muRata

Reference Specification

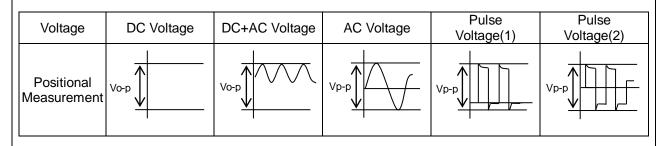
Type KX Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose

Product specifications in this catalog are as of Jun. 2019, and are subject to change or obsolescence without notice.

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

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.



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 selfgenerated 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 ϕ 0.1mm 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.

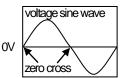
*ZERO CROSS is the point where voltage sine wave pass 0V. - See the right figure -

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 °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 CHÉCK 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.

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- 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.

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		1612604	X1:440
DEMKO		D-05321	Y1:300
FIMKO	IEC60384-14, EN60384-14	FI 29602	
NEMKO	LIN00304-14	P16221232	
ESTI		18.0079	
IMQ	EN60384-14	V4069	
CQC	IEC60384-14	CQC12001079941	

*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	KX	472	M	A4	В	P01F
Product	Temperature	Туре	Capacitance	Capacitance	Lead	Packing	Individual
code	characteristic	name		tolerance	code	style code	specification

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.

$$47 \times 10^2 = 4700 \text{pF}$$

• Capacitance tolerance Please refer to [Part number list].

Lead code

Code	Lead style					
A*	Vertical crimp long type					
B*	Vartical arimp short type	Lead Length : 5mm				
J*	 Vertical crimp short type 	Lead Length : 3.5mm				
N* Vertical crimp taping type						
* Place refer to [Part number list]						

* Please refer to [Part number list]

Packing style code

Code	Packing type
В	Bulk type
A	Ammo pack taping type

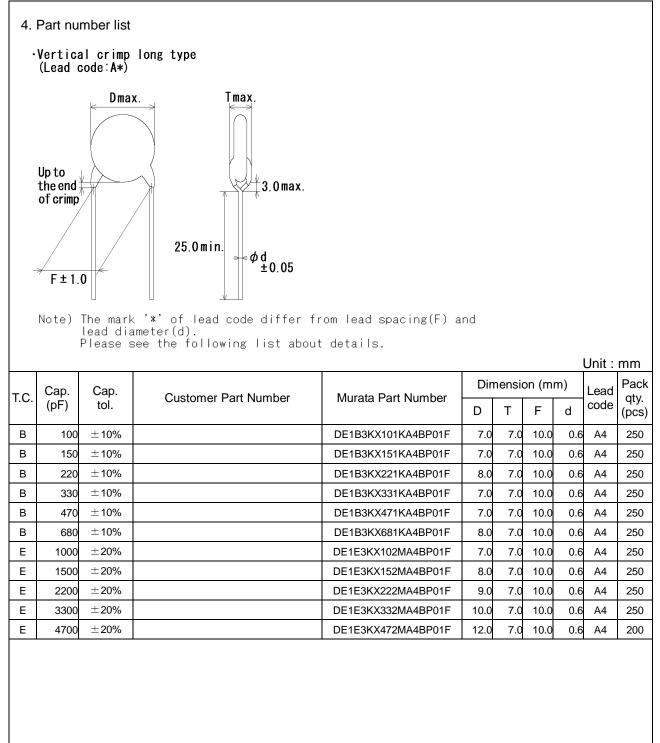
• Individual specification

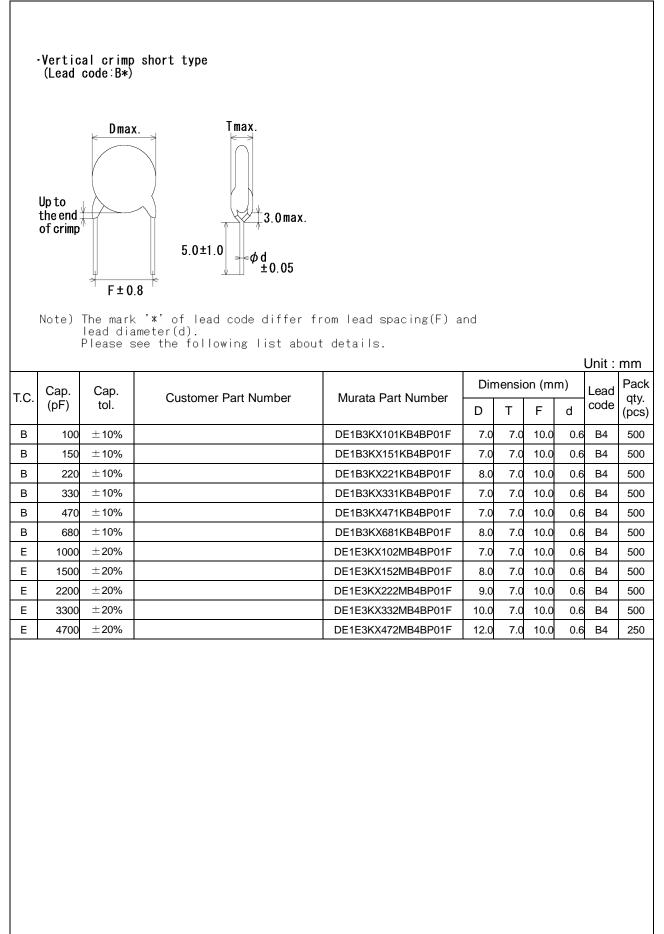
In case part number cannot be identified without 'individual specification', it is added at the end of part number.

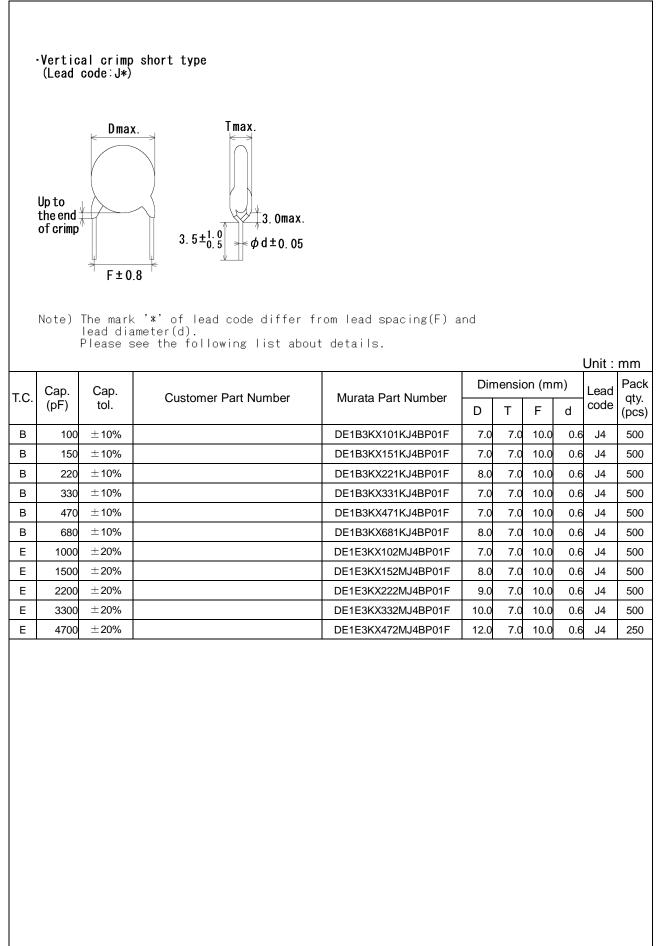
Code	Specification
P01F	 Rated voltage : AC300V(r.m.s.) Halogen free Br ≤ 900ppm, Cl ≤ 900ppm Br + Cl ≤ 1500ppm CP wire

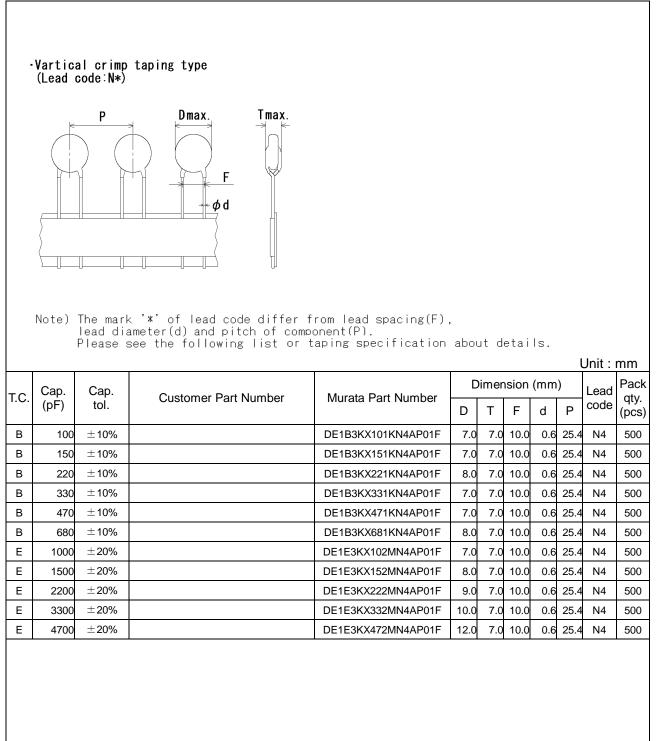
Note) Murata part numbers might be changed depending on lead code or any other changes. Therefore, please specify only the type name(KX) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

3. Marking			
Nominal capa Capacitance to Type name Rated voltage Class code Halogen free Manufacturing Manufacturing	olerance : Code : KX • mark : 300~ : X1Y mark : ; g year : Lette	I er code(The last c ⊖ ∫ Feb./Mar. → 2	ligit of A.D. year.) Aug./Sep. → 8 Oct./Nov. → O Dec./Jan. → D
Company nam	e code : 🕅	5 (Made in Thail	and)
		(Ex	ample)
			472M KX300- X1Y1 HF 5D @15







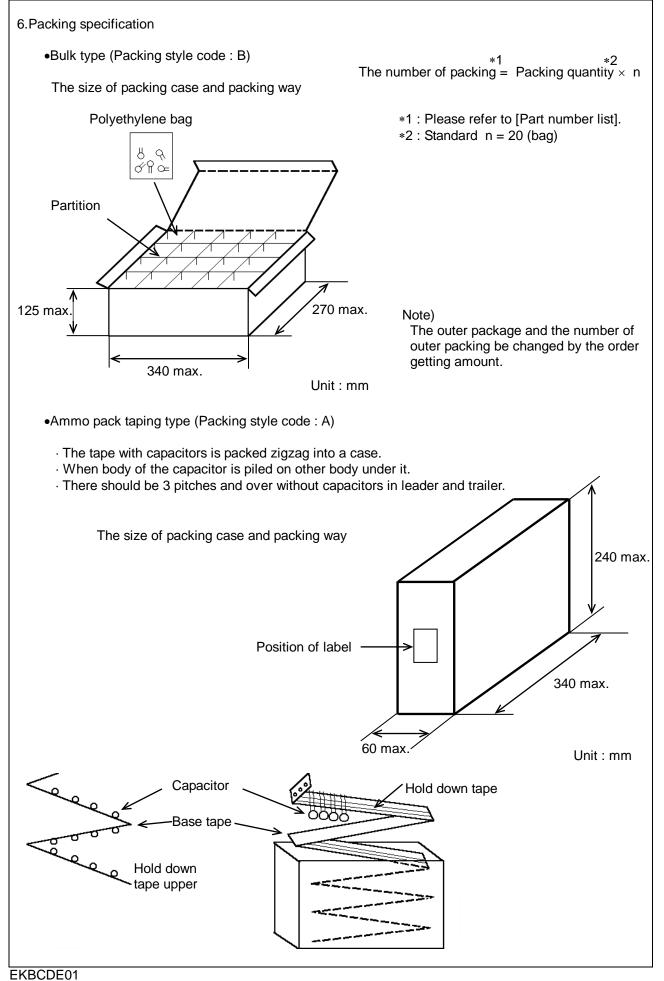


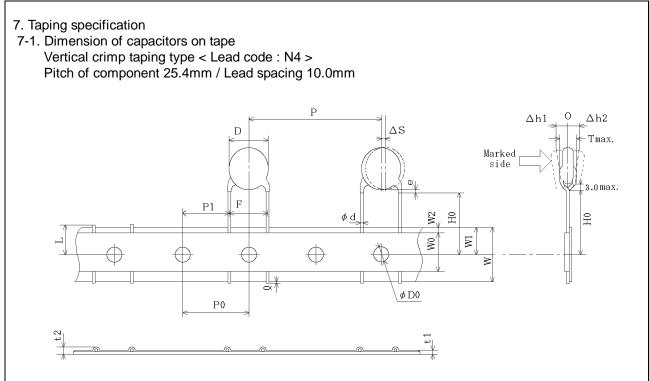
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Char. E : Within +20/-55% (Temp. range : -25 to +85°C)each step specified in Table.Step12345Temp.(°C) 20 ± 2 -25 ± 2 20 ± 2 85 ± 2 20 ± 2 8Active flammabilityThe cheese-cloth should not be on fire.The capacitors should be individually wrapped in at least one but more than two complete layers of cheese-cloth. The capacitor should be subjected to 20 discharges. The interval between successive discharges. The interval between successive discharge.8Active flammabilityThe cheese-cloth should not be on fire.The capacitor should be subjected to 20 discharges. The interval between successive discharge. The interval between successive discharge. The interval between successive discharge. The interval between successive discharge.91 -1 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>1±0.1</th> <th></th> <th></th> <th>, max</th> <th></th> <th></th>							1±0.1			, max		
Char. E : Within +20/-55% (Temp. range : -25 to +85°C)each step specified in Table.Step12345Temp. (°C) 20 ± 2 -25 ± 2 20 ± 2 85 ± 2 20 ± 2 8Active flammabilityThe cheese-cloth should not be on fire.The capacitors should be individually wrapped in at 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.8 $1 \pm 2 \pm 3$ $1 \pm 2 \pm 4 \pm 4$	7	Temperature chara	acteristic	Char B · Within +10 %		\rightarrow	The	apacitance	e measurer	nent should	d be made	at
Step12345Temp.(°C) 20 ± 2 -25 ± 2 20 ± 2 20 ± 2 20 ± 2 8Active flammabilityThe cheese-cloth should not be on fire.The capacitors should be individually wrapped in at least one but more than two complete layers of cheese-cloth. The capacitor should be subjected to 20 discharges. The interval between successive discharges. The interval between successive discharges should be 5 s. The UAc should be maintained for 2min after the last discharge. $stipr_t$				Char. E : Within +20/-55%								
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	8	Active flammability			oth should not be		least chees to 20 disch maint C1,2 L1 to R UAc Cx F	one but mo se-cloth. The discharges arges shout ained for 2 $\mu_{Tr} = \frac{1}{2} \frac{1}{2}$	bre than two the capacitor s. The inter- luld be 5 s. The inter- train after the $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ \frac	o complete or should be val between The UAc shall be a last disc $\frac{2}{3}$ $\frac{1}{2}$	layers of e subjecte n success hould be harge. <u>ct</u> <u>ct</u> <u>ct</u> <u>ct</u> <u>ct</u> <u>ct</u> <u>ct</u> <u>ct</u>	d

			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 capacitor up to 10N and keep it for 10 ± 1 s.
		Bending		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
10	Vibration	Appearance	No marked defect.	in the opposite direction. The capacitor should be firmly soldered to the
10	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 leads	5	Lead wire should be soldered	The lead wire of a capacitor should be dipped into a
	-		With uniformly coated on the	ethanol solution of 25wt% rosin and then into
			axial direction over 3/4 of the	molten solder for 2 ± 0.5 s. In both cases the depth of
			circumferential direction.	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)
12	Soldering effect	Appeorance	No marked defect.	235±5°C H63 Eutectic Solder
12	(Non-preheat)	Appearance Capacitance	Within ±10%	Solder temperature: 350±10°C or 260±5°C Immersion time : 3.5±0.5 s
	(iteli preneat)	change		(In case of $260\pm5^{\circ}$ C : 10 ± 1 s)
		I.R.	1000MΩ min.	The depth of immersion is up to about
		Dielectric	Per item 3	1.5 to 2.0mm from the root of lead wires.
		strength		Thermal Capacitor insulating
				1.5 1.5 1.5 1.6 1.6 Noiten 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
				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.	1 000MΩ min.	immersed solder of 260+0/-5°C up to 1.5 to 2.0mm from
		Dielectric	Per item 3	the root of terminal for 7.5+0/-1 s.
		strength		Thermal Capacitor
				insulating 1.5 1.5 to 2.0mm Molten solder
				Pre-treatment : Capacitor should be stored at 85±2°C for 1 h, then placed at * ¹ room condition for 24±2 h
				before initial measurements. Post-treatment : Capacitor should be stored for 1 to
* ¹ "ro	l om condition" Tempera	l ature: 15 to 35°C,	Relative humidity: 45 to 75%, Atmos	2 h at *1room condition. spheric pressure: 86 to 106kPa

			Reference only	
No.	Item		Specification	Test method
14	Flame test		The capacitor flame discontinue	The capacitor should be subjected to applied flame
			as follows.	for 15 s. and then removed for 15 s until 5 cycle.
				<u></u>
			Cycle Time	19 Capacitor
				1 Flame
			1 to 4 30 s max.	A A A A A A A A A A A A A A A A A A A
			5 60 s max.	
				Gas Burner
15	Passive flammability		The burning time should not be	The capacitor under test should be held in the flame
			exceeded the time 30 s.	in the position which best promotes burning.
			The tissue paper should not	Time of exposure to flame is for 30 s.
			ignite.	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.
				Capacitor
				About 8mm
				\wedge
				Gas burner Flame 200±5mm
				Tissue
				About 10mm thick board
16	Humidity	Annon	No marked defect.	Pot the conscitut for 500 (40 h at 40 (000 in 00 h)
10		Appearance		Set the capacitor for 500±12 h at 40±2°C in 90 to
	(Under steady	Capacitance	Char. B: Within ±10%	95% relative humidity.
	state)	change	Char. E : Within ±15%	
		D.F.	5.0% max.	Post-treatment : Capacitor should be stored for 1 to 2 h at * ¹ room condition.
				2 n at room condition.
		I.R.	3000MΩ min.	1
		Dielectric	Per item 3	-
		strength		
17	Humidity loading	Appearance	No marked defect.	Apply the rated voltage for 500±12 h at 40±2°C in
.,	Turnany localing	Capacitance	Char. B : Within ±10%	90 to 95% relative humidity.
		change	Char. E : Within $\pm 15\%$	
		D.F.	5.0% max.	Post-treatment: Capacitor should be stored for 1 to
		D.I.	5.070 max.	2 h at ^{1} room condition.
		I.R.	3000MΩ min.	
		Dielectric	Per item 3	4
		strength	Fer item 5	
*1 "**	m andition" Tompor		Deletive humidity 45 to 75% Atmos	haria prosourou 96 to 106kDo
"" "ro	om condition" Tempera	ature: 15 to 35°C,	Relative humidity: 45 to 75%, Atmosp	oneric pressure: 86 to 106KPa
1				
1				

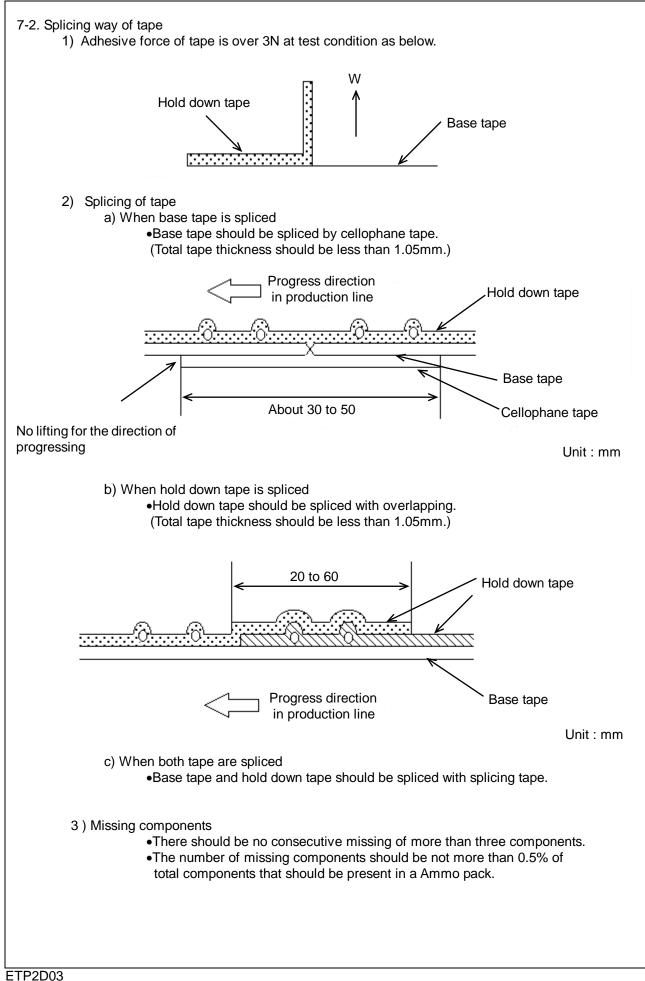
		Specification					nethod	
Life	Appearance Capacitance	No marked defect. Within ±20%	Ead	ch inc	dividual	capacitor sh		
	change I.R.	3000MΩ min.	8k\ are	V imp è appli	ulses fo ied to lif	or three time e test.	s. Then th	e capacitors
	Dielectric	Per item 3					ront time (T1)	= 1.7 <i>µ</i> s=1.67T
	Strength			90	, <u> </u>			$\mu c (T2) = 50 \mu s$
				30 0 —		2	t	
			for The of 1 Thi	a per e air i 125+2 rough	acitors a riod of 1 n the ov 2/-0 °C, nout the	are placed ir 000 h. /en is mainta and relative test, the cap	ained at a humidity pacitors ar	temperature of 50% max e subjected
			of r	mains	s freque	ncy, except	that once	each hour
			Pos	st-trea	atment :			
Temperature and	Appearance	No marked defect.				hould be sub	ojected to	5 temperature
immersion cycle	Capacitance change	Char. B :Within ±10% Char. E :Within ±20%					o 2 immer	sion cycles.
	D.F.	5.0% max.	<te< td=""><td>empe</td><td></td><td>-</td><td>(10)</td><td></td></te<>	empe		-	(10)	
				-				Time 30 min
	I.R.	3000MΩ min.			2	Room te	emp.	3 min
		Per item 3		_				30 min 3 min
	en en gan			L	4	Roomite		ycle time : 5 cycl
			<lm< td=""><td>nmers</td><td>sion cyc</td><td>:le></td><td></td><td></td></lm<>	nmers	sion cyc	:le>		
			S	Step	Temp	erature(°C)	Time	Immersion water
				1	+6	5+5/-0	15 min	Clean water
				2		0±3	15 min	Salt water
						85±2°C fo *1room co	should be or 1 h, the ondition fo	n placed at r 24±2 h.
	454.0500					24 h at *1	^I room con	
	Life Temperature and immersion cycle	Capacitance change I.R. Dielectric strength Temperature and immersion cycle Appearance Capacitance change D.F. I.R. Dielectric strength	Life Appearance Capacitance change No marked defect. I.R. 3000MΩ min. Dielectric strength Per item 3 Temperature and immersion cycle Appearance No marked defect. Capacitance change No marked defect. Char. B : Within ±10% Char. E : Within ±20% D.F. 5.0% max. I.R. I.R. 3000MΩ min. Dielectric strength	Item Specification Life Appearance No marked defect. Ea Capacitance Within ±20% Ba I.R. 3000MΩ min. Ba Dielectric Per item 3 Th from Appearance No marked defect. Th memory Appearance No marked defect. Th of a Fa Appearance No marked defect. Th of a Char. B : Within ±10% Cyd Cyd Temperature and immersion cycle Appearance No marked defect. Th D.F. 5.0% max. I.R. 3000MΩ min. Cyd D.F. 5.0% max. I.R. 3000MΩ min. P Dielectric Strength Per item 3 Char. E P I.R. 3000MΩ min. Fi P P Dielectric Strength Per item 3 P P	Item Specification Life Appearance No marked defect. Impulse Capacitance Within ±20% Back im I.R. 3000MΩ min. are appl Dielectric Per item 3 1% strength Per item 3 1% The cap Appearance No marked defect. The cap The cap Appearance No marked defect. The cap The cap Char. B Within ±10% char.es The cap Char. B Within ±20% Char.es D.F. 5.0% max. Char.es Capacitance I.R. 3000MΩ min. [] [] Dielectric Strength Per item 3 I.R. 3000MΩ min. [] [] I I 2 Pre-trea Step 1 2	Item Specification Life Appearance No marked defect. Impulse voltage Each individual 8kV impulses for are applied to lif 1.R. 3000M2 min. Dielectric strength Per item 3 Impulse voltage 1.B. 3000M2 min. Per item 3 Impulse voltage Impulse voltage 1.B. 3000M2 min. Per item 3 Impulse voltage Impulse voltage 1.B. Appearance No marked defect. The capacitors for a period of 1 The air in the co of 125+2/-0 °C, Throughout the to a AC5100/tr. The capacitors for a period of 1 The air in the co of 125+2/-0 °C, Throughout the to a AC5100/tr. Temperature and immersion cycle Appearance No marked defect. The capacitors change D.F. 5.0% max. Step Impulse voltage 1.R. 3000M2 min. Impulse voltage Impulse vol	Item Appearance Capacitance change No marked defect. Impulse voltage Each individual capacitor st BkV impulses for three time are applied to life test. Dielectric strength Per item 3 The capacitors are placed in for a period of 1000 h. The air in the over is maint of 125+2/0 °C, and relative to a AC510V(rn, s)-c50/600 of mains frequency, except the voltage is increased to A Temperature and immersion cycle Appearance change No marked defect. Char. B : Within ±10% Char. E : Within ±20% The capacitors are placed in for a period of 1000 h. The air in the over is maints of 25+2/-0 °C, and relative to a AC510V(rn, s)-c50/600 of mains frequency, except the voltage is increased to A Temperature and immersion cycle Appearance change No marked defect. Char. B : Within ±10% Char. E : Within ±20% The capacitor should be su cycles, then consecutively to a 42510V(rn, a)-c50/600 of mains frequency. 1.R. 3000MΩ min. The capacitor should be su cycles, then consecutively to a 4125+2 d Room te 1.R. 3000MΩ min. Esp Temperature cycle> 1.R. 3000MΩ min. Esp Temperature(°C) 1 465+5/0 2 0±3 1.R. 3000MΩ min. Esp Temperature(°C) 1 465+5/0 2 0±3	Item Specification Test method Life Appearance No marked defect. Impulse voltage Each individual capacitor should be si 8KV impulses for three times. Then th are applied to life test. Dielectric strength Per item 3 3000MΩ min. Impulse voltage Foot imp (1) immersion 4ka The capacitors are placed in a circula of 252-20°C, and relative humidity. Throughout the test. Impulse for three times. Then th are applied to life test. Temperature and immersion cycle Appearance No marked defect. The capacitors are placed in a circula for a period of 1000 h. The ari in the oven is maintained at a of 252-20°C, and relative humidity. Throughout the test, the capacitors are to a ACG10V(rm.s).+50(KDV-z altern of mains frequency, except that once the voltage is increased to AC1000V(Temperature and immersion cycle Appearance Char. B : Within ±10% Char. E : Within ±10% Char. E : Within ±20% D.F. The capacitor should be subjected to char. B : Within ±20% Char. E : Within ±20% Commersion cycles Step Temperature(°C) Interper





Unit : mm

	T				
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	Part 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	HO	18.0± ^{2.0} ₀			
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 max.			
Deviation across tape, rear					
Portion to cut in case of defect	L	0 11.0±1.0			
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	Part number list].				



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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Murata:

DE1B3KX331KB4BP01F DE1E3KX222MN4AP01F DE1B3KX101KA4BP01F DE1B3KX151KN4AP01F
DE1E3KX152MA4BP01F DE1B3KX681KA4BP01F DE1E3KX222MA4BP01F DE1E3KX102MB4BP01F
DE1E3KX152MB4BP01F DE1B3KX681KB4BP01F DE1B3KX331KN4AP01F DE1B3KX331KA4BP01F
DE1E3KX472MA4BP01F DE1E3KX102MN4AP01F DE1E3KX152MN4AP01F DE1E3KX222MB4BP01F
DE1B3KX101KN4AP01F_DE1B3KX471KA4BP01F_DE1B3KX681KN4AP01F_DE1E3KX332MB4BP01F
DE1E3KX332MN4AP01F DE1B3KX471KB4BP01F DE1E3KX332MA4BP01F DE1B3KX221KA4BP01F
DE1B3KX101KB4BP01F DE1B3KX471KN4AP01F DE1B3KX221KB4BP01F DE1E3KX472MB4BP01F
DE1B3KX221KN4AP01F_DE1B3KX151KA4BP01F_DE1B3KX151KB4BP01F_DE1E3KX472MN4AP01F_
DE1E3KX102MA4BP01F DE1E3KX102MJ4BP01F DE1B3KX151KJ4BP01F DE1E3KX472MJ4BP01F
DE1B3KX681KJ4BP01F DE1B3KX221KJ4BP01F DE1E3KX332MJ4BP01F DE1E3KX222MJ4BP01F
DE1B3KX331KJ4BP01F DE1B3KX101KJ4BP01F DE1E3KX152MJ4BP01F DE1B3KX471KJ4BP01F