# Device Modeling Report

COMPONENTS: CAPACITOR/ CERAMIC
PART NUMBER: DE1B3KX471KA5B
MANUFACTURER: MURATA
REMARK: TA=25C

**Bee Technologies Inc.**

**Theory: Auto Balancing Bridge Method**
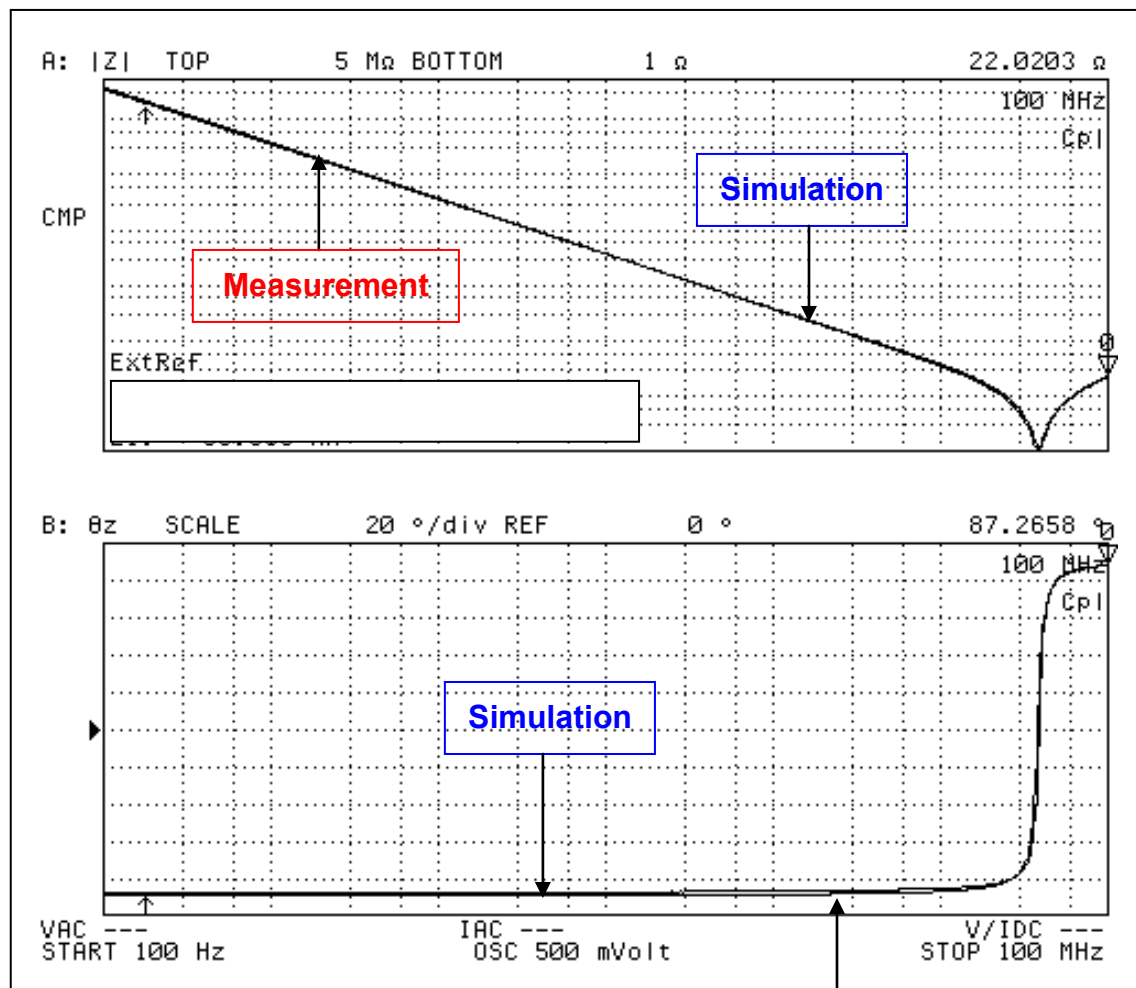
<span style="background-color:gray">**Optimization of Simulation**</span>

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

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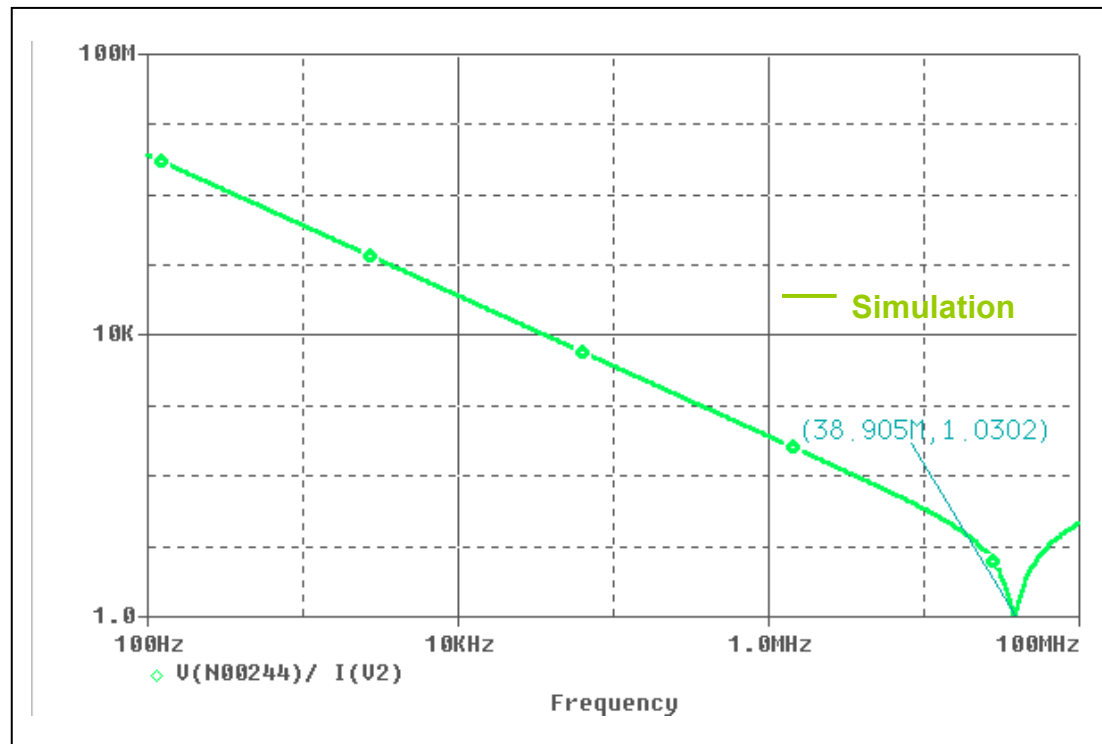*Please use SPICE MODEL within the range from 100Hz to 100M(Hz)*



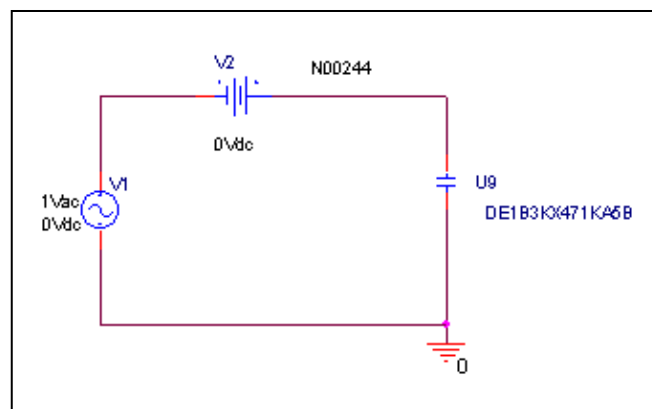| L1 | |
|----|----|
| C1 | |
| R1 | |

L1          C1    R1

# Frequency vs. IZI Characteristic

## Circuit Simulation result



## Evaluation Circuit

## Simulation result

| Frequency (Hz) | IZI (ohm) :Measurement | IZI (ohm) :Simulation | % Error |
|---|---|---|---|
| 100 | 3.3736M | 3.6703M | 8.7948 |
| 1K | 343.598K | 367.035K | 6.8211 |
| 10K | 35.1314K | 36.703K | 4.4735 |
| 100K | 3.61368K | 3.6703K | 1.5668 |
| 1M | 375.427 | 366.789 | 2.3008 |
| 10M | 37.0376 | 34.247 | 7.5345 |
| 100M | 22.0249 | 21.070 | 4.3355 |

| | Measurement | Simulation | %Error |
|---|---|---|---|
| FSRF(Hz) | 39.355M | 38.905M | 1.1434 |
| IZI (ohm) | 1.01438 | 1.0302 | 1.5596 |