

# Device Modeling Report

COMPONENTS: CAPACITOR/ CERAMIC  
PART NUMBER: ECKATS222ME  
MANUFACTURER: PANASONIC  
REMARK: TA=40C



**Bee Technologies Inc.**

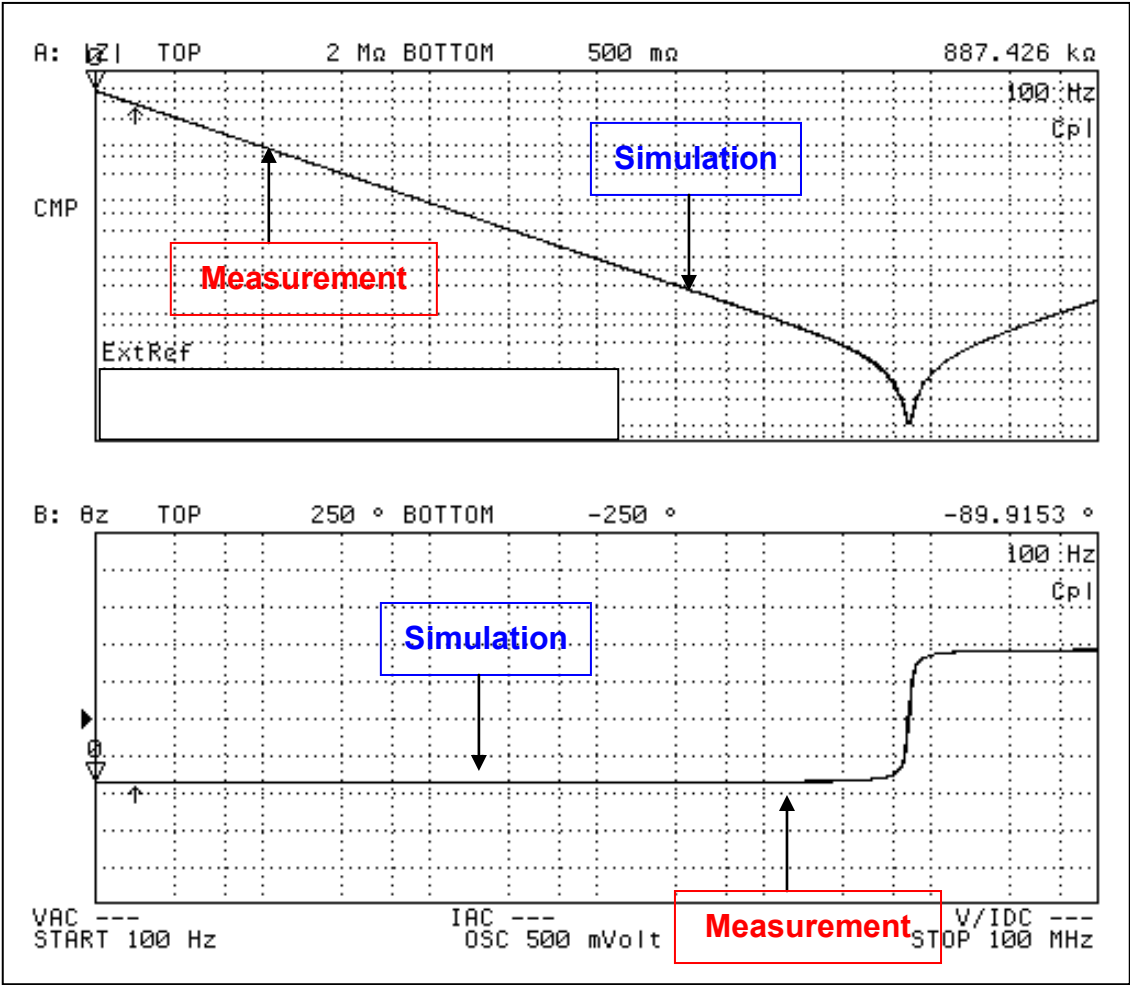
Theory: Auto Balancing Bridge Method

Optimization of Simulation

Range of adjustment Frequency:100Hz to100M(Hz)  
Frequency vs. |Z| and Frequency vs.  $\theta_z$  Characteristic

Attention)

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



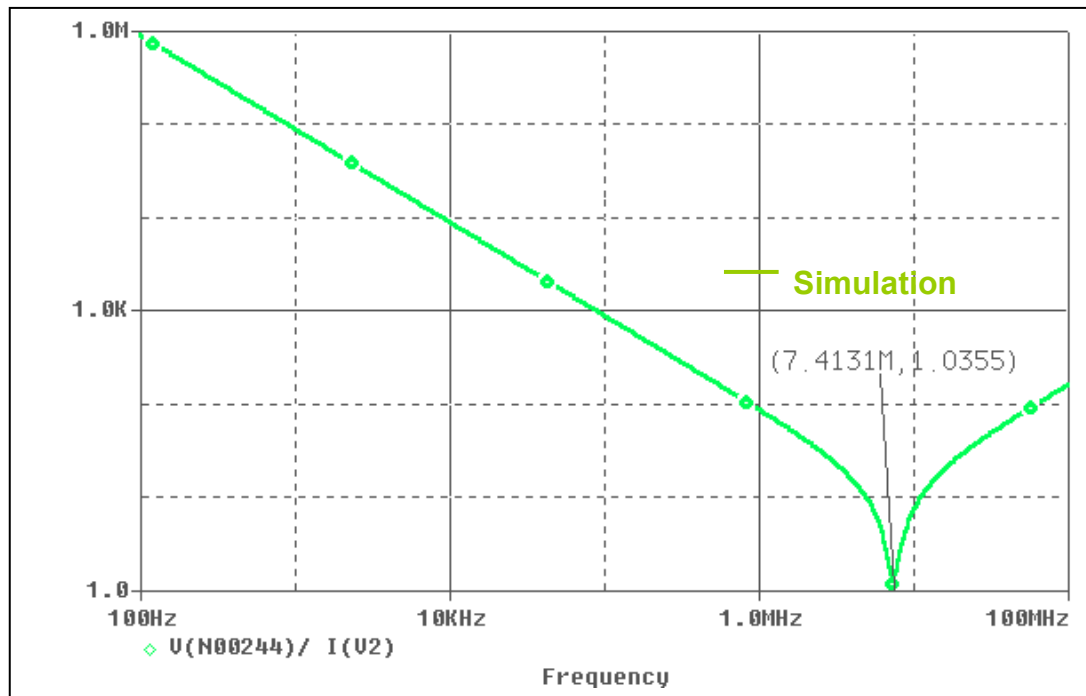
L1	
C1	
R1	

Equivalent circuit

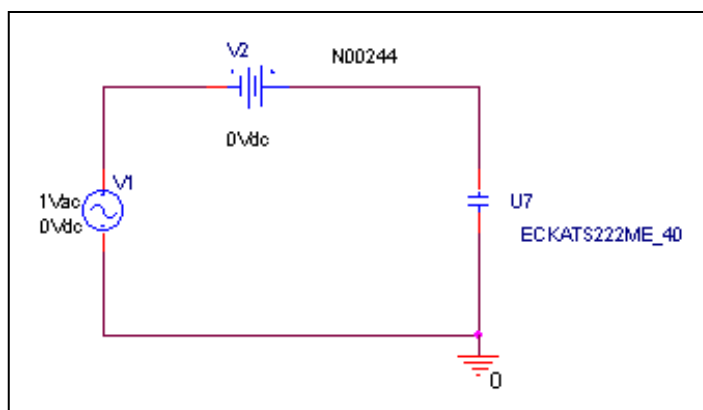


## Frequency vs. |Z| Characteristic

### 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	887.35K	896.961K	1.0831
1K	89.2118K	89.696K	0.5428
10K	8.97049K	8.9696K	0.0099
100K	902.984	896.799	0.6850
1M	90.1515	88.076	2.3022
10M	7.12084	7.366	3.4429
100M	154.299	161.732	4.8173

	<b>Measurement</b>	<b>Simulation</b>	<b>%Error</b>
<b>FSRF(Hz)</b>	7.629M	7.4131M	2.8300
<b>IZI (ohm)</b>	1.03644	1.0355	0.0907