Device Modeling Report

COMPONENTS: CAPACITOR/ ELECTROLYTIC
PART NUMBER: UUG0J103MNR1MS
MANUFACTURER: Nichicon
REMARK: TA=40C

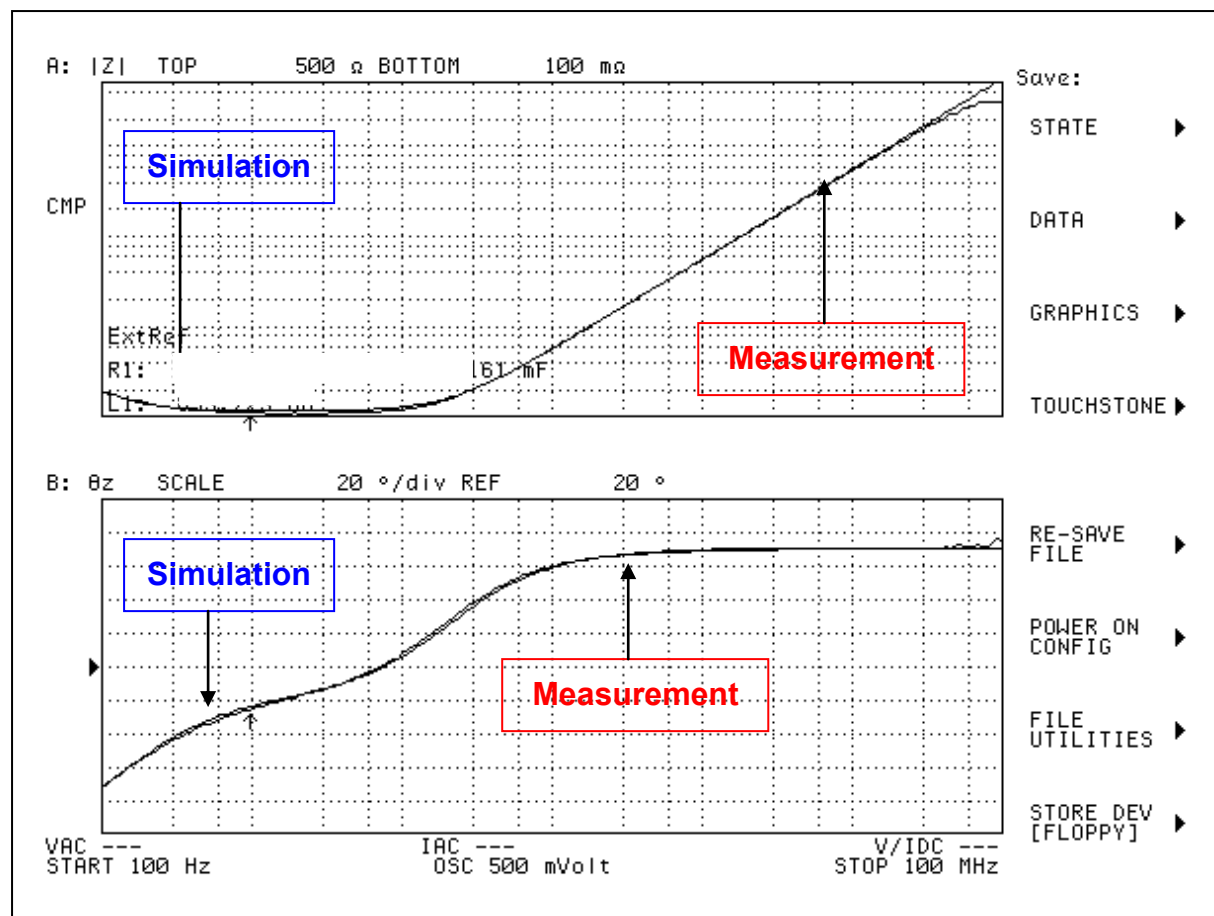**Bee Technologies Inc.**

Theory: Auto Balancing Bridge Method

Optimization of Simulation

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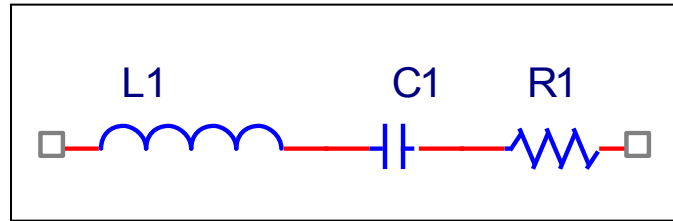
Frequency vs.|Z| and Frequency vs. θz Characteristic

Attention)

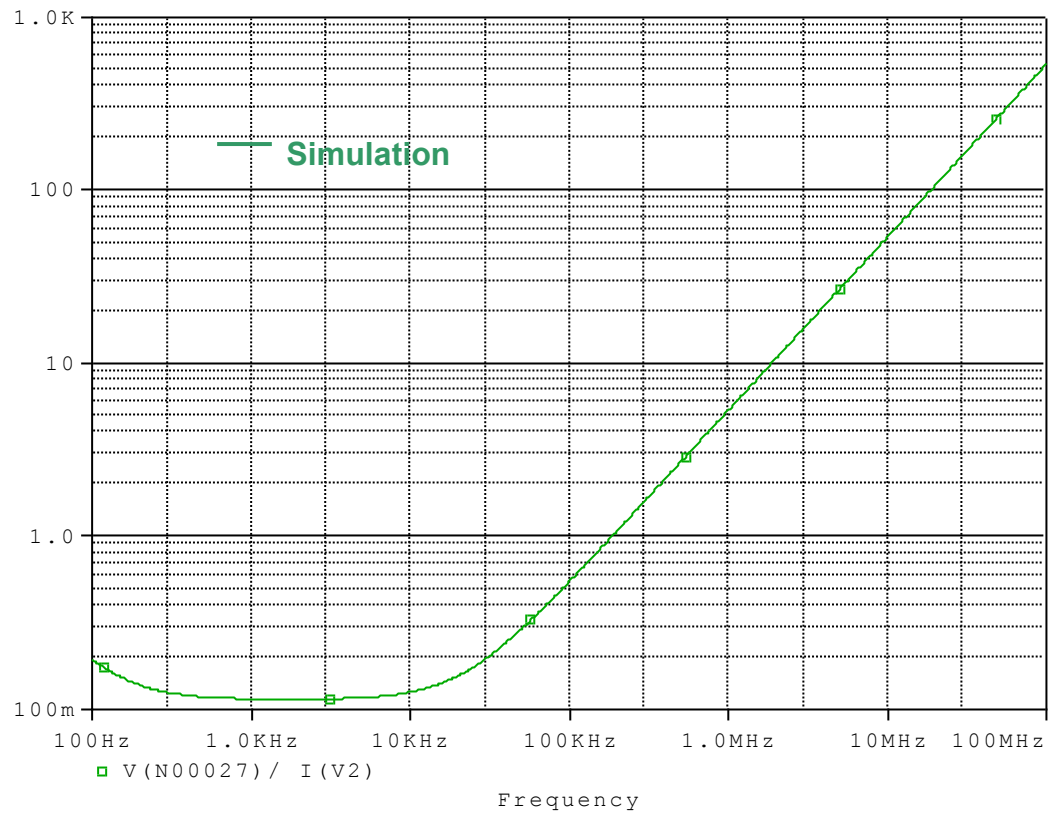*Please use SPICE MODEL within the range from 100Hz to 100M(Hz)*

```
A:  |Z|   TOP        500 Ω BOTTOM      100 mΩ          Save:

                                                       STATE        ▶
      ┌─────────────┐
 CMP  │ Simulation  │                                  DATA         ▶
      └─────────────┘
                                                       GRAPHICS     ▶
   ExtRef                      ┌──────────────────┐
   R1:                 |61 mF  │  Measurement     │
   L1:                         └──────────────────┘   TOUCHSTONE ▶

 B: θz   SCALE       20 °/div REF        20 °

      ┌─────────────┐                                  RE-SAVE      ▶
      │ Simulation  │                                  FILE
      └─────────────┘
 ▶                                                     POWER ON     ▶
                              ┌──────────────────┐     CONFIG
                              │  Measurement     │
                              └──────────────────┘     FILE         ▶
                                                       UTILITIES

                                                       STORE DEV    ▶
                                                       [FLOPPY]
 VAC ---          IAC ---                  V/IDC ---
 START 100 Hz      OSC 500 mVolt           STOP 100 MHz
```

	Measurement	
R1		
C1		
L1		

Equivalent circuit

L1   C1   R1

Frequency vs. IZI Characteristic

Circuit Simulation result

1.0K

Simulation

100

10

1.0

100m

```
100Hz    1.0KHz    10KHz    100KHz    1.0MHz    10MHz   100MHz
```

□ V(N00027)/ I(V2)

Frequency

Evaluation Circuit

V1
0Vdc

U1
UUG0J103MNR1MS_40C

V2
1Vac
0Vdc

0
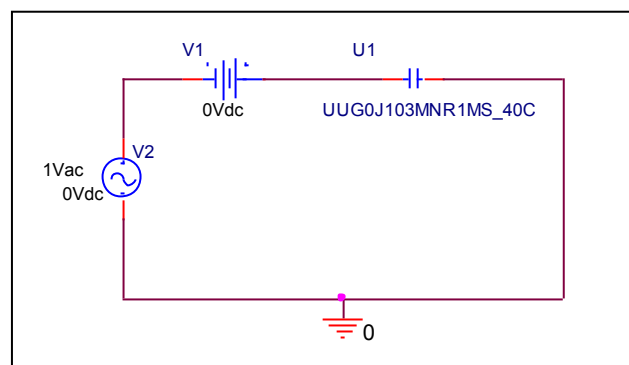
Simulation result

Frequency (Hz)	IZI (Ω)		% Error
	Measurement	Simulation	
100	197.128m	194.243m	- 1.464
1K	108.042m	115.126m	6.557
10K	119.251m	125.927m	5.599
100K	552.193m	548.373m	- 0.692
1M	5.564	5.365	- 3.563
10M	53.110	53.641	0.999