

# Device Modeling Report

COMPONENTS: CAPACITOR/CERAMIC  
PART NUMBER: DE1E3KX102MA5B  
MANUFACTURER: MURATA  
REMARK: TA=25C



**Bee Technologies Inc.**

## Theory: Auto Balancing Bridge Method

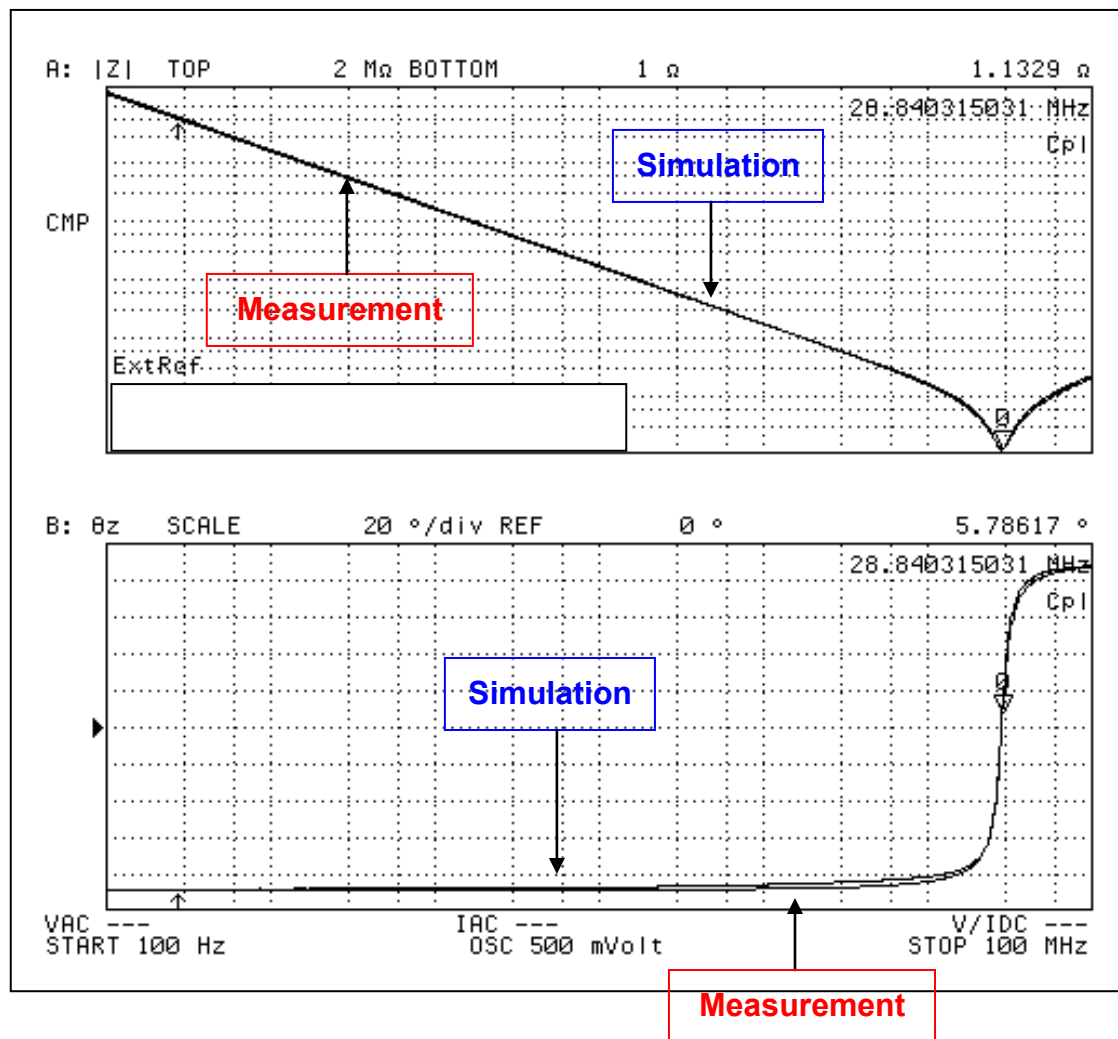
### Optimization of Simulation

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)*



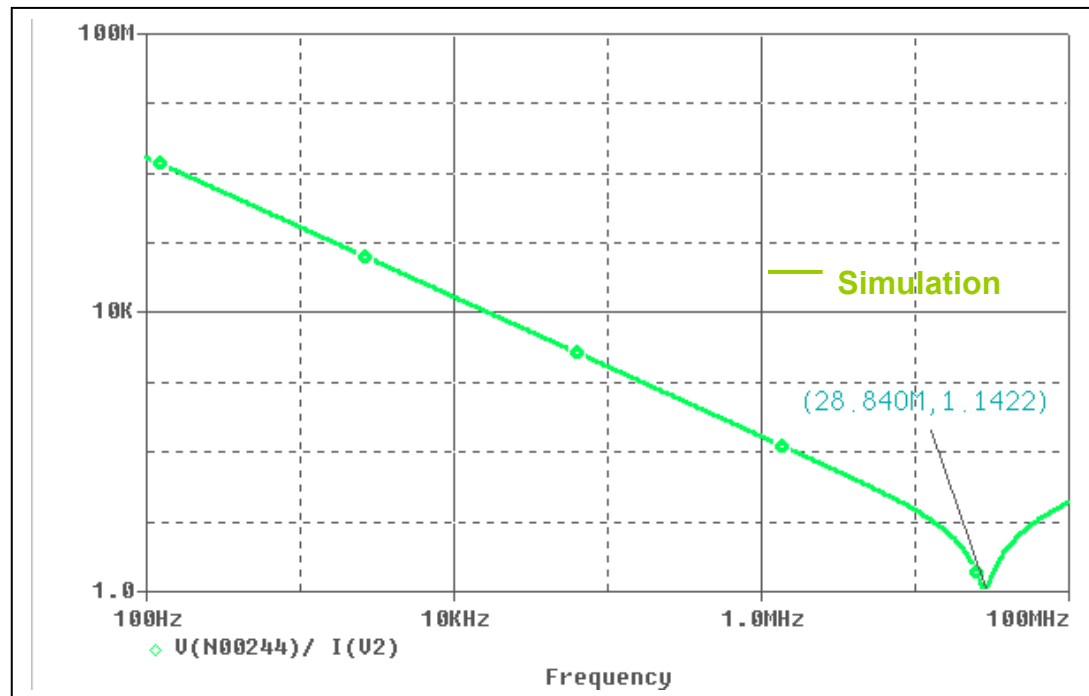
L1	
C1	
R1	

Equivalent circuit

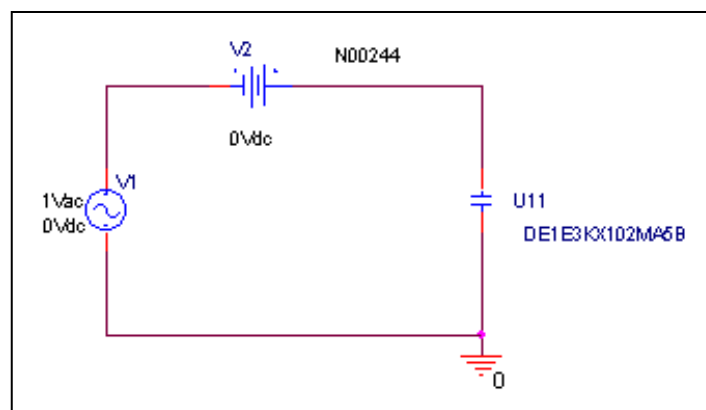


## Frequency vs. |Z| Characteristic

### 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	1.549M	1.6849M	8.7734
1K	156.022K	168.487K	7.9893
10K	15.7601K	16.849K	6.9092
100K	1.60487K	1.685K	4.9867
1M	166.884	168.285	0.8395
10M	15.9978	14.836	7.2622
100M	21.2955	18.918	11.1643

	<b>Measurement</b>	<b>Simulation</b>	<b>%Error</b>
<b>FSRF(Hz)</b>	28.8403M	28.840M	0.0010
<b>IZI (ohm)</b>	1.1329	1.1422	0.8209