

# Device Modeling Report

COMPONENTS: CAPACITOR/ CERAMIC  
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MANUFACTURER: MURATA  
REMARK: TA=60C



**Bee Technologies Inc.**

## Theory: Auto Balancing Bridge Method

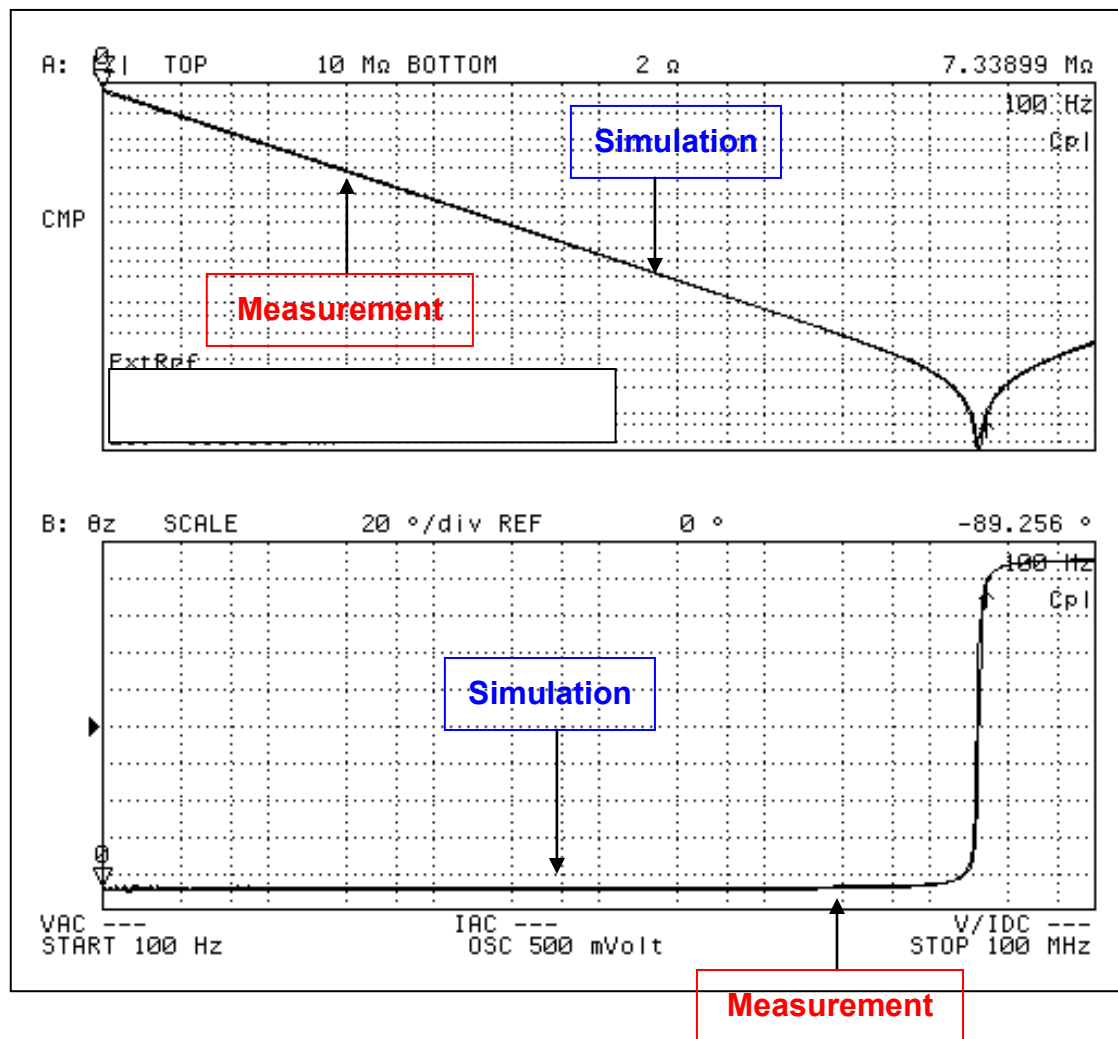
### Optimization of Simulation

Range of adjustment Frequency: 100Hz to 100M(Hz)

Frequency vs.  $|Z|$  and Frequency vs.  $\theta_z$  Characteristic

Attention)

*Please use SPICE MODEL within the range from 100Hz to 100M(Hz)*

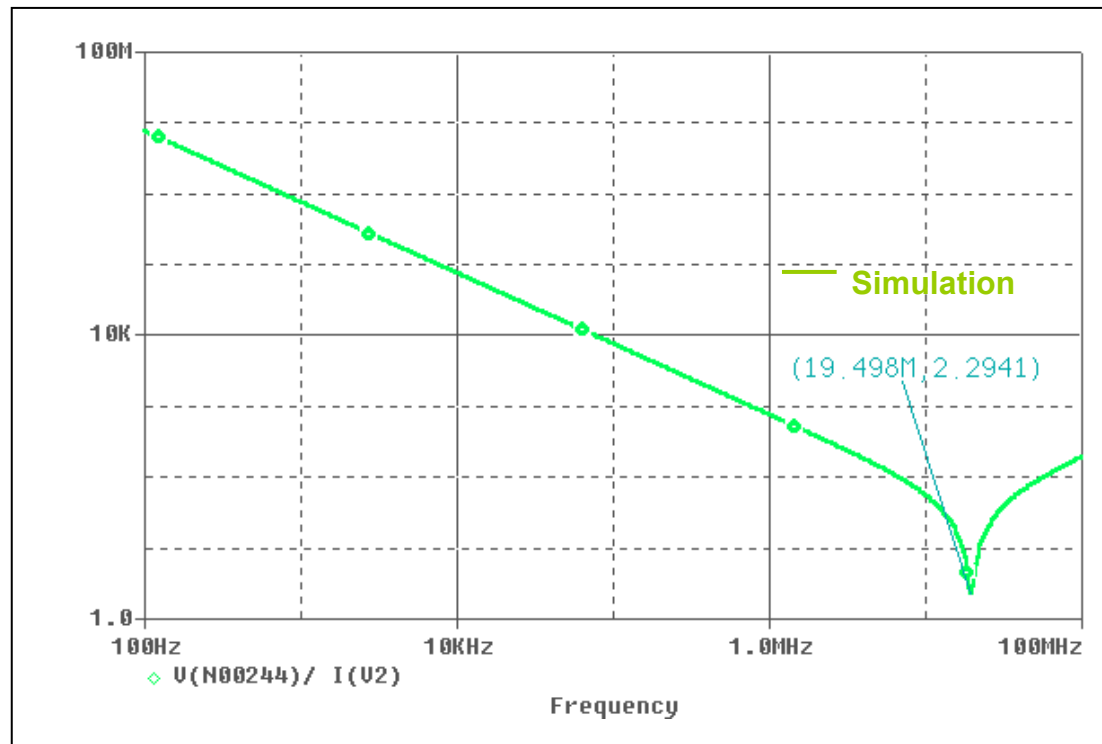


Equivalent circuit

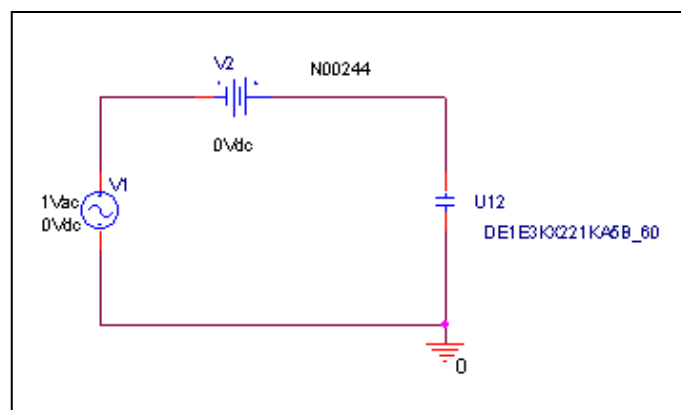


## Frequency vs. |Z| Characteristic

### Circuit Simulation result



### Evaluation Circuit



**Simulation result**

<b>Frequency (Hz)</b>	<b>IZI (ohm) :Measurement</b>	<b>IZI (ohm) :Simulation</b>	<b>% Error</b>
100	6.80104M	7.662M	12.6592
1K	716.715K	766.196K	6.9039
10K	73.2113K	76.620K	4.6560
100K	7.47261K	7.662K	2.5318
1M	764.916	764.2140	0.0918
10M	59.853	56.817	5.0724
100M	172.13	190.811	10.8528

	<b>Measurement</b>	<b>Simulation</b>	<b>%Error</b>
<b>FSRF(Hz)</b>	20.06781M	19.498M	2.8394
<b>IZI (ohm)</b>	2.23794	2.2941	2.5095