

# Device Modeling Report

COMPONENTS: CAPACITOR/ CERAMIC  
PART NUMBER: DE1B3KX101KA5B  
MANUFACTURER: MURATA  
REMARK: TA=60<sup>0</sup>C



**Bee Technologies Inc.**

## Theory: Auto Balancing Bridge Method

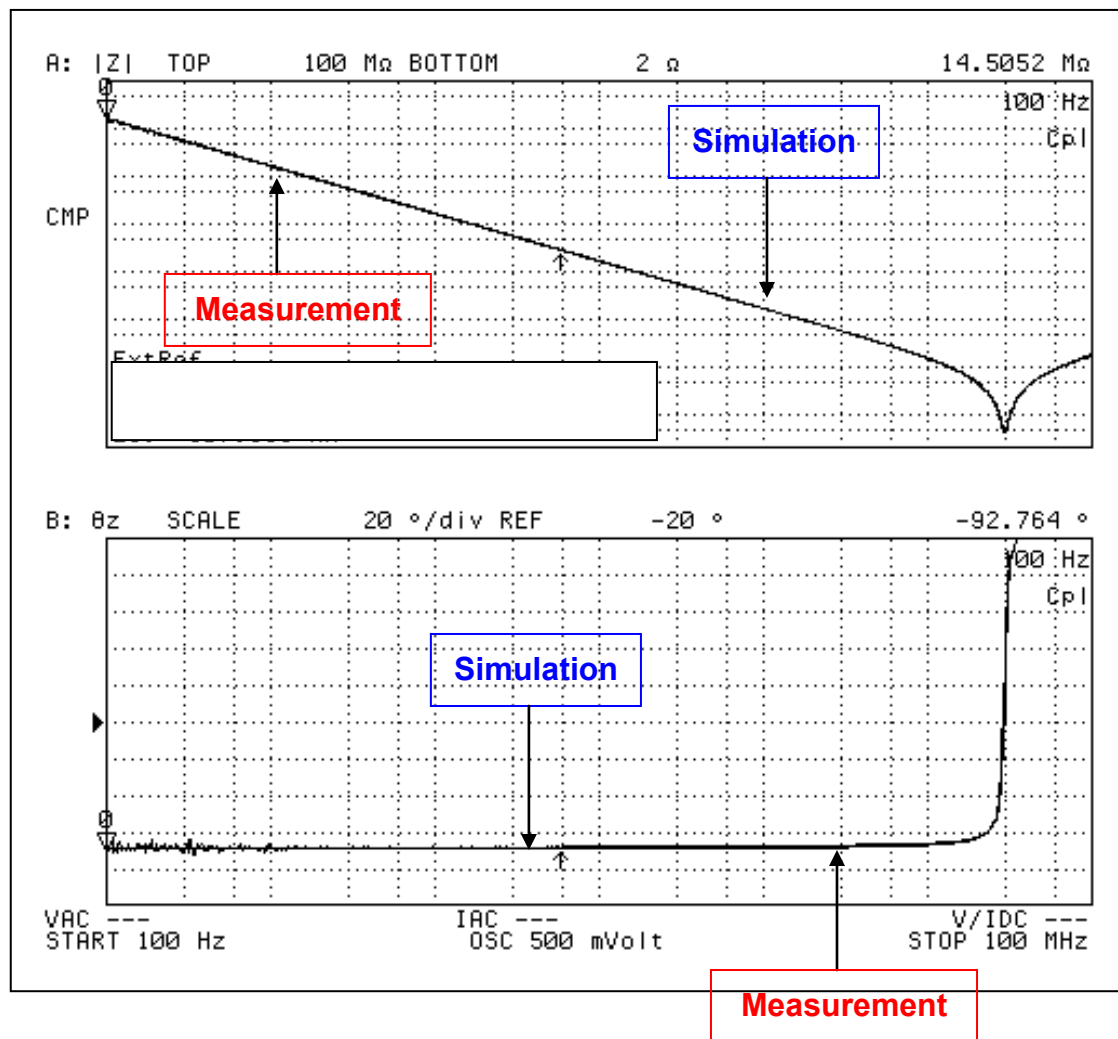
### Optimization of Simulation

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)*



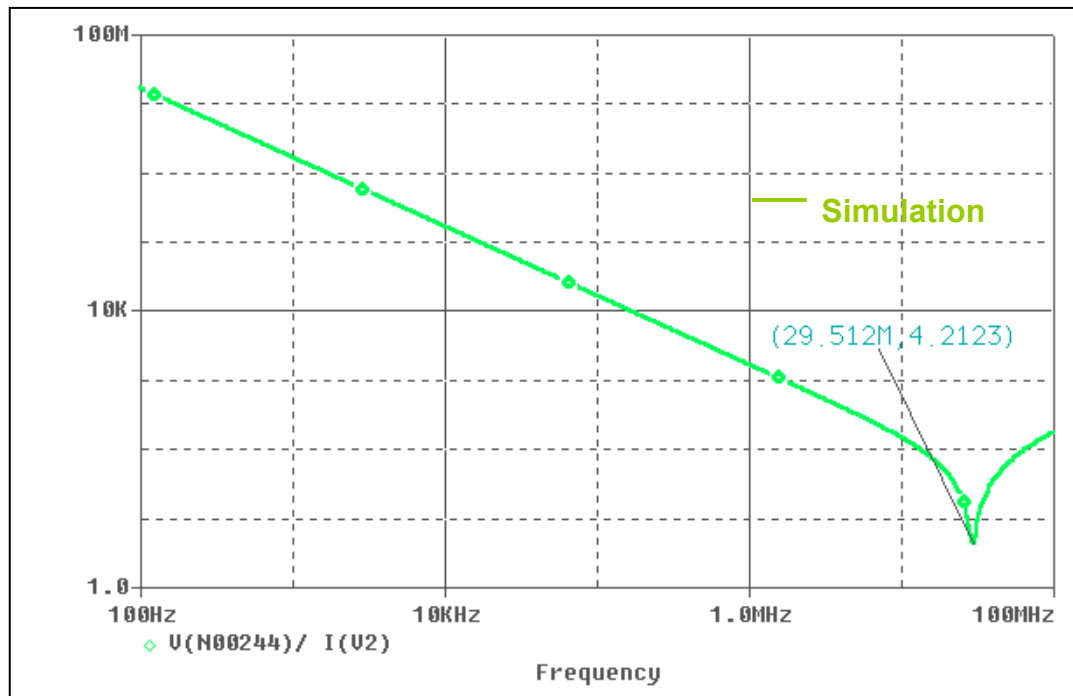
L1	
C1	
R1	

Equivalent circuit

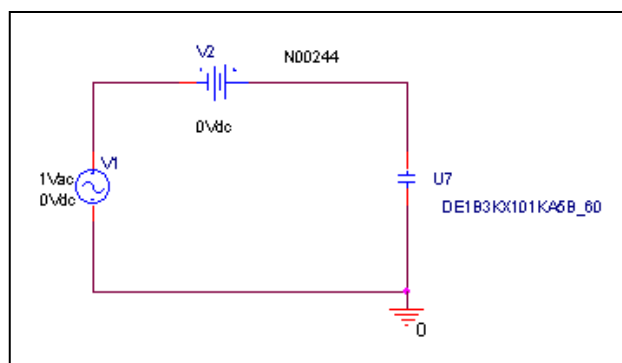


## Frequency vs. |Z| Characteristic

### 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	16.3573M	16.919M	3.4339
1K	1.61991M	1.6919M	4.4441
10K	162.983K	169.187K	3.8065
100K	16.4894K	16.919K	2.6053
1M	1.67454K	1.690K	0.9173
10M	153.753	149.919	2.4936
100M	163.791	176.399	7.6976

	<b>Measurement</b>	<b>Simulation</b>	<b>%Error</b>
<b>FSRF(Hz)</b>	29.8538M	29.512M	1.1449
<b>IZI (ohm)</b>	4.21004	4.2123	0.0537