

# Device Modeling Report

COMPONENTS: CAPACITOR/ CERAMIC  
PART NUMBER: ECKATS102ME  
MANUFACTURER: PANASONIC  
REMARK: TA=60C



**Bee Technologies Inc.**

## Theory: Auto Balancing Bridge Method

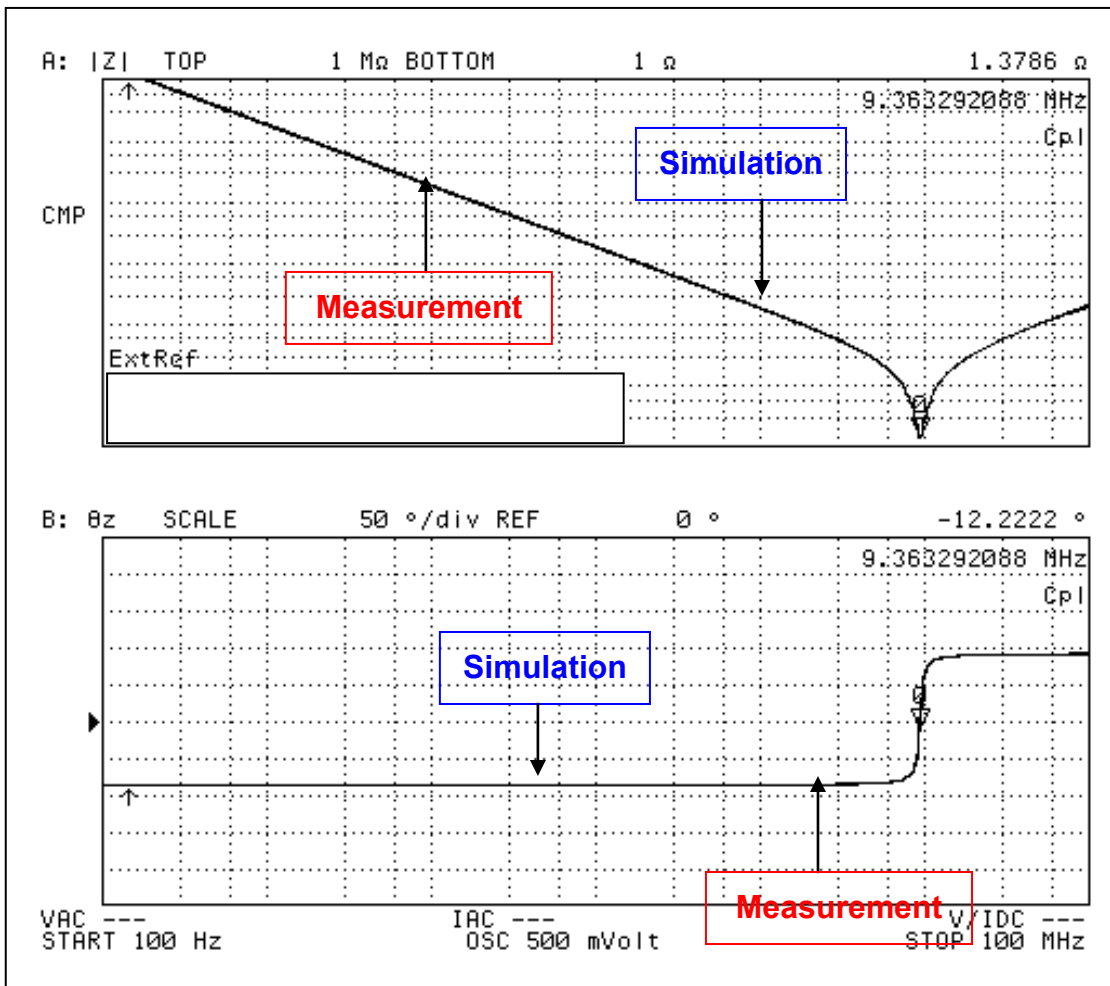
### Optimization of Simulation

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

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

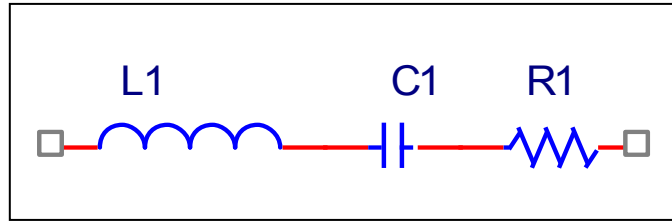
Attention)

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



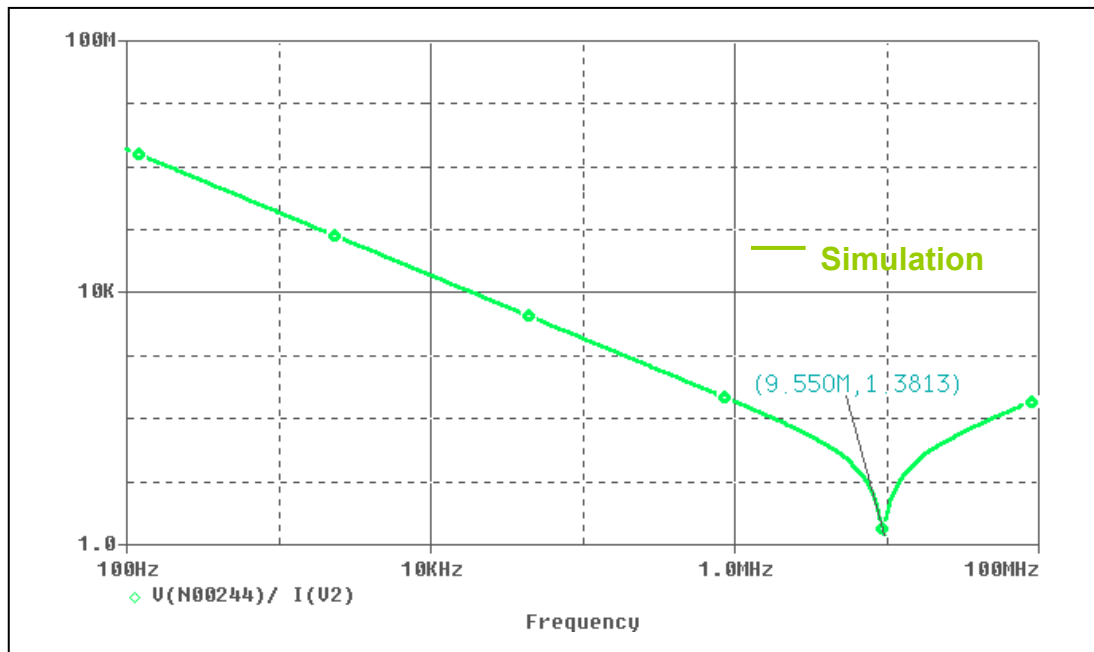
L1	
C1	
R1	

Equivalent circuit

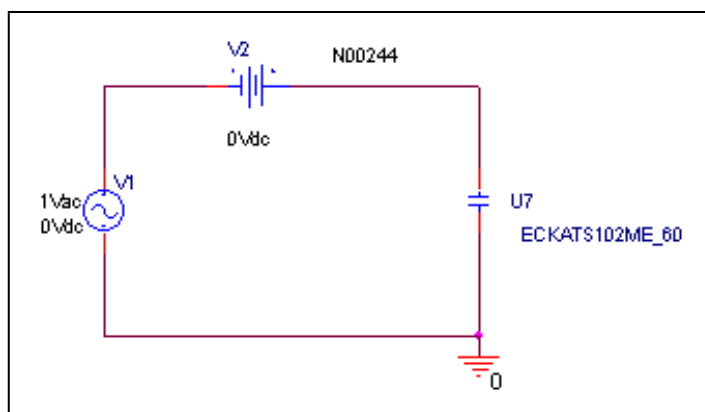


## Frequency vs. IZI Characteristic

### 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	1.78024M	1.8870M	5.9969
1K	177.329K	186.439K	5.1373
10K	17.768K	18.870K	6.2022
100K	1.78692K	1.8642K	4.3248
1M	178.656	186.638	4.4678
10M	2.64722	2.2675	14.3441
100M	184.278	204.818	11.1462

	<b>Measurement</b>	<b>Simulation</b>	<b>%Error</b>
<b>FSRF(Hz)</b>	9.363M	9.550M	1.9972
<b>IZI (ohm)</b>	1.37812	1.3813	0.2307