请务必在使用敝司产品之前阅读。

/ 注意

- ■本产品目录中所记载的内容为2017年10月之内容。因改良等原因,可能会不经预告而变更记载内容,所以请务必在使用前先确认最新的产品信息。未按照本产品目录中所记载的内容或交货规格说明书使用敝公司产品的,即便其致使使用设备发生损害、瑕疵等时,敝公司也不承担任何责任,敬请悉知。
- 就规格相关的详细内容. 敝公司备有交货规格说明书. 详情请向敝公司咨询。
- 使用敝公司产品时, 请务必事先安装到设备之后, 在实际使用的环境下进行评估和确认。
- ■本产品目录中所记载的产品可使用于一般电子设备 [音像设备、办公自动化设备、家电产品、办公设备、信息/通讯设备 (手机、电脑等)]以及医疗设备 (国际 (IMDRF) 第一类,第二类)。因此,若考虑将本产品目录中所记载的产品使用于可能会直接危及生命或身体的设备 [运输用设备 (汽车驱动控制设备、火车控制设备、船舶控制设备等)、交通信号设备、防灾设备、医疗设备 (国际 (IMDRF) 第三类)、高公共性信息通信设备 (电话交换机以及电话、无线、广播电视等基站)]等时,请务必事先向敝公司咨询。

另外,请勿将敝公司产品使用于对安全性和可靠性要求较高的设备(航天设备、航空设备*、医疗设备(国际(IMDRF) 第四类)、原子能控制设备、海底设备、军事设备等)。

※ 注释: 仅限于对航空设备的安全运行不产生直接干扰的设备(机内娱乐设备、机内照明设备、电动座椅、餐饮设备等],在满足敝公司另行指定的相关条件时,亦可将敝公司产品用于以上用途。在贵公司考虑将敝公司的产品用于以上用途时,请务必事先向敝公司咨询相关的信息。

且即便属于一般电子设备, 使用于对安全性和可靠性要求较高的设备、电路上时, 敝公司建议进行充分的安全评估, 并根据需要, 在设计时追加保护电路等。

未经敝公司的事先书面同意, 把本产品目录中所记载的产品使用于前述需要向敝公司咨询的设备或敝公司禁止使用的设备, 从而给客户或第三方造成损害的, 敝公司不承担任何责任, 敬请悉知。

- ■本产品目录中所记载的信息是用于说明相关产品的典型操作以及相关应用。此类信息的使用不代表对于敝公司以及 第三方的知识产权以及其他权利的使用许可或是不侵权保证。
- 敝公司产品的保证范围仅限于交付的敝公司产品单品,就敝公司产品的故障或瑕疵所誘発的损害,敝公司不承担任何责任,敬请悉知。但是,以书面形式另行签署了交易基本合同书,品质保证协定书等时,敝公司将根据该合同等的条件提供保证。
- ■本产品目录中所记载的内容适用于从敝公司营业所、销售子公司、销售代理店(即"正规销售渠道")购买的敝公司产品,并不适用于从上述以外的渠道购买的敝公司产品,敬请悉知。

■出口相关注意事项

本产品目录中所记载的部分产品在出口时须事先确认《外汇和对外贸易法》以及美国出口管理的相关法规,并办理相关手续。如有不明之处,请向敝公司咨询。

轴向导线型陶瓷电容器



波峰焊

■型号标示法

U	Р	0	2	5	Δ	В	1	0	4	K	-	Α	-	В	Δ	Z	1	△=空格
1	2		3		(4	1)		(5)		(3	(7)	8	(9)	•	

①额定电压

代码	额定电压 [VDC]
L	10
E	16
Т	25
G	35
U	50

②类型

代码	类型
Р	轴向导线型电容器

③尺寸 (L× φ D)

代码	尺寸 (L×φD) [mm]
025	2.3×2.0 (多层型)
050	3.2×2.2 (多层型)
075	4.2×3.2 (多层型)

④温度特性

代码	温度特性					
CH	$0\pm60(ppm/^{\circ}C)$					
ΔΒ	±10%					
B5	±15%					
ΔF	+30/-85%					

⑤标称电容量

代码 (例)	标称电容量 [pF]
010	1
1R2	1.2
103	10000

※R=小数点

⑥静电容量允许偏差

代码	静电容量允许偏差					
D-	±0.5pF					
J—	±5%					
к-	±10%					
м-	±20%					
z-	+80/-20%					

⑦导线加工形状

9 9 1 1 1 1 1 1 1 1						
代码	导线加工形状					
A-	26mm 带宽					
B-	52mm 带宽					
KF	5.0mm 间距成型					
KE	7.5mm 间距成型					
NA	直式单导线					

⑧包装

代码	包装规格
В	带式盒装
С	散装 (袋装)

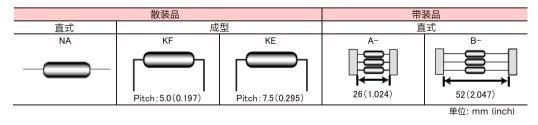
9本公司管理记号

9年公司官理记亏							
代码	本公司管理记号						
$\triangle \triangle$	多层型 (标准品)						
ΔZ	多层型 (例/用面)						
ΔJ	多层型 (低电压型)						

■标准外形尺寸/最小订货单位数量

				最小订货单位数量 [pcs]				
规格	L	ϕ D	ϕ d		带装			
				NA	KF	KE	A-/B-	
多层型 025	2.3max (0.09max)	2.0max (0.079max)	0.45±0.05 (0.018±0.002)	1000	4000	_	5000	
多层型 050	3.2max (0.126max)	2.2max (0.087max)	0.45±0.05 (0.018±0.002)	1000	3000	_	3000	
多层型 075	4.2max (0.165max)	3.2max (0.126max)	0.55 ± 0.05 (0.022 \pm 0.002)	1000	-	3000	2000	

单位: mm (inch)



[▶] 由于篇幅有限,本产品目录中只记载了有代表性的产品规格,若考虑使用弊司产品时,请确认交货规格说明书中的详细规格。 另外,有关各产品的详细信息(特性图、可靠性信息、使用时的注意事项等),请参阅弊司网站(http://www.ty-top.com/)。

●多层025型 Class 1

型号	额定电压 [V]	温度特性	标称静电容量 [pF]	静电容量允许偏差	Q	绝缘阻抗 [MΩ](min.)
UP025CH010D-[] Z	50	CH	1.0	±0.5pF	Q≧400+20C	10,000
JP025CH1R2D-[] Z	50	CH	1.2	±0.5pF	Q≧400+20C	10,000
JP025CH1R5D-[] Z	50	CH	1.5	±0.5pF	Q≧400+20C	10,000
JP025CH1R8D-[] Z	50	CH	1.8	±0.5pF	Q≧400+20C	10,000
JP025CH2R2D-[] Z	50	CH	2.2	±0.5pF	Q≧400+20C	10,000
JP025CH2R7D-[] Z	50	CH	2.7	±0.5pF	Q≧400+20C	10,000
JP025CH3R3D-[] Z	50	CH	3.3	±0.5pF	Q≧400+20C	10,000
JP025CH3R9D-[] Z	50	CH	3.9	±0.5pF	Q≧400+20C	10,000
JP025CH4R7D-[] Z	50	CH	4.7	±0.5pF	Q≧400+20C	10,000
JP025CH5R6K-∏ Z	50	CH	5.6	±10%	Q≧400+20C	10,000
JP025CH6R8K-∏ Z	50	CH	6.8	±10%	Q≧400+20C	10,000
JP025CH8R2K-[] Z	50	CH	8.2	±10%	Q≧400+20C	10,000
JP025CH100J-[] Z	50	CH	10	±5%	Q≧400+20C	10,000
JP025CH120J-[] Z	50	CH	12	±5%	Q≧400+20C	10,000
JP025CH150J-[] Z	50	CH	15	±5%	Q≧400+20C	10,000
JP025CH180J-[] Z	50	CH	18	±5%	Q≧400+20C	10,000
JP025CH220J-[] Z	50	CH	22	±5%	Q≧400+20C	10,000
JP025CH270J-[] Z	50	CH	27	±5%	Q≧400+20C	10,000
JP025CH330J-[] Z	50	CH	33	±5%	Q≧1000	10,000
JP025CH390J-[] Z	50	CH	39	±5%	Q≧1000	10,000
JP025CH470J-[] Z	50	CH	47	±5%	Q≧1000	10,000
JP025CH560J-[] Z	50	CH	56	±5%	Q≧1000	10,000
JP025CH680J-[] Z	50	CH	68	±5%	Q≧1000	10,000
JP025CH820J-[] Z	50	CH	82	±5%	Q≧1000	10,000
JP025CH101J-[] Z	50	CH	100	±5%	Q≧1000	10,000
JP025CH151J-[] Z	50	CH	150	±5%	Q≧1000	10,000
JP025CH221J-[] Z	50	CH	220	±5%	Q≧1000	10,000
JP025CH331J-[] Z	50	CH	330	±5%	Q≧1000	10,000
JP025CH471J-[] Z	50	CH	470	±5%	Q≧1000	10,000
JP025CH681J-[] Z	50	CH	680	±5%	Q≧1000	10,000
JP025CH102J-[] Z	50	CH	1 000	±5%	Q≧1000	10,000

在型号的[]中指定导线形状代码

●多层025型 Class 2

JP025 B101K-□ Z	标称静电容量 [pF]	静电容量允许偏差	$ an\delta$	绝缘阻抗 [MΩ] (min.
P025 B151K-□ Z P025 B21K-□ Z D025 B21K-□ Z D025 B221K-□ Z D025 B221K-□ Z D025 B221K-□ Z D025 B231K-□ Z D025 B331K-□ Z	100	±10%	tan δ ≦3.5%	5,000
2025 B181K- Z	120	±10%	$\tan \delta \leq 3.5\%$	5,000
1025 B221K- Z	150	±10%	$\tan \delta \leq 3.5\%$	5,000
0025 B271K- Z	180	±10%	$\tan \delta \leq 3.5\%$	5,000
1025 B331K- Z	220	±10%	$\tan \delta \leq 3.5\%$	5,000
025 B391K-□ Z 50 B 025 B471K-□ Z 50 B 025 B561K-□ Z 50 B 025 B561K-□ Z 50 B 025 B561K-□ Z 50 B 025 B5821K-□ Z 50 B 025 B102K-□ Z 50 B 025 B102K-□ Z 50 B 025 B122K-□ Z 50 B 025 B322K-□ Z 50 B 025 B321K-□ Z 50 B 025 B331K-□ Z 50 B 025 B331K-□ Z 50 B 025 B3331K-□ Z 50 B 025 B471K-□ Z 50 F 025 B471X-□ Z 50 F 025 B	270	±10%	$\tan\delta \leq 3.5\%$	5,000
1025 B471K- Z	330	±10%	$\tan \delta \leq 3.5\%$	5,000
025 B561K-□ Z 50 B 025 B881K-□ Z 50 B 025 B821K-□ Z 50 B 025 B821K-□ Z 50 B 025 B102K-□ Z 50 B 025 B122K-□ Z 50 B 025 B32K-□ Z 50 B 025 B8472K-□ Z 50 B 025 B8472K-□ Z 50 B 025 B682K-□ Z 50 B 025 B103K-□ Z 50 B 025 B104K-□ Z 50 B 025 B104K-□ Z 50 B 025 B104K-□ Z 50 B 025 B105K-□ Z 50 F 025 B123Z-□	390	±10%	$\tan \delta \leq 3.5\%$	5,000
025 B681K-□ Z 50 B 025 B102K-□ Z 50 B 025 B103K-□ Z 50 B 025 B104K-□ Z 50 B 025 B105K-□ Z 50 F 025 F103Z-□ Z 50 F 025 B10ZM-□ J ★ 16 B	470	±10%	$\tan \delta \leq 3.5\%$	5,000
D25 B821K-□ Z 50 B D25 B102K-□ Z 50 B D25 B122K-□ Z 50 B D25 B222K-□ Z 50 B D25 B153K-□ Z 50 B D25 B153K-□ Z 50 B D25 B123K-□ Z 50 B D25 B223K-□ Z 50 B D25 B225 B233K-□ Z 50 B D25 B225 B233K-□ Z 50 B D25 B25 B23K-□ Z 50 B D25 B25 B23K-□ Z 50 B D25 B25 B23K-□ Z 50 B D25 B25 B25 B25 B25 B25 B25 B25 B25 B25 B	560	±10%	$\tan \delta \leq 3.5\%$	5,000
025 B102K-□ Z	680	±10%	$\tan\delta \le 3.5\%$	5,000
D25 B122K-□ Z	820	±10%	tan δ ≦3.5%	5.000
D25 B152K- Z	1 000	±10%	tan δ ≦3.5%	5.000
D25 B152K- Z	1 200	±10%	tan δ ≦3.5%	5,000
D25 B222K- Z	1 500	±10%	$\tan \delta \leq 3.5\%$	5,000
225 B332K- Z	2 200	±10%	tan δ ≦ 3.5%	5,000
225 B682K- Z	3 300	±10%	tan δ ≦3.5%	5.000
D25 B682K- Z	4 700	±10%	tan δ ≦3.5%	5,000
D25 B103K-□ Z	6 800	±10%	tan δ ≦3.5%	5.000
225 B153K- Z	10 000	±10%	tan δ ≦3.5%	5.000
125 B223K- Z	15 000	±10%	tan δ ≦ 3.5%	5,000
25 B333K- Z	22 000	±10%	tan δ ≦3.5%	5.000
225 B473K- Z	33 000	±10%	tan δ ≦3.5%	5.000
D25 B683K-□ Z 50 B D25 B104K-□ Z 50 B D25 B224K-□ Z 16 B D25 B224K-□ Z 16 B D25 B2474K-□ Z 16 B D25 B105K-□ Z 16 B D25 B105K-□ Z 16 B D25 B105K-□ Z 50 F D25 F103Z-□ Z 50 F D25 F23Z-□ Z 50 F D25 F103Z-□ Z 50 F D25 F103Z-□ Z 50 F D25 F103Z-□ Z 50 F D25 B12ZM-□ J ★ 16 B D25 B12ZM-□ J ★ 16 B D25 B13ZM-□ J ★ 16 B D25 B13ZM-□ J ★ 16 B D25 B25 B27ZM-□ J ★ 16 B D25 B25 B27ZM-□ J ★ 16 B D25 B25 B27ZM-□ J ★ 16 B D25 B33ZM-□ J ★ 16 B D25 B33ZM-□ J ★ 16 B D25 B35ZM-□ J ★ 16 B D35ZM-□ J	47 000	±10%	tan δ ≦5.0%	1.000
D25 B104K-□ Z 50 B D25 B224K-□ Z 16 B D25 B224K-□ Z 16 B D25 B474K-□ Z 16 B D25 B105K-□ Z 16 B D25 B105K-□ Z 50 B5 D25 F103Z-□ Z 50 F D25 F23Z-□ Z 50 F D25 F103Z-□ Z 50 F D25 F104Z-□ Z 50 F D25 F104Z-□ Z 50 F D25 B122M-□ J ★ 16 B D25 B22M-□ J ★ 16 B D25 B22M-□ J ★ 16 B D25 B272M-□ J ★ 16 B D25 B25 B272M-□ J ★ 16 B D25 B32M-□ J ★ 16 B D35 B3	68 000	±10%	tan δ ≦ 5.0%	1,000
D25 B224K- Z	100 000	±10%	tan δ ≦5.0%	1,000
D25 B474K-	220 000	±10%	tan δ ≦5.0%	500
D25 B105K- Z	470 000	±10%	$\tan \delta \le 5.0\%$	200
D25B5105K-□ Z 50 B5 D25F103Z-□ Z 50 F D25F23Z-□ Z 50 F D25F23Z-□ Z 50 F D25F23Z-□ Z 50 F D25F23Z-□ Z 50 F D25F104Z-□ Z 50 F D25B152M-□ J ★ 16 B D25B152M-□ J ★ 16 B D25B22M-□ J ★ 16 B	1 000 000	±10%	$\tan \delta \leq 7.5\%$	100
D25 F103Z-□ Z 50 F D25 F223Z-□ Z 50 F D25 F223Z-□ Z 50 F D25 F473Z-□ Z 50 F D25 F104Z-□ Z 50 F D25 F104Z-□ Z 50 F D25 B122M-□ J ★ 16 B D25 B152M-□ J ★ 16 B D25 B152M-□ J ★ 16 B D25 B22ZM-□ J ★ 16 B D25 B47ZM-□ J ★ 16 B D25 B47ZM-□ J ★ 16 B D25 B47ZM-□ J ★ 16 B D25 B50ZM-□ J ★ 16 B	1 000 000	±10%	tan δ ≦ 12.5%	100
025 F223Z-□ Z 50 F 025 F473Z-□ Z 50 F 025 F104Z-□ Z 50 F 025 B122M-□ J ★ 16 B 025 B152M-□ J ★ 16 B 025 B152M-□ J ★ 16 B 025 B25 B272M-□ J ★ 16 B 025 B25 B272M-□ J ★ 16 B 025 B25 B272M-□ J ★ 16 B 025 B272M-□ J ★ 16 B	10 000	+80/-20%	tan δ ≦7.5%	1,000
025 F473Z-□ Z 50 F 025 F104Z-□ Z 50 F 025 F104Z-□ Z 50 F 025 B12ZM-□ J ★ 16 B 025 B12ZM-□ J ★ 16 B 025 B2ZM-□ J ★ 16 B 025 B3ZM-□ J ★ 16 B 025 B4ZM-□ J ★ 16 B 025 B4ZM-□ J ★ 16 B 025 B6ZM-□ J ★ 16 B 025 B6ZM-□ J ★ 16 B	22 000	+80/-20%	$\tan \delta \le 7.5\%$	1,000
D25 F104Z-□ Z 50 F D25 B12ZM-□ J ★ 16 B D25 B15ZM-□ J ★ 16 B D25 B15ZM-□ J ★ 16 B D25 B2ZM-□ J ★ 16 B D25 B3ZM-□ J ★ 16 B D25 B3ZM-□ J ★ 16 B D25 B3SZM-□ J ★ 16 B	47 000	+80/-20%	$\tan \delta \le 7.5\%$	1,000
D25 B122M-□ J ★ 16 B D25 B152M-□ J ★ 16 B D25 B182M-□ J ★ 16 B D25 B182M-□ J ★ 16 B D25 B222M-□ J ★ 16 B D25 B22M-□ J ★ 16 B D25 B22M-□ J ★ 16 B D25 B472M-□ J ★ 16 B D25 B472M-□ J ★ 16 B D25 B452M-□ J ★ 16 B D25 B562M-□ J ★ 16 B D25 B562M-□ J ★ 16 B D25 B562M-□ J ★ 16 B D25 B502M-□ J ★ 16 B D25 B502M-□ J ★ 16 B D25 B502M-□ J ★ 16 B	100 000	+80/-20%	$\tan \delta \le 7.5\%$	1,000
D25 B152M-□ J ★ 16 B D25 B182M-□ J ★ 16 B D25 B222M-□ J ★ 16 B D25 B222M-□ J ★ 16 B D25 B222M-□ J ★ 16 B D25 B332M-□ J ★ 16 B D25 B332M-□ J ★ 16 B D25 B392M-□ J ★ 16 B D25 B472M-□ J ★ 16 B D25 B682M-□ J ★ 16 B	1 200	±20%	$\tan \delta \le 7.5\%$ $\tan \delta \le 3.5\%$	5,000
16	1 500	±20%	tan δ ≦ 3.5%	5,000
D25 B222M-□ J ★ 16 B D25 B272M-□ J ★ 16 B D25 B332M-□ J ★ 16 B D25 B332M-□ J ★ 16 B D25 B392M-□ J ★ 16 B D25 B472M-□ J ★ 16 B D25 B472M-□ J ★ 16 B D25 B422M-□ J ★ 16 B D25 B422M-□ J ★ 16 B D25 B422M-□ J ★ 16 B D25 B423M-□ J ★ 16 B D25 B423M-□ J ★ 16 B D25 B423M-□ J ★ 16 B	1 800	±20% ±20%	tan δ ≦ 3.5%	5,000
16	2 200	±20% ±20%	tan δ ≦ 3.5%	5,000
16	2 700	±20% ±20%	tan δ ≦ 3.5%	5,000
225 B392M-	3 300	±20% ±20%	tan δ ≦ 3.5%	5,000
225 B472M-	3 300	±20% ±20%	$\tan \delta \le 3.5\%$ $\tan \delta \le 3.5\%$	5,000
25 B562M	3 900 4 700	±20% ±20%		5,000
25 B682M-□ J ★ 16 B 25 B822M-□ J ★ 16 B 25 B103M-□ J ★ 16 B			tan δ ≦ 3.5%	
25 B822M-□ J ★ 16 B 25 B103M-□ J ★ 16 B	5 600	±20%	tan δ ≦ 3.5%	5,000
025 B103M−[] J ★ 16 B	6 800	±20%	tan δ ≦ 3.5%	5,000
	8 200	±20%	tan δ ≦3.5%	5,000
025 B123M−IIJ ★ I 16 I B	10 000	±20%	tan δ ≦ 3.5%	5,000
	12 000	±20%	tan δ ≦ 3.5%	5,000
025 B153M-□ J ★ 16 B	15 000	±20%	tan δ ≦ 3.5%	5,000
025 B183M−□ J ★ 16 B 025 B223M−□ J ★ 16 B	18 000 22 000	±20% ±20%	$\tan \delta \le 3.5\%$ $\tan \delta \le 3.5\%$	5,000 5.000

在型号的□中指定导线形状代码 ★:选项

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●多层050型 Class 1

型号		额定电压 [V]	温度特性	标称静电容量 [pF]	静电容量允许偏差	Q	绝缘阻抗 [MΩ](mir
P050CH220J-[] Z		50	CH	22	±5%	Q≧400+20C	10,000
P050CH240J-[] Z	*	50	CH	24	±5%	Q≧400+20C	10,000
P050CH270J-[] Z		50	CH	27	±5%	Q≧400+20C	10,000
P050CH300J-[] Z	*	50	CH	30	±5%	Q≧1000	10,000
P050CH330J-[] Z		50	CH	33	±5%	Q≧1000	10,000
P050CH360J-[] Z	*	50	CH	36	±5%	Q≧1000	10,000
P050CH390J-[] Z		50	CH	39	±5%	Q≧1000	10,000
P050CH430J-[] Z	*	50	CH	43	±5%	Q≧1000	10,000
P050CH470J-[] Z		50	CH	47	±5%	Q≧1000	10,000
050CH510J-[] Z	*	50	CH	51	±5%	Q≧1000	10,000
050CH560J-[] Z	*	50	CH	56	±5%	Q≧1000	10,000
050CH620J-[] Z	*	50	CH	62	±5%	Q≧1000	10,000
050CH680J-[] Z		50	CH	68	±5%	Q≧1000	10,000
050CH750J-[] Z	*	50	CH	75	±5%	Q≧1000	10,000
050CH820J-[] Z	*	50	CH	82	±5%	Q≧1000	10,000
050CH910J-[] Z	*	50	CH	91	±5%	Q≧1000	10,000
050CH101J-[] Z		50	CH	100	±5%	Q≧1000	10,000
050CH111J-[] Z	*	50	CH	110	±5%	Q≧1000	10,000
050CH121J-[] Z	*	50	CH	120	±5%	Q≧1000	10,000
050CH131J-[] Z	*	50	CH	130	±5%	Q≧1000	10,000
050CH151J-[] Z		50	CH	150	±5%	Q≧1000	10,000
050CH161J-[] Z	*	50	CH	160	±5%	Q≧1000	10,000
050CH181J-[] Z	*	50	CH	180	±5%	Q≧1000	10,000
050CH201J-[] Z	*	50	CH	200	±5%	Q≧1000	10,000
050CH221J-[] Z		50	CH	220	±5%	Q≧1000	10,000
050CH241J-[] Z	*	50	CH	240	±5%	Q≧1000	10,000
050CH271J-[] Z	*	50	CH	270	±5%	Q≧1000	10,000
050CH301J-[] Z	*	50	CH	300	±5%	Q≧1000	10,000
050CH331J-[] Z		50	CH	330	±5%	Q≧1000	10,000
050CH361J-[] Z	*	50	CH	360	±5%	Q≧1000	10,000
050CH391J-[] Z	*	50	CH	390	±5%	Q≧1000	10,000
050CH431J-[] Z	*	50	CH	430	±5%	Q≧1000	10,000
050CH471J-[] Z		50	CH	470	±5%	Q≧1000	10,000
050CH511J-[] Z	*	50	CH	510	±5%	Q≧1000	10,000
050CH561J-[] Z	*	50	CH	560	±5%	Q≧1000	10,000
050CH621J−[] Z	*	50	CH	620	±5%	Q≧1000	10,000
050CH681J-∏ Z		50	CH	680	±5%	Q≧1000	10,000
050CH751J-∏ Z	*	50	CH	750	±5%	Q≧1000	10,000
050CH821J-∏ Z	*	50	CH	820	±5%	Q≧1000	10,000
050CH911J-[] Z	*	50	CH	910	±5%	Q≧1000	10,000
050CH102J−∏ Z		50	СН	1 000	±5%	Q≧1000	10,000

● 多层050型 Class 2

型号		额定电压 [V]	温度特性	标称静电容量 [pF]	静电容量允许偏差	$ an\delta$	绝缘阻抗 [MΩ] (min.)
UP050 B122K-[] Z	*	50	В	1 200	±10%	tan δ ≦3.5%	5,000
UP050 B152K-[] Z	*	50	В	1 500	±10%	tan δ ≦3.5%	5,000
UP050 B182K-[] Z	*	50	В	1 800	±10%	tan δ ≦3.5%	5,000
UP050 B222K-[] Z		50	В	2 200	±10%	tan δ ≦3.5%	5,000
UP050 B272K-[] Z	*	50	В	2 700	±10%	tan δ ≦3.5%	5,000
UP050 B332K-[] Z		50	В	3 300	±10%	tan δ ≦3.5%	5,000
UP050 B392K-[] Z	*	50	В	3 900	±10%	tan δ ≦3.5%	5,000
UP050 B472K-[] Z		50	В	4 700	±10%	$\tan \delta \leq 3.5\%$	5,000
	*	50	В	5 600	±10%	$\tan \delta \leq 3.5\%$	5,000
UP050 B682K-[] Z		50	В	6 800	±10%	$\tan\delta \leq 3.5\%$	5,000
	*	50	В	8 200	±10%	$\tan\delta \leq 3.5\%$	5,000
UP050 B103K-[] Z		50	В	10 000	±10%	$\tan\delta \leq 3.5\%$	5,000
UP050 B123K-[] Z	*	50	В	12 000	±10%	$\tan\delta \leq 3.5\%$	5,000
UP050 B153K-[] Z		50	В	15 000	±10%	$\tan\delta \leq 3.5\%$	5,000
UP050 B183K-[] Z	*	50	В	18 000	±10%	tan δ ≦3.5%	5,000
UP050 B223K-[] Z		50	В	2 2000	±10%	tan δ ≦3.5%	5,000
UP050 B273K-[] Z	*	50	В	27 000	±10%	tan δ ≦3.5%	5,000
UP050 B333K-[] Z		50	В	33 000	±10%	tan δ ≦3.5%	5,000
UP050 B393K-[] Z	*	50	В	39 000	±10%	tan δ ≦3.5%	5,000
UP050 B473K-[] Z		50	В	47 000	±10%	tan δ ≦5.0%	1,000
UP050 B563K-[] Z	*	50	В	56 000	±10%	tan δ ≦5.0%	1,000
UP050 B683K-[] Z		50	В	68 000	±10%	tan δ ≦5.0%	1,000
UP050 B823K-[] Z	*	50	В	82 000	±10%	tan δ ≦5.0%	1,000
UP050 B104K-[] Z		50	В	100 000	±10%	tan δ ≦5.0%	1,000
UP050 B224K-[] Z		50	В	220 000	±10%	tan δ ≦5.0%	500
UP050 B474K-[] Z		50	В	470 000	±10%	tan δ ≦5.0%	200
GP050 B105K-[] Z		35	В	1 000 000	±10%	tan δ ≦5.0%	100
EP050 B225K-[] Z		16	В	2 200 000	±10%	tan δ ≦7.5%	50
EP050 B475K-[] Z		16	В	4 700 000	±10%	$\tan \delta \leq 12.5\%$	20
EP050 B106K-[] Z		16	В	10 000 000	±10%	tan δ ≦12.5%	20
UP050 F103Z-[] Z		50	F	10 000	+80/-20%	$\tan\delta \le 7.5\%$	1,000
UP050 F223Z-[] Z		50	F	22 000	+80/-20%	$\tan \delta \le 7.5\%$	1,000
UP050 F473Z-[] Z		50	F	47 000	+80/-20%	tan δ ≦7.5%	1,000
UP050 F104Z-[] Z		50	F	100 000	+80/-20%	tan δ ≦7.5%	1,000
UP050 F224Z-[] Z		50	F	220 000	+80/-20%	$\tan \delta \leq 10.0\%$	500
UP050 F474Z-[] Z		50	F	470 000	+80/-20%	tan δ ≦10.0%	500

在型号的□中指定导线形状代码 ★:选项

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●多层075型 Class 2

型号	额定电压 [V]	温度特性	标称静电容量 [pF]	静电容量允许偏差	$ an\delta$	绝缘阻抗 [MΩ](min.)
UP075 B105K-[]	50	В	1 000 000	±10%	$\tan\delta \le 5.0\%$	100
GP075 B225K-[]	35	В	2 200 000	±10%	$\tan\delta \le 7.5\%$	50
GP075 B475K-[]	35	В	4 700 000	±10%	$\tan\delta \le 7.5\%$	20
TP075 B106K-[]	25	В	10 000 000	±10%	$\tan\delta \le 12.5\%$	20
UP075B5225K-[]	50	B5	2 200 000	±10%	$\tan\delta \le 12.5\%$	40
UP075B5475K-[] ★	50	B5	4 700 000	±10%	$\tan\delta \le 12.5\%$	10
GP075B5106K-[]	35	B5	10 000 000	±10%	$\tan\delta \le 12.5\%$	10

在型号的□中指定导线形状代码 ★:选项

Axial Leaded Ceramic Capacitors

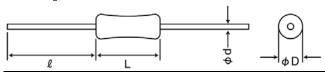
■PACKAGING

1Minimum Quantity

Туре	Lead configuration code	Minimum Qu	antity [pcs]
туре	Lead Corniguration Code	Bulk	Taping
	A-(1.024 inch wide)		2000 (075)
AA 109	B-(2.047 inches wide)	ı	3000 (050) 5000 (025)
Multilayer type (075, 050, 025)	NA	1000	
(075, 050, 025)	KE(075)	3000	
	KF(050)	3000	_
	KF(025)	4000	

②Dimensions of Bulk Products

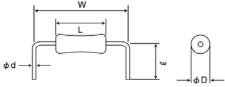
NA configuration



Turns	Dimensions (mm)						
Type	φD	L	φd	Q			
Multilayer type	2.0max.	2.3max.	0.45 ± 0.05	20.0min.			
025	(0.079max.)	(0.09max.)	(0.018 ± 0.002)	(0.787min.)			
Multilayer type	2.2max.	3.2max.	0.45±0.05	20.0min.			
050	(0.087max.)	(0.126max.)	(0.018 ± 0.002)	(0.787min.)			
Multilayer type	3.2max.	4.2max.	0.55±0.05	20.0min.			
075	(0.126max.)	(0.165max.)	(0.022 ± 0.002)	(0.787min.)			

Unit:mm(inch)

KF/KE configuration



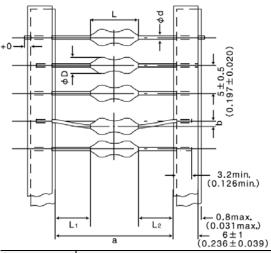
Type	Lead configuration		Dimensions (mm)					
Туре	code	ϕ D	Ш	W	ϕ d	Q		
Multilayer type	KF	2.0max.	2.3max.	5.0±0.5	0.45 ± 0.05	6.5±0.5		
025		(0.079max.)	(0.09max.)	(0.197±0.020)	(0.018 \pm 0.002)	(0.256±0.020)		
Multilayer type	KF	2.2max.	3.2max.	5.0±0.5	0.45±0.05	6.5±0.5		
050		(0.087max.)	(0.126max.)	(0.197±0.020)	(0.018±0.002)	(0.256±0.020)		
Multilayer type	KE	3.2max.	4.2max.	7.5±0.5	0.55±0.05	6.5±0.5		
075		(0.126max.)	(0.165max.)	(0.295±0.020)	(0.022±0.002)	(0.256±0.020)		

Unit:mm(inch)

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3Taping Dimensions

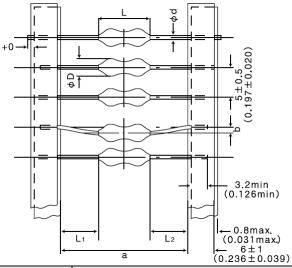
A—(a:1.024 inch wide)configuration



Turne		Dimensions (mm)						
Туре	ϕ D	L	а	b	L1-L2	φd	pitch	
Multilayer type	2.0max.	2.3max.				0.45±0.05		
025	(0.079max.)	(0.09max)				(0.018 ± 0.002)	5.0	
Multilayer type	2.2max.	3.2max.	26+0.5/-0	0.8max.	0.5max.	0.45±0.05	(0.197)	
050	(0.087max.)	(0.126max.)	(1.024+0.020/-0)	(0.031max.)	(0.020max.)	(0.018 ± 0.002)		
Multilayer type	3.2max.	4.2max.				0.55±0.05	7.5	
075	(0.126max.)	(0.165max.)				(0.022 ± 0.002)	(0.295)	

Unit:mm(inch)

■B-(a:2.047 inches wide) configuration



Turne		Dimensions (mm)						
Туре	ϕ D	L	а	b	L1-L2	ϕ d	pitch	
Multilayer type	2.0max.	2.3max.				0.45±0.05		
025	(0.079max.)	(0.09max.)				(0.018 ± 0.002)	5.0	
Multilayer type	2.2max.	3.2max.	52+2/-1	1.2max.	1.0max.	0.45±0.05	(0.197)	
050	(0.087max.)	(0.126max.)	(2.047 + 0.079 / -0.039)	(0.047 max.)	(0.039max.)	(0.018 ± 0.002)		
Multilayer type	3.2max.	4.2max.				0.55±0.05	7.5	
075	(0.126max.)	(0.165max.)				(0.022 ± 0.002)	(0.295)	

XRadial taping is available for 075 type (Optional)

Unit:mm(inch)

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Axial Leaded Ceramic Capacitors

■RELIABILITY DATA

1. Operating Tempe	arature Range						
1. Operating rempt							
	Class1 (Temperature Compensating)	Multilayer type					
Specified Value		Multilayer type (Characteristics:B, B5)	−25 to +85°C				
	Class2(High Dielectric)	Multilayer type (Characteristics:F)	Multilayer type (Characteristics: F)				
		(
2. Storage Tempera	ature Range						
	Class1 (Temperature Compensating)	Multilayer type					
Specified Value	Class2(High Dielectric)	Multilayer type (Characteristics: B, B5) Multilayer type	−25 to +85°C				
		(Characteristics: F)					
3. Rate Voltage							
	Class1 (Temperature Compensating)	Multilayer type	50VDC				
Specified Value	Class2(High Dielectric)	Multilayer type (Characteristics:B, B5)	16VDC, 25VDC, 35VDC, 50VDC				
	Olasse (Tiigh Dictectio)	Multilayer type (Characteristics:F)	10VDC, 16VDC, 25VDC, 35VDC,	50VDC			
4. Withstanding Vol	tage						
Between terminals							
Specified Value	No abnorminality						
	Applied voltage	: Rate Voltage × 3 (Class 1)					
Test Methods and		: Rate Voltage × 2.5 (Class 2)					
Remarks	Duration	: 1 to 5 sec.					
	Charge/discharge current	: 50mA max.(Class 1,2)					
Between terminals	and body						
Specified Value	No abnorminality						
Test Methods and	Metal globule method	Applied voltage	: Rate Voltage × 2.5				
Remarks			1 to 5 sec.				
		Charge/Discharge current	: 50mA max.				
5. Insulation Resist	tance						
J. Insulation Resis	Class1 (Temperature	T					
	Compensating)	Multilayer type	10000M Ω min.				
			Rate voltage : 16VDC	-			
			1200pF~22000pF(Item△J)	: 5000M Ω min			
			220000pF	: $500M\Omega$ min : $200M\Omega$ min			
			470000pF 1000000pF	: 200M Ω min : 100M Ω min			
			220000pF	: 50M Ω min			
			470000pF	: 20MΩ min			
			1000000pF	: 20MΩ min			
			Rate voltage : 25VDC				
			1000000pF	: 20M Ω min			
Specified Value	01 0(11: 1 0: 1 . :)	Multilayer type	Rate voltage : 35VDC				
	Class2(High Dielectric)	(Characteristics: B, B5)	1000000pF	: 100MΩ min			
			2200000 _p F	: 50M Ω min			
			4700000pF	: 20M Ω min			
			10000000pF	: 10MΩ min			
			Rate voltage : 50VDC				
			100pF∼39000pF	: 5000MΩ min			
			47000pF~100000pF	: $1000M\Omega$ min			
			220000pF	: $500M\Omega$ min			
			470000pF	: 200M Ω min			
			1000000pF	: 100M Ω min			

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: 40M Ω min

2200000pF

			4700000pF	: 10MΩ min
			Rate voltage : 10VDC	
			470000pF	: 50M Ω min
			1000000pF	: 25M Ω min
			Rate voltage : 16VDC	
			220000pF	: $500M\Omega$ min
			470000pF	: $500M\Omega$ min
			1000000pF	: 250M Ω min
		Multilayer type	2200000pF	: 125M Ω min
		(Characteristics:F)	Rate voltage : 25VDC	
			10000pF∼47000pF(Item△J)	: $1000M\Omega$ min
			Rate voltage : 35VDC	
			1000000pF	: 25MΩ min
			Rate voltage : 50VDC	
			10000pF∼100000pF	: 1000M Ω min
			220000pF~470000pF	: 500M Ω min
			1000000pF	: 250M Ω min
est Methods and	Applied voltage : Rate volt	age		_
Remarks	Duration : 60±5 se	C.		
	•			
6. Capacitance				
			+05pE	

6. Capacitance					
	Class1 (Temperature Compensating)	Multilayer type		±0.5pF ±5% ±10%	
Specified Value	Class2 (High Dielectric)	Multilayer type (Characteristics:	B, B5)	±10%, ±20%(ItemΔJ)	
	Glassz (Fligh Dielectric)	Multilayer type (Characteristics:	F)	+80/-20%	
	Measuring frequency	: 1MHz±10%	(Class1 : C	:≦1000pF)	
		: 1kHz±10%	(Class1 : C	>1000pF)	
		: 1kHz±10%	(Class2 : C	s≦10 μ F)	
Test Methods and		: 120Hz±10%	(Class2 : C	> 10 μF)	
Remarks	Measuring voltage	: 1.0±0.5Vrms	(Class1 : C	;≦1000pF)	
Memarks		: 1.0±0.2Vrms	(Class1 : C	>1000pF)	
		: 1.0±0.2Vrms	(Class2 : C	(Class2 : C≦10 μF)	
		: 0.5±0.1Vrms (Class)		> 10 μF)	
	Bias application	: None			

	01 1/7		30pF or under : Q ≥ 400 + 20C	
	Class1 (Temperature	Multilayer type	33pF or over : Q ≥ 1000	
	Compensating)		C: Nominal Capacitance[pF]	
			Rate voltage : 16VDC	
			1200pF~22000pF(Item△J)	: 3.5% max
			220000pF~470000pF	: 5.0% max
			1000000pF~2200000pF	: 7.5% max
			4700000pF~10000000pF	: 12.5% max
			Rate voltage : 25VDC	
			1000000pF	: 12.5% max
		Multilayer type	Rate voltage : 35VDC	
	Class2(High Dielectric)	(Characteristics: B, B5)	1000000pF	: 5.0% max
			2200000pF~4700000pF	: 7.5% max
			1000000pF	: 12.5% max
ecified Value			Rate voltage : 50VDC	
			100pF∼39000pF	: 3.5% max
			47000pF~1000000pF	: 5.0% max
			(1000000pF/B5	: 12.5% max)
			2200000pF~4700000pF	: 12.5% max
			Rate voltage : 10VDC	
			4700000pF~10000000pF	: 17.5% max
			Rate voltage : 16VDC	
			220000pF	: 10.0% max
		Multilayer type	470000pF	: 10.0% max
		(Characteristics:F)	1000000pF	: 17.5% max
			2200000pF	: 15.0% max
			Rate voltage : 25VDC	
			10000pF~47000pF(Item△J)	: 7.5% max
			Rate voltage : 35VDC	

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				1000000pF	: 17.5% max
				Rate voltage : 50VDC	
			-	10000pF∼100000pF	: 7.5% max
			:	220000pF~470000pF	: 10.0% max
				1000000pF	: 15.0% max
	Measuring frequency	: 1MHz±10%	(Class1 : C≦	(1000pF)	
		: 1kHz±10%	(Class1 : C>	·1000pF)	
	:	: 1kHz±10%	(Class2 : C≦	≨10 μ F)	
Test Methods and		: 120Hz±10%	(Class2 : C>	· 10 µF)	
Remarks	Measuring voltage	$: 1.0 \pm 0.5 \text{Vrms}$	(Class1 : C≦	≨1000pF)	
Remarks		$: 1.0 \pm 0.2 \text{Vrms}$	(Class1 : C>	·1000pF)	
		: 1.0±0.2Vrms	(Class2 : C≦	≨10 μ F)	
		$: 0.5 \pm 0.1 \text{Vrms}$	(Class2 : C>	·10 µF)	
	Bias application	: None			

8. Capacitance: Change due to Temperature or Rate of Capacitance Change

voltage			

	Class1 (Temperature Compensating)	Multilayer type	CH: 0±60 SL: -350~+1000 [ppm/°C]
Specified Value	Class2 (High Dielectric)	Multilayer type (Characteristics: B, B5)	±10%(B5: ±15%)
		Multilayer type (Characteristics:F)	+30/-85 %

Measurement of capacitance at 20° C and 85° C, -25° C shall be made to calculate temperature characteristic by the following equation. (Class 1)

 $\frac{(C_{85}-C_{20})}{C_{20}\times\Delta T}$ × 10⁶(ppm/°C)

Change of maximum capacitance deviation in step 1 to 5(Class2)

Test Methods and Remarks

Step	$Temperature(^{\circ}C)$	
1	20	
2	-25	
3	20(Reference temperature)	
4	85	
5	20	

XIn the B5 characteristics is, the Temperatures of step 1,3, and 5 are 25℃.

9. Terminal Strength

т			:1	۱.
	er	ıs	ш	ıe

	Class1 (Temperature Compensating)	Multilayer type	
Specified Value	01 0(11:1 0:1 1:1)	Multilayer type (Characteristics: B, B5)	N
	Class2(High Dielectric)	Multilayer type (Characteristics:F)	

No abnomalities, such as cuts or looseness of terminals.

Test Methods and Remarks

pply the stated tensile force progressively in the direction to draw terminal.					
Nominal wire diameter[mm]	Tensile force[N]	Duration[s]			
0.45 • 0.55	19.6	5			

Torsional

	Class1 (Temperature Compensating)	Multilayer type
Specified Value	Class2(High Dielectric)	Multilayer type (Characteristics:B, B5)
		Multilayer type (Characteristics:F)

No abnomalities, such as cuts or looseness of terminals.

Test Methods and

Remarks

initial position.

This operation is done over a period of 5 sec. Then second bend in the opposite direction shall be made.

Suspend a weight of specified mass at the end of the terminals and incline the body through the angle of 90 degrees and return it to the

Number of bends : 2 times

Nominal wire diameter[mm]	Bending force[N]	Mass weight[kg]
0.45 • 0.55	2.45	0.25

10. Resistance to Vibration

Specified Value	Class1 (Temperature Compensating)	Multilayer type	Appearance : No significant abnomality Withstanding Voltage : No abnomality

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		Conscitones	
		Capacitance : 4.7pF or under	: Within ±0.5pF
		5.6pF~8.2pF	: Within ±10%
		1	
		10pF or over	: Within±5%
		Q:	. 0 > 400 - 200
		30pF or under	: Q≧400+20C
		33pF or over	: Q≧1000
		Insulation resistance	: 10000M Ω min
		C : Nominal Capacitance [pF]	
		Appearance : No significant abnor	mality
		Withstanding Voltage : No abnoma	ality
		Rate Voltage : 16VDC	
		Capacitance	
		1200pF~22000pF(Item△J)	: Within ±20%
		220000pF~10000000pF	: Within ±10%
		tan δ :	. Within 1210%
		1200pF∼22000pF(Item△J)	: 3.5% max
		• • • • • • • • • • • • • • • • • • •	: 5.0% max
		220000pF~470000pF 1000000pF~2200000pF	
			: 7.5% max
		4700000pF~10000000pF	: 12.5% max
		Insulation Resistance :	5000:: O :
		1200pF~22000pF(Item△J)	: 5000M Ω min
		220000 _p F	: $500M\Omega$ min
		470000pF	: 200M Ω min
		1000000pF	: $100M\Omega$ min
		2200000pF	: $50M\Omega$ min
		4700000pF~10000000pF	: 20MΩ min
		Rate Voltage : 25VDC	
		Capacitance : Within ±10%	
		$\tan \delta$:	
		1000000pF	: 12.5% max
		· · · · · · · · · · · · · · · · · · ·	. IZ.J/0 IIIdX
		Insulation Resistance :	0014 0
	AA 103	1000000pF	: 20M Ω min
	Multilayer type	Rate Voltage : 35VDC	
	(Characteristics:B, B5)	Capacitance : Within ±10%	
		$tan \delta$:	
		1000000pF	: 5.0% max
		2200000pF~4700000pF	: 7.5% max
I		10000000pF	: 12.5% max
Class2(High Dielectric)		Insulation Resistance :	
		1000000pF	: 100MΩ min
		2200000pF	: 100M Ω min
		4700000pF	: 20M Ω min
		1000000pF	: 10MΩ min
		Rate Voltage : 50VDC	
		Capacitance : Within ±10%	
		$ an\delta$:	
		100pF∼39000pF	: 3.5% max
		47000pF~1000000pF	: 5.0% max
		(1000000pF/B5	: 12.5% max)
		2200000pF~4700000pF	: 12.5% max
		Insulation Resistance :	
		100pF∼39000pF	: $5000M\Omega$ min
		47000pF~100000pF	: 1000M Ω min
		220000pF	: 1000MΩ min
		47000pF	: 200M Ω min
		• • • • • • • • • • • • • • • • • • •	: 200M Ω min
		1000000pF	
		2200000pF	: 40MΩ min
		4700000pF	: 10MΩ min
		Appearance : No significant abnor	-
		Withstanding Voltage : No abnoma	ality
		Rate Voltage : 10VDC	
		Capacitance	: Within +80/-20%
	Multilayer type	$ an\delta$:	
	(Characteristics:F)	4700000pF~10000000pF	: 17.5% max
		Insulation Resistance :	
			: 50MΩ min
		Insulation Resistance : 4700000pF 10000000pF	: $50M\Omega$ min : $25M\Omega$ min

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			Capacitance	: Within +80/-20%
			$tan \delta$:	
			220000pF	: 10.0% max
			470000pF	: 10.0% max
			1000000pF	: 17.5% max
			2200000pF	: 15.0% max
			Insulation Resistance :	
			220000pF	: $500M\Omega$ min
			470000pF	: $500M\Omega$ min
			1000000pF	: 250M Ω min
			2200000 _p F	: 125M Ω min
			Rate Voltage : 25VDC	
			Capacitance	: Within +80/-20%
			tan δ:	
			10000pF~47000pF(Item△J)	: 7.5% max
			Insulation Resistance :	
			10000pF~47000pF(Item△J)	: $1000 M \Omega$ min
			Rate Voltage : 35VDC	. 10001112 111111
			Capacitance	: Within +80/-20%
			tan δ :	. WICHIII 1 00/ 20/0
			10000000pF	: 17.5% max
			Insulation Resistance	. 17.5% Illax
			10000000pF	: 25MΩ min
				: 5200 35 111111
			Rate Voltage : 50VDC	M/:11: 1.00 / .00%
			Capacitance	: Within +80/-20%
			$\tan \delta$:	7.5%
			10000pF~100000pF	: 7.5% max
			220000pF~470000pF	: 10.0% max
			100000pF	: 15.0% max
			Insulation Resistance :	
			10000pF~100000pF	: 1000M Ω min
			220000pF~470000pF	: 500M Ω min
			1000000pF	: 250M Ω min
	According to JIS C 5			
	Vibration type	: A		
Test Methods and	Directions	: 2 hrs each in X, Y and Z directions		
Remarks	Total	: 6 hrs		
	Frequency range	: 10 to 55 to 10Hz(1min)		
	Amplitude	: 1.5mm		
	Mountin method	: Soldering onto the PC board		

11. Free Fall	,			
			Appearance: No significant abnom Withstanding Voltage: No abnoma	•
	Class1 (Temperature Compensating)	Multilayer type	Capacitance 4.7pF or under 5.6pF~8.2pF 10pF or over Q: 30pF or under 33pF or over Insulation resistance C: Nominal Capacitance [pF]	: Within ±0.5pF : Within ±10% : Within ±5% : Q≧400+20C : Q≧1000 : 10000MΩ min
Specified Value	Class2(High Dielectric)	Multilayer type (Characteristics:B, B5)	Appearance: No significant abnorm Withstanding Voltage: No abnoma Rate Voltage: 16VDC Capacitance: 1200pF~22000pF(Item△J) 220000pF~10000000pF tan ô: 1200pF~22000pF(Item△J) 220000pF~470000pF 1000000pF~1000000pF 4700000pF~1000000pF Insulation resistance: 1200pF~22000pF(Item△J) 220000pF 470000pF 1700000pF 1700000pF	

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	2200000pF	:50M Ω min
	4700000pF~10000000pF	: 20M Ω min
	Rate Voltage: 25VDC	
	Capacitance: Within ±10%	
	tan ô:	40.5%
	1000000pF	:12.5% max
	Insulation resistance:	2014 0
	10000000pF	:20M Ω min
	Rate Voltage: 35VDC	
	Capacitance: Within ±10%	
	tan ô:	F 00/
	1000000pF 2200000pF~4700000pF	: 5.0% max : 7.5% max
	10000000pF Insulation resistance:	:12.5% max
	1000000pF	:100MΩ min
	2200000pF	: 50M Ω min
	470000pF	: 20M Ω min
	1000000pF	:10M Ω min
	Rate Voltage: 50VDC	. TOWER THIN
	Capacitance: Within ±10%	
	tan δ:	
	100pF~39000pF	:3.5% max
	47000pF~1000000pF	: 5.0% max
	(1000000pF/B5	:12.5% max)
	2200000pF~4700000pF	:12.5% max
	Insulation resistance:	
	100pF~39000pF	: 5000M Ω min
	47000pF~100000pF	: 1000M Ω min
	220000pF	: 500M Ω min
	470000pF	: 200M Ω min
	1000000pF	: $100M\Omega$ min
	2200000pF	:40MΩ min
	4700000pF	:10MΩ min
	Appearance: No significant abnom-	ality
	Appearance: No significant abnomed Withstanding Voltage: No abnomali	
	Withstanding Voltage: No abnomal	
	Withstanding Voltage: No abnomali Rate Voltage: 10VDC	ity
	Withstanding Voltage: No abnomaling Rate Voltage: 10VDC Capacitance	ity
	Withstanding Voltage: No abnomaling Rate Voltage: 10VDC Capacitance tan ô:	:Within +80/-20%
	Withstanding Voltage: No abnomaling Rate Voltage: 10VDC Capacitance tan δ: 4700000pF~10000000pF	:Within +80/-20%
	Withstanding Voltage: No abnomaling Rate Voltage: 10VDC Capacitance tan δ: 4700000pF ~ 10000000pF Insulation resistance:	:Within +80/-20%
	Withstanding Voltage: No abnomaling Rate Voltage: 10VDC Capacitance tan δ: 4700000pF~10000000pF Insulation resistance: 4700000pF	:Within +80/-20% :17.5% max :50M Ω min
	Withstanding Voltage: No abnomaling Rate Voltage: 10VDC Capacitance tan δ: 4700000pF ~ 10000000pF Insulation resistance: 4700000pF 10000000pF	:Within +80/-20% :17.5% max :50M Ω min
	Withstanding Voltage: No abnomaling Rate Voltage: 10VDC Capacitance tan &: 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min
	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan δ: 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max
	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan δ: 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF	: Within $+80/-20\%$: 17.5% max : $50M \Omega$ min : $25M \Omega$ min : Within $+80/-20\%$: 10.0% max : 10.0% max
	Withstanding Voltage: No abnomali Rate Voltage: 10VDC Capacitance tan δ: 4700000pF ~ 10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF	: Within $+80/-20\%$: 17.5% max : $50M \Omega$ min : $25M \Omega$ min : Within $+80/-20\%$: 10.0% max : 10.0% max : 17.5% max
	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan &: 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance tan &: 220000pF 470000pF 1000000pF 1000000pF 2200000pF	: Within $+80/-20\%$: 17.5% max : $50M \Omega$ min : $25M \Omega$ min : Within $+80/-20\%$: 10.0% max : 10.0% max
Multilaver type	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan &: 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance tan &: 220000pF 470000pF 1000000pF 1000000pF Insulation resistance:	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max
Multilayer type (Characteristics: F)	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan &: 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance tan &: 220000pF 470000pF 1000000pF 1000000pF Insulation resistance: 2200000pF Insulation resistance: 220000pF	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max
Multilayer type (Characteristics: F)	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan &: 470000pF~10000000pF Insulation resistance: 4700000pF 1000000pF Rate Voltage: 16VDC Capacitance tan &: 220000pF 470000pF 1000000pF 1000000pF Insulation resistance: 220000pF 470000pF Insulation resistance: 220000pF 470000pF	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max
	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan &: 470000pF~10000000pF Insulation resistance: 4700000pF 1000000pF Rate Voltage: 16VDC Capacitance tan &: 220000pF 470000pF 1000000pF Insulation resistance: 220000pF 470000pF Insulation resistance: 220000pF 1700000pF 1700000pF 1700000pF 1700000pF	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :500M Ω min :500M Ω min :250M Ω min
	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan &: 470000pF~10000000pF Insulation resistance: 4700000pF 1000000pF Rate Voltage: 16VDC Capacitance tan &: 220000pF 470000pF 1000000pF 1000000pF Insulation resistance: 220000pF 470000pF 1000000pF 1200000pF 470000pF 1200000pF	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max
	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan &: 470000pF~10000000pF Insulation resistance: 4700000pF 1000000pF Rate Voltage: 16VDC Capacitance tan &: 220000pF 470000pF 1000000pF 1000000pF Insulation resistance: 220000pF 470000pF 100000pF 1700000pF 18xe Voltage: 25VDC	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :500M Ω min :500M Ω min :250M Ω min :250M Ω min :250M Ω min
	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan &: 470000pF~10000000pF Insulation resistance: 4700000pF 1000000pF Rate Voltage: 16VDC Capacitance tan &: 220000pF 470000pF 1000000pF 1000000pF Insulation resistance: 220000pF 470000pF 1000000pF 470000pF Rate Voltage: 25VDC Capacitance	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :500M Ω min :500M Ω min :250M Ω min
	Withstanding Voltage: No abnomaling Rate Voltage: 10VDC Capacitance tan δ: 4700000pF ~ 10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF 220000pF 470000pF 100000pF 220000pF 470000pF 2200000pF 2200000pF 2200000pF 2200000pF 2200000pF 2200000pF Capacitance tan δ:	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :15.0% max :500M Ω min :500M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min
	Withstanding Voltage: No abnomaling Rate Voltage: 10VDC Capacitance tan δ: 470000pF ~ 10000000pF Insulation resistance: 4700000pF 1000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 100000pF 220000pF 470000pF 100000pF 2200000pF 470000pF 2200000pF Rate Voltage: 25VDC Capacitance tan δ: 10000pF ~ 47000pF (Item ΔJ)	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :500M Ω min :500M Ω min :250M Ω min :250M Ω min :250M Ω min
	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan δ: 4700000pF 1000000pF 1000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF 1000000pF 1000000pF Insulation resistance: 220000pF 470000pF 1000000pF 220000pF 470000pF 100000pF 1000000pF 100000pF	:Within $+80/-20\%$: 17.5% max : 50M Ω min : 25M Ω min : Within $+80/-20\%$: 10.0% max : 10.0% max : 17.5% max : 15.0% max : 500M Ω min : 500M Ω min : 250M Ω min : 250M Ω min : 250M Ω min : 250M Ω min : 125M Ω min
	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan δ: 4700000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF 1000000pF Insulation resistance: 220000pF 470000pF 1000000pF 2200000pF 470000pF 1000000pF 100000pF 10000pF	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :15.0% max :500M Ω min :500M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min
	Withstanding Voltage: No abnomali Rate Voltage: 10VDC Capacitance tan δ: 4700000pF 1000000pF 1000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF 1000000pF 1000000pF 1000000pF 1700000pF 100000pF 100000pF 470000pF 100000pF Rate Voltage: 25VDC Capacitance tan δ: 10000pF ~ 47000pF (Item △J) Insulation resistance: 10000pF ~ 47000pF (Item △J) Rate Voltage: 35VDC	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :500M Ω min :500M Ω min :250M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min
	Withstanding Voltage: No abnomals Rate Voltage: 10VDC Capacitance tan δ: 4700000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF 1000000pF 1sulation resistance: 220000pF 470000pF 100000pF Rate Voltage: 25VDC Capacitance tan δ: 10000pF~47000pF (Item△J) Insulation resistance: 10000pF~47000pF (Item△J) Rate Voltage: 35VDC Capacitance Capacitance	:Within $+80/-20\%$: 17.5% max : 50M Ω min : 25M Ω min : Within $+80/-20\%$: 10.0% max : 10.0% max : 17.5% max : 15.0% max : 500M Ω min : 500M Ω min : 250M Ω min : 250M Ω min : 250M Ω min : 250M Ω min : 125M Ω min
	Withstanding Voltage: No abnomali Rate Voltage: 10VDC Capacitance tan δ: 4700000pF 1000000pF 1000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF 1000000pF 1000000pF 1000000pF 100000pF 2200000pF 470000pF 100000pF Rate Voltage: 25VDC Capacitance tan δ: 10000pF ~ 47000pF (Item △J) Insulation resistance: 10000pF ~ 47000pF (Item △J) Rate Voltage: 35VDC Capacitance tan δ:	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :500M Ω min :500M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min :125M Ω min :125M Ω min
	Withstanding Voltage: No abnomali Rate Voltage: 10VDC Capacitance tan δ: 4700000pF 1000000pF 1000000pF 1000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF 1000000pF 1000000pF 1000000pF 470000pF 1000000pF 1000000pF 1000000pF 1000000pF 1000000pF 1000000pF 1000000pF 1000000pF 2200000pF Rate Voltage: 25VDC Capacitance tan δ: 10000pF ~ 47000pF (Item △J) Insulation resistance: 10000pF ~ 47000pF (Item △J) Rate Voltage: 35VDC Capacitance tan δ: 10000pF ~ 47000pF (Item △J) Rate Voltage: 35VDC Capacitance tan δ: 10000000pF	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :500M Ω min :500M Ω min :250M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min
	Withstanding Voltage: No abnomali Rate Voltage: 10VDC Capacitance tan δ: 4700000pF 1000000pF 1000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF 1000000pF 1000000pF 1000000pF 1000000pF 470000pF 100000pF 100000pF 100000pF 100000pF 100000pF 100000pF 100000pF 100000pF 100000pF 220000pF Rate Voltage: 25VDC Capacitance tan δ: 10000pF ~ 47000pF (Item ΔJ) Insulation resistance: 10000pF ~ 47000pF (Item ΔJ) Rate Voltage: 35VDC Capacitance tan δ: 10000pF ~ 47000pF (Item ΔJ) Rate Voltage: 35VDC Capacitance tan δ: 1000000pF Insulation resistance:	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :25M Ω min : Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :500M Ω min :500M Ω min :250M Ω min :250M Ω min :125M Ω min :125M Ω min :125M Ω min :Within $+80/-20\%$:7.5% max
	Withstanding Voltage: No abnomali Rate Voltage: 10VDC Capacitance tan δ: 4700000pF 1000000pF 1000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF 1000000pF 1000000pF 1000000pF 1000000pF 2200000pF 470000pF 1000000pF 1000000pF 1000000pF 1000000pF 1000000pF 2200000pF Rate Voltage: 25VDC Capacitance tan δ: 10000pF ~ 47000pF (Item △J) Insulation resistance: 10000pF ~ 47000pF (Item △J) Rate Voltage: 35VDC Capacitance tan δ: 10000pF ~ 47000pF (Item △J) Rate Voltage: 35VDC Capacitance tan δ: 1000000pF Insulation resistance: 10000000pF Insulation resistance:	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :500M Ω min :500M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min :125M Ω min :125M Ω min
	Withstanding Voltage: No abnomali Rate Voltage: 10VDC Capacitance tan δ: 4700000pF 1000000pF 1000000pF Rate Voltage: 16VDC Capacitance tan δ: 220000pF 470000pF 1000000pF 1000000pF 1000000pF 1000000pF 1000000pF 470000pF 100000pF 100000pF 100000pF 100000pF 100000pF 100000pF 100000pF 100000pF 100000pF 220000pF Rate Voltage: 25VDC Capacitance tan δ: 10000pF ~ 47000pF (Item ΔJ) Insulation resistance: 10000pF ~ 47000pF (Item ΔJ) Rate Voltage: 35VDC Capacitance tan δ: 10000pF ~ 47000pF (Item ΔJ) Rate Voltage: 35VDC Capacitance tan δ: 1000000pF Insulation resistance:	:Within $+80/-20\%$:17.5% max :50M Ω min :25M Ω min :25M Ω min : Within $+80/-20\%$:10.0% max :10.0% max :17.5% max :15.0% max :500M Ω min :500M Ω min :250M Ω min :250M Ω min :125M Ω min :125M Ω min :125M Ω min :Within $+80/-20\%$:7.5% max

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			tan δ: 10000pF~100000pF 220000pF~470000pF 1000000pF	: 7.5% max : 10.0% max : 15.0% max
			Insulation resistance: 10000pF~100000pF 220000pF~470000pF 1000000pF	: 1000 M Ω min : 500 M Ω min : 250 M Ω min
	Drop Test	: Free fall	<u> </u>	
Test Methods and	Impact material	: Floor		
Remarks	Height	: 1 m		
	Total number of drops	: 5 times		

Total number of drops : 5 times 12. Body Strength Class1 (Temperature Compensating) Multilayer type (Characteristics: B, B5) Multilayer type (Characteristics: F) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks Test Methods and Remarks	12. Body Strength Class1 (Temperature Compensating) Multilayer type Class2 (High Dielectric) Multilayer type (Characteristics: B, B5) Multilayer type (Characteristics: F) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks	rtomarto	_	- · · · · · · · · · · · · · · · · · · ·	
Class1 (Temperature Compensating) Multilayer type Class2 (High Dielectric) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks Class1 (Temperature Compensating) Multilayer type (Characteristics: B, B5) Multilayer type (Characteristics: F) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec.	Class1 (Temperature Compensating) Multilayer type Class2 (High Dielectric) Multilayer type (Characteristics: B, B5) Multilayer type (Characteristics: F) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks Test Methods and Remarks		Total number of drops : :	times	
Specified Value Class1 (Temperature Compensating) Multilayer type (Characteristics: B, B5) Multilayer type (Characteristics: F) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks Remarks Class1 (Temperature Multilayer type (Characteristics: B, B5) Multilayer type (Characteristics: F) No abnomality such as damage. No abnomality such as damage.	Class1 (Temperature Compensating) Multilayer type Class2 (High Dielectric) Multilayer type (Characteristics: B, B5) Multilayer type (Characteristics: F) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks Test Methods and Remarks				
Specified Value Class2 (High Dielectric) Multilayer type (Characteristics: B, B5) Multilayer type (Characteristics: F)	Specified Value Class2 (High Dielectric) Multilayer type (Characteristics: B, B5) Multilayer type (Characteristics: F)	12. Body Strength			
Class2 (High Dielectric) (Characteristics: B, B5) Multilayer type (Characteristics: F) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks Test Methods and Remarks	Class2 (High Dielectric) (Characteristics: B, B5) Multilayer type (Characteristics: F) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks No abnomality such as damage. No abnomality such as damage.			Multilayer type	
Multilayer type (Characteristics: F) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks	Multilayer type (Characteristics: F) Applied force : 19.6N Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks	Specified Value	Class 2 (High Dialogtria)	1	No abnomality such as damage.
Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks O.5R 2.0mm	Duration : 5 sec. Speed : Shall attain to specified force in 2 sec. Test Methods and Remarks O.5R L. O.5R 2.0mm		Glass2 (Flight Dielectric)	Multilayer type	
1.5mm(U25type)			Duration : 5 sec. Speed : Shall atta	ain to specified force in 2 sec.	

13. Solderability			
	Class1 (Temperature Compensating)	Multilayer type	
Specified Value	Class2(High Dielectric)	Multilayer type (Characteristics: B, B5)	At least 75% of lead surface is covered with new solder.
		Multilayer type (Characteristics:F)	
Test Methods and	Solder temperature : 230	D±5°C	•
Remarks	Duration : 2±	0.5 sec. (This test may be applical	ple after 6 months storage.)

			Appearance: No significant abnom Withstanding Voltage: No abnomal	-
Compensating Specified Value	Class1 (Temperature Compensating) Multilayer type		Capacitance change: 8.2pF or under 10pF or over Q: 30pF or under 33pF or over Insulation resistance C: Nominal Capacitance [pF]	:Within ±0.25pF :Within ±2.5% :Q≧400+20C :Q≧1000 :10000MΩ min
	Class2 (High Dielectric)	Multilayer type (Characteristics: B, B5)	Appearance: No significant abnom Withstanding Voltage: No abnomal Rate Voltage: 16VDC Capacitance change: 1200pF~22000pF(Item△J) 220000pF~10000000pF tan δ: 1200pF~22000pF(Item△J) 220000pF~470000pF	: Within±7.5% : Within±10.0% : 3.5% max : 5.0% max
			1000000pF~2200000pF 4700000pF~10000000pF Insulation resistance: 1200pF~22000pF(Item△J) 220000pF	: 7.5% max : 12.5% max : 5000MΩ min : 500MΩ min

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	470000pF	: 200M Ω min
	1000000pF	: $100M\Omega$ min
	2200000pF	: $50M\Omega$ min
	4700000pF~10000000pF	: 20M Ω min
	Rate Voltage: 25VDC	
	Capacitance change:	
	10000000pF	: Within ±10.0%
	tan δ:	40.5%
	1000000pF	:12.5% max
	Insulation resistance:	0014 ()
	1000000pF	: 20M Ω min
	Rate Voltage: 35VDC	
	Capacitance change: 1000000pF~1000000pF	:Within ±10.0%
	tan δ:	. Within ± 10.0%
	1000000pF	:5.0% max
	2200000pF~4700000pF	: 7.5% max
	1000000pF	: 12.5% max
	Insulation resistance:	
	1000000pF	: 100M Ω min
	2200000pF	: $50M\Omega$ min
	4700000pF	: 20M Ω min
	1000000pF	:10M Ω min
	Rate Voltage: 50VDC	
	Capacitance change:	
	100pF∼39000pF	:Within ±7.5%
	47000pF~1000000pF	:Within ±10.0%
	tan δ:	0.5%
	100pF∼39000pF 47000pF∼1000000pF	: 3.5% max : 5.0% max
	(1000000pF/B5	: 12.5% max
	2200000pF~4700000pF	: 12.5% max
	Insulation resistance:	. 12.0% 1110
	100pF∼39000pF	:5000M Ω min
	·	
	47000pF~100000pF 220000pF	:1000M Ω min :500M Ω min
	47000pF~100000pF	: $1000M\Omega$ min
	47000pF~100000pF 220000pF	: 1000M Ω min : 500M Ω min
	47000pF~100000pF 220000pF 470000pF	: $1000M\Omega$ min : $500M\Omega$ min : $200M\Omega$ min : $100M\Omega$ min : $40M\Omega$ min
	47000pF~100000pF 220000pF 470000pF 1000000pF	: $1000M\Omega$ min : $500M\Omega$ min : $200M\Omega$ min : $100M\Omega$ min
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF	: $1000M\Omega$ min : $500M\Omega$ min : $200M\Omega$ min : $100M\Omega$ min : $40M\Omega$ min : $10M\Omega$ min
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF	: $1000M\Omega$ min : $500M\Omega$ min : $200M\Omega$ min : $100M\Omega$ min : $40M\Omega$ min : $10M\Omega$ min
	47000pF ~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance∶No significant abnomality	: 1000M Ω min : 500M Ω min : 200M Ω min : 100M Ω min : 40M Ω min : 10M Ω min
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change	: $1000M\Omega$ min : $500M\Omega$ min : $200M\Omega$ min : $100M\Omega$ min : $40M\Omega$ min : $10M\Omega$ min
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan &:	:1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan & 4700000pF~10000000pF	: 1000M Ω min : 500M Ω min : 200M Ω min : 100M Ω min : 40M Ω min : 10M Ω min
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan &: 4700000pF~10000000pF Insulation resistance:	:1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20%
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan δ: 4700000pF~10000000pF Insulation resistance: 4700000pF	:1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within $\pm 20\%$
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan & 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF	:1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20%
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan δ: 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within $\pm 20\%$:17.5% max
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan & 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance change	:1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within $\pm 20\%$
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan &: 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance change tan &:	:1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :Within $\pm 20\%$:17.5% max :50M Ω min :25M Ω min :Within $\pm 20\%$
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan δ: 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance change tan δ: 220000pF~470000pF	:1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within $\pm 20\%$:17.5% max :50M Ω min :25M Ω min :Within $\pm 20\%$:10.0% max
Multilayer type	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan & 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance change tan & 220000pF~470000pF 1000000pF	:1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20% :17.5% max :S0M Ω min :Within ±20% :10.0% max :17.5% max
Multilayer type (Characteristics: F)	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan & 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance change tan & 220000pF~470000pF 1000000pF	:1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within $\pm 20\%$:17.5% max :50M Ω min :25M Ω min :Within $\pm 20\%$:10.0% max
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan & 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance change tan & 220000pF~470000pF 1000000pF	:1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20% :17.5% max :S0M Ω min :Within ±20% :10.0% max :17.5% max
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF 4700000pF Appearance:No significant abnomality Withstanding Voltage:No abnomality Rate Voltage:10VDC Capacitance change tan & 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage:16VDC Capacitance change tan & 220000pF~470000pF 1000000pF	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20% :17.5% max :S0M Ω min :Within ±20% :10.0% max :17.5% max :15.0% max
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF 4700000pF Appearance:No significant abnomality Withstanding Voltage:No abnomality Rate Voltage:10VDC Capacitance change tan & 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage:16VDC Capacitance change tan & 220000pF~470000pF 1000000pF Insulation resistance: 220000pF~470000pF 1000000pF 2200000pF~470000pF Insulation resistance: 220000pF~470000pF	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20% :17.5% max :50M Ω min :Within ±20% :10.0% max :17.5% max :15.0% max :500M Ω min
	47000pF~100000pF 220000pF 470000pF 1000000pF 2200000pF 4700000pF 4700000pF Appearance:No significant abnomality Withstanding Voltage:No abnomality Rate Voltage:10VDC Capacitance change tan & 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage:16VDC Capacitance change tan & 220000pF~470000pF 1000000pF Insulation resistance: 220000pF~470000pF Insulation resistance: 220000pF~470000pF	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20% :17.5% max :50M Ω min :Within ±20% :10.0% max :17.5% max :15.0% max :500M Ω min :250M Ω min :250M Ω min :125M Ω min
	47000pF~100000pF 220000pF 470000pF 1000000pF 12200000pF 4700000pF 4700000pF Appearance:No significant abnomality Withstanding Voltage:No abnomality Rate Voltage:10VDC Capacitance change tan & 4700000pF~10000000pF Insulation resistance: 4700000pF Rate Voltage:16VDC Capacitance change tan & 220000pF~470000pF 1000000pF 1000000pF 1000000pF 2200000pF Insulation resistance: 220000pF~470000pF 1000000pF 2200000pF Rate Voltage:25VDC Capacitance change Rate Voltage:25VDC Capacitance change	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20% :17.5% max :50M Ω min :Within ±20% :10.0% max :17.5% max :15.0% max :500M Ω min :250M Ω min
	47000pF~100000pF 220000pF 470000pF 1000000pF 12200000pF 4700000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan &: 4700000pF~10000000pF Insulation resistance: 4700000pF 1000000pF Rate Voltage: 16VDC Capacitance change tan &: 220000pF~470000pF 1000000pF 1000000pF 2200000pF Insulation resistance: 220000pF~470000pF 1000000pF 2200000pF Rate Voltage: 25VDC Capacitance change tan &: Capacitance change tan &: Capacitance change	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20% :17.5% max :50M Ω min :Within ±20% :10.0% max :17.5% max :15.0% max :500M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min :125M Ω min
	47000pF~100000pF 220000pF 470000pF 1000000pF 12200000pF 4700000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan & 4700000pF~10000000pF Insulation resistance: 4700000pF 10000000pF Rate Voltage: 16VDC Capacitance change tan & 220000pF~470000pF 1000000pF 1000000pF 2200000pF Insulation resistance: 220000pF~470000pF 1000000pF 2200000pF Rate Voltage: 25VDC Capacitance change tan & 100000pF~47000pF (Item \(\D \) J)	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20% :17.5% max :50M Ω min :Within ±20% :10.0% max :17.5% max :15.0% max :500M Ω min :250M Ω min :250M Ω min :125M Ω min
	47000pF ~100000pF 220000pF 470000pF 1000000pF 12200000pF 4700000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Withstanding Voltage: No abnomality Rate Voltage:10VDC Capacitance change tan δ: 4700000pF ~10000000pF Insulation resistance: 4700000pF Rate Voltage:16VDC Capacitance change tan δ: 220000pF ~470000pF 1000000pF Insulation resistance: 220000pF ~470000pF 1000000pF 2200000pF Rate Voltage:25VDC Capacitance change tan δ: 10000pF ~47000pF (Item△J) Insulation resistance:	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :Within ±20% :17.5% max :50M Ω min :Within ±20% :10.0% max :17.5% max :500M Ω min :250M Ω min :250M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min
	47000pF~100000pF 220000pF 470000pF 1000000pF 12200000pF 4700000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan δ: 4700000pF~10000000pF Insulation resistance: 4700000pF 200000pF Rate Voltage: 16VDC Capacitance change tan δ: 220000pF~470000pF 1000000pF 2200000pF Insulation resistance: 220000pF~470000pF 1000000pF 2200000pF Rate Voltage: 25VDC Capacitance change tan δ: 10000pF~47000pF (Item△J) Insulation resistance: 10000pF~47000pF (Item△J)	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within ±20% :17.5% max :50M Ω min :Within ±20% :10.0% max :17.5% max :15.0% max :500M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min :125M Ω min
	47000pF ~100000pF 220000pF 470000pF 1000000pF 12200000pF 4700000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan δ: 4700000pF ~10000000pF Insulation resistance: 4700000pF 2000000pF Rate Voltage: 16VDC Capacitance change tan δ: 220000pF ~470000pF Insulation resistance: 220000pF Insulation resistance: 220000pF Rate Voltage: 25VDC Capacitance change tan δ: 10000pF ~47000pF (Item△J) Insulation resistance: 10000pF ~47000pF (Item△J) Rate Voltage: 35VDC	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within $\pm 20\%$:17.5% max :50M Ω min :Within $\pm 20\%$:10.0% max :17.5% max :500M Ω min :250M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min :Within $\pm 20\%$:7.5% max
	47000pF ~100000pF 220000pF 470000pF 1000000pF 12200000pF 4700000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan δ: 4700000pF ~10000000pF Insulation resistance: 4700000pF 2000000pF Rate Voltage: 16VDC Capacitance change tan δ: 220000pF ~470000pF Insulation resistance: 220000pF Insulation resistance: 220000pF Rate Voltage: 25VDC Capacitance change tan δ: 10000pF ~47000pF (Item△J) Insulation resistance: 10000pF ~47000pF (Item△J) Rate Voltage: 35VDC Capacitance change	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :Within ±20% :17.5% max :50M Ω min :Within ±20% :10.0% max :17.5% max :500M Ω min :250M Ω min :250M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min
	47000pF ~100000pF 220000pF 470000pF 1000000pF 12200000pF 4700000pF 4700000pF Appearance: No significant abnomality Withstanding Voltage: No abnomality Withstanding Voltage: No abnomality Rate Voltage: 10VDC Capacitance change tan δ: 4700000pF ~10000000pF Insulation resistance: 4700000pF 2000000pF Rate Voltage: 16VDC Capacitance change tan δ: 220000pF ~470000pF Insulation resistance: 220000pF Insulation resistance: 220000pF Rate Voltage: 25VDC Capacitance change tan δ: 10000pF ~47000pF (Item△J) Insulation resistance: 10000pF ~47000pF (Item△J) Rate Voltage: 35VDC	: 1000M Ω min :500M Ω min :200M Ω min :100M Ω min :40M Ω min :10M Ω min :10M Ω min :Within $\pm 20\%$:17.5% max :50M Ω min :Within $\pm 20\%$:10.0% max :17.5% max :500M Ω min :250M Ω min :250M Ω min :250M Ω min :250M Ω min :125M Ω min :Within $\pm 20\%$:7.5% max

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			Insulation resistance:	
			1000000pF	: 25M Ω min
			Rate Voltage: 50VDC	
			Capacitance change:	
			10000pF~1000000pF	: Within 20.0%
			tan δ:	
			10000pF~100000pF	:7.5% max
			220000pF~470000pF	:10.0% max
			1000000pF	:15.0% max
			Insulation resistance:	
			10000pF~100000pF	: 1000M Ω min
			220000pF~470000pF	: $500M\Omega$ min
			1000000pF	: 250M Ω min
	Solder temperature	: 270±5°C		
	Duration	$:5\pm0.5$ sec.		
	Immersed conditions	: Inserted into the PC board(v	vith t=1.6mm, hole=1.0mm diameter)	
Test Methods and Remarks	Preconditioning	: 1 hr of preconditioning at 15 condition.	$0 + 0/-10^{\circ}$ C followed by 48 ± 4 hrs of	of recovery under the standard
	Recovery	: Recovery for the following pe	eriod under the standard condition afte	er the test.
		24±2 hrs(Class 1)		
		48±4 hrs(Class 2)		
15. Resistance to S	Solvent			
	Class1 (Temperature	Multilayer type		

15. Resistance to S	Solvent			
Specified Value	Class1 (Temperature Compensating)	Multilayer type		
	Class 2 (Himb Dialoctuis)	Multilayer type (Characteristics:B, B5)	No significant abnormality in appearance and legible marking.	
	Class2(High Dielectric)	Multilayer type (Characteristics:F)		
	According to JIS C 5101-1			
Test Methods and	Type of test	Method 1		
Remarks	Solvent temperature	: 20 to 25°C		
I (Ciliai NS	Duration	30±5 sec.		
	Solvent Type	A in Table 23, Isopropyl alcohol		

			Appearance: No significant abnomed Withstanding Voltage: No abnomal	•
	Class1 (Temperature Compensating)	Multilayer type	Capacitance change: 8.2pF or under 10pF or over Q: 8.2pF or under 10pF~30pF 33pF or over Insulation resistance C: Nominal Capacitance [pF]	:Within ±0.5pF :Within ±5.0% :Q≧200+10C :Q≧275+2.5C :Q≧350 :1000MΩ min
Specified Value	Class2(High Dielectric)	Multilayer type (Characteristics: B, B5)	Appearance: No significant abnom Withstanding Voltage: No abnomal Rate voltage: 16VDC Capacitance change: 1200pF~22000pF(Item△J) 220000pF~10000000pF tan δ: 1200pF~22000pF(Item△J) 220000pF~470000pF 1000000pF~2200000pF 4700000pF~10000000pF Insulation resistance: 1200pF~220000pF 470000pF 470000pF 470000pF 1000000pF 470000pF 2200000pF 470000pF 2200000pF 4700000pF	•

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	tan δ:	.15 0% may
	10000000pF Insulation resistance:	:15.0% max
	10000000pF	: 5 M Ω min
	Rate voltage: 35VDC	
	Capacitance change:	
	1000000pF	: Within $\pm 15.0\%$
	2200000pF~4700000pF	:Within $\pm 15.0\%$
	1000000pF	:Within ±15.0%
	tan δ:	
	1000000 _p F	: 7.5% max
	2200000pF~4700000pF	: 10.0% max
	1000000pF	: 22.5% max
	Insulation resistance:	. FOM O
	1000000pF	: 50M Ω min : 25M Ω min
	2200000pF 4700000pF~10000000pF	: 25M Ω min : 5M Ω min
	4700000pF ~ 10000000pF Rate voltage: 50VDC	. טואו זג וווווו
	Capacitance change:	
	100pF~39000pF	: Within ±12.5%
	47000pF~470000pF	: Within ± 15.0%
	(1000000pF/B5	: Within $\pm 22.5\%$
	tan δ:	
	100pF∼39000pF	:5.0% max
	47000pF~1000000pF	: 7.5% max
	(1000000pF/B5	:Within $\pm 17.5\%$)
	2200000pF~47000000pF	: 22.5% max
	Insulation resistance:	
	100pF∼39000pF	: 1000M Ω min
	47000pF~100000pF	: 500M Ω min
	220000pF	: 250M Ω min
	470000pF	: 100M Ω min
	1000000pF	:50MΩ min
	2200000pF 4700000pF	: 20M Ω min : 5M Ω min
	Withstanding Voltage: No abnomali Rate voltage: 10VDC Capacitance change	: Within ±30.0%
	tan δ :	: WILTHIN ± 30.0%
	4700000pF~1000000pF	: 20.0% max
	Insulation resistance:	. 20.0% Max
	470000pF	:10MΩ min
	1000000pF	: 5M Ω min
	Rate voltage: 16VDC	
	Capacitance change	:Within ±30.0%
	tan δ :	
	220000pF~470000pF	:15.0% max
	1000000pF	: 22.5% max
	2200000pF	: 17.5% max
	Insulation resistance:	
Multilayer type	220000 _p F	:100MΩ min
(Characteristics:F)	47000pF	: 50M Ω min
	1000000pF	: 25M Ω min
	2200000pF	: 25M Ω min
	Rate voltage: 25VDC	Maria Con
	Capacitance change	:Within ±30%
		:
	tan δ	10.50
	10000pF∼47000pF(Item△J)	:12.5% max
	10000pF∼47000pF(Item△J) Insulation resistance:	
	10000pF∼47000pF(Item△J) Insulation resistance: 10000pF∼47000pF(Item△J)	:12.5% max :500M Ω min
	10000pF∼47000pF(Item△J) Insulation resistance: 10000pF∼47000pF(Item△J) Rate voltage:35VDC	:500MΩ min
	10000pF∼47000pF(Item△J) Insulation resistance: 10000pF∼47000pF(Item△J) Rate voltage: 35VDC Capacitance change	
	10000pF∼47000pF(Item△J) Insulation resistance: 10000pF∼47000pF(Item△J) Rate voltage: 35VDC Capacitance change tan δ:	:500M Ω min :Within ±30.0%
	10000pF∼47000pF(Item△J) Insulation resistance: 10000pF∼47000pF(Item△J) Rate voltage: 35VDC Capacitance change tan δ: 10000000pF	:500MΩ min
	10000pF∼47000pF(Item△J) Insulation resistance: 10000pF∼47000pF(Item△J) Rate voltage: 35VDC Capacitance change tan δ: 10000000pF Insulation resistance:	:500M Ω min :Within $\pm 30.0\%$:20.0% max
	10000pF∼47000pF(Item△J) Insulation resistance: 10000pF∼47000pF(Item△J) Rate voltage: 35VDC Capacitance change tan δ: 10000000pF	:500M Ω min :Within $\pm 30.0\%$

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	T		10000 5 1000000 5	W
			10000pF~1000000pF	:Within ±30.0%
			tan δ:	10.5%
			10000pF∼100000pF	:12.5% max
			220000pF~470000pF	:15.0% max
			1000000pF	:17.5% max
			Insulation resistance:	
			10000pF∼100000pF	: $500M\Omega$ min
			220000pF~470000pF	: 250M Ω min
			1000000pF	:50M Ω min
 Conditions for	or 1 cycle			
Step	Temperature[°C]	Duration[min.]		
1	Room temperature	Within 3		
2	-25+0/-3	30±3		
3	Room temperature	Within 3		

Test Methods and Remarks

+85+3/-0 30±3 Room temperature Within 3

Number of cycles : 5

Preconditioning Recovery

: 1 hr of preconditioning at 150 $\pm 0/-10^{\circ}$ C followed by 48±4 hrs of recovery under the standard condition.

: Recovery for the following period under the standard condition after the removal from test chamber.

24±2 hrs(Class 1) 48±4 hrs(Class 2)

			Appearance: No significant abnomality		
	Class1 (Temperature Compensating)	Multilayer type	Withstanding Voltage: No abnoma Capacitance change: 8.2pF or under 10pF or over Q: 8.2pF or under 10pF~30pF 33pF or over	:Within ±0.5pF :Within ±5.0% :Q≥200+10C :Q≥275+2.5C :Q≥350	
			Insulation resistance C: Nominal Capacitance [pF]	:1000M Ω min	
Specified Value	Class2 (High Dielectric)	Multilayer type (Characteristics: B, B5)	Appearance: No significant abnormal Withstanding Voltage: No abnormal Rate voltage: 16VDC Capacitance change: 1200pF~22000pF (ItemΔJ) 220000pF~10000000pF tan δ: 1200pF~22000pF (ItemΔJ) 220000pF~470000pF 1000000pF~220000pF 1000000pF~10000000pF Insulation resistance: 1200pF~22000pF (ItemΔJ) 220000pF 470000pF 470000pF 470000pF 1000000pF 2200000pF 4700000pF Tan δ: 10000000pF Insulation resistance: 10000000pF Insulation resistance: 10000000pF Tan δ: 1000000pF Insulation resistance: 10000000pF Insulation resistance: 10000000pF Insulation resistance: 10000000pF Insulation resistance: 10000000pF Insulation resistance: 1000000pF Insulation resistance: 10000000pF		

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			Insulation resistance:	
			1000000pF	:50MΩ min
			2200000pF	: 25M Ω min
			4700000pF~10000000pF	:5MΩ min
			Rate voltage:50VDC	
			Capacitance change:	
			100pF~39000pF	: Within ± 12.5%
			47000pF~4700000pF	: Within ±15.0%
			(1000000pF/B5 tan δ:	:Within ±22.5%)
			tan o: 100pF∼39000pF	:5.0% max
			47000pF~1000000pF	: 7.5% max
			(1000000/B5	: 17.5% max)
			2200000pF~4700000pF	: 22.5% max
			Insulation resistance:	
			100pF∼39000pF	: 1000M Ω min
			47000pF~100000pF	:500M Ω min
			220000pF	: 250M Ω min
			470000pF	: 100M Ω min
			1000000pF	:50MΩ min
			2200000 _p F	: 20M Ω min
			4700000pF	:5MΩ min
			Appearance: No significant abnoma	-
			Withstanding Voltage: No abnomalis	Ту
			Rate voltage: 10VDC	W/H ' 1 00 00/
			Capacitance change	:Within ±30.0%
			tan δ:	20.0%
			4700000pF~10000000pF Insulation resistance:	:20.0% max
			4700000pF	:10MΩ min
			1000000pF	: 5M Ω min
			Rate voltage:16VDC	. 0141 32 111111
			Capacitance change	: Within ±30.0%
			tan δ:	. *************************************
			220000pF~470000pF	: 15.0% max
			100000pF	: 22.5% max
			2200000pF	: 17.5% max
			Insulation resistance:	
			220000pF	: 100M Ω min
			470000pF	:50M Ω min
			1000000pF	: 25M Ω min
			2200000pF	: 25M Ω min
		Multilayer type	Rate voltage: 25VDC	
		(Characteristics:F)	Capacitance change	:Within ±30%
		(onaraoteristics.)	tan δ:	
			10000pF~47000pF(Item△J)	:12.5% max
			Insulation resistance:	_
			10000pF~47000pF(Item△J)	: 500M Ω min
			Rate voltage: 35VDC	
			Capacitance change	: Within ±30.0%
			tan δ:	
			1000000pF	: 20.0% max
			Insulation resistance:	5110
			10000000pF	:5M Ω min
			Rate voltage: 50VDC Capacitance change:	
			10000pF~1000000pF	:Within ±30.0%
			tan δ:	. WICHIII = 30.0%
			10000pF~100000pF	: 12.5% max
			220000pF~470000pF	: 15.0% max
			100000pF	: 17.5% max
			Insulation resistance:	
			10000pF~100000pF	:500M Ω min
			220000pF~470000pF	: 250M Ω min
		1	1000000pF	:50M Ω min
			TOUOUUDF	: DOIN 25 IIIIII
Test Methods and	Temperature	% RH	Тооооорг	: JOINI 32 MIIII
Test Methods and Remarks	Humidity : 90 to 95 Duration : 500hrs+	% RH -24/—0 hrs	followed by 48±4 hrs of recovery ui	

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Recovery	: 24±2 hrs of recovery under the standard condition after the removal from test chamber. (Class 1)
	:1 hr of preconditioning at 150+10/-0 °C followed by 48±4 hrs of recovery under the standard condition after
	the removal from chamber. (Class 2)

18. Loading under	Damp Heat				
			Appearance: No significant abnomality		
			Withstanding Voltage: No abnomality		
			Capacitance change:		
			8.2pF or under	:Within ±0.75pF	
	Class1 (Temperature	Multilayer type	10pF or over	:Within ±7.5%	
	Compensating)	Marchayor cypo	Q:		
			30pF or under	:Q≧100+10/3*C	
			33pF or over	:Q≧200	
			Insulation resistance	:500M Ω min	
			C : Nominal Capacitance [pF]		
			Appearance: No significant abnoma	-	
			Withstanding Voltage: No abnomali	ty	
			Rate voltage: 16VDC		
			Capacitance change:		
			1200pF∼22000pF(Item△J)	: Within $\pm 12.5\%$	
			220000pF~470000pF	:Within ±15.0%	
			1000000pF~10000000pF	: Within ±22.5%	
			tan δ:		
			1200pF~22000pF(Item△J)	:5.0% max	
			220000pF~470000pF	: 7.5% max	
			1000000pF~2200000pF	:10.0% max	
			4700000pF~10000000pF	: 22.5% max	
			Insulation resistance:	500140	
			1200pF~22000pF(Item△J)	: 500M Ω min	
			220000pF 470000pF	: $50M\Omega$ min : $25M\Omega$ min	
			100000pF	: 12.5M Ω min	
			2200000pF	: 5.0M Ω min	
			470000pF~1000000pF	: 2.5M Ω min	
			Rate voltage: 25VDC	. 2.011 32 11111	
			Capacitance change:		
Specified Value			10000000pF	: Within ±22.5%	
			tan δ :		
			1000000pF	: 22.5% max	
			Insulation resistance:		
		Multilever tyre	10000000pF	: 2.5M Ω min	
	Class2(High Dielectric)	Multilayer type (Characteristics: B, B5)	Rate voltage: 35VDC		
		(Gharacensuos.B, Bo)	Capacitance change:		
			1000000pF	: Within $\pm 15.0\%$	
			2200000pF	: Within ±15.0%	
			4700000pF~10000000pF	:Within ±22.5%	
			tan δ:		
			1000000pF	:10.0% max	
			2200000pF~4700000pF	:10.0% max	
			1000000pF	: 22.5% max	
			Insulation resistance: 1000000pF	:12.5MΩ min	
			2200000pF	: 12.5M Ω min : 5.0M Ω min	
			470000pF~1000000pF	: 2.5M Ω min	
			Rate voltage: 50VDC	. 2.011 22 11111	
			Capacitance change:		
			100pF~39000pF	: Within ±12.5%	
			47000pF~1000000pF	:Within ±15.0%	
			(1000000pF/B5	:Within ±22.5%)	
			2200000pF~4700000pF	: Within ±22.5%	
			tan δ:		
			100pF∼39000pF	:5.0% max	
			47000pF~1000000pF	:7.5% max	
			(1000000pF/B5	:17.5% max)	
			2200000pF~4700000pF	:22.5% max	
			Insulation resistance:		
	i e		1 100 E 00000 E	: 500M Ω min	
			100pF~39000pF 47000pF~100000pF	: 250M Ω min	

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			220000pF	:125MΩ min
			470000pF	: 25M Ω min
			1000000 _p F	: 12.5M Ω min
			2200000pF	:10MΩ min
			4700000pF	: 2.5M Ω min
			Appearance: No significant abnoma	
			· · ·	•
			Withstanding Voltage: No abnomali	Ly
			Rate voltage: 10VDC	
			Capacitance change	: Within ±30.0%
			tan δ:	
			4700000pF~10000000pF	:20.0% max
			Insulation resistance:	
			4700000pF	:5MΩ min
			10000000pF	: 2.5M Ω min
			Rate voltage: 16VDC	
			Capacitance change	: Within ±30.0%
			tan ô:	
			220000pF~470000pF	: 15.0% max
			100000pF	: 22.5% max
			2200000pF	: 17.5% max
			<u> </u>	. 17.5/0 IIIax
			Insulation resistance:	. FOM O!
			220000pF	: 50M Ω min
			470000pF	: 25M Ω min
			1000000pF	: 12.5M Ω min
			2200000 _p F	: 12.5M Ω min
		Multilayer type	Rate voltage: 25VDC	
		(Characteristics: F)	Capacitance change	:Within ±30.0%
		(Gridian december 5)	tan δ:	
			10000pF∼47000pF(Item△J)	:12.5% max
			Insulation resistance: 10000pF∼47000pF(Item△J)	:250MΩ min
			Rate voltage: 35VDC	. 2001112 111111
			Capacitance change	: Within ±30.0%
			tan ô:	: WITHIN ± 30.0%
				00.0%
			1000000pF	: 20.0% max
			Insulation resistance:	0.514.0
			10000000pF	: 2.5M Ω min
			Rate voltage: 50VDC	
			Capacitance change	:
			10000pF~1000000pF	:Within $\pm 30.0\%$
			tan δ:	
			10000pF~100000pF	:12.5% max
			220000pF~470000pF	:15.0% max
			1000000pF	:17.5% max
			Insulation resistance:	
			10000pF∼100000pF	: 250M Ω min
			220000pF~470000pF	: 125M Ω min
			1000000pF	: 25M Ω min
-	Temperature : 40±2°C	L	· · · · · · · · · · · · · · · · · · ·	
	Humidity : 90 to 95	% RH		
	Duration : 500 +24			
	Applied voltage : Rate volt			
est Methods and		_	C followed by 48±4 hrs of recovery	under the standard condition
emarks			condition after the removal from test	
	(Class 1)	C C. 1000VCI y unidor the Standard	condition artor the removal from test	chain bor.
		reconditioning at 150±10/—0°C	followed by 48±4 hrs of recovery ur	nder the standard condition offer
		oval from chamber. (Class 2)	rollowed by 40 14 files of recovery un	idoi dio Standard Condition atte
	l the rem	oval from Graniber. (Olass 2)		
). High Temperatu	re Lading Test			
			Appearance: No significant abnoma	
			Withstanding Voltage: No abnomali	ty
			Capacitance change:	
			8.2pF or under	:Within ± 0.3 pF
	Class1 (Temperature	M 103	10pF or over	: Within $\pm 3.0\%$
pecified Value		Multilayer type		

			Appearance: No significant ab Withstanding Voltage: No abno	•
Specified Value	Class1 (Temperature Compensating)	Multilayer type	Capacitance change: 8.2pF or under 10pF or over Q: 8.2pF or under 10pF~30pF 33pF or over Insulation resistance	:Within ±0.3pF :Within ±3.0% : Q ≥ 200+10C : Q ≥ 275+2.5C : Q ≥ 350 : 1000M Ω min

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		C : Nominal Capacitance [pF]		
		Appearance: No significant abnon	=	
		Withstanding Voltage: No abnoma	IIILY	
		Rate voltage: 16VDC Capacitance change:		
		Capacitance change: 1200pF∼22000pF(Item△J)	:Within ±12.5%	
		220000pF~470000pF	: Within ±12.5%	
		1000000pF~1000000pF	: Within ± 13.5%	
		tan δ:		
		1200pF~22000pF(Item△J)	: 5.0% max	
		220000pF~470000pF	: 7.5% max	
		1000000pF~2200000pF	:10.0% max	
		4700000pF~10000000pF	: 22.5% max	
		Insulation resistance:		
		1200pF~22000pF(Item△J)	:1000M Ω min	
		220000pF	:125M Ω min	
		470000pF	:50MΩ min	
		1000000pF	: 25M Ω min : 12.5M Ω min	
		2200000pF 4700000pF~10000000pF	: 12.5M Ω min : 5.0M Ω min	
		Rate voltage: 25VDC	. O.OWI JE IIIIII	
		Capacitance change:		
		10000000pF	: Within ±22.5%	
		tan δ:		
		10000000pF	: 22.5% max	
		Insulation resistance:		
		1000000pF	:5M Ω min	
		Rate voltage: 35VDC		
		Capacitance change:		
	Multilayer type	1000000pF	: Within ±15.0%	
	(Characteristics: B, B5)	2200000pF	: Within $\pm 15.0\%$	
		4700000pF~10000000pF	:Within ±22.5%	
		tan δ:		
		1000000pF	:10.0% max	
Class2(High Dielectric)		2200000pF~4700000pF	:10.0% max	
		1000000pF	: 22.5% max	
		Insulation resistance:	05140	
		1000000pF	: 25M Ω min	
		2200000pF	: 25M Ω min : 5M Ω min	
		4700000pF~10000000pF	: Olvi 25 mių	
		Rate voltage: 50VDC		
		Capacitance change:	: Within ±12.5%	
		47000pF~1000000pF	: Within ±12.5%	
		(1000000pF/B5	: Within ±13.5%	
		2200000pF~4700000pF	: Within ±22.5%	
		tan δ:		
		100pF∼39000pF	:5.0% max	
		47000pF~1000000pF	: 7.5% max	
		(1000000/B5	:17.5% max)	
		2200000pF~4700000pF	: 22.5% max	
		Insulation resistance:		
		100pF∼39000pF	: 1000M Ω min	
		47000pF~100000pF	: 500M Ω min	
		220000 _p F	: 250M Ω min	
		470000pF	:100M Ω min	
		1000000pF	: 50M Ω min	
		2200000pF	: 20M Ω min	
		4700000pF	:5MΩ min	
		Appearance: No significant abnon	-	
		Withstanding Voltage: No abnoma	lity	
		Rate voltage: 10VDC		
		Capacitance change	:Within ±30.0%	
	Multilayer type	tan δ:		
	(Characteristics:F)	4700000pF~10000000pF	:20.0% max	
		Insulation resistance:		
		4700000pF	:10M Ω min	
		1000000pF	:5MΩ min	
		Rate voltage: 16VDC		

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				Capacitance change	:Within ±30.0%
				tan δ:	
				220000pF~470000pF	:15.0% max
				1000000pF	: 22.5% max
				2200000pF	:17.5% max
				Insulation resistance:	
				220000pF	:100MΩ min
				470000pF	:50MΩ min
				1000000pF	: 25M Ω min
				2200000pF	: 25M Ω min
				Rate voltage: 25VDC	
				Capacitance change	:Within ±30%
				tan δ:	
				10000pF∼47000pF(Item△J)	:10.0% max
				Insulation resistance:	
				10000pF∼47000pF(Item△J)	:500M Ω min
				Rate voltage: 35VDC	
				Capacitance change	:Within ±30.0%
				tan δ:	
				1000000pF	:20.0% max
				Insulation resistance:	
				1000000pF	:5M Ω min
				Rate voltage: 50VDC	
				Capacitance change:	
				10000pF~1000000pF	: Within 30.0%
				tan δ:	
				10000pF∼100000pF	:10.0% max
				220000pF~470000pF	:12.5% max
				1000000pF	:17.5% max
				Insulation resistance:	
				10000pF∼100000pF	: $500M\Omega$ min
				220000pF~470000pF	: 250M Ω min
				1000000pF	:50MΩ min
	Temperature	:85 +3/-0 °C			
	Duration	: 1000 + 48/-0 hrs			
	Applied voltage	: Rate voltage × 2			
		: Rate voltage × 1.5			
		Class 2: B,B5 10000	00pF(025Type)		
est Methods and		· B B5 220	000pF~1000000pF(0	50Type 075Type)	

: B,B5 220000pF~10000000pF(050Type, 075Type)

Preconditioning : 1 hr of preconditioning at 150 \pm 10-0 °C followed by 48 \pm 4 hrs of recovery under the standard condition.

: $24\pm2\text{hrs}$ of recovery under the standard condition after the removal from test chamber. Recovery

(Class1)

: 1 hr of preconditioning at $150 \pm 10 - 0$ °C followed by 48 ± 4 hrs of recovery under the standard condition after the

removal from chamber. (Class 2)

Note on standard condition: "standard condition" referred to herein is defined as follows:

5 to $35^{\circ}\text{C}\,$ of temperature, 45 to 85% relative humidity, and 86 to 106kPa of air pressure.

When there are questions concerning measurement results:

Remarks

In order to provide correlation data, the test shall be conducted under condition of 20±2°C of temperature, 60 to 70% relative humidity, and 86 to 106kPa of air pressure. Unless otherwise specified, all the tests are conducted under the "standard condition."

Withstanding voltage is also referred to as "voltage proof" under IEC specifications.

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Precautions on the use of Axial Leaded Ceramic Capacitors

■PRECAUTIONS

1. Circuit Design

- ◆ Verification of operating environment, electrical rating and performance
 - 1. A malfunction in medical equipment, spacecraft, nuclear reactors, etc. may cause serious harm to human life or have severe social ramifications. As such, any capacitors to be used in such equipment may require higher safety and/or reliability considerations and should be clearly differentiated from components used in general purpose applications.
- ◆Verification of Rated voltage (DC rated voltage)
- 1. The operating voltage for capacitors must always be lower than their rated values.

If an AC voltage is loaded on a DC voltage, the sum of the two peak voltages should be lower than the rated value of the capacitor chosen. For a circuit where both an AC and a pulse voltage may be present, the sum of their peak voltages should also be lower than the capacitor's rated voltage.

Precautions

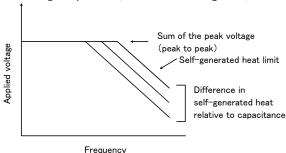
- ◆Self-generated heat (Verification of Temperature)
 - 1. If the capacitors specified only for DC use are used in AC or pulse circuits, the AC or a pulse current can generate heat inside the capacitor so the self-generated temperature rise should be limited to within 20°C. The surface temperature measured should include this self-temperature rise. Therefore, it is required to limit capacitor surface temperature including self-generated heat should not exceed the maximum operating temperature of +85°C.
- ◆Operating Environment precautions
 - 1. Capacitors should not be used in the following environments:
 - (1) Environmental conditions to avoid
 - a. exposure to water or salt water.
 - b. exposure to moisture or condensation.
 - c. exposure to corrosive gases (such as hydrogen sulfide, sulfurous acid, chlorine, and ammonia)
- 1-1. When an AC or a pulse voltage is applied to capacitors specified for DC use, even if the voltage is less than the rated voltage, the AC current or pulse current running through the capacitor will cause the capacitor to self-generate heat because of the loss characteristics.

The amount of heat generated depends on the dielectric materials used, capacitance, applied voltage, frequency, voltage waveform, etc. The surface temperature changes due to emitted heat which differs by capacitor shape or mounting method.

Please contact Taiyo Yuden with any questions regarding emitted heat levels in your particular application. It is recommended the temperature rise be measured in the actual circuit to be used.

1-2. For capacitors, the voltage and frequency relationship is generally determined by peak voltage at low frequencies, and by self-generated heat at high frequencies. (Refer to the following curve.)

Technical considerations



2. PCB Design

Precautions

◆Design of the capacitor mount

1. When capacitors are mounted onto a PC board, hole dimensions on the board should match the lead pitch of the component, if not it will cause breakage of the terminals or cracking of terminal roots covered with resin as excess stress travels through the terminal legs. As a result, humidity resistance performance would be lost and may lead to a reduction in insulation resistance and cause a withstand voltage failure.

3. Considerations for automatic insertion

Precautions

- ◆Adjustment Automatic Insertion machines (leaded components)
 - 1. When inserting capacitors in a PC board by auto-insertion machines the impact load imposed on the capacitors should be minimized to prevent the leads from chucking or clinching.

Technical considerations

- 1. When installing products, care should be taken not to apply distortion stress as it may deform the products.
- 2. Our company recommends the method to place the lead with fewer loads that join the product.

4. Soldering

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◆Selection of Flux 1. When soldering capacitors are on the board, flux should be applied thinly and evenly. 2. Flux used should be with less than or equal to 0.1 wt% (equivalent to Chlorine) of halogenated content. Flux having a strong acidity content should not be applied. 3. When using water-soluble flux, special care should be taken to properly clean the boards. ◆Wave Soldering 1. Temperature, time, amount of solder, etc. are specified in accordance with the following recommended conditions. Precautions 2. Do not immerse the entire capacitor in the flux during the soldering operation. Only solder the lead wires on the bottom of the board. Recommended conditions for using a soldering iron: 1. Put the soldering iron on the land-pattern. Soldering iron's temperature - below 350°C Duration - 3 seconds or less Numbers of times - 1 times The soldering iron should not directly touch the capacitor. Selection of Flux 1. Flux is used to increase solderability in wave soldering, but if too much is applied, a large amount of flux gas may be emitted and may detrimentally affect solderability. To minimize the amount of flux applied, it is recommended to use a flux-bubbling system. 2. With too much halogenated substance (Chlorine, etc.) content is used to activate the flux, an excessive amount of residue after soldering may lead to corrosion of the terminal electrodes or degradation of insulation resistance on the surface of the capacitors. 3. Since the residue of water-soluble flux is easily dissolved by water content in the air, the residue on the surface of capacitors in high humidity conditions may cause a degradation of insulation resistance and therefore affect the reliability of the components. The cleaning methods and the capability of the machines used should also be considered carefully when selecting water-soluble flux. Technical ◆Wave Soldering considerations 1. If capacitors are used beyond the range of the recommended conditions, heat stresses may cause cracks inside the capacitors, and

consequently degrade the reliability of the capacitors.

◆Recommended conditions for using a soldering iron:

the reliability of the products.

voltage.

5. Cleaning	
Precautions	◆Board cleaning 1. When cleaning the mounted PC boards, make sure that cleaning conditions are consistent with prescribed usage conditions.
Technical considerations	The resin material used for the outer coating of capacitors is occasionally a wax substance for moisture resistance which can easily be dissolved by some solutions. So before cleaning, special care should be taken to test the component's vulnerability to the solutions used. When using water—soluble flux please clean the PCB with purified water sufficiently and dry thoroughly at the end of the process. Insufficient washing or drying could lower the reliability of the capacitors.

2. When the capacitors are dipped in solder, some soldered parts of the capacitor may melt due to solder heat and cause short-circuits or cracking of the ceramic material. Deterioration of the resin coating may lower insulation resistance and cause a reduction of withstand

1. If products are used beyond the range of the recommended conditions, heat stress may deform the products, and consequently degrade

6. Post-cleaning	-process
Precautions	 ♠Application of resin molding, etc. to the PCB and components. 1. Please contact your local Taiyo Yuden sales office before performing resin coating or molding on mounted capacitors. Please contact your local Taiyo Yuden sales office in case of sealing the capacitor with resin or molding it on mounted capacitors. Please verify that the sealing or molding does not affect on the actual application in quality.
Technical considerations	 1-1. The thermal expansion and coefficient of contraction of the molded resin are not necessarily matched with those of the capacitor. The capacitors may be exposed to stresses due to thermal expansion and contraction during and after hardening. This may lower the specified characteristics and insulation resistance or cause reduced withstanding voltage by cracking the ceramic or separating the coated resin from the ceramics. 1-2. With some types of mold resins, the resin's decomposition gas or reaction gas may remain inside the resin during the hardening period or while left under normal conditions, cause a deterioration of the capacitor's performance. 1-3. Some mold resins may have poor moisture proofing properties. Please verify the contents of the resins before they are applied. 1-4. Please contact Taiyo Yuden before using if the hardening process temperature of the mold resins is higher than the operating temperature of the capacitors.

7. Handling	
Precautions	 ♦ Mechanical considerations 1. Be careful not to subject the capacitors to excessive mechanical shocks. Withstanding voltage failure may result. 2. If ceramic capacitors are dropped onto the floor or a hard surface they should not be used.
Technical	1. Because the capacitor is made of ceramic, mechanical shocks applied to the board may damage or crack the capacitors.
considerations	2. Ceramic capacitors which are dropped onto the floor or a hard surface may develop defects and have a higher risk of failure over time.

8. Storage conditions

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Precautions	♦Storage
	1. To maintain the solderability of terminal electrodes and to keep the packaging material in good condition, care must be taken to control temperature and humidity in the storage area. Humidity should especially be kept as low as possible. Recommended conditions: Ambien temperature Below 40 °C Humidity Below 70% RH.
	Products should be used within 6 months after delivery. After the above period, the solderability should be checked before using the capacitors.
	2. Capacitors should not be kept in an environment filled with decomposition gases such as sulfurous hydrogen, sulfurous acid, chlorine, ammonia, etc.
	3. Capacitors should not be kept in a location where they may be exposed to moisture, condensation or direct sunlight.
Technical considerations	1. Under high temperature/high humidity conditions, the decrease in solderability due to the oxidation of terminal electrodes and deterioration of taping and packaging characteristics may be accelerated.