

DM CAPACITOR DATA SHEETS

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May.11'2007

1. Scope This specification applies to DM mica capacitor.
2. Related Standard JIS C 5102 Test methods of fixed mica capacitors for use in electronic equipment
3. Type designation

<u>DM</u>	<u>15</u>	<u>C</u>	<u>101</u>	<u>G</u>	<u>5</u>
(1)	(2)	(3)	(4)	(5)	(6)

(1) Type	DM : Dipped mica capacitor is meant.
(2) Case code	05、 10、 15、 19、 20、 30
(3)Characteristic code	C,E,F : Temperature coefficient
(4) Nominal Capacitance	1 0 1 : 1 0 0 p F Identified by a three-digit number ;the first two degits represent significant figures in pF and the last digit specifies the number of zeros to follow.
(5) Capacitance Tolerance	G : $\pm 2\%$ (D: ± 0.5 p F、 F : $\pm 1\%$ 、 J : $\pm 5\%$ 、 K : $\pm 10\%$)
(6) Rated voltage	5 : 5 0 0 WV DC (05 : 50 WV 、 3 : 300 WV、 5 : 500 W)

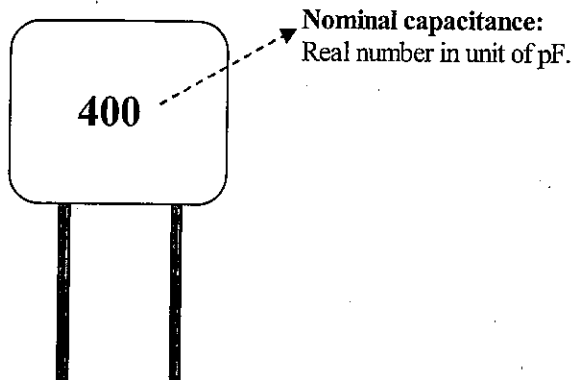
4. Marking

Refer to table.1.

Table. 1

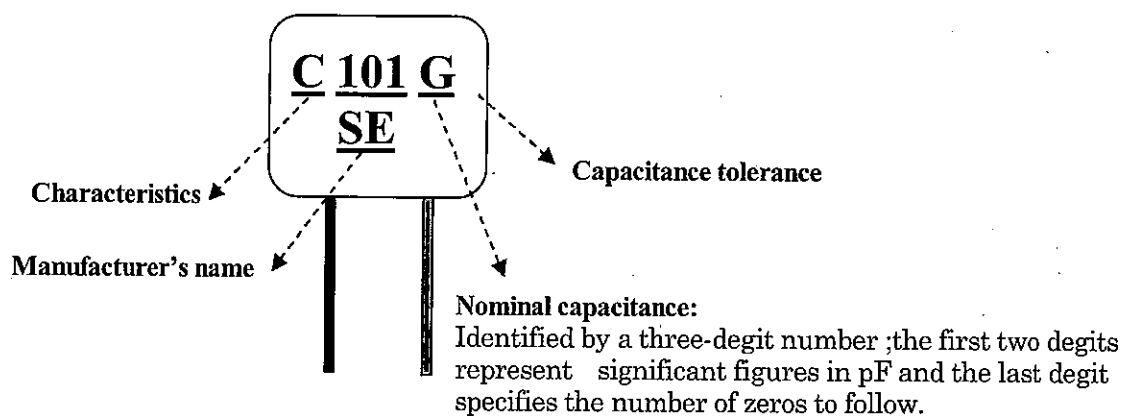
Case code Item	05	10	15	19	20	30
Characteristic	No marking		Indicated with one of characteristic indication marks .			
Nominal capacitance	Indicated in real number in unit of pF.	Identified by a three-digit number,the first two digits represent significant figures in pF and the last digit specified.				
Capacitance tolerance	No marking	The tolerance is indicated by capital letter.				
Rated voltage	No marking		50WV,100WV and 300WV are indicated as 05, 1 and 3 Respectively. 500WV is no marking.			
Manufacture name	No marking		SE	SOSHIN		

Ex.1 DM05C401G05



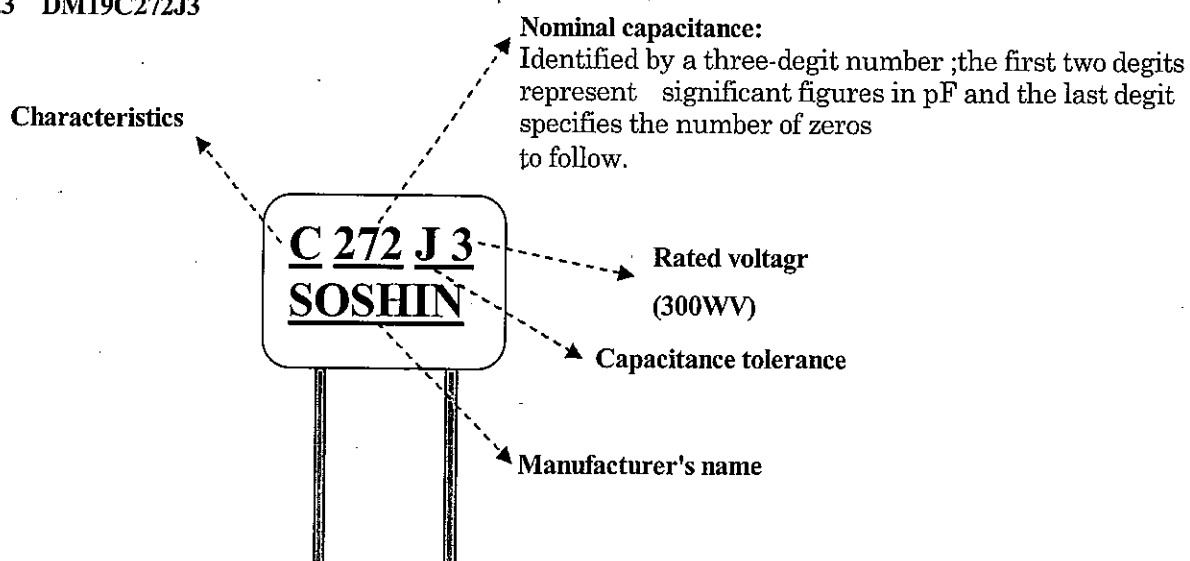
* The characteristic, capacitance tolerance, ratings voltage, manufacture name marking is omitted.

Ex.2 DM15C101G5



* The ratings voltage (500 WV) marking is omitted.

Ex.3 DM19C272J3



5. Dimensions

Refer to figure.2 and table.2.

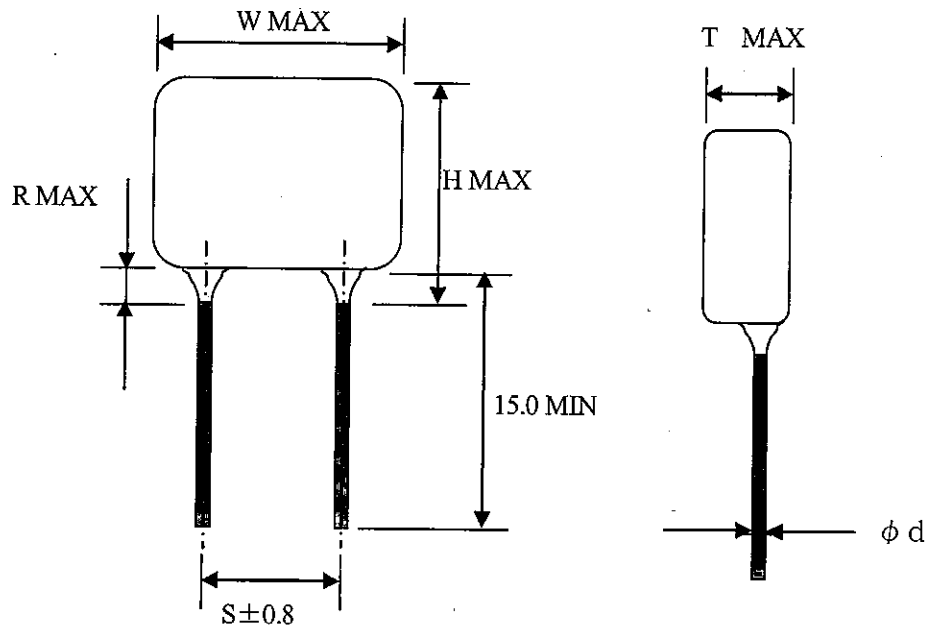


Table 2

		Unit:mm					
		DM05	DM10	DM15	DM19	DM20	DM30
S		3.0	3.5	5.9	8.7	11.0	11.0
φ d	Typical	0.40	0.40	0.64	0.8	0.8	1.00
	Tolerance	+0.05	+0.05	+0.06	+0.08	+0.08	+0.10
		-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
R		2.0	2.0	2.0	3.0	3.0	3.0

※W,H and T dimensions refer to the table of item 6.

6. Dimensions according to capacity and an allowance according to a characteristic

<<DM05>>

Nominal Capacitance (pF)	Characteristic					Dimensions								
	D	F	G	J	K	300V (MAX)			100V (MAX)			50V (MAX)		
	±0.5pF	±1%	±2%	±5%	±10%	W	H	T	W	H	T	W	H	T
1	C					6.8	4.8	3.0						
2														
3														
5														
6					C									
7														
8														
10														
12				C										
15														
18							5.0							
20	C E			C E										
22					C E									
24														
27			C E		C E			3.3						
30														
33					C E									
36							5.3							
39					C E									
43								3.5						
47					C E									
51		C E												
56					C E		5.5	3.8						
62														
68					C E									
75							5.8	4.0						
82					C E									
91		C F	C F	C F				4.3						
100					C F		6.0	4.5						
110														
120					C F	7.2	6.3	4.8						
130									7.2	5.8	4.0			
150					C F						4.3			
160										6.0				
180					C F						4.5			
200										6.0	4.8			
220					C F							7.3	5.5	3.8
240														4.0
270					C F								6.0	
300														4.3
330					C F								6.2	4.5
360														
390					C F								6.3	4.8
400														

<<DM10>>

Nominal Capacitance (pF)	Characteristic					Dimensions								
	D	F	G	J	K	500V (MAX)			300V (MAX)			100V (MAX)		
	$\pm 0.5\text{pF}$	$\pm 1\%$	$\pm 2\%$	$\pm 5\%$	$\pm 10\%$	W	H	T	W	H	T	W	H	T
1	C					9.1	8.3	4.8						
2														
3														
5														
6					C									
7														
8														
10														
12				C										
15														
18														
20	C E			C E										
22					C E									
24														
27			C E		C E	9.3								
30							8.6							
33					C E									
36														
39					C E									
43														
47					C E									
51		C E												
56					C E									
62														
68					C E									
75								5.0						
82					C E		8.8							
91		C F	C F	C F										
100					C F									
110						9.6								
120					C F									
130							9.1							
150					C F			5.3						
160														
180					C F	9.9	9.3							
200								5.5						
220					C F									
240							9.6							
270					C F				9.9	9.6	5.5			
300														
330					C F				10.1	9.9	5.8			
360														
390					C F							9.9	9.6	5.5
430												10.1	9.9	5.8
470					C F									

<<DM15>>

Nominal Capacitance (pF)	Characteristic					Dimensions								
	D	F	G	J	K	500V (MAX)			300V (MAX)			100V (MAX)		
	±0.5pF	±1%	±2%	±5%	±10%	W	H	T	W	H	T	W	H	T
1	C					11.4	9.1	4.3						
2														
3														
5														
7														
10					C									
12				C										
15														
18														
22	C E			C E	C E									
27			C E											
33														
39														
47														
56		C E												
68								4.5						
82														
91		C F	C F	C F		11.6								
100					C F									
110							9.4							
120					C F									
130														
150					C F			4.8						
160														
180					C F									
200							9.6							
220					C F			5.0						
240														
270					C F	11.9	9.9	5.3						
300														
330					C F									
360														
390					C F									
430														
470					C F		10.1	5.5						
510														
560					C F	12.1	10.4	5.8	11.6	9.6	5.0			
620														
680					C F	12.4	10.6	6.0	11.9	9.9	5.3			
750						12.7	10.9	6.3						
820					C F									
910										10.1	5.5			
1000					C F				12.1		5.8	12.1	10.1	5.8
1100									12.4	10.6	6.0			
1200					C F				12.7	10.9	6.3	12.4	10.6	6.0
1300												12.7	10.9	6.3
1500					C F									
1600														
1800					C F									
2000														

<<DM19>>

Nominal Capacitance (pF)	Characteristic					Dimensions								
	D	F	G	J	K	500V (MAX)			300V (MAX)			100V (MAX)		
	±0.5pF	±1%	±2%	±5%	±10%	W	H	T	W	H	T	W	H	T
10	C				C	16.2	12.7	4.8						
12				C										
15														
18														
22	C E			C E	C E									
27			C E											
33														
39														
47														
56		C E												
68														
82														
100		C F	C F	C F	C F									
120														
150														
180														
220														
270														
330														
390							12.9	5.0						
470														
560						16.5								
680								5.3						
820														
1000							13.2	5.5						
1100														
1200				C F		16.7								
1300														
1500				C F				5.8						
1600							13.4							
1800				C F		17.0		6.0						
2000														
2200				C F				6.3	17.0	13.4	6.3			
2400							13.7	6.6		13.7	6.6			
2700				C F		17.2		6.8						
3000							13.9	7.1						
3300				C F				7.3				17.0	13.7	6.6
3600							14.2	7.6	17.2		6.8	17.2		6.8
3900				C F		17.5		7.8						
4300							14.4	8.3		13.9	7.1		13.9	7.1
4700				C F		17.8	14.7	8.8			7.3			7.3
5100						18.0	14.9	9.3			7.6			7.6
5600				C F						14.2	7.8		14.2	7.8
6200									17.5		8.1	17.5		
6800				C F						14.4	8.3		14.4	8.1
7500												17.7		8.6
8200				C F									14.7	8.8
9100												18.0	15.0	
10000				C F										

<<DM20>>

Nominal Capacitance (pF)	Characteristic				Dimensions								
	F	G	J	K	500V (MAX)			300V (MAX)			100V (MAX)		
	±1%	±2%	±5%	±10%	W	H	T	W	H	T	W	H	T
1000	C F	C F	C F	C F	19.0	12.7	5.0						
1200													
1500							5.3						
1800					19.3	13.2	5.5						
2200													
2700					19.5	13.7	6.6	19.5	13.7	6.6			
3300					19.8	13.9	7.1			6.8			
3600							7.3						
3900				C F		14.2	7.6				19.5	13.7	6.8
4300							7.8						
4700				C F	20.0		8.1						
5100						14.4	8.3	19.8	13.9	7.1	19.8	13.9	7.1
5600				C F			8.6			7.3			7.3
6200						14.7	8.8		14.2	7.6			
6800				C F	20.3	14.9	9.3	20.0		8.1		14.2	7.6
7500						15.2	9.9		14.4	8.3			
8200				C F	20.5	15.4	10.4			8.6			7.8
9100						15.7	10.9	20.3	14.7	9.1	20.0	14.4	8.3
10000				C F	20.8	16.0	11.4		14.9	9.3			8.6
11000										9.6		14.7	8.8
12000				C F				20.5	15.2	10.1	20.3		9.1
13000												14.9	9.6
15000				C F							20.5	15.2	10.1
16000												15.4	10.4
18000				C F							20.8	15.7	11.1
20000													

<<DM30>>

Nominal Capacitance (pF)	Characteristic				Dimensions								
	F	G	J	K	500V (MAX)			300V (MAX)			100V (MAX)		
	±1%	±2%	±5%	±10%	W	H	T	W	H	T	W	H	T
1000	C F	C F	C F	C F	19.3	21.3	5.8						
1200					19.5	21.5	6.0						
1500													
1800													
2200							6.3						
2700													
3300						21.8	6.6						
3900													
4700					19.8								
5100							7.1						
5600				C F		22.0	7.3	19.8	21.8	6.8			
6200													
6800				C F			7.6						
7500					20.0	22.3	7.8						
8200				C F			8.1			7.1			
9100							8.3		22.0				
10000				C F	20.3	22.6	8.6			7.3	19.8	22.0	7.3
11000							8.8			7.6			7.6
12000				C F			9.1	20.0	22.3	7.8	20.0	22.3	7.8
13000					20.5		9.3						
15000				C F		22.8	9.9			8.3			8.3
16000					20.8		10.4	20.3	22.6	8.6	20.3	22.6	8.6
18000				C F		23.1	10.9			9.1			9.1
20000					21.0	23.3	11.4	20.5		9.3	20.5		9.3
22000				C F	21.3	23.6	12.1		22.8	9.9			
24000								20.8		10.4		22.8	9.6
27000				C F					23.1	11.0			10.1
30000								21.0	23.3	11.6	20.8	23.1	10.6
33000				C F							21.0		11.1
36000												23.3	11.4
39000				C F									11.9
40000											21.3		

7.Specifications

No	Item		Specifications		Test method (Refer to JIS C 5102)
1	Operating temperature		-55℃ to +125℃		-
2	Capacitance		Within tolerance.		JIS C 5102 7.8. is applied. Test frequency: 1MHz±10% (C≤1000pF) 1kHz±10% (C>1000pF) Test voltage: 5Vrms or less
3	Dissipation factor		It is assumed below the value shown in Figure 3.		JIS C 5102 7.9. is applied. Test frequency: 1MHz±10% (C≤1000pF) 1kHz±10% (C>1000pF) Test voltage: 5 Vrms or less
4	Withstanding voltage		No visual damage, no insulated destruction.		JIS C 5102 7.1. is applied. Test voltage: 200% of rated voltage Time:1-5sec Charge-discharge current: 50mA or less
5	Insulation resistance		More than a value to show for table4.		JIS C 5102 7.6. is applied. Test voltage: Rated 100V±10VDC
6	Temperature Characteristic	Characteristic Code	Temperature coefficient (ppm/℃)	Capacitance Drift	JIS C 5102 7.12. is applied.
		C	-200~+200	± (0.5%+0.1pF)	
		E	-20~+100	± (0.1%+0.1pF)	
		F	0~+70	± (0.05%+0.1pF)	
7	Vibration	Capacitance	Be not do not disconnect or short-circuited. (30 minutes before examination ends)		Refer to JIS C 5102 8.2 is applied. Type of vibration : Type A Oscillating frequency:10-55Hz Amplitude : 1.5mm Impression time: Three perpendicular directions 2 hours each total of 6 -hour.
		Appearance	No visual damage		
		Withstandig voltage	The contents of No.4 are satisfied.		
		Insulation resistance	More than a value to show for table4.(After an examination)		
		Dissipation Factor	The contents of No.3 are satisfied.		
		Capacitance Change	It is below the value of the larger one either among ±1% of the value before an examination, and ±1pF.		
8	Terminal Strength	Materials		The surface of the CP wire is covered with lead free solder .	JIS C 5102 8.1.2(1). is applied. JIS C 5102 8.1.2(3). is applied.
		Strength	Pull strength	The terminal must not be broken, and not loosen.	
			bend strength		

No	Item		Specifications	Test method
9	Solderability		Cover with solder with new 75% or more of the area of the terminal.	JIS C 5102 8.4 is applied. The capacitor is immersed in molten solder. Solder temp.: $235 \pm 5^{\circ}\text{C}$ Immersion time: $2 \pm 0.5\text{sec}$ Solder: Sn-Pb solder
10	Soldering heat resistance	Appearance	No visual damage	JIS C 5102 8.5. is applied. Solder temp.: $260 \pm 5^{\circ}\text{C}$ Immersing time: $5 \pm 0.5\text{sec}$ Solder: Sn-Pb solder
		Withstanding voltage	No.4 is satisfied	
		Insulation resistance	More than a value to show for table4.(After an examination)	
		Dissipation factor	No.3 is satisfied.	
		Capacitance change	It is below the value of the larger one either among $\pm 0.5\%$ of the value before an examination, and $\pm 1\text{pF}$.	
11	Temperature and immersion cycle	Appearance	No visual damage	JIS C 5102 9.4 is examined continuously after 9.3 is examined.
		Withstanding voltage	No.4 is satisfied	
		Insulation resistance	More than a value to show for table4.(After an examination)	
		Dissipation factor	150% or less of the value of the regulation to No.3.	
		Capacitance change	It is below the value of the larger one either among $\pm 3\%$ of the value before an examination, and $\pm 1\text{pF}$.	
12	Moisture Resistance	Appearance	No visual damage	JIS C 5102 9.6 method.1 is applied.
		Withstanding voltage	No.4 is satisfied	
		Insulation resistance	More than a value to show for table4.(After an examination)	
		Dissipation factor	150% or less of the value of the regulation to No.3.	
		Capacitance change	It is below the value of the larger one either among $\pm 3\%$ of the value before an examination, and $\pm 1\text{pF}$.	
13	Moisture Resistance Loading	Appearance	No visual damage	JIS C 5102 9.9 is applied. Test temp: $40 \pm 2^{\circ}\text{C}$ Relative humidity: 90 to 95% Test time: 500 to 524 h Loading voltage: 100V DC
		Withstanding voltage	No.4 is satisfied	
		Insulation resistance	More than a value to show for table4.(After an examination)	
		Dissipation factor	200% or less of the value of the regulation to No.3.	
		Capacitance change	It is below the value of the larger one either among $\pm 5\%$ of the value before an examination, and $\pm 1\text{pF}$.	

No	Item		Specifications	Test method
14	High temperature Loading	Appearance	No visual damage	JIS C5102 9.10. is applied. Test temp: 125±3℃ Load voltage:150V DC Test time: 2000 to 2072h
		Withstanding voltage	No.4 is satisfied.	
		Insulation resistance	More than a value to show for table4.(Initial)	
		Dissipation factor	150% or less of the value of the regulation to No.3.	
		Capacitance change	Below a large value among value or ±1 in Table 3 against the value before it examines it.	

Table.3

Characteristics value	
C	E, F
± 5 %	± 2 %

Figure .3 Relation between nominal capacitance and dissipation factor

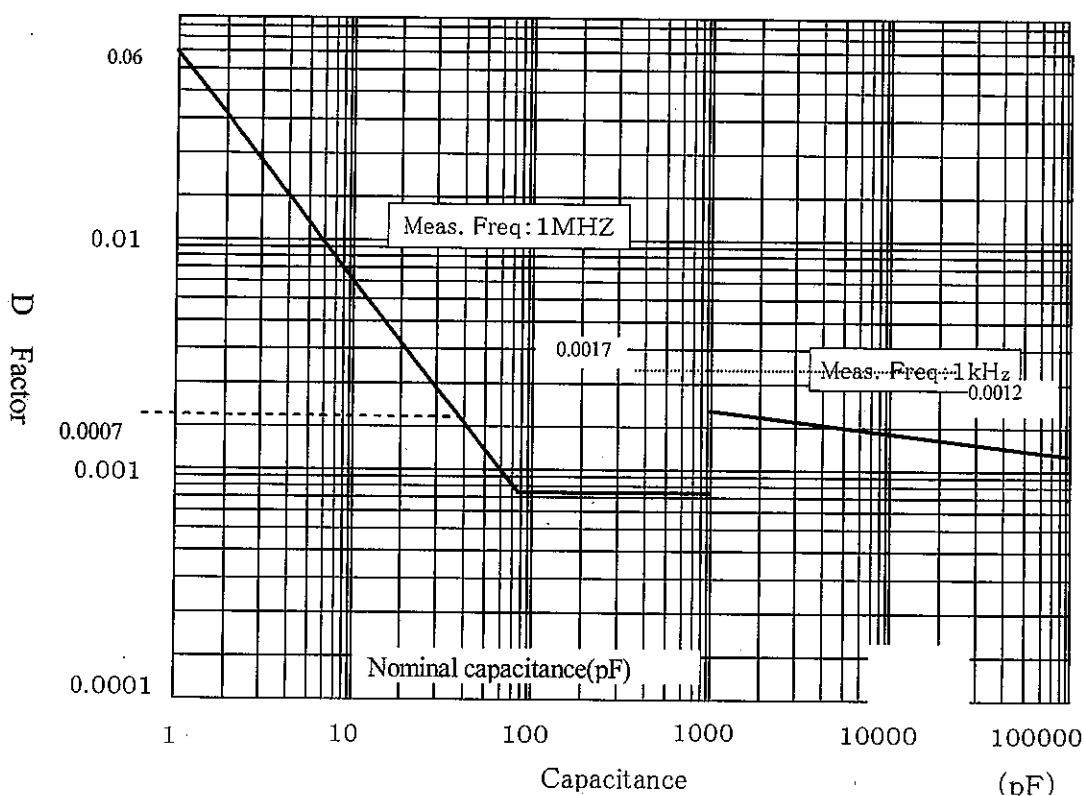


Table.4 Capacitance and relations with insulation resistance
(Normal temperature, initial)

Nominal capacitance (pF)	Insulation resistance
1~10000	100000M Ω
10000 pF or more	1000 Ω F (*)

(After an examination)

Nominal capacitance (pF)	Insulation resistance
1~10000	30000M Ω
10000pF or more	300 Ω F (*)

* Ω F is capacitance and insulation resistance and multiplication, and a unit is Ω F.