

Technical Data of Ceramic Resonator

Type CSB500E



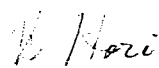
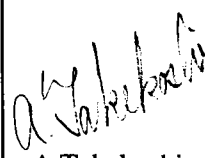
Applied to M34551M8-XXXFP

**TOYAMA MURATA MANUFACTURING CO., LTD.**

Product Engineering Service Section I

Planning Department

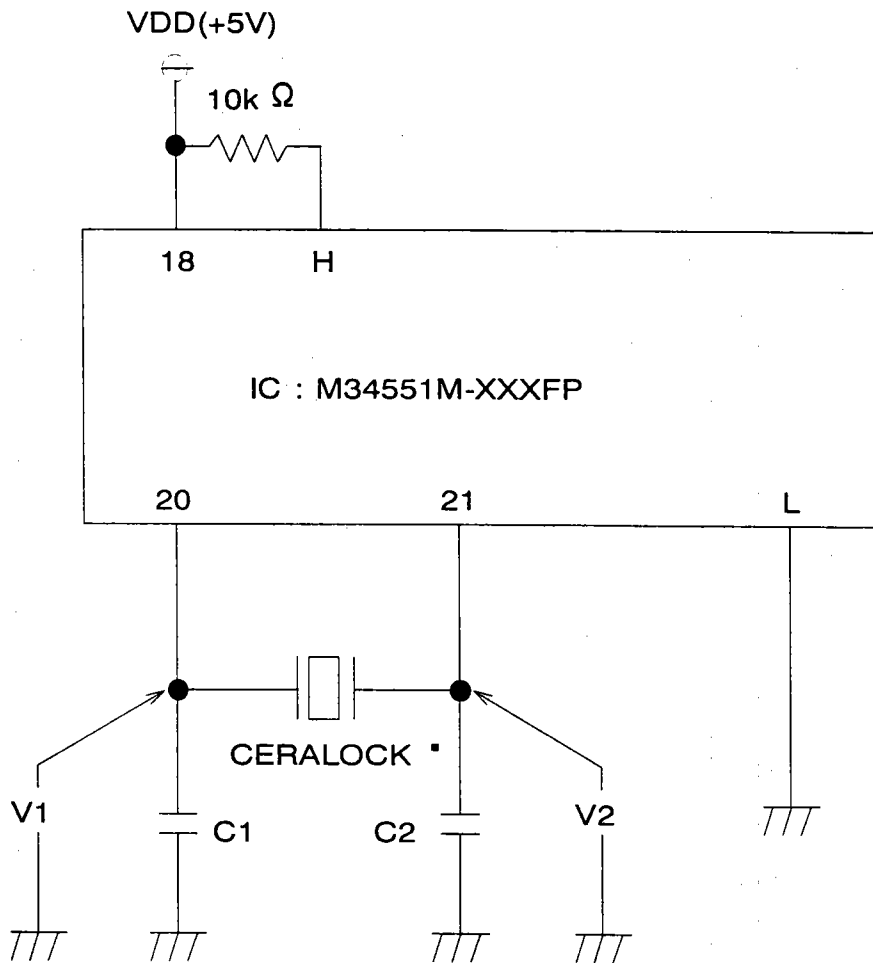
Piezoelectric Components Group

Approved by	Checked by	Checked by	Issued by	Issued Date	TCD No.
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## Test Circuit



H : 47,48

L : 1,2,19,22,43

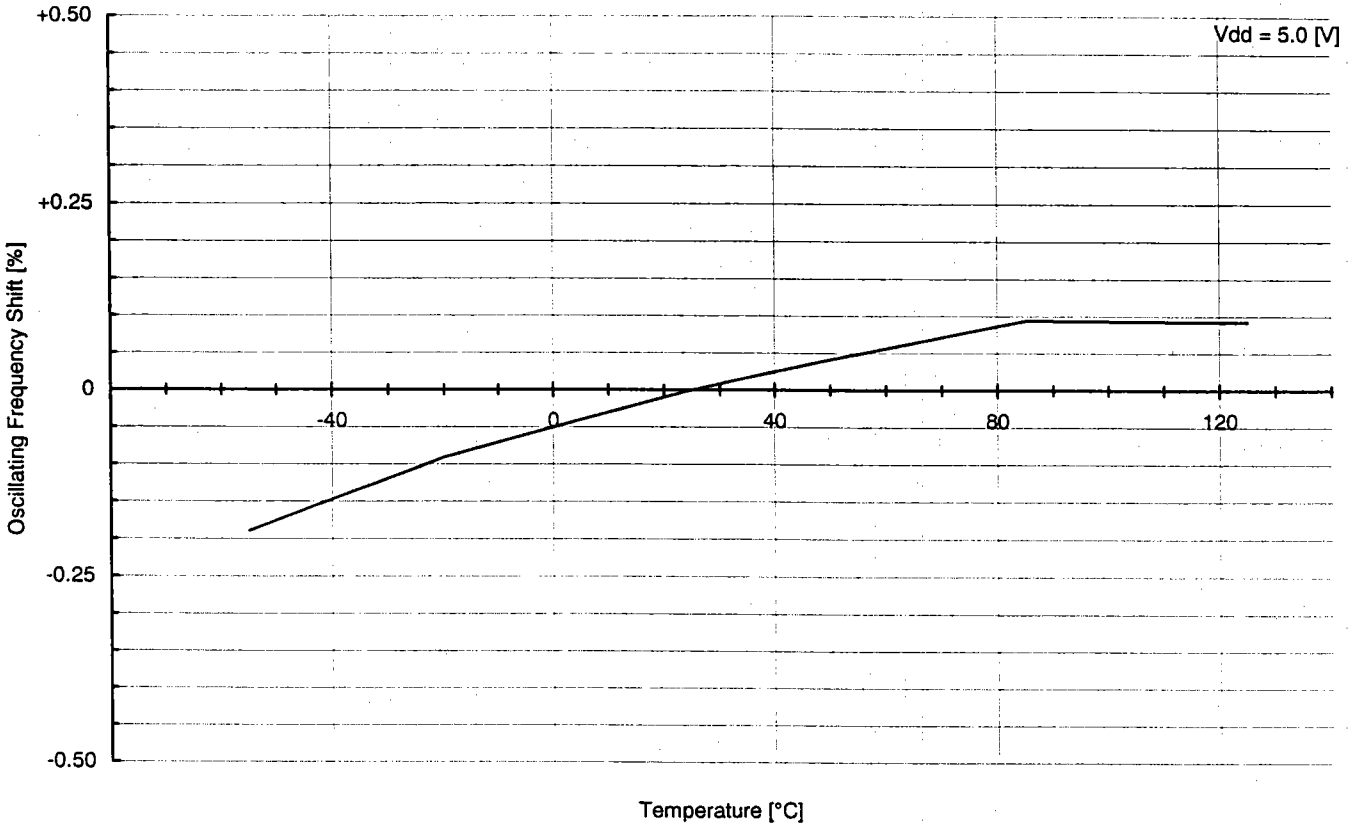
## Recommendable Value

CERALOCK® : CSB500E

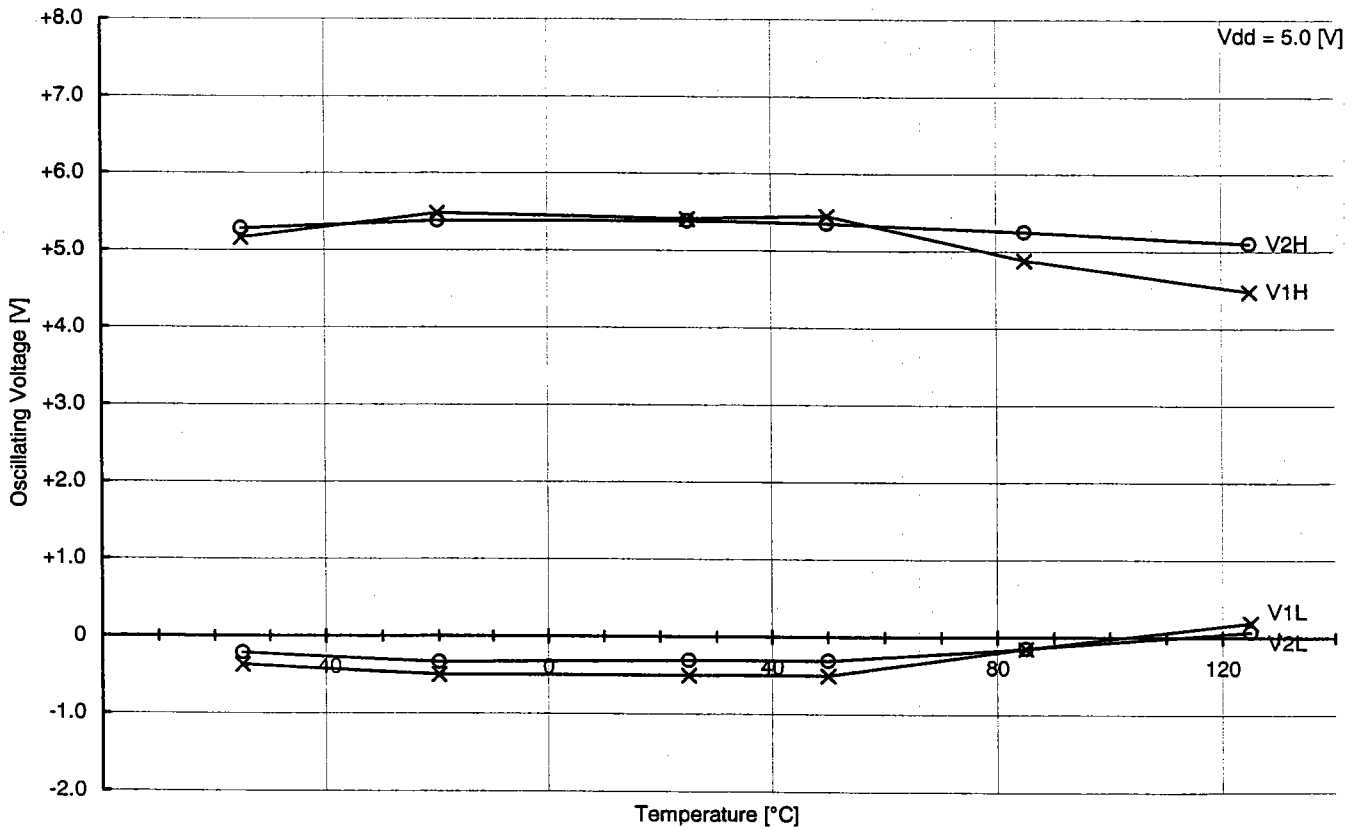
C1 = 330 [pF]

C2 = 330 [pF]

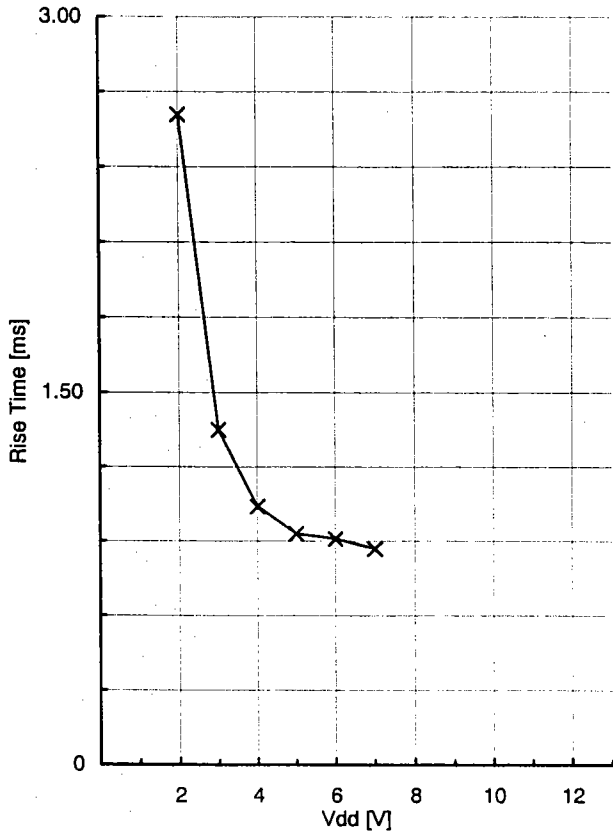
Temperature Characteristics of Oscillating Frequency  
 MODEL : CSB500E with M34551M8-XXXFP



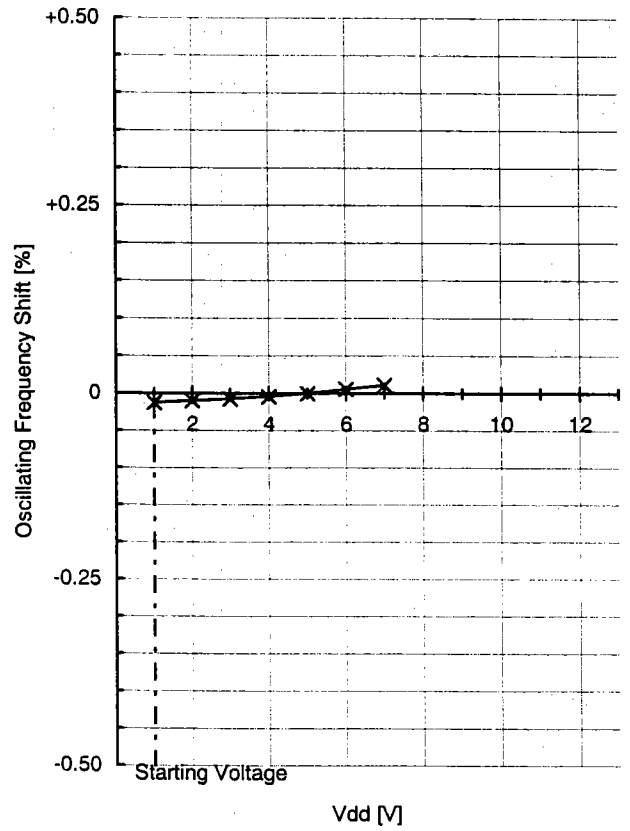
Temperature Characteristics of Oscillating Voltage  
 MODEL : CSB500E with M34551M8-XXXFP



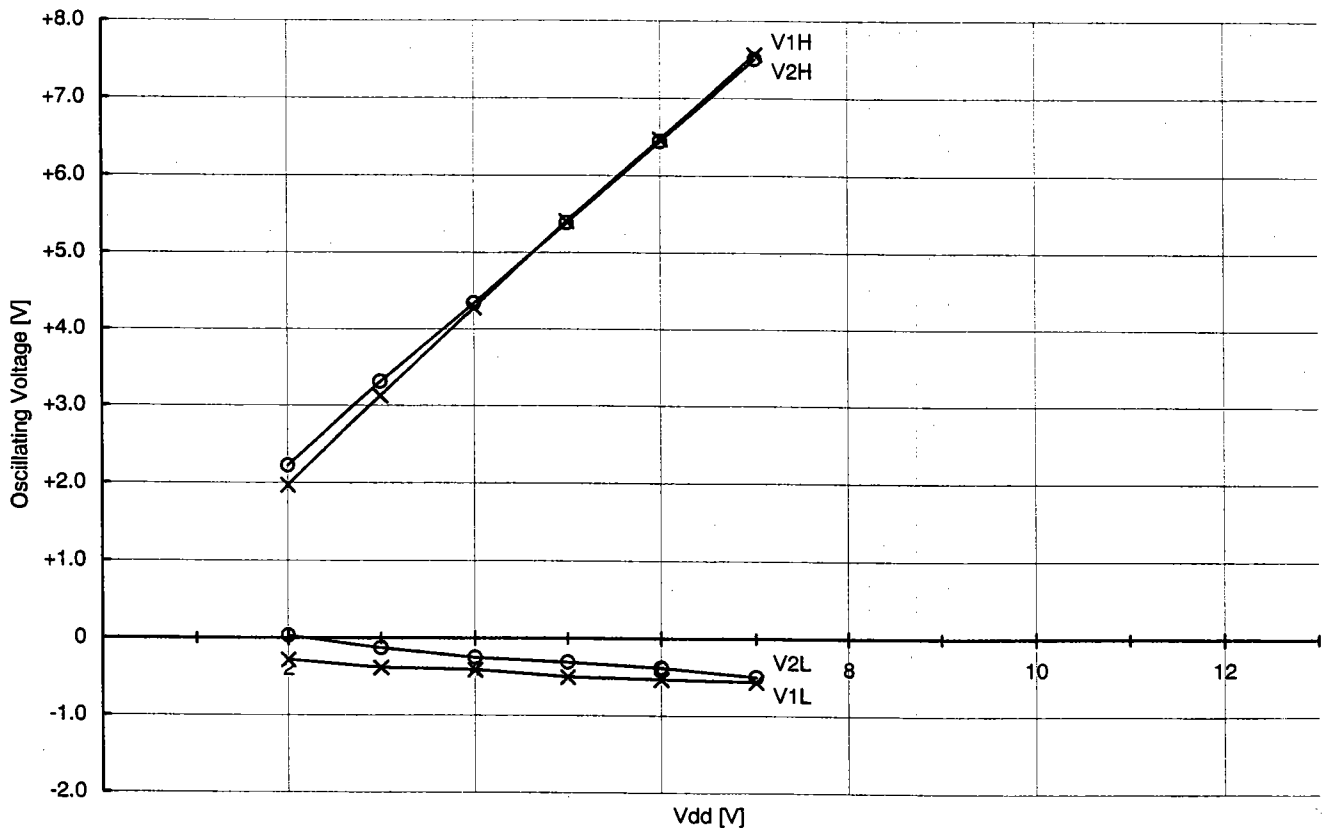
Rise Time vs Vdd Characteristics  
 MODEL : CSB500E with M34551M8-XXXFP



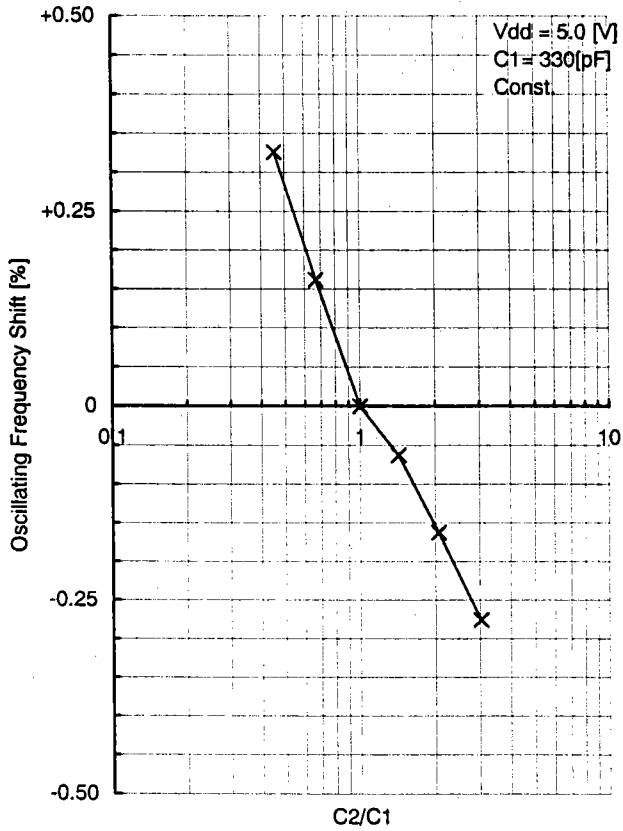
Oscillating Frequency vs Vdd Characteristics  
 MODEL : CSB500E with M34551M8-XXXFP



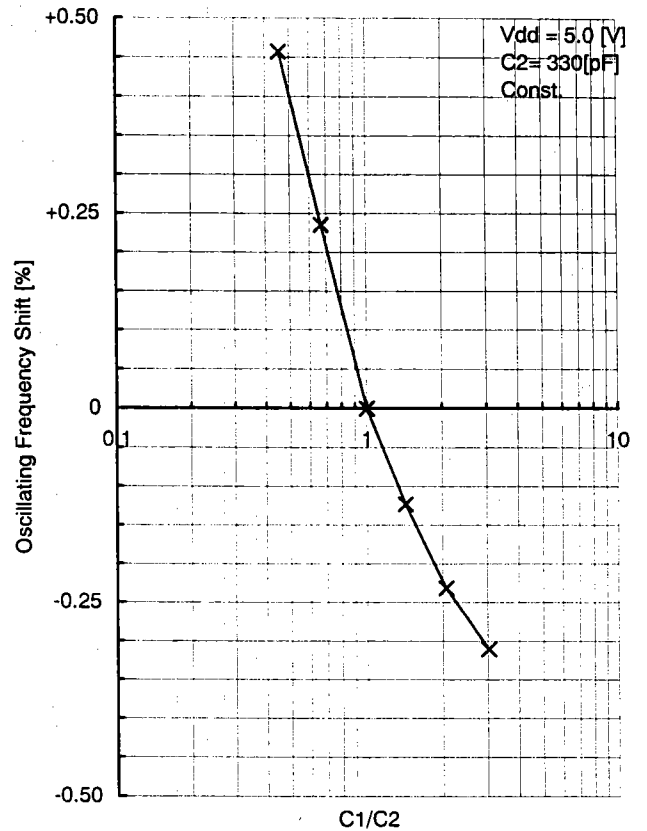
Oscillating Voltage vs Vdd Characteristics  
 MODEL : CSB500E with M34551M8-XXXFP



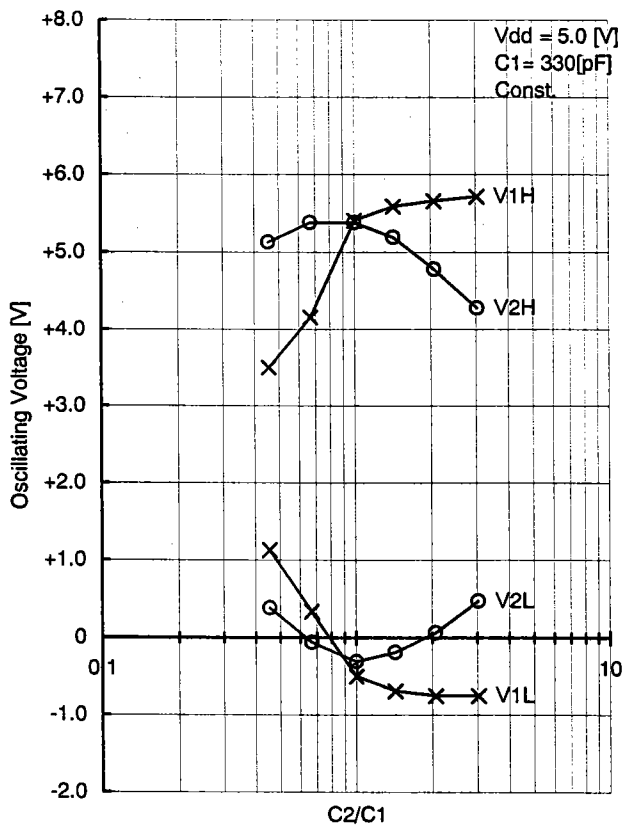
Oscillating Frequency vs (C1,C2) Characteristics  
**MODEL : CSB500E with M34551M8-XXXFP**



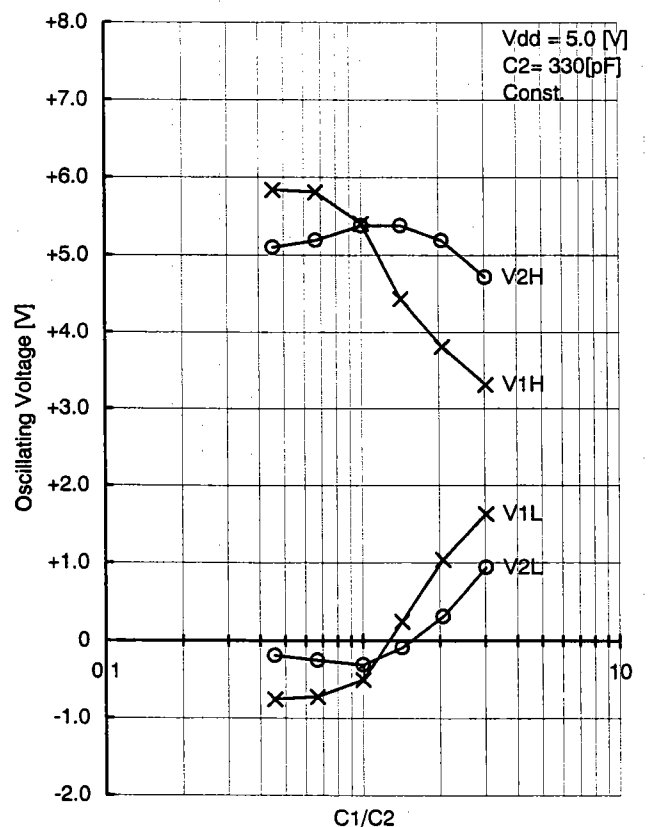
Oscillating Frequency vs (C1,C2) Characteristics  
**MODEL : CSB500E with M34551M8-XXXFP**



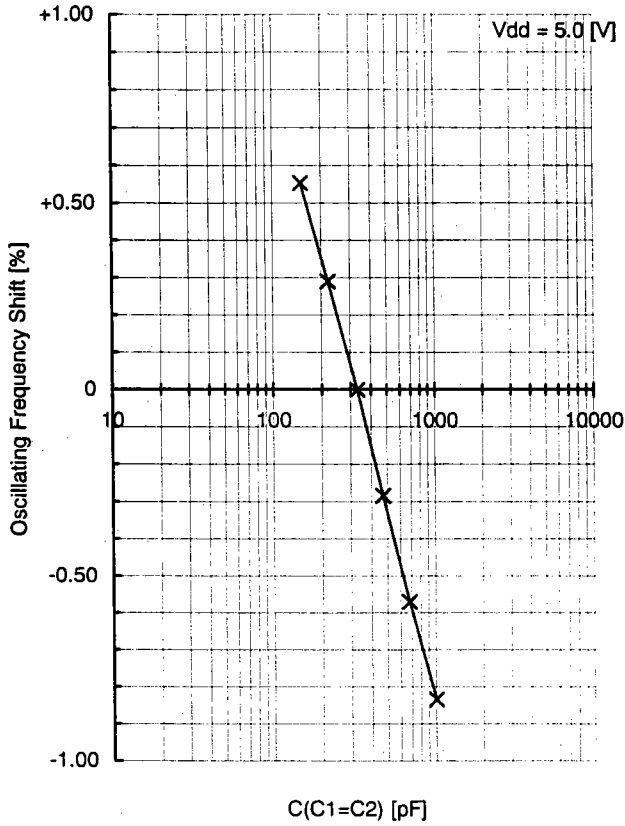
Oscillating Voltage vs (C1,C2) Characteristics  
**MODEL : CSB500E with M34551M8-XXXFP**



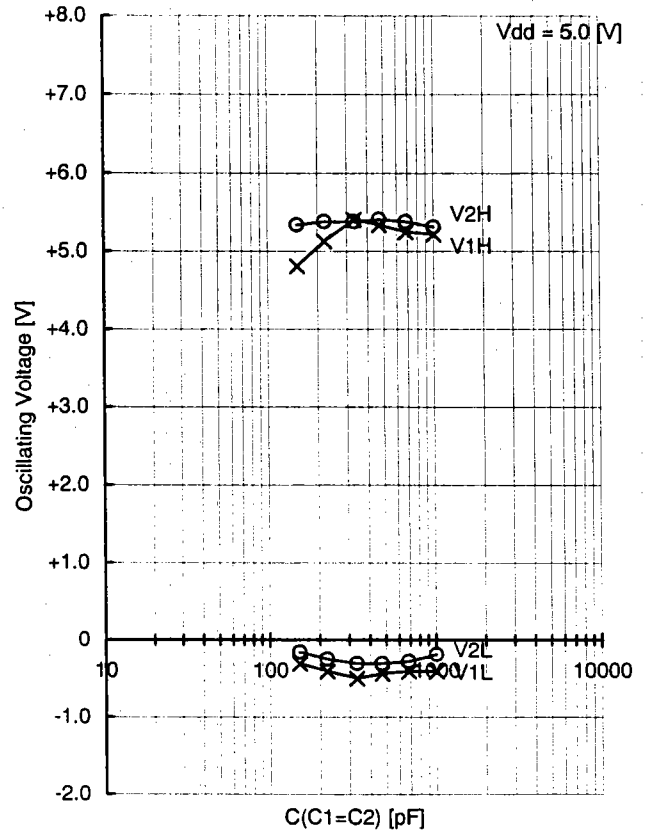
Oscillating Voltage vs (C1,C2) Characteristics  
**MODEL : CSB500E with M34551M8-XXXFP**



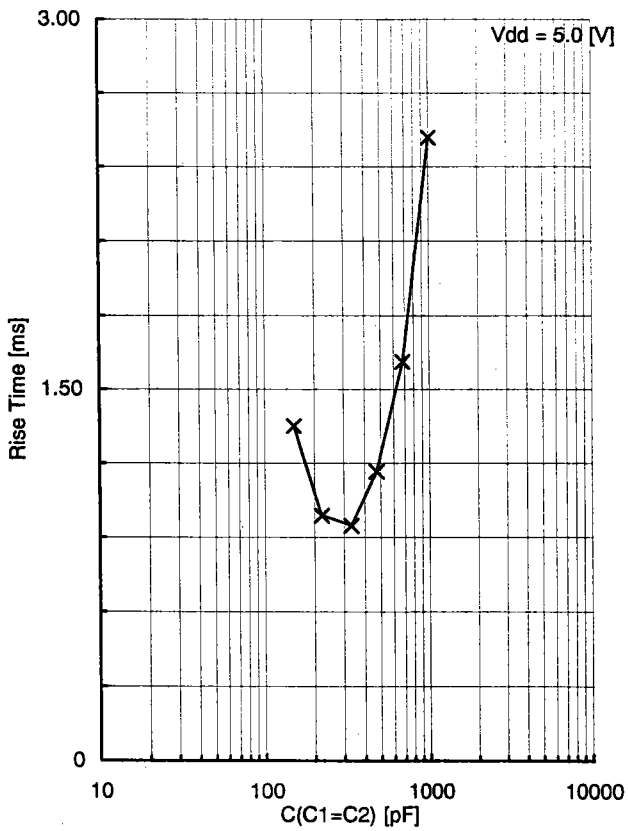
Oscillating Frequency vs C(C1=C2) Characteristics  
 MODEL : CSB500E with M34551M8-XXXFP



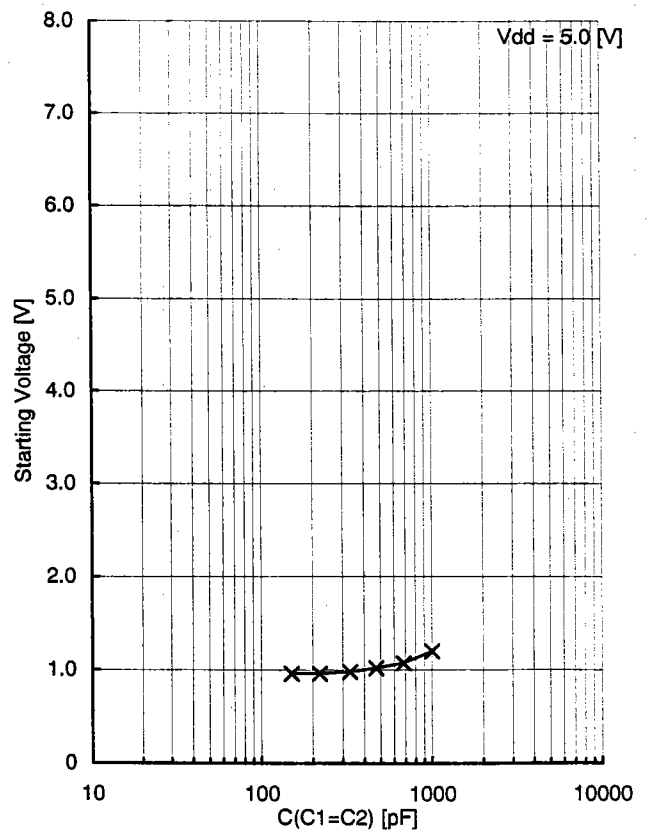
Oscillating Voltage vs C(C1=C2) Characteristics  
 MODEL : CSB500E with M34551M8-XXXFP



Rise Time vs C(C1=C2) Characteristics  
 MODEL : CSB500E with M34551M8-XXXFP



Starting Voltage vs C(C1=C2) Characteristics  
 MODEL : CSB500E with M34551M8-XXXFP



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**Comparison Table**

IC : No	V1H [V]	V1L [V]	V1p-p [V]	V2H [V]	V2L [V]	V2p-p [V]	Fosc [kHz]	Trise [ms]	Vstart [V]
TYP	5.38	-0.47	5.85	5.35	-0.31	5.66	496.663	0.948	0.99
HH	5.41	-0.50	5.91	5.38	-0.31	5.69	496.647	0.968	1.26
LL	5.44	-0.41	5.85	5.31	-0.38	5.69	496.656	0.808	1.00

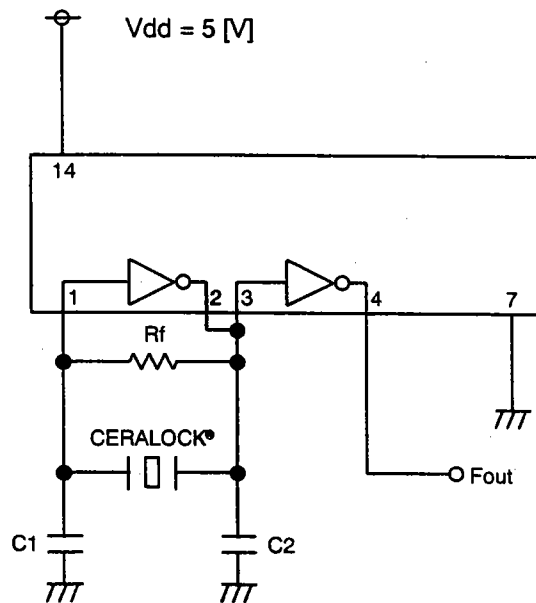
Ref.

Performance described page 2 to 5 were measured with IC No. TYP

### Frequency Correlation Data

Sample No.	M34551M8-XXXFP Fosc [kHz]	CD4069UBE Fosc [kHz]	Shift [%]
1	496.666	500.170	-0.7005
2	496.970	500.452	-0.6957
3	496.896	499.969	-0.6147
4	496.914	499.913	-0.6000
5	496.440	499.968	-0.7055
$\bar{X}$	496.777	500.094	-0.6633

### muRata Standard Circuit



CERALOCK® : CSB500E

C1 = 100 [pF]

C2 = 100 [pF]

Rf = 1 [Mohm]