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## Reference Specification

Type KX Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose

Product specifications in this catalog are as of May. 2018, and are subject to change or obsolescence without notice.

Please consult the approval sheet before ordering. Please read rating and Cautions first.

#### $\triangle$ CAUTION

#### 1. OPERATING VOLTAGE

When DC-rated capacitors are to be used in AC or ripple current circuits, be sure to maintain the Vp-p value of the applied voltage or the Vo-p which contains DC bias within the rated voltage range. When the voltage is started to apply to the circuit or it is stopped applying, the irregular voltage may be generated for a transit period because of resonance or switching. Be sure to use a capacitor within rated voltage containing these irregular voltage.

Voltage	DC Voltage	DC Voltage DC+AC Voltage		Pulse Voltage(1)	Pulse Voltage(2)
Positional Measurement	Vo-p	Vo-p	Vp-p	Vp-p	Vp-p

#### 2. OPERATING TEMPERATURE AND SELF-GENERATED HEAT

Keep the surface temperature of a capacitor below the upper limit of its rated operating temperature range. Be sure to take into account the heat generated by the capacitor itself.

When the capacitor is used in a high-frequency current, pulse current or the like, it may have the self-generated heat due to dielectric-loss. Applied voltage should be the load such as self-generated heat is within 20 °C on the condition of atmosphere temperature 25 °C. When measuring, use a thermocouple of small thermal capacity-K of  $\phi 0.1 \text{mm}$  and be in the condition where capacitor is not affected by radiant heat of other components and wind of surroundings. Excessive heat may lead to deterioration of the capacitor's characteristics and reliability.(Never attempt to perform measurement with the cooling fan running. Otherwise, accurate measurement cannot be ensured.)

#### 3. TEST CONDITION FOR WITHSTANDING VOLTAGE

#### (1) TEST EQUIPMENT

Test equipment for AC withstanding voltage should be used with the performance of the wave similar to 50/60 Hz sine wave.

If the distorted sine wave or over load exceeding the specified voltage value is applied, the defective may be caused.

#### (2) VOLTAGE APPLIED METHOD

When the withstanding voltage is applied, capacitor's lead or terminal should be firmly connected to the out-put of the withstanding voltage test equipment, and then the voltage should be raised from near zero to the test voltage.

If the test voltage without the raise from near zero voltage would be applied directly to capacitor, test voltage should be applied with the \*zero cross. At the end of the test time, the test voltage should be reduced to near zero, and then capacitor's lead or terminal should be taken off the out-put of the withstanding voltage test equipment.

If the test voltage without the raise from near zero voltage would be applied directly to capacitor, the surge voltage may arise, and therefore, the defective may be caused.

\*ZERO CROSS is the point where voltage sine wave pass 0V.

- See the right figure -

# voltage sine wave

#### 4. FAIL-SAFE

When capacitor would be broken, failure may result in a short circuit. Be sure to provide an appropriate fail-safe function like a fuse on your product if failure would follow an electric shock, fire or fume.

#### 5. VIBRATION AND IMPACT

Do not expose a capacitor or its leads to excessive shock or vibration during use.

#### 6. SOLDERING

When soldering this product to a PCB/PWB, do not exceed the solder heat resistance specification of the capacitor. Subjecting this product to excessive heating could melt the internal junction solder and may result in thermal shocks that can crack the ceramic element.

When soldering capacitor with a soldering iron, it should be performed in following conditions.

Temperature of iron-tip: 400 °C max. Soldering iron wattage: 50W max. Soldering time: 3.5s max.

#### 7. BONDING, RESIN MOLDING AND COATING

In case of bonding, molding or coating this product, verify that these processes do not affect the quality of capacitor by testing the performance of the bonded, molded or coated product in the intended equipment.

In case of the amount of applications, dryness / hardening conditions of adhesives and molding resins containing organic solvents (ethyl acetate, methyl ethyl ketone, toluene, etc.) are unsuitable, the outer coating resin of a capacitor is damaged by the organic solvents and it may result, worst case, in a short circuit.

The variation in thickness of adhesive, molding resin or coating may cause a outer coating resin cracking and/or ceramic element cracking of a capacitor in a temperature cycling.

#### 8. TREATMENT AFTER BONDING, RESIN MOLDING AND COATING

When the outer coating is hot (over 100  $^{\circ}$ C) after soldering, it becomes soft and fragile. So please be careful not to give it mechanical stress.

Failure to follow the above cautions may result, worst case, in a short circuit and cause fuming or partial dispersion when the product is used.

#### 9. OPERATING AND STORAGE ENVIRONMENT

The insulating coating of capacitors does not form a perfect seal; therefore, do not use or store capacitors in a corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. And avoid exposure to moisture. Before cleaning, bonding, or molding this product, verify that these processes do not affect product quality by testing the performance of a cleaned, bonded or molded product in the intended equipment. Store the capacitors where the temperature and relative humidity do not exceed -10 to 40 °C and 15 to 85%.

Use capacitors within 6 months after delivered. Check the solderability after 6 months or more.

#### 10. LIMITATION OF APPLICATIONS

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property.

- 1. Aircraft equipment
- 2. Aerospace equipment
- 3. Undersea equipment
- 4. Power plant control equipment
- 5. Medical equipment
- 6. Transportation equipment (vehicles, trains, ships, etc.)
- 7. Traffic signal equipment
- 8. Disaster prevention / crime prevention equipment
- 9. Data-processing equipment exerting influence on public
- 10. Application of similar complexity and/or reliability requirements to the applications listed in the above.

#### NOTICE

#### 1. CLEANING (ULTRASONIC CLEANING)

To perform ultrasonic cleaning, observe the following conditions.

Rinse bath capacity: Output of 20 watts per liter or less.

Rinsing time: 5 min maximum. Do not vibrate the PCB/PWB directly.

Excessive ultrasonic cleaning may lead to fatigue destruction of the lead wires.

#### 2. CAPACITANCE CHANGE OF CAPACITORS

Class 1 capacitors

Capacitance might change a little depending on a surrounding temperature or an applied voltage. Please contact us if you use for the strict time constant circuit.

· Class 2 and 3 capacitors

Class 2 and 3 capacitors like temperature characteristic B, E and F have an aging characteristic, whereby the capacitor continually decreases its capacitance slightly if the capacitor leaves for a long time. Moreover, capacitance might change greatly depending on a surrounding temperature or an applied voltage. So, it is not likely to be able to use for the time constant circuit.

Please contact us if you need a detail information.

#### 3. PERFORMANCE CHECK BY EQUIPMENT

Before using a capacitor, check that there is no problem in the equipment's performance and the specifications.

Generally speaking, CLASS 2 ceramic capacitors have voltage dependence characteristics and temperature dependence characteristics in capacitance. So, the capacitance value may change depending on the operating condition in a equipment. Therefore, be sure to confirm the apparatus performance of receiving influence in a capacitance value change of a capacitor, such as leakage current and noise suppression characteristic.

Moreover, check the surge-proof ability of a capacitor in the equipment, if needed, because the surge voltage may exceed specific value by the inductance of the circuit.

#### **⚠** NOTE

- 1.Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.
- 2. You are requested not to use our product deviating from this specification.

EGD08E

#### 1. Application

This specification is applied to Safety Standard Certified Lead Type Disc Ceramic Capacitors Type KX used for General Electric equipment.

Type KX is Safety Standard Certified capacitors of Class X1,Y1.

Do not use these products in any automotive power train or safety equipment including battery chargers for electric vehicles and plug-in hybrids.

Approval standard and certified number

	Standard number	*Certified number	AC Rated volt. V(r.m.s.)		
UL	UL60384-14	E37921			
CSA	CSA E60384-14	1343810			
VDE	IEC60384-14, EN60384-14	40002831			
BSI	EN60065 (8.8,14.2), IEC60384-14, EN60384-14	KM 37901			
SEMKO		X1:440 Y1:250			
DEMKO	J=00000 / / /	D-05321			
FIMKO	IEC60384-14, EN60384-14	IEC60384-14, FI 29602			
NEMKO	LN00384-14	P16221232			
ESTI		18.0079			
IMQ	EN60384-14	EN60384-14 V4069			
CQC	GB/T6346.14	CQC04001011643			

<sup>\*</sup>Above Certified number may be changed on account of the revision of standards and the renewal of certification.

#### 2. Rating

2-1. Operating temperature range

-40 ~ +125°C

#### 2-2. Part number configuration

ex.) <u>DE1</u> E3 ΚX 472 М В N01F Packing Product Temperature Type Capacitance Capacitance Individual Lead code characteristic style code specification tolerance code name

Product code

DE1 denotes X1,Y1 class.

• Temperature characteristic

Code	Temperature characteristic
B3	В
E3	E

Please confirm detailed specification on [ Specification and test methods ].

• Type name

This denotes safety certified type name Type KX.

#### • Capacitance

The first two digits denote significant figures; the last digit denotes the multiplier of 10 in pF. ex.) In case of 472.

$$47 \times 10^2 = 4700 pF$$

#### • Capacitance tolerance

Please refer to [ Part number list ].

#### • Lead code

Code	Lead style					
A*	Vertical crimp long type					
B*	Vertical crime abort tune	Lead Length: 5mm				
J*	Vertical crimp short type	Lead Length: 3.5mm				
N*	Vertical crimp taping type					

<sup>\*</sup> Please refer to [ Part number list ]

Packing style code

Code	Packing type
В	Bulk type
Α	Ammo pack taping type

#### Individual specification

In case part number cannot be identified without 'individual specification', it is added at the end of part number.

cha or part hamber.	
Code	Specification
N01F	<ul> <li>Halogen free         (Br ≤ 900ppm, Cl ≤ 900ppm)         Br + Cl ≤ 1500ppm</li> <li>CP wire</li> </ul>

Note) Murata part numbers might be changed depending on lead code or any other changes. Therefore, please specify only the type name(KX) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

#### 3. Marking

Nominal capacitance : 3 digit system

Capacitance tolerance : Code
Type name : KX
Rated voltage mark : 250~
Class code : X1Y1
Halogen free mark : HF

Manufacturing year : Letter code(The last digit of A.D. year.)

Manufacturing month : Code

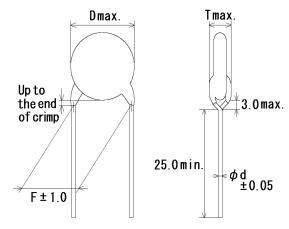
Company name code : (Made in Thailand)

(Example)

472M KX250~ X1Y1 |<del>F</del> 5D (M15

#### 4. Part number list

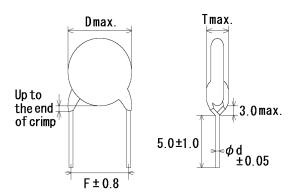
Vertical crimp long type (Lead code: A\*)



Note) The mark '\*' of lead code differ from lead spacing(F) and lead diameter(d).
Please see the following list about details.

									•	
T.C.	Сар.	Cap. Cap. Customer Part Number Murata Part Num		Customer Part Number Murata Part Number Dimens				m)	Lead	Pack
1.0.	(pF)	tol.	Gustomer Fart Number	Murata Part Number	D	Т	F	d	code	qty. (pcs)
В	100	±10%		DE1B3KX101KA4BN01F	7.0	7.0	10.0	0.6	A4	250
В	150	±10%		DE1B3KX151KA4BN01F	7.0	7.0	10.0	0.6	A4	250
В	220	±10%		DE1B3KX221KA4BN01F	8.0	7.0	10.0	0.6	A4	250
В	330	±10%		DE1B3KX331KA4BN01F	7.0	7.0	10.0	0.6	A4	250
В	470	$\pm 10\%$		DE1B3KX471KA4BN01F	7.0	7.0	10.0	0.6	A4	250
В	680	$\pm 10\%$		DE1B3KX681KA4BN01F	8.0	7.0	10.0	0.6	A4	250
Е	1000	±20%		DE1E3KX102MA4BN01F	7.0	7.0	10.0	0.6	A4	250
Е	1500	±20%		DE1E3KX152MA4BN01F	8.0	7.0	10.0	0.6	A4	250
Е	2200	±20%		DE1E3KX222MA4BN01F	9.0	7.0	10.0	0.6	A4	250
Е	3300	±20%		DE1E3KX332MA4BN01F	10.0	7.0	10.0	0.6	A4	250
Е	4700	$\pm 20\%$		DE1E3KX472MA4BN01F	12.0	7.0	10.0	0.6	A4	200

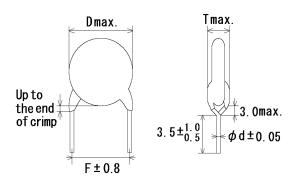
Vertical crimp short type (Lead code:B\*)



Note) The mark '\*' of lead code differ from lead spacing(F) and lead diameter(d).
Please see the following list about details.

т.с	Сар.	ap. Cap. Customer Part Number Murata Part Number		Museta Dant Nussia au	Dir	nensi	Lead	Pack		
T.C.	(pĖ)	toİ.	Customer Part Number	Murata Part Number	D	Т	F	d	code	qty. (pcs)
В	100	±10%		DE1B3KX101KB4BN01F	7.0	7.0	10.0	0.6	B4	500
В	150	$\pm 10\%$		DE1B3KX151KB4BN01F	7.0	7.0	10.0	0.6	B4	500
В	220	±10%		DE1B3KX221KB4BN01F	8.0	7.0	10.0	0.6	B4	500
В	330	±10%		DE1B3KX331KB4BN01F	7.0	7.0	10.0	0.6	B4	500
В	470	$\pm 10\%$		DE1B3KX471KB4BN01F	7.0	7.0	10.0	0.6	B4	500
В	680	$\pm 10\%$		DE1B3KX681KB4BN01F	8.0	7.0	10.0	0.6	B4	500
Е	1000	±20%		DE1E3KX102MB4BN01F	7.0	7.0	10.0	0.6	B4	500
Е	1500	±20%		DE1E3KX152MB4BN01F	8.0	7.0	10.0	0.6	B4	500
Е	2200	±20%		DE1E3KX222MB4BN01F	9.0	7.0	10.0	0.6	B4	500
Е	3300	±20%		DE1E3KX332MB4BN01F	10.0	7.0	10.0	0.6	B4	500
Е	4700	±20%		DE1E3KX472MB4BN01F	12.0	7.0	10.0	0.6	B4	250

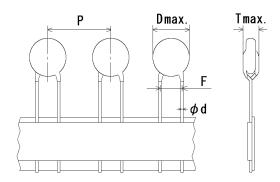
·Vertical crimp short type
(Lead code:J\*)



Note) The mark '\*' of lead code differ from lead spacing(F) and lead diameter(d).
Please see the following list about details.

								OTHE .	
Cap. Cap		Customer Part Number	Murata Part Number		Dimension (mm)				Pack
(pF)	tol.	Customer Fait Number	Muraia Fait Number	D	Т	F	d	code	qty. (pcs)
100	±10%		DE1B3KX101KJ4BN01F	7.0	7.0	10.0	0.6	J4	500
150	±10%		DE1B3KX151KJ4BN01F	7.0	7.0	10.0	0.6	J4	500
220	±10%		DE1B3KX221KJ4BN01F	8.0	7.0	10.0	0.6	J4	500
330	$\pm 10\%$		DE1B3KX331KJ4BN01F	7.0	7.0	10.0	0.6	J4	500
470	$\pm 10\%$		DE1B3KX471KJ4BN01F	7.0	7.0	10.0	0.6	J4	500
680	$\pm 10\%$		DE1B3KX681KJ4BN01F	8.0	7.0	10.0	0.6	J4	500
1000	±20%		DE1E3KX102MJ4BN01F	7.0	7.0	10.0	0.6	J4	500
1500	±20%		DE1E3KX152MJ4BN01F	8.0	7.0	10.0	0.6	J4	500
2200	±20%		DE1E3KX222MJ4BN01F	9.0	7.0	10.0	0.6	J4	500
3300	±20%		DE1E3KX332MJ4BN01F	10.0	7.0	10.0	0.6	J4	500
4700	±20%		DE1E3KX472MJ4BN01F	12.0	7.0	10.0	0.6	J4	250
	100 150 220 330 470 680 1000 1500 2200 3300	$\begin{array}{c c} (pF) & tol. \\ \hline 100 & \pm 10\% \\ \hline 150 & \pm 10\% \\ \hline 220 & \pm 10\% \\ \hline 330 & \pm 10\% \\ \hline 470 & \pm 10\% \\ \hline 680 & \pm 10\% \\ \hline 1000 & \pm 20\% \\ \hline 1500 & \pm 20\% \\ \hline 2200 & \pm 20\% \\ \hline 3300 & \pm 20\% \\ \hline \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(pF)         tol.         Customer Fatt Number         Mulata Fatt Number           100         ±10%         DE1B3KX101KJ4BN01F           150         ±10%         DE1B3KX221KJ4BN01F           220         ±10%         DE1B3KX331KJ4BN01F           470         ±10%         DE1B3KX471KJ4BN01F           680         ±10%         DE1B3KX681KJ4BN01F           1000         ±20%         DE1E3KX102MJ4BN01F           1500         ±20%         DE1E3KX222MJ4BN01F           2200         ±20%         DE1E3KX332MJ4BN01F           3300         ±20%         DE1E3KX332MJ4BN01F	Cap. (pF)         Cap. tol.         Customer Part Number         Murata Part Number         D           100         ±10%         DE1B3KX101KJ4BN01F         7.0           150         ±10%         DE1B3KX151KJ4BN01F         7.0           220         ±10%         DE1B3KX221KJ4BN01F         8.0           330         ±10%         DE1B3KX331KJ4BN01F         7.0           470         ±10%         DE1B3KX471KJ4BN01F         7.0           680         ±10%         DE1B3KX681KJ4BN01F         8.0           1000         ±20%         DE1E3KX102MJ4BN01F         7.0           1500         ±20%         DE1E3KX222MJ4BN01F         9.0           3300         ±20%         DE1E3KX332MJ4BN01F         10.0	Cap. (pF)         Customer Part Number         Murata Part Number         D         T           100         ±10%         DE1B3KX101KJ4BN01F         7.0         7.0           150         ±10%         DE1B3KX215IKJ4BN01F         7.0         7.0           220         ±10%         DE1B3KX221KJ4BN01F         8.0         7.0           330         ±10%         DE1B3KX331KJ4BN01F         7.0         7.0           470         ±10%         DE1B3KX681KJ4BN01F         7.0         7.0           680         ±10%         DE1B3KX681KJ4BN01F         8.0         7.0           1000         ±20%         DE1E3KX102MJ4BN01F         7.0         7.0           1500         ±20%         DE1E3KX222MJ4BN01F         9.0         7.0           3300         ±20%         DE1E3KX332MJ4BN01F         9.0         7.0           3300         ±20%         DE1E3KX332MJ4BN01F         10.0         7.0	Cap. (pF)         Cap. tol.         Customer Part Number         Murata Part Number         D         T         F           100         ±10%         DE1B3KX101KJ4BN01F         7.0         7.0         10.0           150         ±10%         DE1B3KX151KJ4BN01F         7.0         7.0         10.0           220         ±10%         DE1B3KX331KJ4BN01F         7.0         7.0         10.0           470         ±10%         DE1B3KX471KJ4BN01F         7.0         7.0         10.0           680         ±10%         DE1B3KX681KJ4BN01F         8.0         7.0         10.0           1000         ±20%         DE1E3KX102MJ4BN01F         7.0         7.0         10.0           2200         ±20%         DE1E3KX222MJ4BN01F         9.0         7.0         10.0           3300         ±20%         DE1E3KX332MJ4BN01F         10.0         7.0         10.0	Cap. (pF)         Cap. tol.         Customer Part Number         Murata Part Number         D         T         F         d           100         ±10%         DE1B3KX101KJ4BN01F         7.0         7.0         10.0         0.6           150         ±10%         DE1B3KX151KJ4BN01F         7.0         7.0         10.0         0.6           220         ±10%         DE1B3KX331KJ4BN01F         7.0         7.0         10.0         0.6           470         ±10%         DE1B3KX471KJ4BN01F         7.0         7.0         10.0         0.6           680         ±10%         DE1B3KX681KJ4BN01F         8.0         7.0         10.0         0.6           1000         ±20%         DE1E3KX102MJ4BN01F         7.0         7.0         10.0         0.6           2200         ±20%         DE1E3KX222MJ4BN01F         9.0         7.0         10.0         0.6           3300         ±20%         DE1E3KX332MJ4BN01F         10.0         7.0         10.0         0.6	Cap. (pF)         Cap. tol.         Customer Part Number         Murata Part Number         Dimension (mm)         Lead code           100 ±10%         DE1B3KX101KJ4BN01F         7.0         7.0         10.0         0.6         J4           150 ±10%         DE1B3KX151KJ4BN01F         7.0         7.0         10.0         0.6         J4           220 ±10%         DE1B3KX221KJ4BN01F         8.0         7.0         10.0         0.6         J4           330 ±10%         DE1B3KX331KJ4BN01F         7.0         7.0         10.0         0.6         J4           470 ±10%         DE1B3KX471KJ4BN01F         7.0         7.0         10.0         0.6         J4           680 ±10%         DE1B3KX681KJ4BN01F         8.0         7.0         10.0         0.6         J4           1000 ±20%         DE1E3KX102MJ4BN01F         7.0         7.0         10.0         0.6         J4           2200 ±20%         DE1E3KX222MJ4BN01F         9.0         7.0         10.0         0.6         J4           3300 ±20%         DE1E3KX332MJ4BN01F         10.0         7.0         10.0         0.6         J4

#### Vartical crimp taping type (Lead code:N\*)



Note) The mark '\*' of lead code differ from lead spacing(F), lead diameter(d) and pitch of component(P). Please see the following list or taping specification about details.

										<u> </u>	
T.C.	Сар.	Сар.	Cap. Customer Bort Number Murate Bort Number		Customer Part Number Murata Part Number Dimension				)	Lead	Pack
1.0.	(pF)	tol.	Customer Fait Number	IVIUIAIA FAIT INUIIIDEI	D	Τ	F	р	Р	code	qty. (pcs)
В	100	$\pm 10\%$		DE1B3KX101KN4AN01F	7.0	7.0	10.0	0.6	25.4	N4	500
В	150	$\pm 10\%$		DE1B3KX151KN4AN01F	7.0	7.0	10.0	0.6	25.4	N4	500
В	220	$\pm 10\%$		DE1B3KX221KN4AN01F	8.0	7.0	10.0	0.6	25.4	N4	500
В	330	$\pm 10\%$		DE1B3KX331KN4AN01F	7.0	7.0	10.0	0.6	25.4	N4	500
В	470	$\pm 10\%$		DE1B3KX471KN4AN01F	7.0	7.0	10.0	0.6	25.4	N4	500
В	680	$\pm 10\%$		DE1B3KX681KN4AN01F	8.0	7.0	10.0	0.6	25.4	N4	500
Е	1000	±20%		DE1E3KX102MN4AN01F	7.0	7.0	10.0	0.6	25.4	N4	500
Е	1500	±20%		DE1E3KX152MN4AN01F	8.0	7.0	10.0	0.6	25.4	N4	500
Е	2200	±20%		DE1E3KX222MN4AN01F	9.0	7.0	10.0	0.6	25.4	N4	500
Е	3300	±20%		DE1E3KX332MN4AN01F	10.0	7.0	10.0	0.6	25.4	N4	500
Е	4700	$\pm 20\%$		DE1E3KX472MN4AN01F	12.0	7.0	10.0	0.6	25.4	N4	500

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	pecification and			-16' 11'	<del></del>	T
No. 1	Iter Appearance and d			cification fect on appearance	$\dashv$	Test method  The capacitor should be inspected by naked eyes
'	Appearance and dimensions		form and dime		Ð	for visible evidence of defect.
				[Part number list]	.	Dimensions should be measured with slide calipers.
2	Marking		To be easily le		T	The capacitor should be inspected by naked eyes.
3	Dielectric	Between lead	No failure.	-		The capacitor should not be damaged when
	strength	wires				AC4000V(r.m.s.)<50/60Hz> is applied between the
		Dedu	No failure		$\dashv$	lead wires for 60 s.
		Body insulation	No failure.			First, the terminals of the capacitor should be connected together.
		insulation				Then, a metal foil should be
						closely wrapped around
						the body of the capacitor Metal About
						to the distance of about 3 to 6mm
						about 3 to 6mm
						Then, the capacitor should be inserted into a
						container filled with metal balls of about 1mm
						diameter.
ĺ						Finally, AC4000V (r.m.s.)<50/60Hz> is applied for
						60 s between the capacitor lead wires and metal balls.
4	Insulation Resistar	nce (LR )	10 000MΩ min	1	$\dashv$	The insulation resistance should be measured with
'	oaialion nooistai		10 00010122 111111	•		DC500±50V within 60±5 s of charging.
İ						The voltage should be applied to the capacitor
	_					through a resistor of $1M\Omega$ .
5	Capacitance		Within specifie	ed tolerance.		The capacitance should be measured at 20°C with
-	Discipation Factor	(DE)	2.5% max.		$\dashv$	1±0.1kHz and AC5V(r.m.s.) max
6	Dissipation Factor	(D.F.)	2.0% IIIdX.			The dissipation factor should be measured at 20°C with 1±0.1kHz and AC5V(r.m.s.) max
7	Temperature chara	acteristic	Char. B: Within ±10 %			The capacitance measurement should be made at
′	- Spo.ataro oriare		Char. E: Wit			each step specified in Table.
			(Temp. range	: -25 to +85°C)		
				Chair	_	
				Step		1 2 3 4 5
				Temp.(°C)	20	20±2 -25±2 20±2 85±2 20±2
8	Active flammability	/	The cheese-cl	oth should not be	П	The capacitors should be individually wrapped in at
			on fire.			least one but more than two complete layers of
						cheese-cloth. The capacitor should be subjected
						to 20 discharges. The interval between successive discharges should be 5 s. The UAc should be
						maintained for 2min after the last discharge.
						F L1 L2 R
						~
						Tr
						₹ L
						Osciloscope
						C1 0
						C1,2 : 1μF±10%, C3 : 0.033μF±5% 10kV L1 to L4 : 1.5mH±20% 16A Rod core choke
						R : $100\Omega\pm2\%$ , Ct : $3\mu\text{F}\pm5\%$ 10kV
						UAc : UR ±5% UR : Rated voltage
l						Cx : Capacitor under test
						F : Fuse, Rated 10A
						Ut : Voltage applied to Ct
İ						Ux
						SHV T
						Jan C
						time
						ume
ł						
1						

			Reference only	
No.	Item		Specification	Test method
9	Robustness of terminations	Tensile	Lead wire should not cut off. Capacitor should not be broken.	Fix the body of capacitor, a tensile weight gradually to each lead wire in the radial direction of
		Bending		capacitor up to 10N and keep it for 10±1 s.  With the termination in its normal position, the capacitor is held by its body in such a manner that the axis of the termination is vertical; a mass applying a force of 5N is then suspended from the end of the termination.  The body of the capacitor is then inclined, within a period of 2 to 3 s, through an angle of approximately 90° in the vertical plane and then returned to its initial position over the same period of time; this operation constitutes one bend.
				One bend immediately followed by a second bend in the opposite direction.
10	Vibration	Appearance	No marked defect.	The capacitor should be firmly soldered to the
	resistance	Capacitance	Within the specified tolerance.	supporting lead wire and vibration which is 10 to
		D.F.	2.5% max.	55Hz in the vibration frequency range,1.5mm in total amplitude, and about 1min in the rate of vibration change from 10Hz to 55Hz and back to 10Hz is applied for a total of 6 h; 2 h each in 3 mutually perpendicular directions.
11	Solderability of lead	s	Lead wire should be soldered	The lead wire of a capacitor should be dipped into a
	,		With uniformly coated on the axial direction over 3/4 of the circumferential direction.	ethanol solution of 25wt% rosin and then into molten solder for 2±0.5 s. In both cases the depth of dipping is up to about 1.5 to 2.0mm from the root of lead wires.  Temp. of solder:  245±5°C Lead Free Solder (Sn-3Ag-0.5Cu) 235±5°C H63 Eutectic Solder
12	Soldering effect	Appearance	No marked defect.	Solder temperature: 350±10°C or 260±5°C
	(Non-preheat)	Capacitance change	Within ±10%	Immersion time : 3.5±0.5 s (In case of 260±5°C : 10±1 s)
		I.R. Dielectric	1000MΩ min. Per item 3	The depth of immersion is up to about  1.5 to 2.0mm from the root of lead wires.
				Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *¹room condition for 24±2 h before initial measurements.
				Post-treatment: Capacitor should be stored for 1 to 2 h at *1room condition.
13	Soldering effect	Appearance	No marked defect.	First the capacitor should be stored at 120+0/-5°C
	(On-preheat)	Capacitance change	Within ±10%	for 60+0/-5 s. Then, as in figure, the lead wires should be
		I.R.	1000MΩ min.	immersed solder of 260+0/-5°C up to 1.5 to 2.0mm
		Dielectric strength	Per item 3	from the root of terminal for 7.5+0/-1 s.  Thermal Capacitor Insulating
				1.5 to 2.0mm  Molten solder
				Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *1room condition for 24±2 h before initial measurements.  Post-treatment: Capacitor should be stored for 1 to
*1 "ro	om condition" Tempe	rature: 15 to 35°	C, Relative humidity: 45 to 75%, Atn	2 h at *1room condition.
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	helerence only								
No.	Item		Specification	Test method					
14	Flame test		The capacitor flame discontinue as follows.  Cycle Time 1 to 4 30 s max. 5 60 s max.	The capacitor should be subjected to applied flame for 15 s. and then removed for 15 s until 5 cycle.  Capacitor Flame  Gas Burner					
15	Passive flammabilit	у	The burning time should not be exceeded the time 30 s. The tissue paper should not ignite.	The capacitor under test should be held in the flame in the position which best promotes burning.  Time of exposure to flame is for 30 s.  Length of flame: 12±1mm  Gas burner: Length 35mm min. Inside Dia. 0.5±0.1mm Outside Dia. 0.9mm max.  Gas: Butane gas Purity 95% min.  About 8mm  Gas burner  About 8mm  About 10mm thick board					
16	Humidity (Under steady state)	Appearance Capacitance change D.F. I.R. Dielectric strength	No marked defect.  Char. B: Within ±10%  Char. E: Within ±15%  5.0% max.  3000ΜΩ min.  Per item 3	Set the capacitor for 500±12 h at 40±2°C in 90 to 95% relative humidity.  Post-treatment: Capacitor should be stored for 1 to 2 h at *1room condition.					
17	Humidity loading	Appearance Capacitance change D.F. I.R. Dielectric strength	No marked defect.  Char. B: Within $\pm 10\%$ Char. E: Within $\pm 15\%$ 5.0% max. $3000M\Omega$ min.  Per item 3	Apply the rated voltage for 500±12 h at 40±2°C in 90 to 95% relative humidity.  Post-treatment: Capacitor should be stored for 1 to 2 h at *1room condition.					

<sup>\*1 &</sup>quot;room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Appearance   No marked defect.   Impulse voltage   Each individual capacitor should be subjected to a 8kV impulses for three times. Then the capacitors are applied to life test.	Appearance   No marked defect.   Impulse voltage   Each individual capacitor should be subjected to a 8kV impulses for three times. Then the capacitors are applied to life test.	lo.	Item		Reference on Specification	Test method		
Capacitance   Change   L.R.   3000MΩ min.   Dielectric   Strength   Per item 3   The capacitors are applied to life test.   The capacitors are applied to life test.   The capacitors are applied to life test.   The capacitors are placed in a circulating air over for a period of 1000 h. The air in the over is maintained at a temperature of 125-24 °C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V(r.m.s.)-50/60H2-alternating voltage of mains frequency, except that once each hour the voltage is increased to AC100V(r.m.s.) for 0.	Capacitance   Change   I.R.   3000MΩ min.   Dielectric   Strength   Per item 3   The capacitors are applied to life test.   Time to half-value (T2) = 50 μs are applied to life test.	18						
I.R.   3000MΩ min.   Dielectric   Strength   Per item 3   Time to half-value (T2) = 50 μs   100 0 h.   The capacitors are placed in a circulating air oven for a period of 1000 h.   The air in the oven is maintained at a temperature of 125±2°-0°C, and relative humidity of 50% max.   Throughout the test, the capacitors are subjected to a AC425V(fr.m.s.)-50/60Hz-alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.   Post-treatment: Capacitor should be stored for 1 2 h at "1room condition.   The capacitor should be subjected to 5 temperature voltage.   D.F. 5.0% max.   I.R.   3000MΩ min.   Dielectric   Strength   Per item 3   Temperature ("C)   Time   Time to half-value (T2) = 50 μs   Time to half-value (T2) = 50 μ	I.R.   3000MΩ min.   Dielectric strength   Per item 3   The capacitors are placed in a circulating air oven for a period of 1000 h. The air in the oven is maintained at a temperature of 125±2°-0°C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a Λα425V(r.m.s.) 55×60θHz> alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1 000V(r.m.s.) for 0: Post-treatment: Capacitor should be stored for 1 The capacitor should be subjected to 5 temperature voltage is increased to AC1 000V(r.m.s.) for 0: Post-treatment should be subjected to 5 temperature change Char. E: Within ±10% Char. E: Within ±20% D.F. 5.0% max. I.R. 3000MΩ min. Dielectric strength   Per item 3   The capacitor should be subjected to 5 temperature cycles. The consecutively to 2 immersion cycles. Temperature cycles   Step Temperature(°C) Time Immersion cycles   Time 1 + 40+00°.3 30 min   Cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 2 cycle time:					Each individual capacitor should be subjected to a		
Dielectric strength  Per item 3  Dielectric strength  Per item 3  Dielectric strength  Per item 3  The capacitors are placed in a circulating air oven for a period of 1000 h. The air in the oven is maintained at a temperature of 125×2/-0 °C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V(r.m.s.)-50/60Hz> alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at *1room condition.  Dielectric strength  Per item 3  Dielectric strength  Per item 3  The capacitors are placed in a circulating air oven for a period of 1000 h. The air in the oven is maintained at a temperature of 125×2/-0 °C, and relative humidity of 50% max. Throughout the test, the capacitor should be stored for 1 2 h at *1room condition.  The capacitor should be stored for 4 at 100 °C, and relative humidity of 50% max. Throughout the test, the capacitor should be stored to a AC425V(r.m.s.)-50/60Hz> alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 4 at 125×3/-0 15 min water  Cycle time: 5 cy  Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 at *1room condition.	Dielectric strength  Per item 3  Dielectric strength  Per item 3  Dielectric strength  Per item 3  The capacitors are placed in a circulating air oven for a period of 1000 h. The air in the oven is maintained at a temperature of 125-22-0°C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V(r.m.s.)-50/60Hz-> alternating voltage of mains frequency, except that once each hotte the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at "froom condition.  The capacitor should be subjected to 5 temperature of 125-22-0°C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V(r.m.s.)-50/60Hz-> alternating voltage of mains frequency, except that once each hotte the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles. The capacitor should be subjected to 5 temperature cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutively to 2 immersion cycles. Time before the consecutive the consecutive the consecutively to 2 immersion cycles. Time before the consecutive the consec							
The capacitors are placed in a circulating air oven for a period of 1000 h.  The air in the oven is maintained at a temperature of 125±2°-2° °C, and relative humidity of 50% max.  Throughout the test, the capacitors are subjected to a AC425V(r.m.s)<50/60Hz-2 alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at "froom condition.  The capacitor should be stored for 1 2 h at "froom condition.  The capacitor should be subjected to 5 temperature cycles.  I.R. 3000M£2 min.  Dielectric strength  Per item 3  Per item 4  Per item 4  Per item 4  Per item 5  Per item 6  Per item 6  Per item 7  Per item 8  Per item 9  Per item 9  Per item 9  Per item 1  Per item 1  Per item 1  Per item 1  Per item 1  Per item 1  Per item 1  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 4  Per item 4  Per item 4  Per item 4  Per item 4  Per item 4  Per item 4  Per item 6  Per item 6  Per item 6  Per item 6  Per item 7  Per item 6  Pe	strength    Strength					are applied to life test.		
Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to half-value (T2) = 50 µs so 30 1 Time to appear to a provide to a provide to a provide to a provide to a provide to a provide to a provide to a AC4250(r.m.s.) <a href="https://doi.org/10.1001/j.c./">https://doi.org/10.1001/j.c./</a> The capacitor should be stored for 1 2 h at *1room condition.  The capacitor should be stored at a store to a provide to a AC4250(r.m.s.) <a href="https://doi.org/10.1001/j.c./">https://doi.org/10.1001/j.c./</a> The capacitor should be stored at 85±2°C for 1 h, then placed at *1room condition for 24±2 h. Then the placed at *1room condition for 24±2 h. Then the placed at *1room condition for 24±2 h. Then the placed at *1room condition for 24±2 h. Then then then then then then then then t	Time to half-value (12) = 50 µs and an activating air over for a period of 1 000 h. The air in the over is maintained at a temperature of 125+2/-0°C, and relative humidity of 30% max. Throughout the test he capacitors are subjected to a AC425V(r.m.s.) +50/60/Hz-alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1 000V(r.m.s.) for 0. Post-treatment: Capacitor should be stored for 1 2 h at "iroom condition.  The capacitor should be subjected to 5 temperature voltage. Char. B: Within ±20% D.F. 5.0% max.  I.R. 3000MΩ min. Dielectric strength  Per item 3  The capacitor should be subjected to 5 temperature voltages, then consecutively to 2 immersion cycles. The capacitor should be subjected to 5 temperature voltages. The capacitor should be subjected to 5 temperature voltages. The capacitor should be stored for 1 4 40+0/-3 30 min.  Cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 3 cycle time: 2 cycle time: 2 cycle time: 3 cycle time: 3 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 3 cycle time: 3 cycle time: 3 cycle time: 2 cycle time: 2 cycle time: 2 cycle time: 3 cycle time: 4				Per item 3	Front time (T1) = 1.2 u.s. 1677		
The capacitors are placed in a circulating air oven for a period of 1000 h.  The air in the oven is maintained at a temperature of 125±2/0 °C, and relative humidity of 50% max.  Throughout the test, the capacitors are subjected to a AC425V(r.m.s.)+50/60/10-2 alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1 000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at *1*noom condition.  The capacitor should be stored for 1 2 h at *1*noom condition.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitance Char. B: Within ±20% D.F. 5.0% max.  I.R. 3000MΩ min.  Dielectric strength  Per item 3  Per item 3  **Throughout the test, the capacitors are subjected to a AC425V(r.m.s.)+50/60/10 for 1 h at *1*10 more condition.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Capacitor should be subjected to 5 temperature cycles.  **Capacitor should be subjected to	The capacitors are placed in a circulating air oven for a period of 1000 h.  The air in the oven is maintained at a temperature of 125±2-0° C, and relative humidity of 50% max.  Throughout the test, the capacitors are subjected to a AC425V(r.m.s.)-650/6012-alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at "froom condition.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  Capacitance Char. B: Within ±10% Char. B: Within ±20% Char. B: Wi			strength				
The capacitors are placed in a circulating air oven for a period of 1000 h.  The air in the oven is maintained at a temperature of 125+2/-0°C, and relative humidity of 50% max. Throughout the test capacitors are subjected to a AC425V(r.m.s.) +50/60/L> alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at "froom condition.  The capacitor should be stored for 1 2 h at "froom condition.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  I.R. 3000M\(\Omega\) min.  Dielectric strength  Per item 3  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Temperature cycle**  **Step Temperature(°C) Time Immersion cycle immersion cycles materially a significant of the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle immersion cycles in the cycle in the cycle immersion cycles in the cycle in t	The capacitors are placed in a circulating air oven for a period of 1 000 h. The air in the oven is maintained at a temperature of 125+2-10° C, and relative humidity of 50% max. Throughout the tests, the capacitors are subjected to a AC425V(r.m.s.) +50/60/12- alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at *irroom condition.  The capacitor should be stored for 1 2 h at *irroom condition.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  I.R. 3000MΩ min.  Dielectric strength  Per item 3  The capacitors are placed in a circulating air oven for a period of 1000 h. The each consecutively with the properation of 150 h. The air in the oven is maintained at a temperature of 125+2-0° C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V(r.m.s.) + consecutively in 2 hat *irroom condition.  The capacitor should be stored for 1 1 +40+40-3 30 min and 1 +40+40-40-3 30					50		
The capacitors are placed in a circulating air oven for a period of 1 000 h.  The air in the oven is maintained at a temperature of 125±2/-0°C, and relative humidity of 50% max.  Throughout the test, the capacitors are subjected to a AC425V(r.m.s.). 50/60Hz> alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1 000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at "froom condition.  The capacitor should be stored for 1 2 h at "froom condition.  The capacitor should be stored for 1 2 h at "froom condition.  The capacitor should be stored for 1 2 h at "froom condition.  The capacitor should be subjected to 5 temperature consecutively to 2 immersion cycles. The capacitor should be subjected to 5 temperature consecutively to 2 immersion cycles.  Step Temperature cycle>  I.R. 3000M2 min.  Dielectric strength  Per item 3  Step Temperature(°C) Time  1	The capacitors are placed in a circulating air oven for a period of 1 000 h. The air in the oven is maintained at a temperature of 125±2-0°, c., and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V(r.m.s.) Temperature and immersion cycle  Temperature and immersion cycle  Appearance  Appearance  No marked defect. Capacitance Char. B: Within ±10% Char. E: Within ±20% D.F. 5.0% max. I.R. 3000MQ min. Dielectric strength  Per item 3  The capacitors are placed in a circulating air oven for a period of 1000 h. The air in the oven is maintained at a temperature of 125±2-0°, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to 5 temperature voltage is increased to AC1 000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 the voltage is increased to AC1 000V(r.m.s.) for 0.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  The capacitor should be stored at 85±2°C for 1 h, then placed at "1 room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 at 1 the at 1							
The capacitors are placed in a circulating air over for a period of 1 000 h.  The air in the oven is maintained at a temperature of 125±2-0° of 125±2-0° of 125±2-0° of 125±2-0° of 125±2-0° of 125±2-0° of 125±2-0° of 125±2-0° of 125±2-0° of 125±2-0° of 15 min dependency, except that once each hour the voltage is increased to AC1 000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at *1*room condition.  The capacitor should be stored for 1 2 h at *1*room condition.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles. The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles. Temperature cycles, then consecutively to 2 immersion cycles. Temperature cycles  I.R. 3000M\(\Omega\$ min.  Dielectric strength  Per item 3  **Temperature cycle**  **Step Temperature("C) Time Immersion water 1 40+0/-3 30 min 2 Room temp. 3 min 3 min 3 +125+3/-0 30 min 4 Room temp. 3 min Cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 2 cycle time: 3 cycle time: 4 c	The capacitors are placed in a circulating air oven for a period of 1 000 h.  The air in the oven is maintained at a temperature of 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 < 125+2/-0 <							
For a period of 1 000 h. The air in the over is maintained at a temperature of 125+2/-0 °C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a Λ425/(r.m.s.)-50/60Hz-a liternating voltage of mains frequency, except that once each hour the voltage is increased to ΛC1 000V(r.m.s.) for 0.    Post-treatment : Capacitor should be stored for 1 2 h at *1room condition.	for a period of 1000 h. The air in the oven is maintained at a temperature of 125+2'-0°C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V.Ex alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.¹  Post-treatment: Capacitor should be stored for 1 2 h at **Iroom condition.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  Char. B: Within ±10% Char. E: Within ±20% D.F. 5.0% max. I.R. 3000MΩ min. Dielectric strength  Per item 3  Temperature cycle>  Step Temperature(°C) Time Immersion cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 2 cycle tim					T2		
For a period of 1 000 h. The air in the over is maintained at a temperature of 125+2/-0 °C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a Λ425/(r.m.s.)-50/60Hz-a liternating voltage of mains frequency, except that once each hour the voltage is increased to ΛC1 000V(r.m.s.) for 0.    Post-treatment : Capacitor should be stored for 1 2 h at *1room condition.	for a period of 1000 h. The air in the oven is maintained at a temperature of 125+2'-0°C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V.Ex alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.¹  Post-treatment: Capacitor should be stored for 1 2 h at **Iroom condition.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  Char. B: Within ±10% Char. E: Within ±20% D.F. 5.0% max. I.R. 3000MΩ min. Dielectric strength  Per item 3  Temperature cycle>  Step Temperature(°C) Time Immersion cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 2 cycle tim					The canacitors are placed in a circulating air over		
The air in the oven is maintained at a temperature of 125+2/-0 °C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V(r.m.s.) 50/60Hz- alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at *1room condition.  The capacitor should be subjected to 5 temperature cycles. The capacitor should be subjected to 5 temperature cycles. I.R. 3000MΩ min.  Dielectric strength  Per item 3  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  **Temperature cycle**	The air in the oven is maintained at a temperature of 125+2/-0 °C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V(r.m.s.)-≤50/60H2> alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1 000V(r.m.s.) for 0:  Post-treatment: Capacitor should be stored for 1 2 h at *1room condition.  The carpacitor should be stored for 1 2 h at *1room condition.  The capacitor should be stored for 1 2 h at *1room condition.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  I.R. 3000MΩ min.  Dielectric strength  Per item 3  Step Temperature (°C) Time  1 +40+0/-3 30 min  2 Room temp. 3 min  Cycle time: 5 cycleme: 5 cycleme: 5 cycleme: 2 cycle time: 2 cycleme:							
of 125+2/-0 °C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a AC425V(r.m.s.) < <p></p>	of 125±2/-0 °C, and relative humidity of 50% max. Throughout the test, the capacitors are subjected to a ΛC425V(r.m.s.)<050/60H2> alternating voltage of mains frequency, except that once each hour the voltage is increased to ΛC1 000V(r.m.s.) for 0:  Post-treatment: Capacitor should be stored for 1 2 h at *1*room condition.  Post-treatment is capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  Char. B: Within ±10% Char. B: Within ±20% D.F.  I.R. 3000MΩ min.  Dielectric strength  Per item 3  Temperature cycle>  Step Temperature(°C) Time 1 mersion cycles in 4 Room temp. 3 min 2 Room temp. 3 min 3 +125+3/-0 30 min 4 Room temp. 3 min Cycle time: 5 cycles in 4 Room temp. 3 min Salt water  Cycle time: 5 cycles in 4 Room temp. Cycle time: 2 cycles in 4 Room temp. 3 min Cycle time: 5 cycles in 5 Room temp. 3 Room							
to a AC425V(r.m.s.).50/60Hz> alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1 000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at *1room condition.  The capacitor should be subjected to 5 temperature change Char. B: Within ±10% change Char. E: Within ±20%  D.F. 5.0% max.  I.R. 3000MΩ min.  Dielectric strength  Per item 3  Per item 3  Temperature cycle>  Step Temperature(°C) Time Immersion cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 5 cycle time: 2 cycle time	to a AC425V(r.m.s.)~50/60Hz> alternating voltage of mains frequency, except that once each hour the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at *1room condition.  The capacitor should be subjected to 5 temperature cycles. (Ange Char. E: Within ±20% Char. E: Within							
of mains frequency, except that once each hour the voltage is increased to AC1 000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at *1room condition.  The capacitor should be subjected to 5 temperature cycles. Char. B: Within ±10% Char. E: Within ±20%  D.F.  I.R.  3000MΩ min.  Dielectric strength  D	of mains frequency, except that once each hour the voltage is increased to AC1 000V(r.m.s.) for 0:  Post-treatment: Capacitor should be stored for 1 2 h at *1room condition.  The capacitor should be subjected to 5 temperature cycles, then consecutively to 2 immersion cycles.  Char. B: Within ±10% Char. E: Within ±20%  D.F.  I.R.  3000MΩ min.  Dielectric strength  Per item 3  Step Temperature(°C) Time  1 40+0/-3 30 min  2 Room temp. 3 min  3 +125+3/-0 30 min  Cycle time: 5 cyclemates of 2 obtains water  1 +65+5/-0 15 min water  2 0±3 15 min water  Cycle time: 2 cycle representative cycles  Pre-treatment: Capacitor should be stored at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *1room condition for 24±2 h.							
the voltage is increased to AC1 000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at *1room condition.  Appearance   No marked defect.   Capacitance change   Char. B : Within ±10%   Char. E : Within ±20%   D.F.   5.0% max.   I.R.   3 300 MΩ min.   Dielectric strength   Per item 3   Step   Temperature (°C)   Time   Temperature (°C)   Temperature (°C)   Temperature (°C)   Temperature (°C)   Temperature (°C)	the voltage is increased to AC1000V(r.m.s.) for 0.  Post-treatment: Capacitor should be stored for 1 2 h at *1room condition.  Temperature and immersion cycle  Appearance Capacitance change Char. B: Within ±10% change Char. E: Within ±20% D.F. 5.0% max.  I.R. 3 300MΩ min.  Dielectric strength  Per item 3  Temperature cycle>  Step Temperature(°C) Time 1 memersion cycle immersion c							
Post-treatment : Capacitor should be stored for 1 2 h at *¹room condition.  Appearance   No marked defect. Capacitance   Char. B : Within ±10%   Char. E : Within ±20%   D.F.   5.0% max.  I.R.   3000MΩ min. Dielectric   Strength   Per item 3    Per item 3   Step   Temperature(°C)   Time   1	Post-treatment : Capacitor should be stored for 1 2 h at **Iroom condition.  Appearance   No marked defect.   Capacitance change   Char. B : Within ±10% change   D.F.   5.0% max.   I.R.   3000M\Omega min.   Dielectric strength   Per item 3   2   Room temp.   3 min   2   Room temp.   3 min   3   +125+3/-0   30 min   Cycle time : 5 cycle time : 5 cycle time : 2 cycl					of mains frequency, except that once each hour		
Temperature and immersion cycle   Appearance   Char. B : Within ±10%   Char. E : Within ±20%   D.F.   5.0% max.   I.R.   3000MΩ min.   Dielectric strength   Per item 3   Temperature(°C)   Time   Temperature(°C)   Temperature(°C)   Temperature(°C)   Temperature(°C)   Temperature(°C)   Temperature(°C)   Temperature(°C)	Temperature and immersion cycle   Appearance   Char. B : Within ±10%   Char. E : Within ±20%   D.F.   5.0% max.   I.R.   3000MΩ min.   Dielectric strength   Per item 3   Temperature(°C)   Time					the voltage is increased to ACT 000 v(i.m.s.) for 0.		
Capacitance change   Char. B : Within ±10%   Char. E : Within ±20%     D.F.   5.0% max.     I.R.   3000MΩ min.     Dielectric strength   Per item 3     Per item 3   Step   Temperature (°C)   Time     1	Capacitance change   Char. B : Within ±10%   Char. E : Within ±20%     D.F.   5.0% max.     I.R.   3000MΩ min.     Dielectric strength   Per item 3					2 h at *1room condition.		
Change   Char. E : Within ±20%     D.F.   5.0% max.     I.R.   3000MΩ min.     Dielectric strength   Per item 3     Step   Temperature(°C)   Time     1	change       Char. E       : Within ±20%         D.F.       5.0% max.         I.R.       3000MΩ min.         Dielectric strength       Per item 3         Step       Temperature (°C)       Time         1       -40+0/-3       30 min         2       Room temp.       3 min         3       +125+3/-0       30 min         4       Room temp.       3 min         Cycle time : 5 cycle         Step       Temperature(°C)       Time       Immersion water         1       +65+5/-0       15 min       Salt water         2       0±3       15 min       Salt water         Cycle time : 2 cycle         Pre-treatment : Capacitor should be stored at *1 room condition for 24±2 h.         Post-treatment : Capacitor should be stored for 4 24 h at *1 room condition.	9				The capacitor should be subjected to 5 temperatu		
D.F.   5.0% max.   Step   Temperature (°C)   Time   1	D.F.   5.0% max.   Step   Temperature (°C)   Time   1		immersion cycle			cycles, then consecutively to 2 immersion cycles.		
I.R. 3000MΩ min.  Dielectric strength  Per item 3    Step   Temperature(°C)   Time   1	Step   Temperature(°C)   Time   1					-Tomporature evelos		
Dielectric strength  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  Per item 3  1	Dielectric strength							
strength  2 Room temp. 3 min 3 +125+3/-0 30 min 4 Room temp. 3 min  Cycle time: 5 cy    Step   Temperature(°C)   Time   Immersion water   1 +65+5/-0   15 min   Clean water   2 0±3   15 min   Salt water   2 0±3   15 min   Salt water   Cycle time: 2 cy    Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *1 room condition for 24±2 h.    Post-treatment: Capacitor should be stored for 4 24 h at *1 room condition.	strength  2 Room temp. 3 min 3 +125+3/-0 30 min 4 Room temp. 3 min  Cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 2 cycle time : 3 cycle time : 5 cycle time :					1 - 1 - 1 - 1		
3	3				Per item 3			
A   Room temp.   3 min   Cycle time : 5 cy	A   Room temp.   3 min   Cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 5 cycle time : 2   1			Strongth				
Cycle time : 5 cy <a href="mailto:square">Cycle time : 5 cy</a> <a href="mailto:square">Immersion cycle&gt;</a> Step Temperature(°C) Time Immersion water  1	Cycle time: 5 cycle    Step   Temperature(°C)   Time   Immersion water     1							
Step Temperature(°C) Time Immersion water   1 +65+5/-0 15 min Water   2 0±3 15 min Water   Cycle time: 2 cy   Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *1 room condition for 24±2 h. Post-treatment: Capacitor should be stored for 4 24 h at *1 room condition.	Step Temperature(°C) Time Immersion water   1 +65+5/-0 15 min Clean water   2 0±3 15 min Salt water   Cycle time : 2 cycle ti							
Step Temperature(°C) Time Immersion water  1 +65+5/-0 15 min Clean water  2 0±3 15 min Salt water  Cycle time : 2 cy  Pre-treatment : Capacitor should be stored at 85±2°C for 1 h, then placed at *1 room condition for 24±2 h.  Post-treatment : Capacitor should be stored for 4 24 h at *1 room condition.	Step Temperature(°C) Time Immersion water  1 +65+5/-0 15 min Clean water  2 0±3 15 min Salt water  Cycle time : 2 cycle time :							
1 +65+5/-0 15 min Clean water 2 0±3 15 min Salt water  Cycle time: 2 cy  Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *1 room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *1 room condition.	1 +65+5/-0 15 min Clean water 2 0±3 15 min Salt water  Cycle time: 2 cyc					Immorcion		
Pre-treatment: Capacitor should be stored at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *1room condition.	Pre-treatment: Capacitor should be stored at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *1room condition.					Cloan		
Cycle time : 2 cy  Pre-treatment : Capacitor should be stored at 85±2°C for 1 h, then placed at *1room condition for 24±2 h.  Post-treatment : Capacitor should be stored for 4 24 h at *1room condition.	Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *1room condition.					+65+5/-0		
Cycle time: 2 cy  Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *1room condition.	Cycle time: 2 cyc  Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *1room condition.					2 0+3 15 min Salt		
Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *1room condition.	Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *1room condition.					2 0±3 13 mm water		
85±2°C for 1 h, then placed at *¹room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *¹room condition.	85±2°C for 1 h, then placed at *1room condition for 24±2 h.  Post-treatment: Capacitor should be stored for 4 24 h at *1room condition.					Cycle time : 2 cy		
Post-treatment: Capacitor should be stored for 4 24 h at *1 room condition.	Post-treatment: Capacitor should be stored for 4 24 h at *1 room condition.					85±2°C for 1 h, then placed at		
24 h at *1 room condition.	24 h at *1 room condition.							
"room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa	"room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa					24 h at *1room condition.		
		"ro	om condition" Tempe	rature: 15 $\overline{\text{to }35^{\circ}}$	C, Relative humidity: 45 to 75%,	Atmospheric pressure: 86 to 106kPa		

#### 6. Packing specification

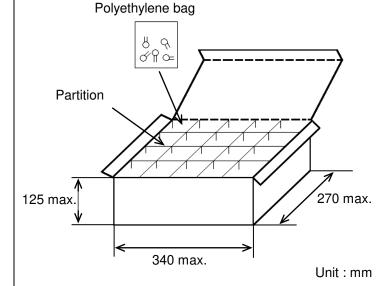
•Bulk type (Packing style code : B)

\*1The number of packing = Packing quantity  $\times$  n

The size of packing case and packing way

\*1: Please refer to [Part number list].

\*2 : Standard n = 20 (bag)



Note)

The outer package and the number of outer packing be changed by the order getting amount.

- •Ammo pack taping type (Packing style code : A)
  - · The tape with capacitors is packed zigzag into a case.
  - · When body of the capacitor is piled on other body under it.
- There should be 3 pitches and over without capacitors in leader and trailer.

  The size of packing case and packing way

  Position of label

  Add max.

  Unit: mm

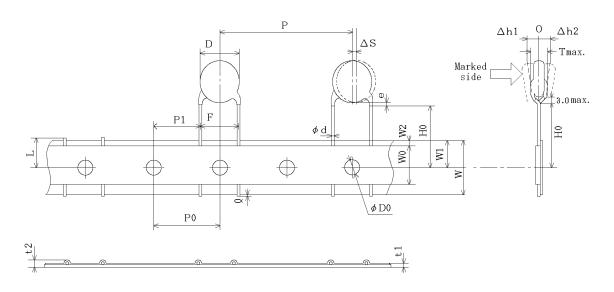
  Capacitor

  Base tape

  Hold down tape upper

## 7. Taping specification7-1. Dimension of capacitors on tape

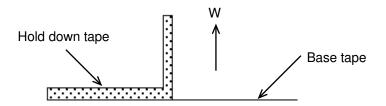
Vertical crimp taping type < Lead code : N4 >
Pitch of component 25.4mm / Lead spacing 10.0mm



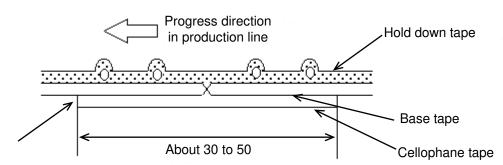
Item	Code	Dimensions	Remarks
Pitch of component	Р	25.4±2.0	
Pitch of sprocket hole	P0	12.7±0.3	
Lead spacing	F	10.0±1.0	
Length from hole center to lead	P1	7.7±1.5	
Body diameter	D	Please refer to [ P	art number list ].
Deviation along tape, left or right	ΔS	0±2.0	They include deviation by lead bend .
Carrier tape width	W	18.0±0.5	
Position of sprocket hole	W1	9.0±0.5	Deviation of tape width direction
Lead distance between reference and bottom planes	Н0	18.0± <sub>0</sub> <sup>2.0</sup>	
Protrusion length	Q	+0.5~-1.0	
Diameter of sprocket hole	φD0	4.0±0.1	
Lead diameter	φd	0.60±0.05	
Total tape thickness	t1	0.6±0.3	
Total thickness, tape and lead wire	t2	1.5 max.	They include hold down tape thickness.
Deviation across tape, front	∆h1	2.0 may	
Deviation across tape, rear	∆h2	2.0 max.	
Portion to cut in case of defect	L	11.0± <sub>1.0</sub>	
Hold down tape width	W0	11.5 min.	
Hold down tape position	W2	1.5±1.5	
Coating extension on lead	е	Up to the end of crimp	
Body thickness	Т	Please refer to [ Part number list ].	

### 7-2. Splicing way of tape

1) Adhesive force of tape is over 3N at test condition as below.



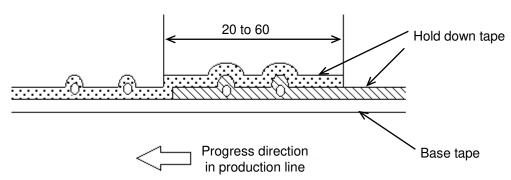
- 2) Splicing of tape
  - a) When base tape is spliced
    - •Base tape should be spliced by cellophane tape. (Total tape thickness should be less than 1.05mm.)



No lifting for the direction of progressing

Unit: mm

- b) When hold down tape is spliced
  - •Hold down tape should be spliced with overlapping. (Total tape thickness should be less than 1.05mm.)



- c) When both tape are spliced
  - •Base tape and hold down tape should be spliced with splicing tape.
- 3) Missing components
  - •There should be no consecutive missing of more than three components.
  - •The number of missing components should be not more than 0.5% of total components that should be present in a Ammo pack.

#### EU RoHS and Halogen Free

This products of the following crresponds to EU RoHS and Halogen Free

#### (1) RoHS

EU RoHs 2011/65/EC compliance

maximum concentration values tolerated by weight in homogeneous materials

- •1000 ppm maximum Lead
- •1000 ppm maximum Mercury
- •100 ppm maximum Cadmium
- •1000 ppm maximum Hexavalent chromium
- •1000 ppm maximum Polybrominated biphenyls (PBB)
- •1000 ppm maximum Polybrominated diphenyl ethers (PBDE)

### (2) Halogen-Free

The International Electrochemical Commission's (IEC) Definition of Halogen-Free (IEC 61249-2-21) compliance

- •900 ppm maximum chlorine
- •900 ppm maximum bromine
- •1500 ppm maximum total chlorine and bromine