVDC (105C)	WVDC (125C)	Finish
01005	16kHz	40GHz	100	6.3	4	--	Tin

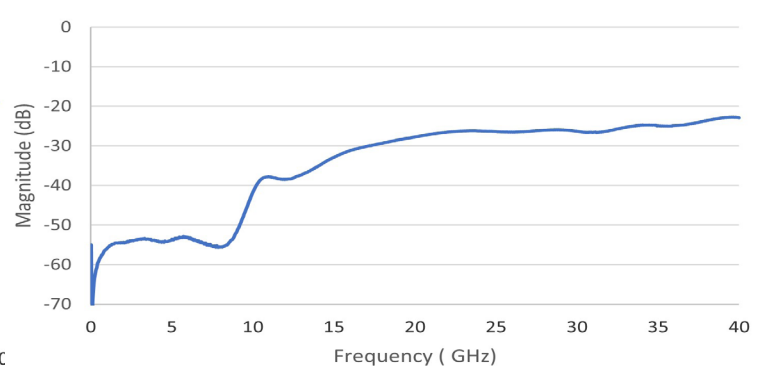
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## PERFORMANCE DATA

### Series Insertion Loss (S21)



### Series Return Loss (S11)



### 560W Data Sheet Test Condition Description

All testing performed on 10-mil-thick Rogers RO3006 microstrip board, with the device under test subtending a 4 mil gap in a 14.2-mil-wide center trace (nominal 50-ohm characteristic impedance).



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# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 550-560 Series UBC™ Ultra-Broadband Capacitor



Size (EIA)	Min Frequency	Max Frequency	Cap (nF)	WVDC (85C)	WVDC (105C)	WVDC (125C)	Finish
0201	16kHz	40GHz	100	25	16	6.3	Tin

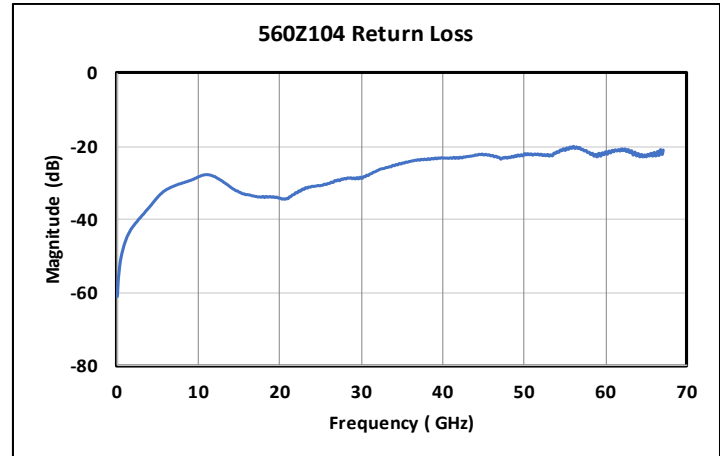


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#### PERFORMANCE DATA



#### 560Z Data Sheet Test Condition Description

All testing performed on 5-mil-thick Rogers RO3003 board using recommended footprint. (nominal 50-ohm characteristic impedance) @ Modelithics.

### 550Z104M

Size (EIA)	Min Frequency	Max Frequency	Cap (nF)	WVDC (85C)	WVDC (105C)	WVDC (125C)	Finish
0201	16kHz	110GHz	100	25	16	6.3	Tin

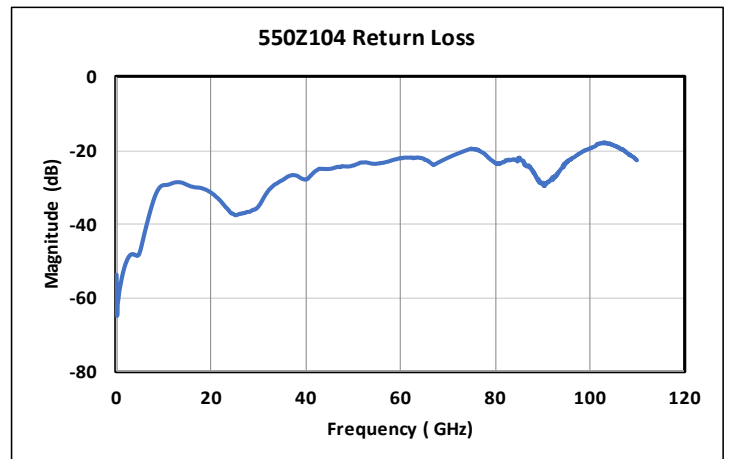
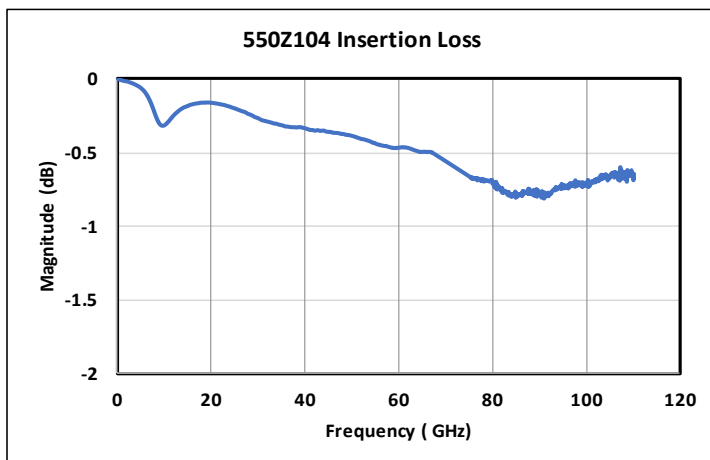


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#### PERFORMANCE DATA



#### 550Z Data Sheet Test Condition Description

All testing performed on 5-mil-thick Rogers RO3003 board using recommended footprint. (nominal 50-ohm characteristic impedance) @ Modelithics.

# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 550-560 Series UBC™ Ultra-Broadband Capacitor



#### 560Z224M

Size (EIA)	Min Frequency	Max Frequency	Cap (nF)	WVDC (85C)	WVDC (105C)	WVDC (125C)	Finish
0201	7.2kHz	40GHz	220	16	10	--	Tin

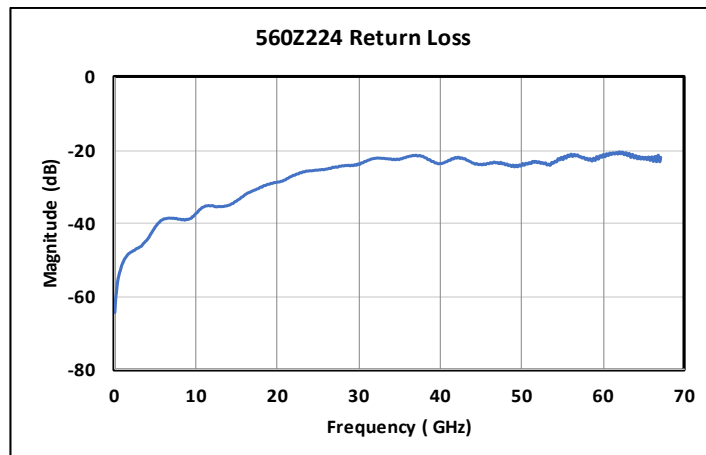


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#### PERFORMANCE DATA



#### 560Z Data Sheet Test Condition Description

All testing performed on 5-mil-thick Rogers RO3003 board using recommended footprint. (nominal 50-ohm characteristic impedance) @ Modelithics.

#### 550Z224M

Size (EIA)	Min Frequency	Max Frequency	Cap (nF)	WVDC (85C)	WVDC (105C)	WVDC (125C)	Finish
0201	7.2kHz	70GHz	220	16	10	--	Tin

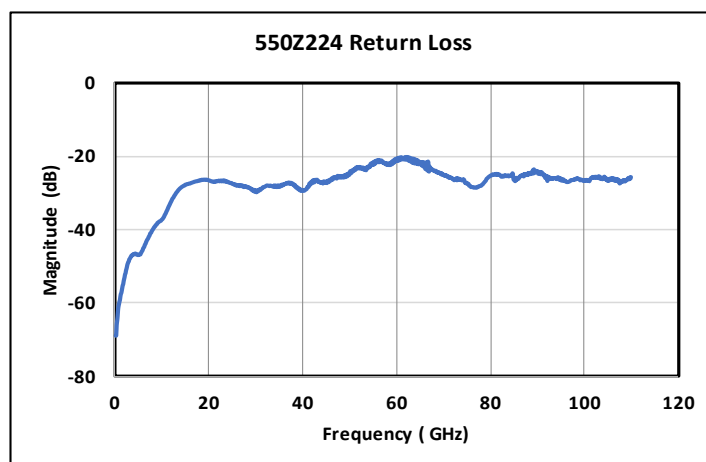
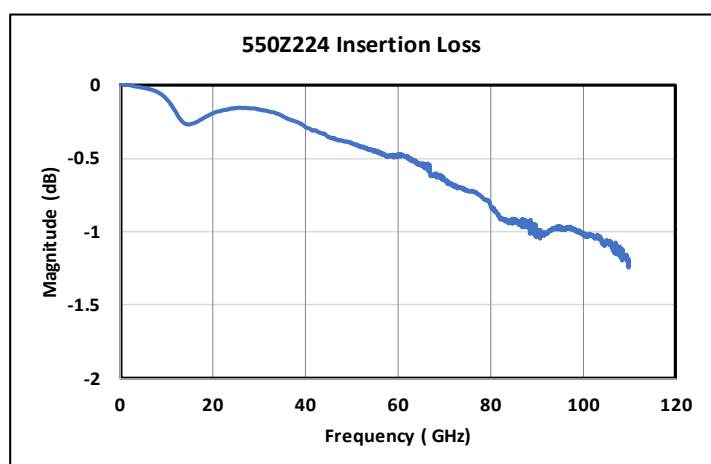


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#### PERFORMANCE DATA



#### 550Z Data Sheet Test Condition Description

All testing performed on 5-mil-thick Rogers RO3003 board using recommended footprint. (nominal 50-ohm characteristic impedance) @ Modelithics.



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# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 550-560 Series UBC™ Ultra-Broadband Capacitor



#### 550Z103P

Size (EIA)	Min Frequency	Max Frequency	Cap (nF)	WVDC (85C)	WVDC (105C)	WVDC (125C)	Finish
0201	160kHz	100GHz	10	10	10	6.3	Tin/Gold

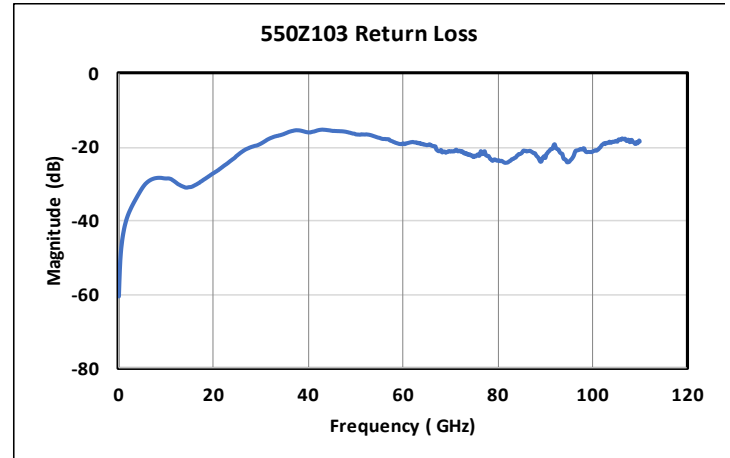
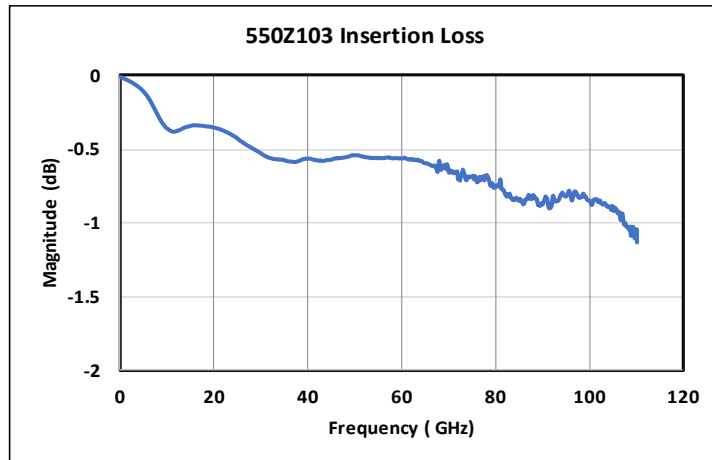


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#### PERFORMANCE DATA



#### 550Z Data Sheet Test Condition Description

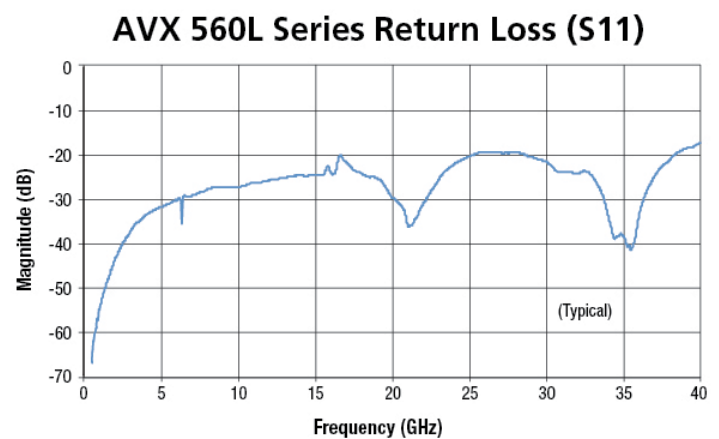
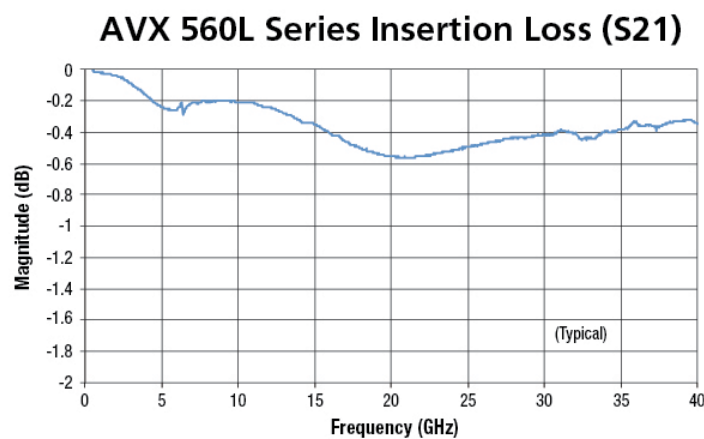
All testing performed on 5-mil-thick Rogers RO3003 board using recommended footprint. (nominal 50-ohm characteristic impedance) @ Modelithics.

#### 560L104Y

Size (EIA)	Min Frequency	Max Frequency	Cap (nF)	WVDC (85C)	WVDC (105C)	WVDC (125C)	Finish
0402	16kHz	40 GHz	100	16	16	16	Tin/Gold

[Click here to return to main table](#)

#### PERFORMANCE DATA



#### 560L Data Sheet Test Condition Description

All testing performed on 10 mil-thick rogers RO4350B microstrip board, with the device under test subtending a 24 mil gap in a 22 mil-wide center trace (nominal 50 ohms characteristic impedance).

**RF/Microwave Capacitors**  
**RF/Microwave Multilayer Capacitors (MLC)**  
**550-560 Series UBC™ Ultra-Broadband Capacitor**



**550L104K**

Size (EIA)	Min Frequency	Max Frequency	Cap (nF)	WVDC (85C)	WVDC (105C)	WVDC (125C)	Finish
0402	16kHz	70GHz	100	16	16	16	Tin/Gold



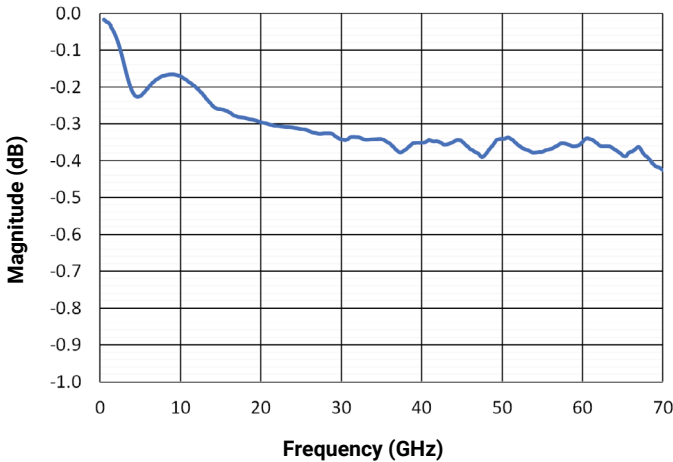
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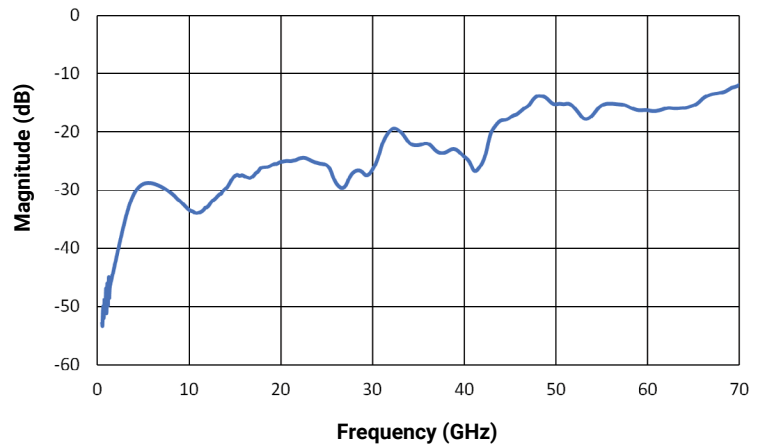
**PERFORMANCE DATA**

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**550L Series Insertion Loss (S21)**



**550L Series Return Loss (S11)**



**550L Data Sheet Condition Description**

All testing performed on 10 mil-thick rogers R04350B microstrip board, with the device under test subtending a 24 mil gap in a 22 mil-wide center trace (nominal 50 ohms characteristic impedance).

**SIMULATION MODELS**



KYOCERA AVX and Modelithics have partnered to offer FREE 90-Day trials of highly accurate, scalable advanced simulation models for various KYOCERA AVX parts including **THIS** part as well as Attenuators, Capacitors, Couplers, Inductors, Diplexers, Resistors.

For More Information, Please Visit: <https://www.modelithics.com/mvp/avx>  
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