

0201 0402

LOW TCR RoHS

## Thin Film High Frequency Resistors

Suitable for signal integrity applications as high as 70GHz, the thin film TFI resistor series delivers tight tolerance and low reactance in a flip chip package with excellent TCR.

### FEATURES

- 99.5% Al<sub>2</sub>O<sub>3</sub>
- Flip chip configuratoin
- Low reactance NiCr component
- Max TCR ± 25ppm/°C
- Nickel barrier layer for excellent leach resistance

### SPECIFICATIONS

ITEM	SPECIFICATION
Value Range (0201):	20Ω - 499Ω (E96)
Value Range (0402):	10Ω - 499Ω (E96)
Power Rating:	16mW (0201), 32mW (0402)
Tolerance:	0.1%
TCR	± 25ppm/°C
Operating Temp:	-55°C to 150°C
Storage Temp:	-65°C to 150°C
Thermal Conductivity:	K=24 W/m-°K @25°C
End of Life:	No E.O.L. Planned
Moisture Level:	Level 1

### TERMINAL STYLE



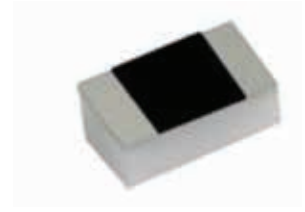
TFI-0201SS - Side View



TFI-0402WA - Side View

### APPLICATIONS

- Low noise amplifiers
- Precision attenuators
- High frequency terminations
- Isolation resistors in combiner/dividers

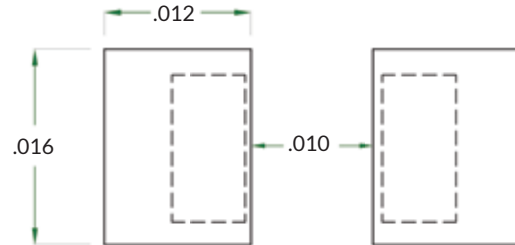


### DIMENSIONS

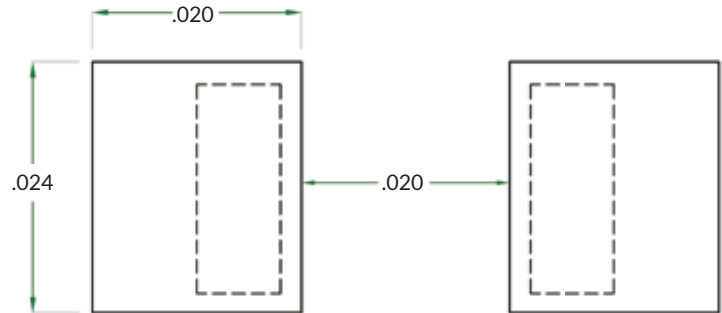
SIZE	NOMINAL LENGTH	NOMINAL WIDTH	MAX HEIGHT
0201	.023 ± .002	.010 ± .002	.011 ± .003
0402	.039 ± .003	.020 ± .003	.021 ± .006

All Dimensions are in inches

### PCB LANDING EXAMPLES



TFI-0201SS



TFI-0402WA

### ORDERING INFORMATION

Example: 49.9Ω, 0.1%, flip chip 0201 resistor

Example: TFI - 0201 SS - 49R9 B

Thin Film  
 Nickel Barrier 100% matte Tin finish

Size  
 0201  
 0402

Terminal Style  
 SS (0201)  
 WA (0402)

Tolerance  
 B = 0.1%

Resistance Value

The first three digits are significant values. The fourth is the number of zeroes following. The R indicates a decimal point when resistance value is less than 100Ω.

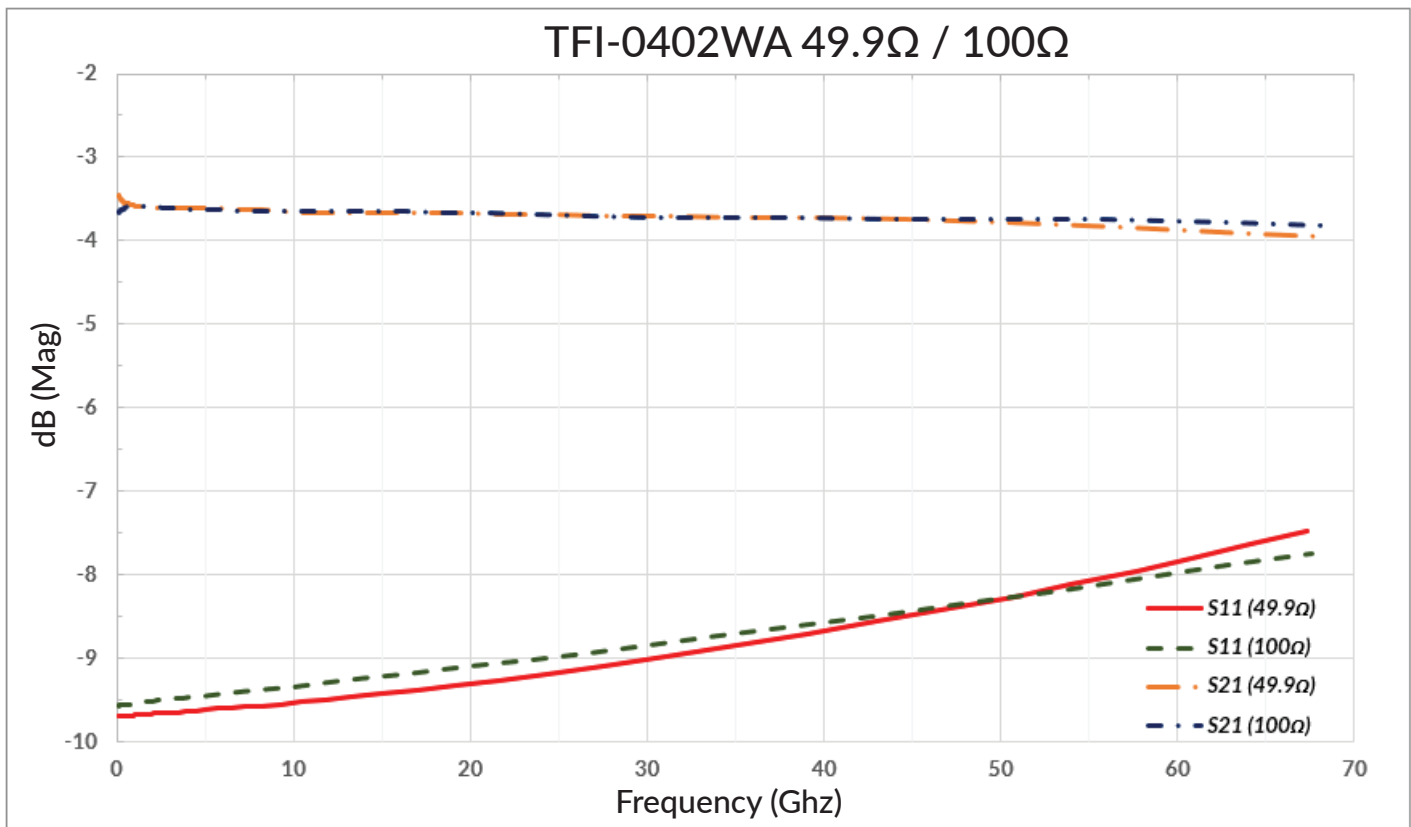
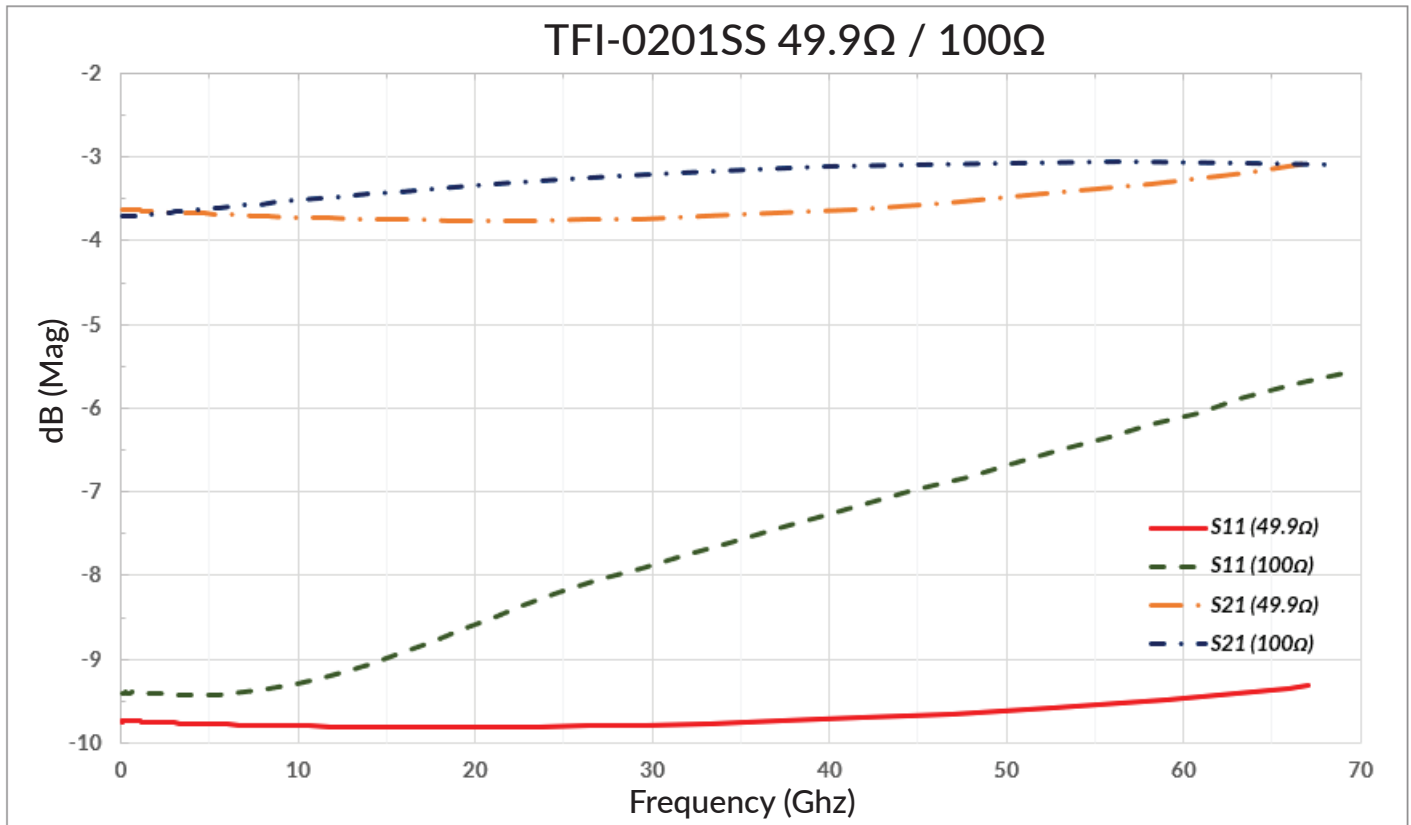
For packaging options please visit our website  
[www.ims-resistors.com/packaging](http://www.ims-resistors.com/packaging)

RoHS Compliant =

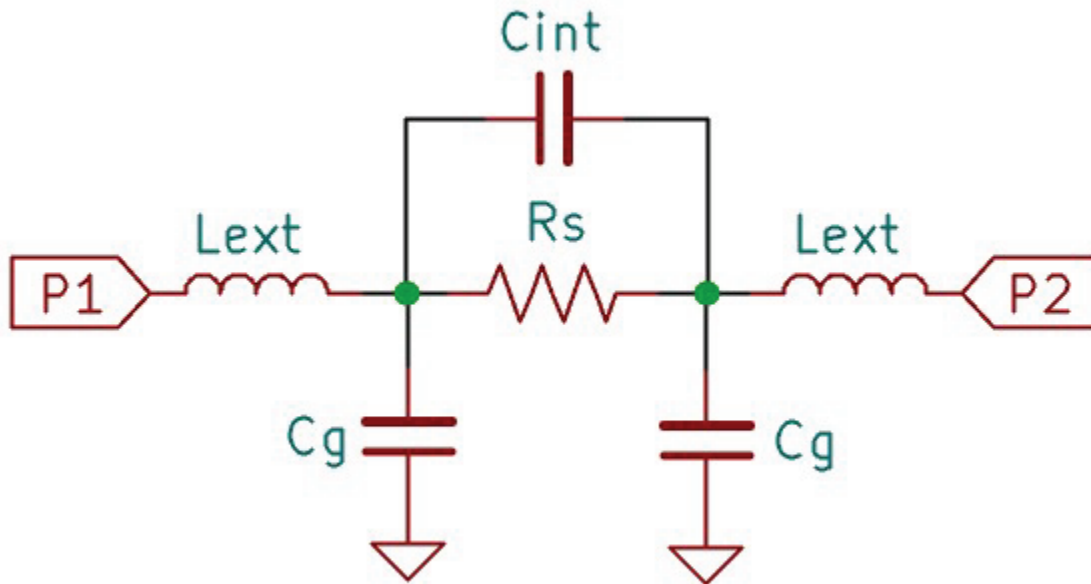
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Thin Film High Frequency Resistors

## RF PERFORMANCE ESTIMATES - 10MIL ROGERS 4350B



## BROADBAND $\pi$ EQUIVALENT MODEL



	TFI-0201SS (50 $\Omega$ )	TFI-0402WA (50 $\Omega$ )
<b>Lext</b>	21.7 pH	25.3 pH
<b>Cg</b>	12 fF	13.5 fF
<b>Cint</b>	21.7 fF	22.9 fF

### Model assumptions and intended use

The reported parasitic values are derived from a symmetric lumped  $\pi$ -equivalent representation fit to measured S-parameters. The model assumes linear, passive, time-invariant behavior and expresses the device using effective lumped elements that approximate its broadband electrical behavior. The resulting values should be interpreted as practical, simulation-ready approximations rather than exact physical quantities, particularly as frequency increases and the electrical size of the structure becomes significant.

*This model is intended to support circuit-level analysis, sensitivity studies, and comparative design decisions, not to replace full electromagnetic simulation or in-situ measurement.*