

# Transmission Line Metal-Insulator-Metal Capacitor



## BENEFITS

- HFSS Design Unique for every device
- Gold Wirebondable
- Copper Conductor Design for improved Circuit Conductivity
- Designs Optimized for RF/Performance
- ROHS Compliant

## DESCRIPTION

AVX Thin Film Technologies is pleased to introduce a novel MIM (Metal-Insulator-Metal) capacitor using a transmission line wire bond pad structure with backside ground.

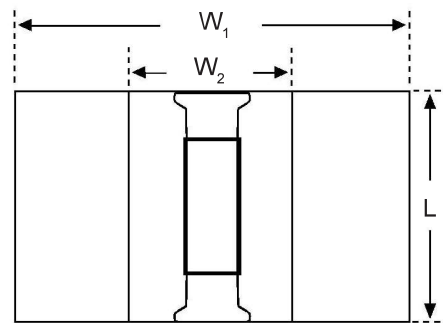
The TL MIM can be supplied on quartz, alumina, glass and other substrates to minimize losses. Copper traces are used for optimal conductivity. Front and backside gold metalization make this device suitable for epoxy, gold wire bond/ribbon bond attachments

## APPLICATIONS

- DC Blocking at UHF
- High Frequency Link
- RF Microwave applications

## SUBSTRATE MATERIALS

Silicon (with SiO <sub>2</sub> )
Fused Silica (Quartz)
Alumina (Al <sub>2</sub> O <sub>3</sub> )
Glass



Substrate  $W_1$  or Substrate  $W_2$   
Length is determined by transmission line

## MECHANICAL DIMENSIONS

Based on Transmission Line Design Request

## CAPACITOR MATERIALS

Rated Voltage	Specific Capacitance	Dissipation Factor	TCC (ppm/°C)
≤100	50 - 100 * pf/mm <sup>2</sup>	<0.1%	±60

\*Actual maximum capacitance values depend on transmission line dimensions



# Thin Film MIM Capacitor (Metal-Insulator-Metal)



## TEST METHODS

SPECIFICATION		LIMIT
MIL-STD-883-2011.8	BOND STRENGTH	> 3 gm min. w/0.001" Au Wire
MIL-STD-883-2018	SHEAR STRENGTH	Size Dependent See Procedure
MIL-STD-202-108	LIFE	1000 hrs @ 125°C 2x rated voltage

## GENERAL CHARACTERISTICS

Size (LxWxT)	DESIGN DEPENDENT
Capacitor Range	0.3 - 50 pF
Tolerance	± 20%
Backing	Gold Metallization
Termination Type	Gold Wire Bond

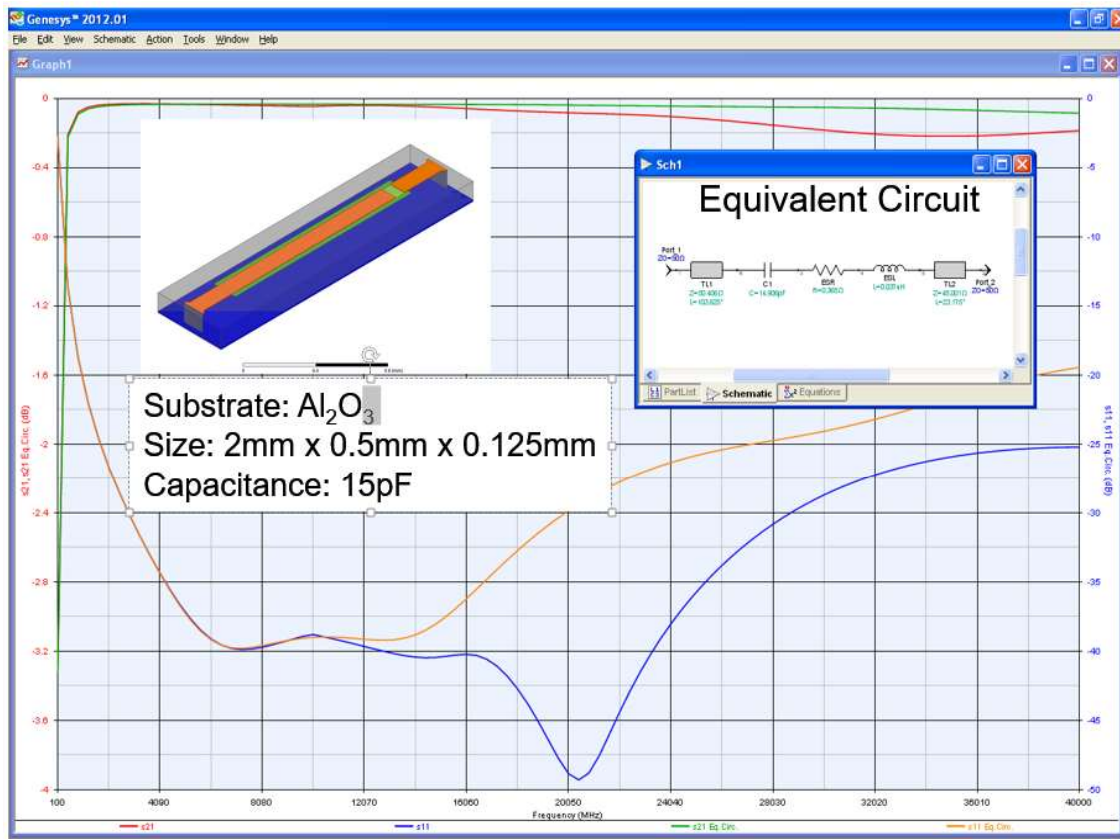
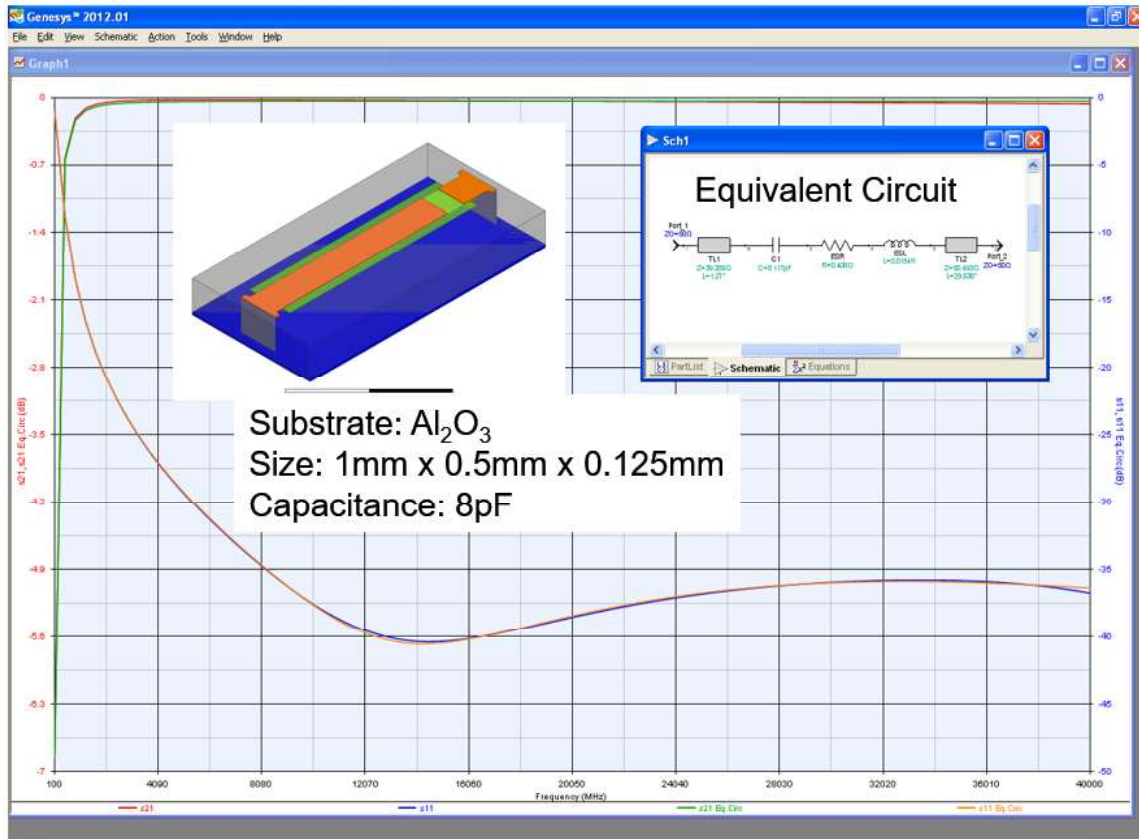
## Available Part Numbers

Part Number	Substrate	Length (mils)	Width (Mils)	Thickness (Mils)	Cap Value (pF)
MV0404C1R0MQAW	Quartz	40	40	5	1
MV0404C5R0MQAW	Quartz	40	40	5	5
MV0404C150MQAW	Quartz	40	40	5	15
MV0204C1R0MQAW	Quartz	20	40	5	1
MV0304C150MABW	Alumina	30	40	10	15
MV0402C150MAAW	Alumina	40	20	5	15
MV0802C150MAAW	Alumina	80	20	5	15
MV0804C1R0MABW	Alumina	80	40	10	1
MV0804C150MABW	Alumina	80	40	10	15
MV3204C150MABW	Alumina	120	40	10	15
MV0404C150MABW	Alumina	40	40	10	15

### How to Order

<b>MV</b> Series Code MV = TL MIM	<b>4</b> Substrate Length in tens of mils	<b>02</b> Substrate Width in tens of mils	<b>C</b> Working Voltage C = 100 WVDC	<b>A</b> Standard Impedance A = 50Ω X = Other Contact Factory	<b>150</b> Capacitance 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>M</b> Capacitance Tolerance M = ± 20%	<b>Q</b> Substrate A = Alumina Q = Quartz G = Glass X = Other	<b>A</b> Substrate Thickness (mils) A = 5 mils B = 10 mils C = 15 mils X = Contact Factory	<b>W</b> Packaging W = antistatic waffle pack T = Tested, undiced D = Tested and diced on tape
---	---	---	---	---	--	--	--	---	--

# Thin Film MIM Capacitor (Metal-Insulator-Metal)



# Thin Film MIM Capacitor (Metal-Insulator-Metal)

