Technical Data of Ceramic Resonator

Type CSB800J

Applied to M34513M4

TOYAMA MURATA MANUFACTURING CO., LTD.

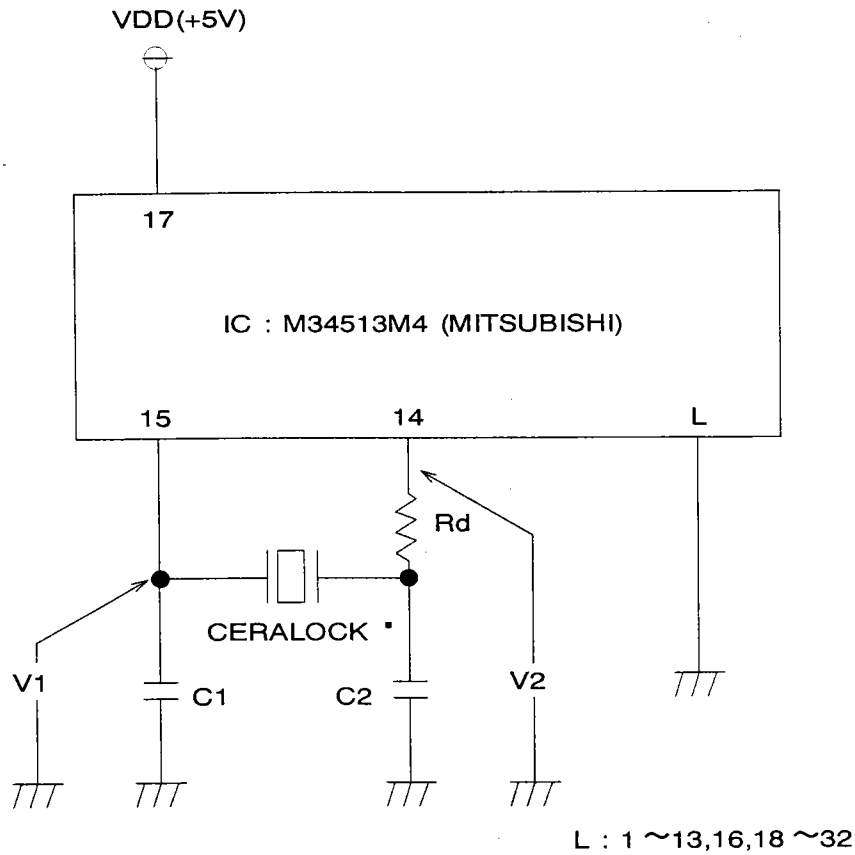
Product Engineering Service Section I

Engineering Service Department

Piezoelectric Components Group

Approved by	Checked by	Checked by	Issued by	Issued Date	TCD No.
S.Iwasaki	K.Kuramoto	M.Kurosaka	T.Ishizuka	Oct 28, 1998	TCD-98-5x40

Test Circuit



Recommendable Value

CERALOCK® : CSB800J

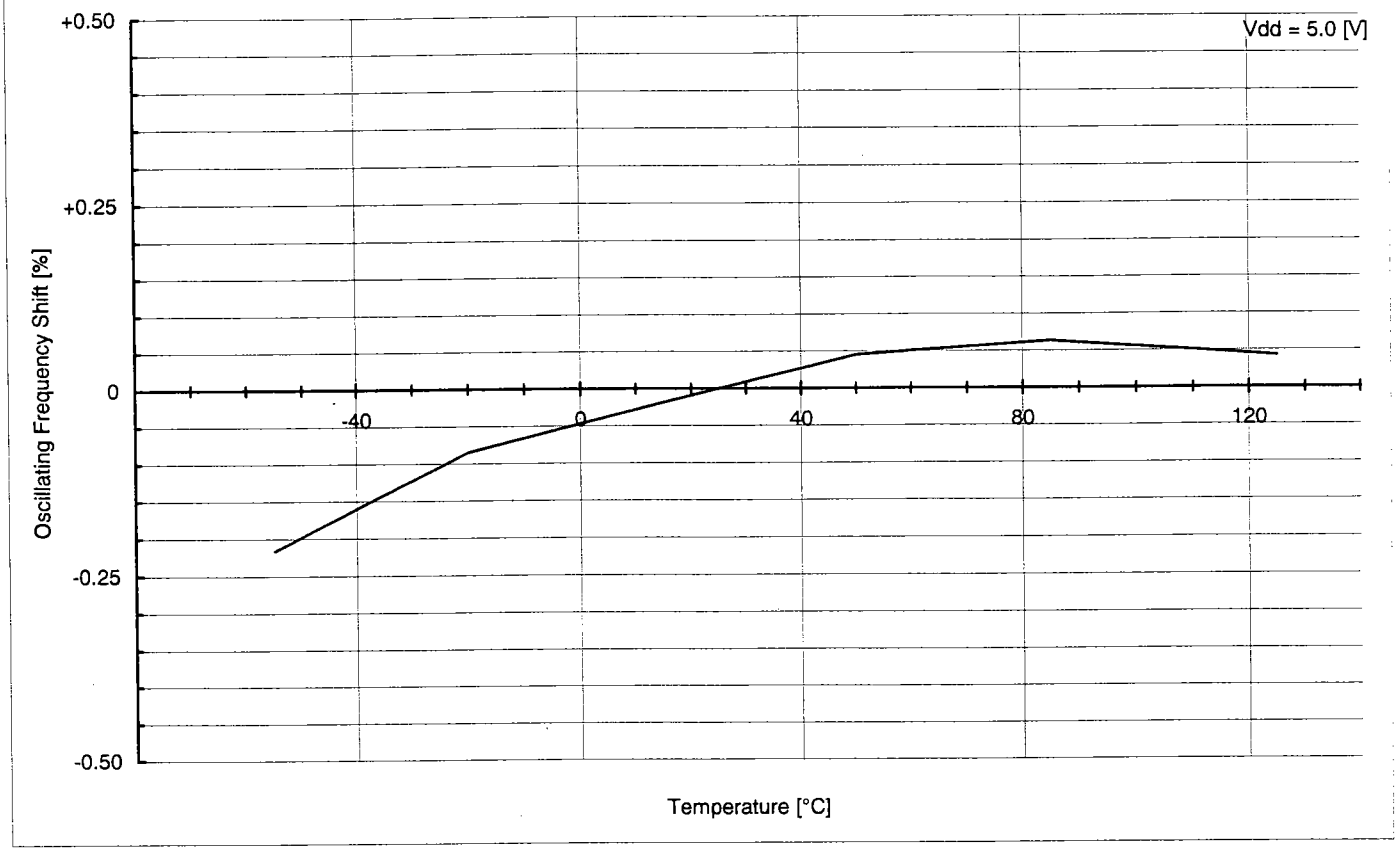
C1 = 100 [pF]

C2 = 100 [pF]

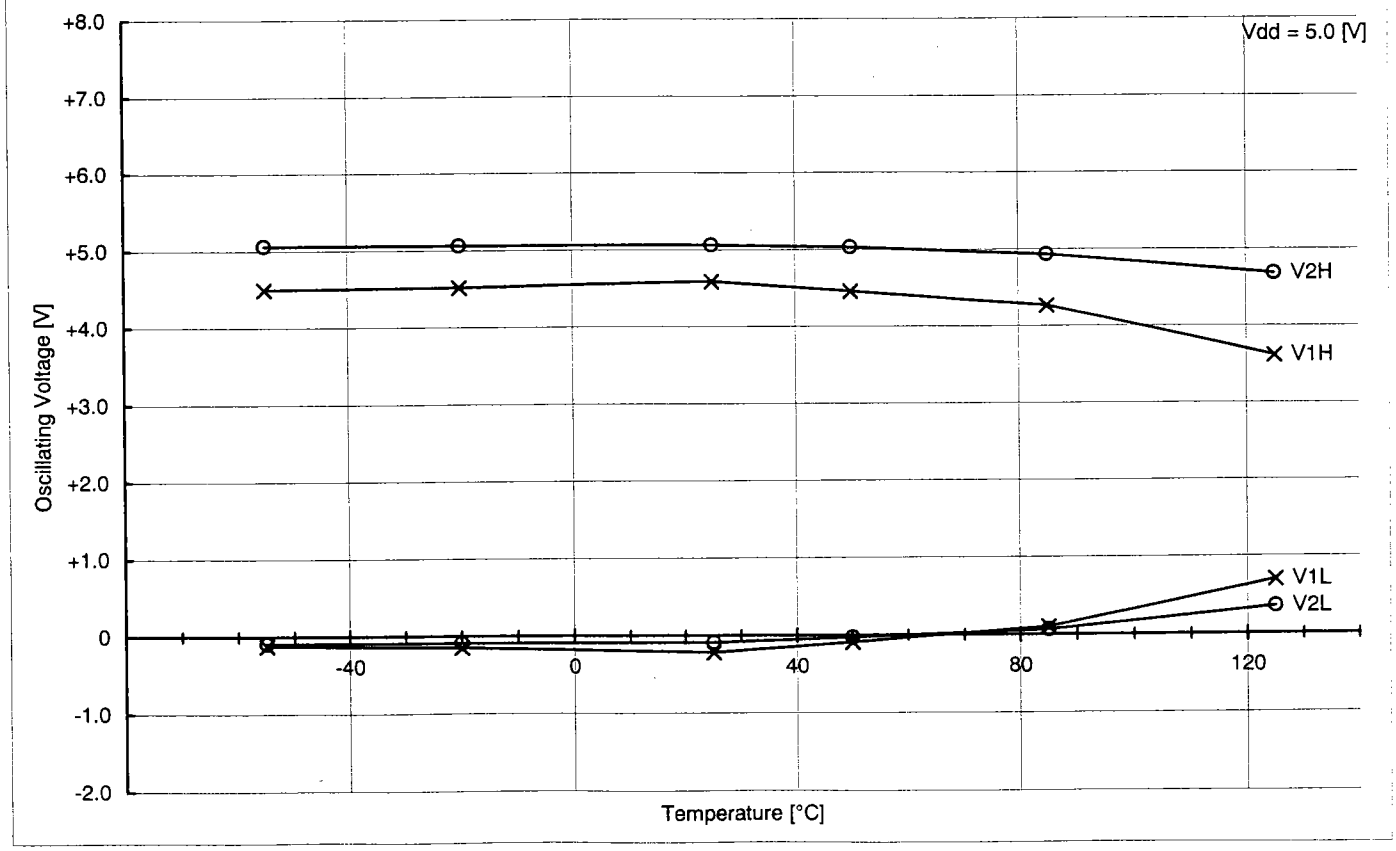
Rd = 2.2 [k ohm]

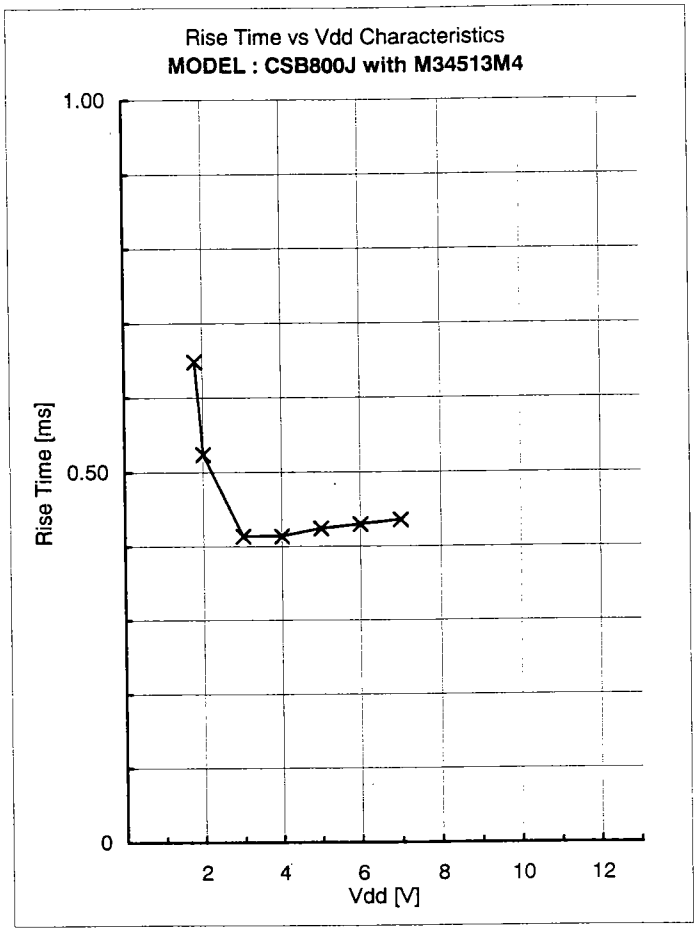
Contents

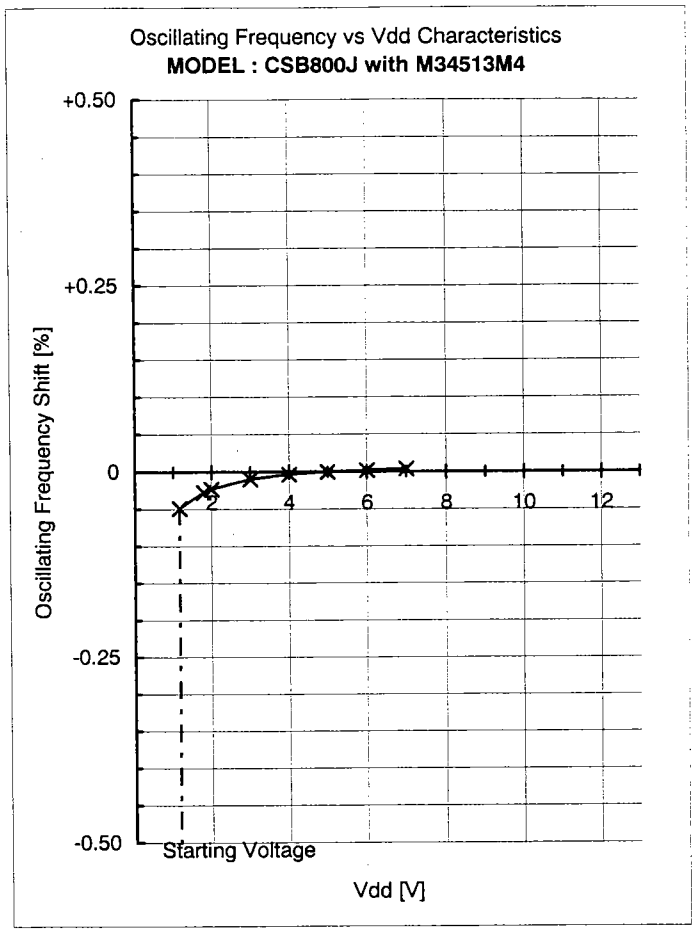
Temperature Characteristics of Oscillating Frequency
MODEL : CSB800J with M34513M4

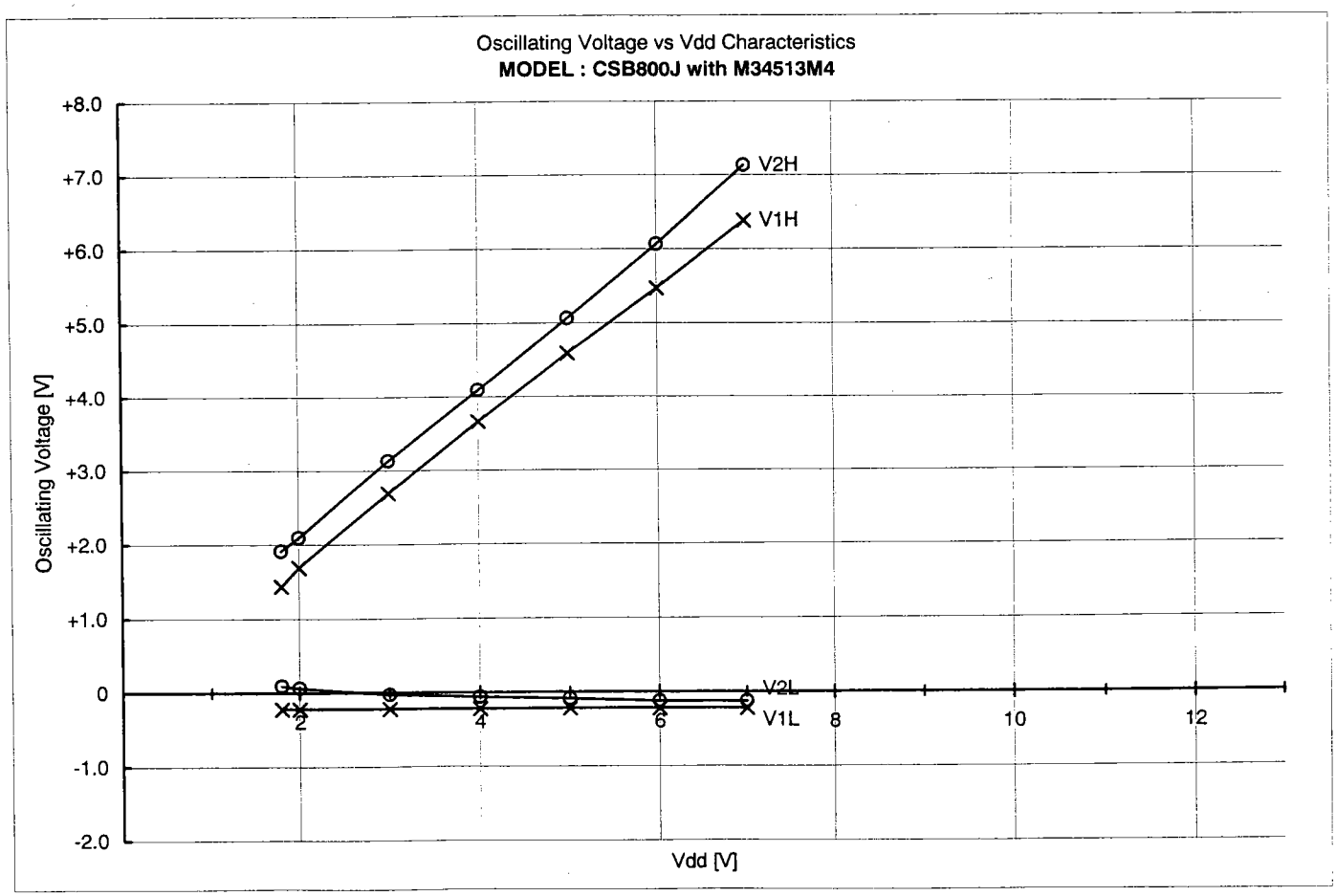


Temperature Characteristics of Oscillating Voltage
MODEL : CSB800J with M34513M4

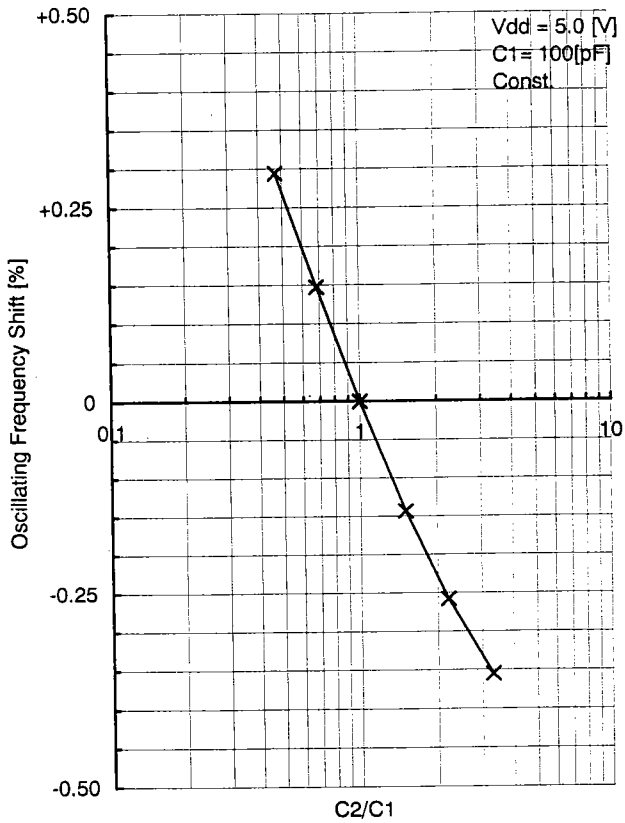



Rise Time vs Vdd Characteristics
MODEL : CSB800J with M34513M4
Rise Time [ms]
1.00
0.50
0
2
4
6
8
10
12
Vdd [V]

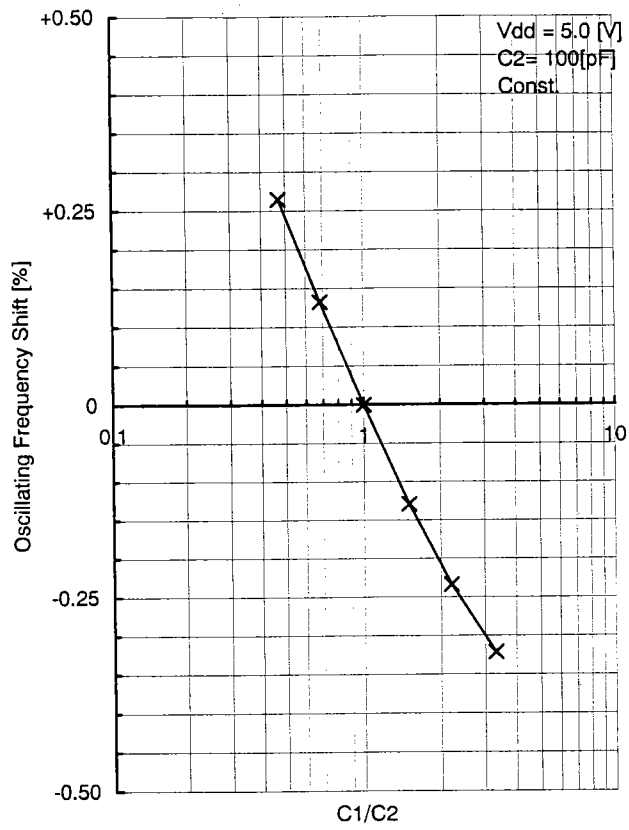

Oscillating Frequency vs Vdd Characteristics
MODEL : CSB800J with M34513M4
Oscillating Frequency Shift [%]
+0.50
+0.25
0
-0.25
-0.50
2
4
6
8
10
12
Starting Voltage
Vdd [V]


Oscillating Voltage vs Vdd Characteristics
MODEL : CSB800J with M34513M4
Oscillating Voltage [V]
+8.0
+7.0
+6.0
+5.0
+4.0
+3.0
+2.0
+1.0
0
-1.0
-2.0
V2H
V1H
V2L
V1L
2
4
6
8
10
12
Vdd [V]

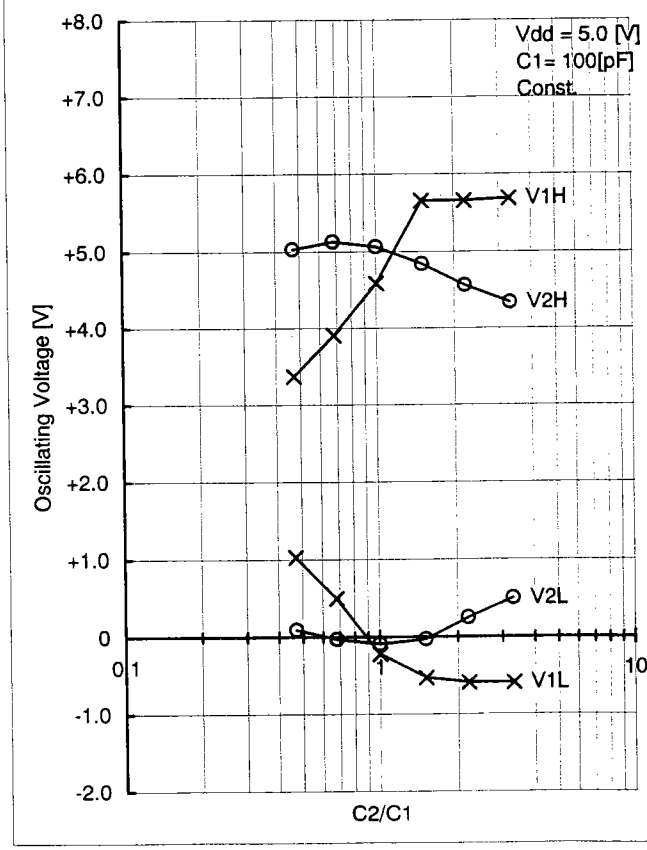
Oscillating Frequency vs (C1,C2) Characteristics
MODEL : CSB800J with M34513M4



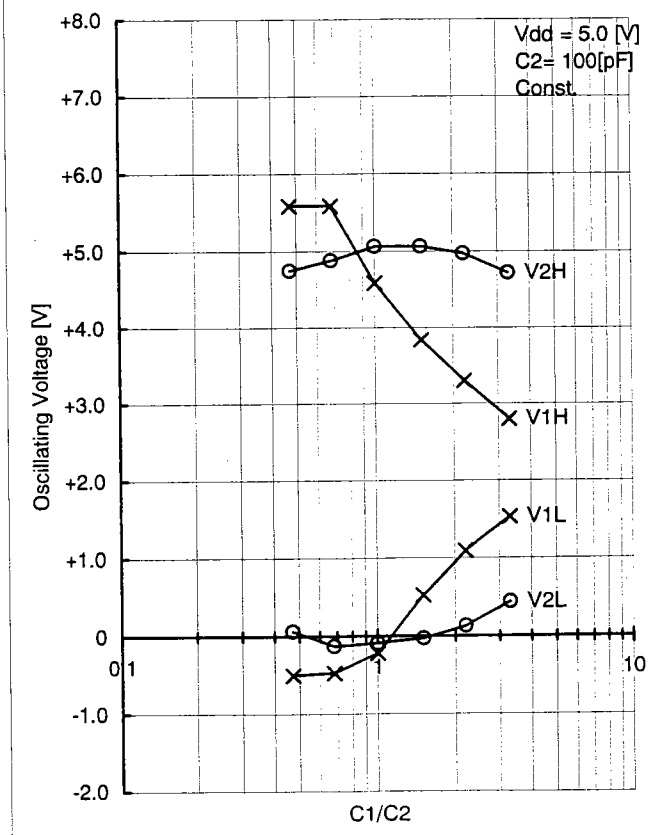
Oscillating Frequency vs (C1,C2) Characteristics
MODEL : CSB800J with M34513M4

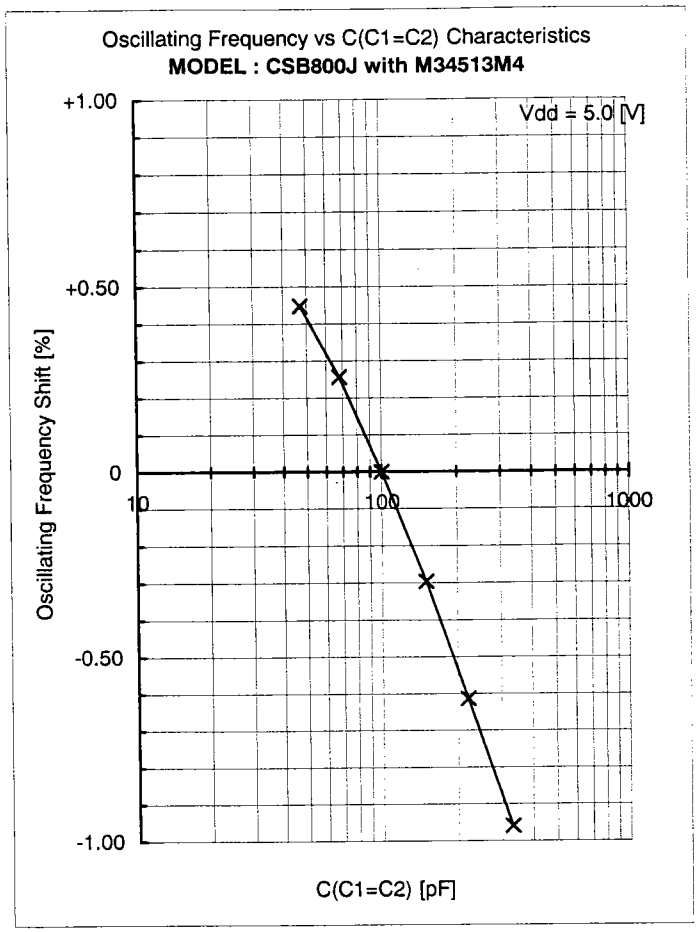


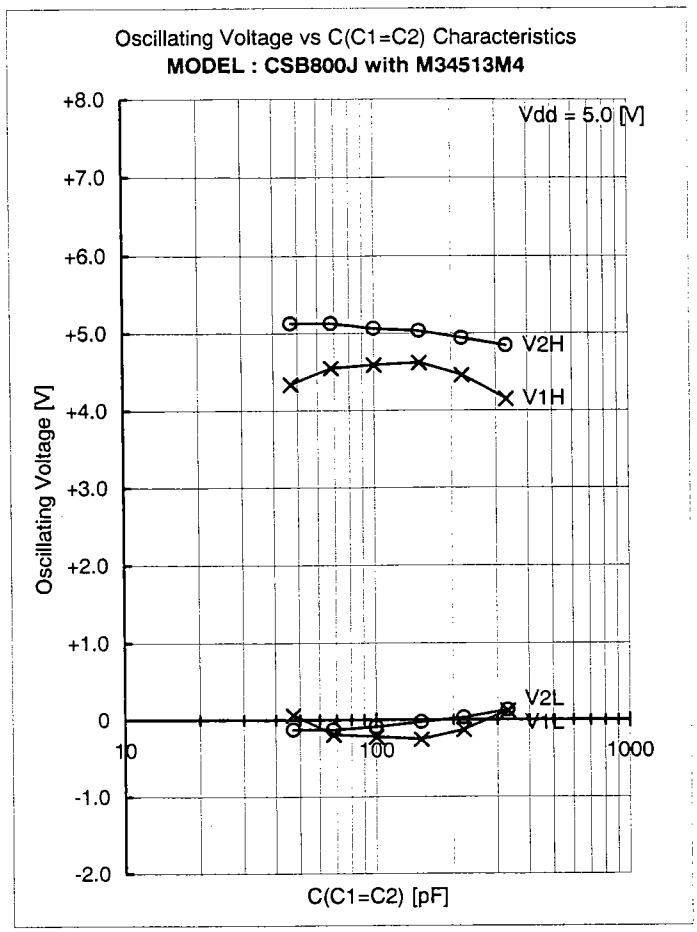
Oscillating Voltage vs (C1,C2) Characteristics
MODEL : CSB800J with M34513M4

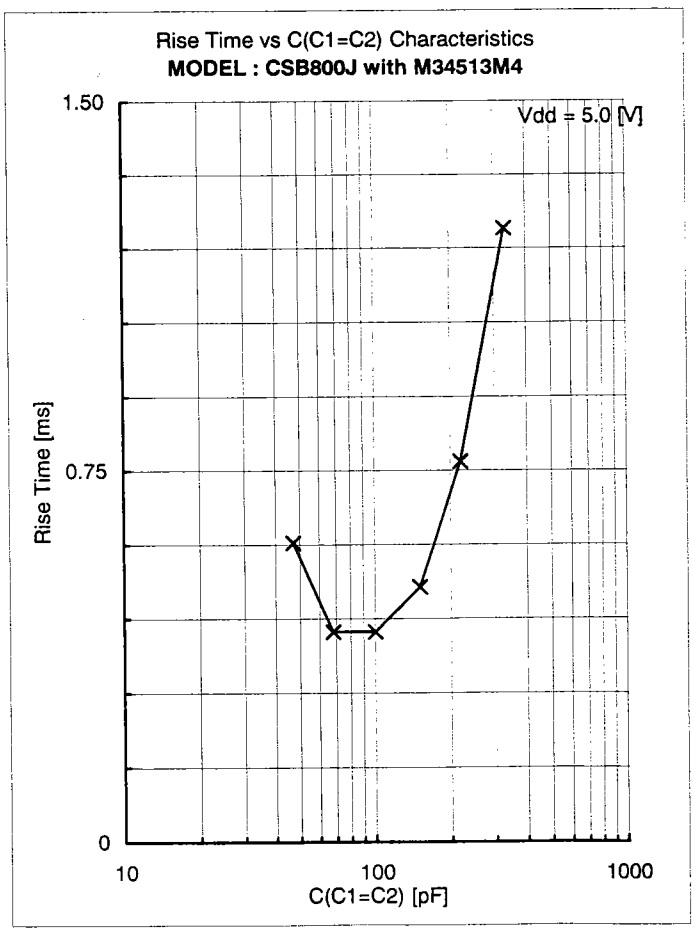


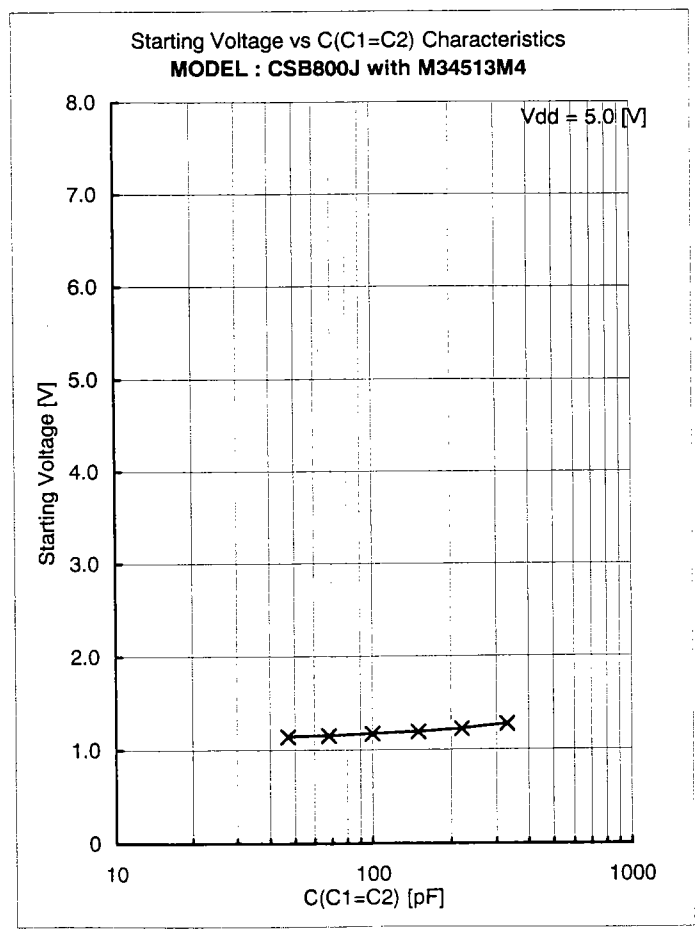
Oscillating Voltage vs (C1,C2) Characteristics
MODEL : CSB800J with M34513M4



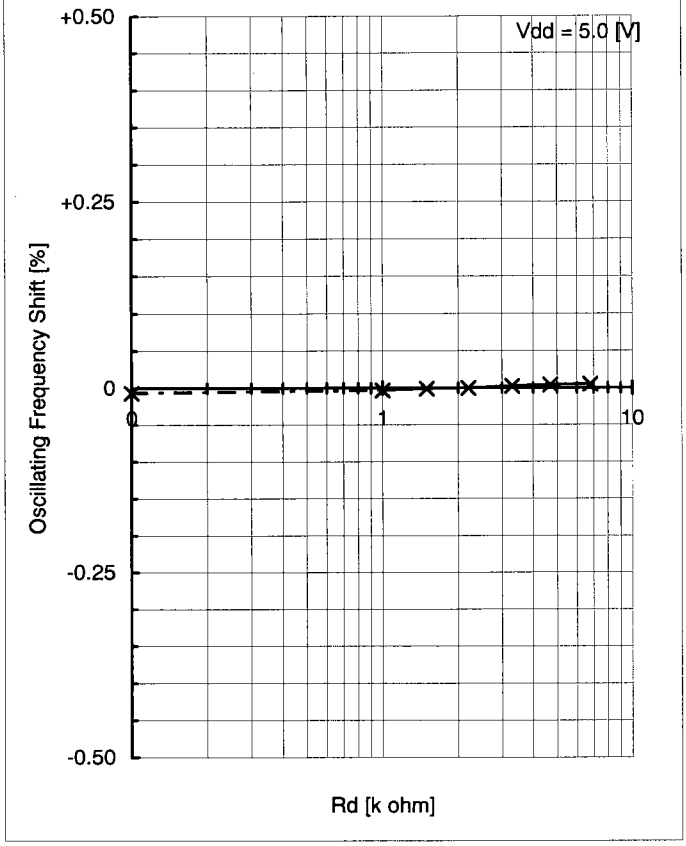

Oscillating Frequency vs C(C1=C2) Characteristics
MODEL : CSB800J with M34513M4
Vdd = 5.0 [V]
+1.00
+0.50
0
-0.50
-1.00
Oscillating Frequency Shift [%]
10
100
1000
C(C1=C2) [pF]


Oscillating Voltage vs C(C1=C2) Characteristics
MODEL : CSB800J with M34513M4
Vdd = 5.0 [V]
+8.0
+7.0
+6.0
+5.0
+4.0
+3.0
+2.0
+1.0
0
-1.0
-2.0
Oscillating Voltage [V]
V2H
V1H
V2L
V1L
10
100
1000
C(C1=C2) [pF]

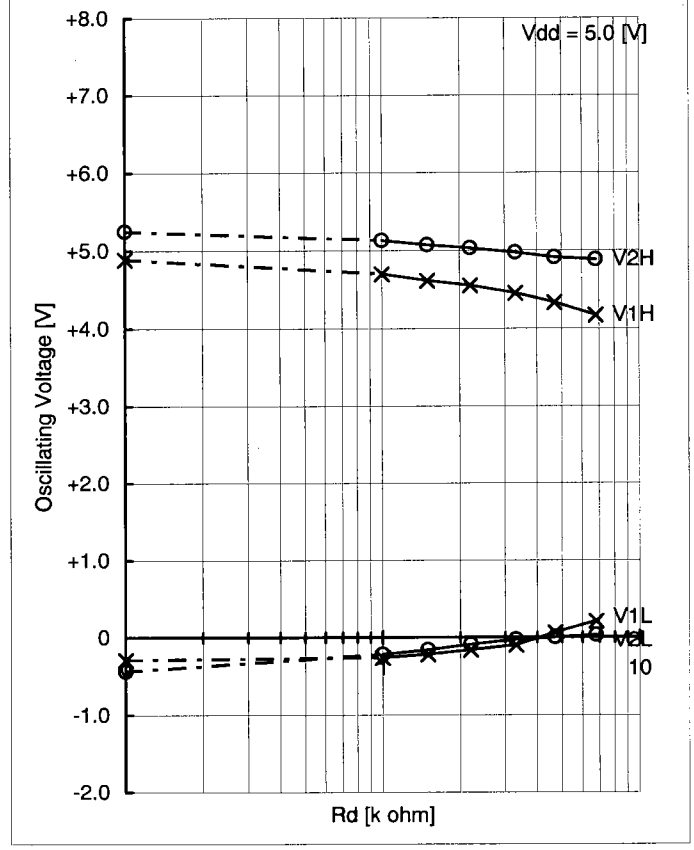

Rise Time vs C(C1=C2) Characteristics
MODEL : CSB800J with M34513M4
Vdd = 5.0 [V]
1.50
0.75
0
Rise Time [ms]
10
100
1000
C(C1=C2) [pF]


Starting Voltage vs C(C1=C2) Characteristics
MODEL : CSB800J with M34513M4
Vdd = 5.0 [V]
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
Starting Voltage [V]
10
100
1000
C(C1=C2) [pF]

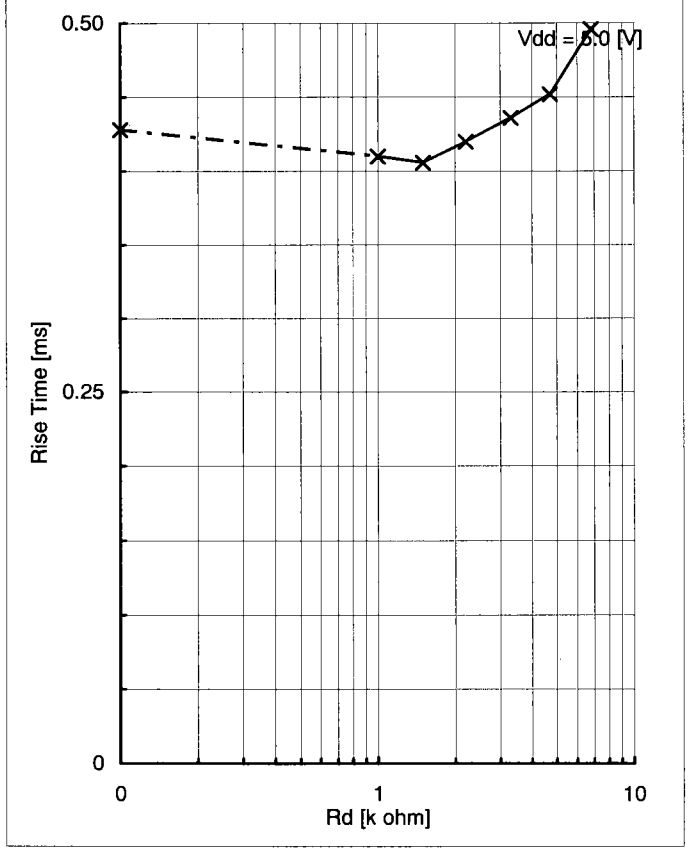
Oscillating Frequency vs Rd Characteristics
MODEL : CSB800J with M34513M4



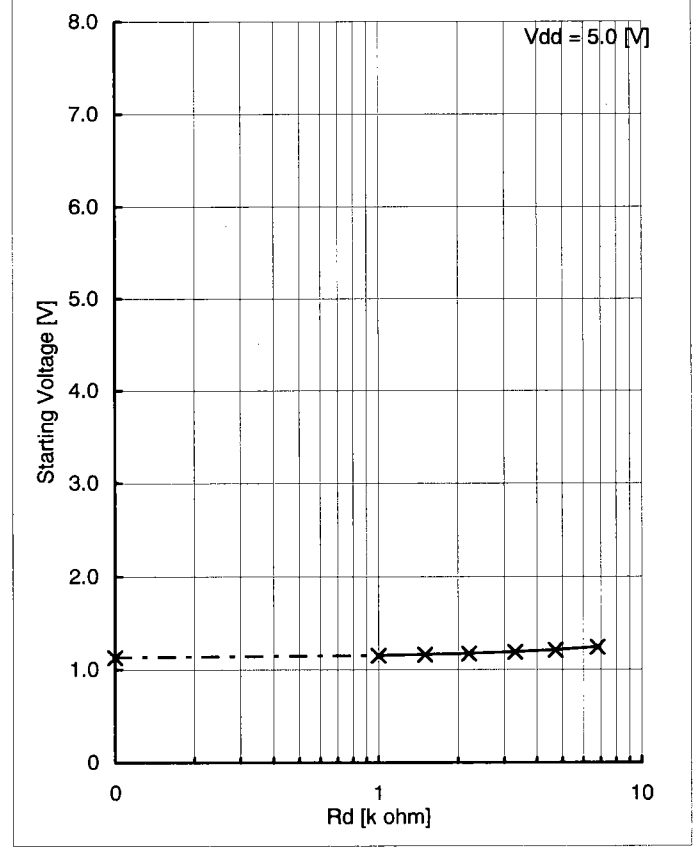
Oscillating Voltage vs Rd Characteristics
MODEL : CSB800J with M34513M4



Rise Time vs Rd Characteristics
MODEL : CSB800J with M34513M4



Starting Voltage vs Rd Characteristics
MODEL : CSB800J with M34513M4



Appendixes

Comparison Table

IC : No	V1H [V]	V1L [V]	V1p-p [V]	V2H [V]	V2L [V]	V2p-p [V]	Fosc [kHz]	Trise [ms]	Vstart [V]
HL	4.47	-0.28	4.75	5.06	-0.13	5.19	799.123	0.376	1.19
MM	4.55	-0.16	4.71	5.03	-0.09	5.12	799.125	0.422	1.17
LH	4.66	-0.09	4.75	5.09	-0.06	5.15	799.126	0.480	1.01

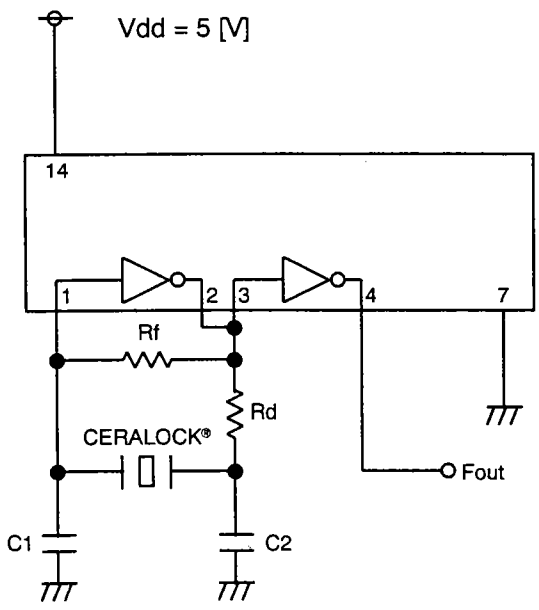
Ref.

Performance described page 2 to 6 were measured with IC No. MM

Frequency Correlation Data

Sample No.	M34513M4 Fosc [kHz]	CD4069UBE Fosc [kHz]	Shift [%]
1	799.120	799.045	0.0094
2	799.858	799.799	0.0074
3	799.431	799.370	0.0077
4	798.941	798.874	0.0084
5	800.297	800.244	0.0066
$\bar{X}$	799.529	799.466	0.0079

muRata Standard Circuit



CERALOCK® : CSB800J
C1 = 100 [pF]
C2 = 100 [pF]
Rf = 1 [Mohm]
Rd = 5.6 [kohm]