

# **Reference Specification**

Leaded MLCC for Automotive with AEC-Q200 RCE Series

Product specifications in this catalog are as of Mar. 2022, and are subject to change or obsolescence without notice.

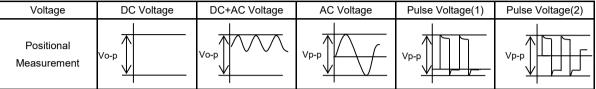
Please consult the approval sheet before ordering.Please read rating and Cautions first.

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#### 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.

When DC-rated capacitors are to be used in input circuits from commercial power source (AC filter), be sure to use Safety Recognized Capacitors because various regulations on withstand voltage or impulse withstand established for each equipment should be taken into considerations.



#### 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. In case of Class 2 capacitors (Temp.Char. : X7R,X7S,X8L, etc.), applied voltage should be the load such as self-generated heat is within 20 °C on <u>the condition of</u> <u>atmosphere temperature 25 °C</u>. Please contact us if self-generated heat is occurred with Class 1 capacitors (Temp.Char. : C0G,U2J,X8G, etc.). When measuring, use a thermocouple of small thermal capacity-K of  $\Phi$ 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.

#### 3. FAIL-SAFE

Be sure to provide an appropriate fail-safe function on your product to prevent a second damage that may be caused by the abnormal function or the failure of our product.

#### 4. 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 5 to 40 °C and 20 to 70%. Use capacitors within 6 months.

#### 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.

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

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 a bonded or molded 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 or molding resin may cause a outer coating resin cracking and/or ceramic element cracking of a capacitor in a temperature cycling.

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

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. 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
- 3. Undersea equipment
- 2. Aerospace 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. SOLDERING AND MOUNTING

Insertion of the Lead Wire

- When soldering, insert the lead wire into the PCB without mechanically stressing the lead wire.
- Insert the lead wire into the PCB with a distance appropriate to the lead space.

#### **3. CAPACITANCE CHANGE OF CAPACITORS**

Class 2 capacitors (Temp.Char. : X7R,X7S,X8L etc.)

Class 2 capacitors 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.

#### 

- 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 Leaded MLCC RCE series in accordance with AEC-Q200 requirements used for Automotive Electronic equipment.

2. Rating

#### Part Number Configuration

ex.)	RCE	70	2E	101	J	1	K1	H03	В
	Series	Temperature	Rated	Capacitance	Capacitance	Dimension	Lead	Individual	Package
		Characteristics	Voltage		Tolerance	(LxW)	Style	Specification	

#### • Temperature Characteristics

Code	Temp. Char.	Temp. Range	Temp.coef.	Standard Temp.	Operating Temp. Range
7U	U2J	-55∼25°C	-750+120/-347ppm/°C	25°C	-55~125°C
70	(EIA code)	25∼125°C	-750+/-120ppm/°C	250	-55** 125 0

Rated Voltage

Code	Rated voltage
2E	DC250V
2J	DC630V
3A	DC1000V

#### Capacitance

The first two digits denote significant figures ; the last digit denotes the multiplier of 10 in pF.

ex.) In case of 101

 $10 \times 10^{1} = 100 \text{pF}$ 

Capacitance Tolerance

Code	Capacitance Tolerance
J	+/-5%

• Dimension (LxW)

Please refer to [ Part number list ].

#### Lead Style

\*Lead wire is "solder coated CP wire".

Code	Lead Style	Lead spacing (mm)
B1	Straight type	5.0+/-0.8
E1	Straight taping type	5.0+0.6/-0.2
K1	Inside crimp type	5.0+/-0.8
M1	Inside crimp taping type	5.0+0.6/-0.2

Individual Specification

Murata's control code. Please refer to [ Part number list ].

#### Package

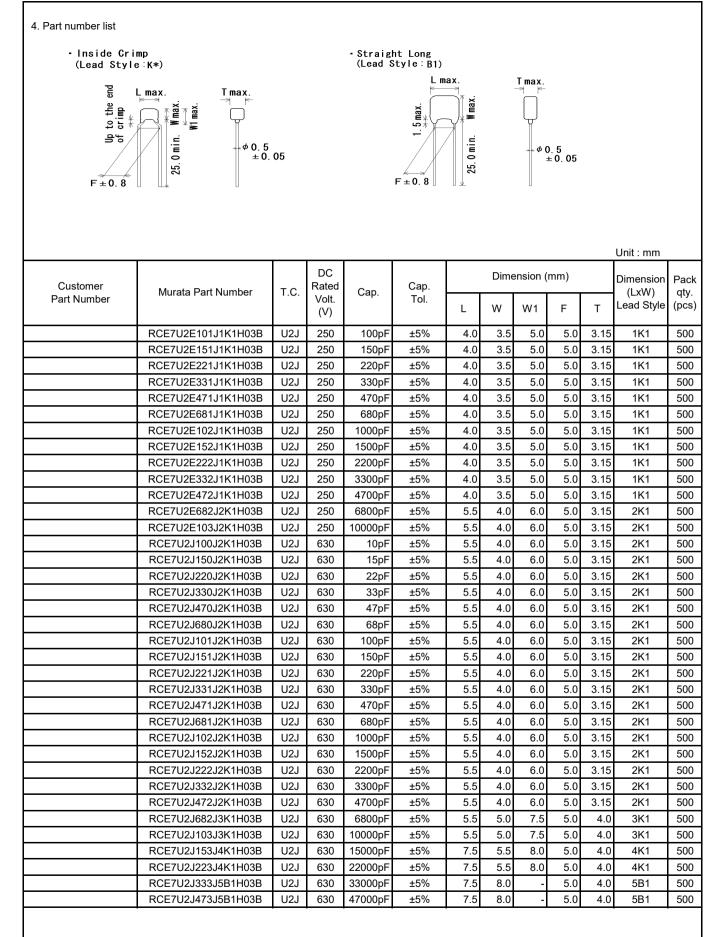
Code	Package
A	Taping type of Ammo
В	Bulk type

#### 3. Marking

Temp. char.	:	Letter code : U (U2J Char.)
Capacitance	:	Actual numbers (Less than 100pF)
		3 digit numbers (100pF and over)
Capacitance tolerance	:	Code
Rated voltage	:	Letter code : 4 (DC250V. Except dimension code : 1)
		Letter code : 7 (DC630V)
		Letter code : A (DC1000V)
Company name code	:	Abbreviation : 🚱 (Except dimension code : 1)

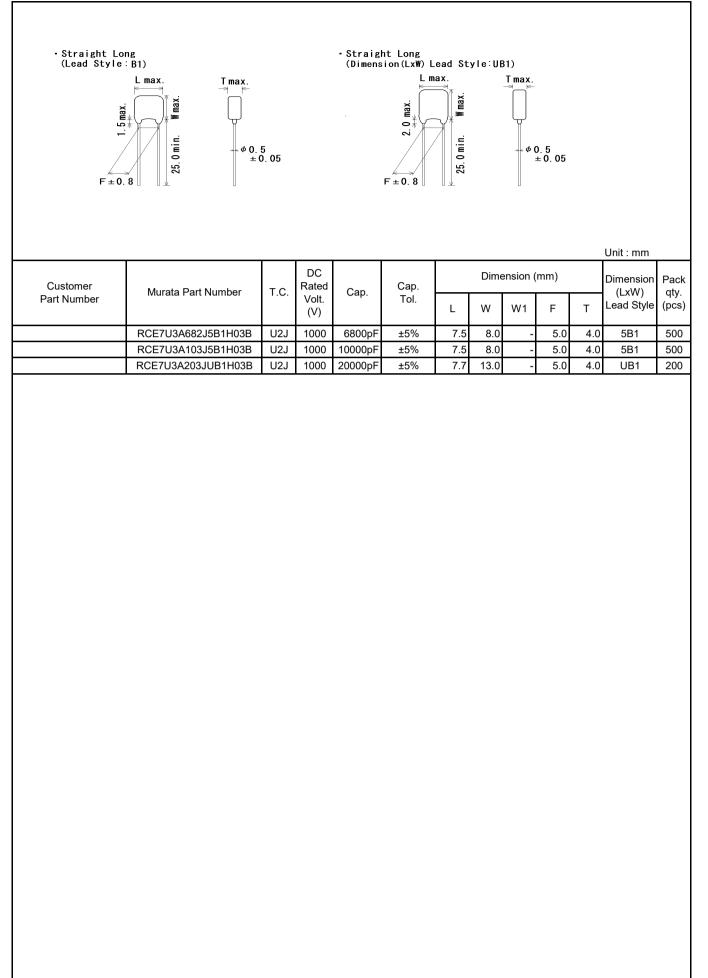
(Ex.)

E <u>x.)</u>			
Rated voltage	DC250V	DC630V	DC1000V
1	U 102J	_	_
2	Cm 103 J4U	Cm <sup>472</sup> J7U	(P 102 JAU
3,4	<b>(4</b> 73 J4U	(m 103 J7U	<b>(</b> 472 JAU
5,U	_	<b>ک</b> 333 J7U	(C) 103 JAU



• Straight Lo (Dimension(L	xW) Lead Style:UB1) L max. T max. x w w w w w w w w w w w w w w w w w w w	5 ). 05		- - - - - - - - - - - - - - - - - - -	Style K*			max.	5 0. 05			
			DC				Dimo		(mm)		Unit : mm	
Customer Part Number	Murata Part Number	T.C.	Rated Volt. (V)	Cap.	Cap. Tol.	L	W	ension ( W1	F	т	Dimension (LxW) Lead Style	qty
	RCE7U2J943JUB1H03B	U2J	630	94000pF	±5%	7.7	13.0	_	5.0	4.0	UB1	20
	RCE7U3A100J2K1H03B	U2J	1000	94000pF 10pF	±5%	5.5	4.0	6.0	5.0	3.15		500
	RCE7U3A150J2K1H03B	U2J	1000	15pF	±5%	5.5	4.0	6.0	5.0	3.15		500
	RCE7U3A220J2K1H03B	U2J	1000	22pF	±5%	5.5	4.0	6.0	5.0	3.15		50
	RCE7U3A330J2K1H03B	U2J	1000	33pF	±5%	5.5	4.0	6.0	5.0	3.15		50
	RCE7U3A470J2K1H03B	U2J	1000	47pF	±5%	5.5	4.0	6.0	5.0	3.15		50
	RCE7U3A680J2K1H03B	U2J	1000	68pF	±5%	5.5	4.0	6.0	5.0	3.15	2K1	50
	RCE7U3A101J2K1H03B	U2J	1000	100pF	±5%	5.5	4.0	6.0	5.0	3.15		50
	RCE7U3A151J2K1H03B	U2J	1000	150pF	±5%	5.5	4.0	6.0	5.0	3.15	2K1	50
	RCE7U3A221J2K1H03B	U2J	1000	220pF	±5%	5.5	4.0	6.0	5.0	3.15	2K1	50
	RCE7U3A331J2K1H03B	U2J	1000	330pF	±5%	5.5	4.0	6.0	5.0	3.15		50
	RCE7U3A471J2K1H03B	U2J	1000	470pF	±5%	5.5	4.0	6.0	5.0	3.15		50
	RCE7U3A681J2K1H03B	U2J	1000	680pF	±5%	5.5	4.0	6.0	5.0	3.15	2K1	50
	RCE7U3A102J2K1H03B	U2J	1000	1000pF	±5%	5.5	4.0	6.0	5.0	3.15	2K1	50
	RCE7U3A222J3K1H03B	U2J	1000	2200pF	±5%	5.5	5.0	7.5	5.0	4.0	3K1	50
	RCE7U3A332J4K1H03B	U2J	1000	3300pF	±5%	7.5	5.5	8.0	5.0	4.0	4K1	50
	RCE7U3A472J4K1H03B	U2J	1000	4700pF	±5%	7.5	5.5	8.0	5.0	4.0		50

Γ



(Lead Style: M*)				(Lea	d Style:E	*)				-			
					→ H+0 H+0 H+0 H		F±0.2	₩≊	. XPIII 4 0. 5 ± 0. 05	T max. → K			
												Unit : mm	
			DC				D	imensi	on (mn	n)		Dimension	Pad
Customer Part Number	Murata Part Number	T.C.	Rated Volt. (V)	Cap.	Cap. Tol.	L	W	W1	F	, T	H/H0	(LxW) Lead Style	qty
	RCE7U2E101J1M1H03A	U2J	250	100pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0	1M1	200
	RCE702E101J1M1H03A	U2J	250	150pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0		200
	RCE7U2E131J1M1H03A	U2J	250	220pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0		20
	RCE7U2E331J1M1H03A	U2J	250	330pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0	1M1	200
	RCE7U2E471J1M1H03A	U2J	250	470pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0	1M1	20
	RCE7U2E681J1M1H03A	U2J	250	680pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0		20
	RCE7U2E102J1M1H03A	U2J	250	1000pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0	1M1	20
	RCE7U2E152J1M1H03A	U2J	250	1500pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0	1M1	20
	RCE7U2E222J1M1H03A	U2J	250	2200pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0	1M1	20
	RCE7U2E332J1M1H03A	U2J	250	3300pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0	1M1	20
	RCE7U2E472J1M1H03A	U2J	250	4700pF	±5%	4.0	3.5	5.0	5.0	3.15	16.0	1M1	20
	RCE7U2E682J2M1H03A	U2J	250	6800pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	20
	RCE7U2E103J2M1H03A	U2J	250	10000pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	20
	RCE7U2J100J2M1H03A	U2J	630	10pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	20
	RCE7U2J150J2M1H03A	U2J	630	15pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	200
	RCE7U2J220J2M1H03A	U2J	630	22pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	200
	RCE7U2J330J2M1H03A	U2J	630	33pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	200
	RCE7U2J470J2M1H03A	U2J	630	47pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	200
	RCE7U2J680J2M1H03A	U2J	630	68pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	200
	RCE7U2J101J2M1H03A	U2J	630	100pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	20
	RCE7U2J151J2M1H03A	U2J	630	150pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	20
	RCE7U2J221J2M1H03A	U2J	630	220pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	20
	RCE7U2J331J2M1H03A	U2J	630	330pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	20
	RCE7U2J471J2M1H03A	U2J	630	470pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	20
	RCE7U2J681J2M1H03A	U2J	630	680pF	±5%	5.5	4.0	6.0	5.0	3.15		2M1	20
	RCE7U2J102J2M1H03A	U2J	630	1000pF	±5%	5.5	4.0	6.0	5.0	3.15			20
	RCE7U2J152J2M1H03A	U2J	630	1500pF	±5%	5.5	4.0	6.0	5.0	3.15			200
	RCE7U2J222J2M1H03A	U2J	630	2200pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0		200
	RCE7U2J332J2M1H03A	U2J	630	3300pF	±5%	5.5	4.0	6.0	5.0	3.15			20
	RCE7U2J472J2M1H03A	U2J	630	4700pF	±5%	5.5	4.0	6.0	5.0	3.15			20
	RCE7U2J682J3M1H03A RCE7U2J103J3M1H03A	U2J U2J	630 630	6800pF 10000pF	±5% ±5%	5.5 5.5	5.0 5.0	7.5 7.5	5.0 5.0	4.0 4.0	16.0 16.0		20
	RCE7U2J103J3M1H03A RCE7U2J153J4M1H03A	U2J	630	15000pF	±5%	5.5 7.5	5.0 5.5	7.5 8.0	5.0 5.0	4.0	16.0		20
	RCE7U2J153J4M1H03A	U2J	630	22000pF	±5%	7.5	5.5	8.0	5.0	4.0	16.0		15
	RCE7U2J333J5E1H03A	U2J	630	22000pF 33000pF	±5%	7.5	5.5 8.0	0.0	5.0	4.0	17.5		15
		020	000	Jogoop	±070	1.5	0.0	-	5.0	4.0	17.5		1.00
	RCE7U2J473J5E1H03A	U2J	630	47000pF	±5%	7.5	8.0	_	5.0	4.0	17.5	5E1	150

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	<u> </u>											Unit : mm	
Customer	Murata Dart Number	T.C.	DC Rated	0	Cap.		Dimension (mm)					Dimension	Pack
Part Number	Murata Part Number	1.0.	Volt. (V)	Cap.	Tol.	L	W	W1	F	Т	H/H0	(LxW) Lead Style	qty. (pcs
	RCE7U3A100J2M1H03A	U2J	1000	10pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	2000
	RCE7U3A150J2M1H03A	U2J	1000	15pF	±5%	5.5	4.0	6.0	5.0	3.15	16.0	2M1	2000
	RCE7U3A220J2M1H03A	U2J	1000	22pF	±5%	5.5	4.0	6.0	5.0	3.15			2000
	RCE7U3A330J2M1H03A	U2J	1000	33pF	±5%	5.5	4.0	6.0	5.0	3.15			2000
	RCE7U3A470J2M1H03A	U2J	1000	47pF	±5%	5.5	4.0	6.0	5.0	3.15			2000
	RCE7U3A680J2M1H03A	U2J	1000	68pF	±5%	5.5	4.0	6.0	5.0	3.15			200
	RCE7U3A101J2M1H03A	U2J	1000	100pF	±5%	5.5	4.0	6.0	5.0	3.15			200
	RCE7U3A151J2M1H03A	U2J	1000	150pF	±5%	5.5	4.0	6.0	5.0	3.15			200
	RCE7U3A221J2M1H03A	U2J	1000	220pF	±5%	5.5	4.0	6.0	5.0	3.15			200
	RCE7U3A331J2M1H03A	U2J	1000	330pF	±5%	5.5	4.0	6.0	5.0	3.15			200
	RCE7U3A471J2M1H03A	U2J	1000	470pF	±5%	5.5	4.0	6.0	5.0	3.15			200
	RCE7U3A681J2M1H03A	U2J	1000	680pF	±5%	5.5	4.0	6.0	5.0	3.15			200
	RCE7U3A102J2M1H03A	U2J	1000	1000pF	±5%	5.5	4.0	6.0	5.0	3.15			200
	RCE7U3A152J3M1H03A	U2J	1000	1500pF	±5%	5.5	5.0	7.5	5.0	4.0			200
	RCE7U3A222J3M1H03A	U2J	1000	2200pF	±5%	5.5	5.0	7.5	5.0	4.0			200
	RCE7U3A332J4M1H03A	U2J	1000	3300pF	±5%	7.5	5.5	8.0	5.0	4.0			150
	RCE7U3A472J4M1H03A RCE7U3A682J5E1H03A	U2J U2J	1000 1000	4700pF	±5% ±5%	7.5 7.5	5.5 8.0	8.0	5.0 5.0	4.0 4.0			150
				6800pF				-					150
	RCE7U3A103J5E1H03A RCE7U3A203JUE1H03A	U2J U2J	1000 1000	10000pF 20000pF	±5% ±5%	7.5 7.7	8.0 13.0	-	5.0 5.0	4.0 4.0	17.5 17.5		150 150
	<u>.</u>											<u> </u>	

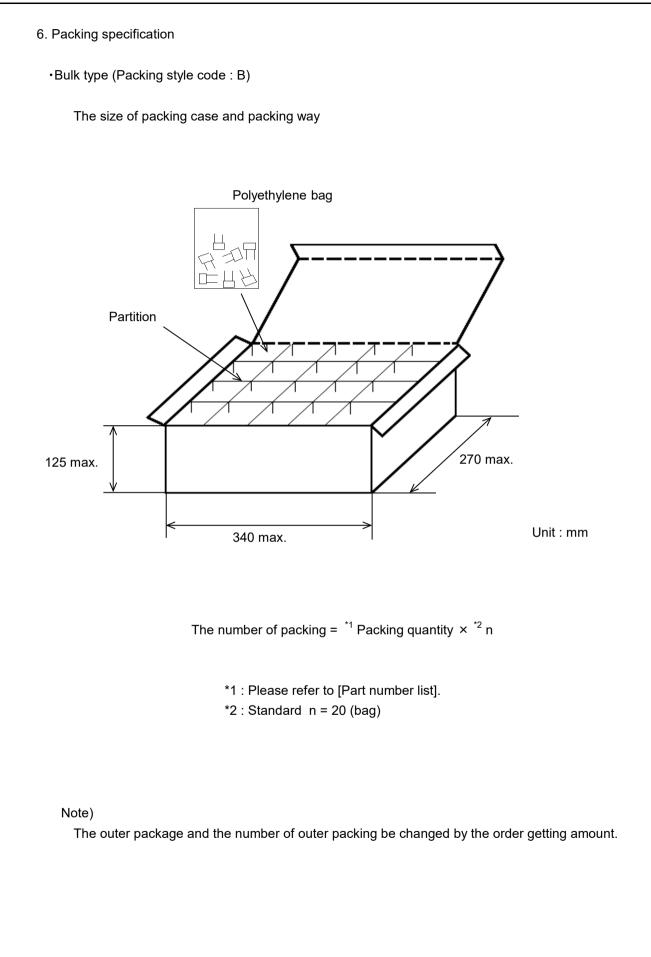
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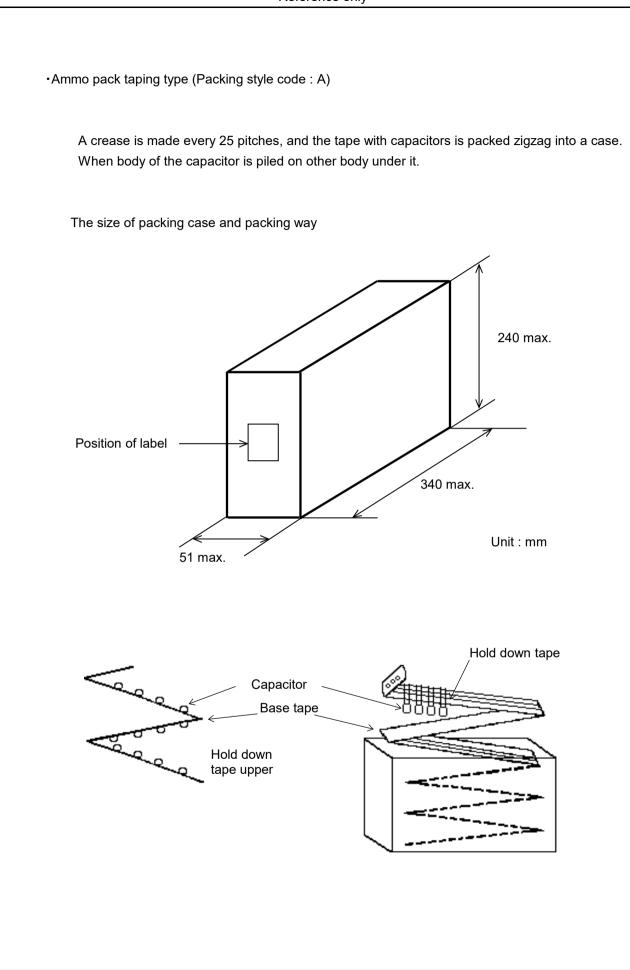
	C-Q200 Murata	Standard Spec	ifications and Test Methods								
		-Q200									
lo.	Test	Item	Specification	AEC-Q200 Test Method							
1	Pre-and Post-	Stress		<u> </u>							
	Electrical Test			-							
2	High	Appearance	No defects or abnormalities.	Sit the capacitor for 1000±12h at 150±3°C. Let sit for 24±2h at							
	Temperature	Capacitance	Within ±3% or ±0.3pF	*room condition, then measure.							
	Exposure	Change	(Whichever is larger)								
	(Storage)	Q	$30pF \leq C : Q \geq 350$	-							
	(g-)	-	$10pF \le C < 30pF : Q \ge 275+5C/2$								
			$10pF > C : Q \ge 200+10C$								
			C : Nominal Capacitance (pF)								
		I.R.	More than 1,000M $\Omega$ or 50 M $\Omega$ ·µF	-							
			(Whichever is smaller)								
3	Temperature	Appearance	No defects or abnormalities.	Perform the 1000 cycles according to the four heat treatments listed in							
5											
	Cycling	Capacitance	Within ±5% or ±0.5pF	the following table. Let sit for 24±2 h at *room condition, then measure.							
		Change	(Whichever is larger)	Step 1 2 3 4							
		Q	$30pF \leq C : Q \geq 350$								
			$10pF \leq C < 30pF : Q \geq 275+5C/2$	Temp. (°C)         -55+0/-3         Room Temp.         125+3/-0         Room Temp.							
			10pF > C : Q ≧ 200+10C								
				Time 15±3 1 15±3 1							
			C : Nominal Capacitance (pF)								
		I.R.	1,000MΩ or 50MΩ • μF min.								
			(Whichever is smaller)								
4	Moisture	Appearance	No defects or abnormalities	Apply the 24h heat (25 to 65°C) and humidity (80 to 98%)							
	Resistance	Capacitance	Within ±5% or ± 0.5pF	treatment shown below, 10 consecutive times.							
		Change	(Whichever is larger)	Let sit for 24±2 h at *room condition, then measure.							
		Q	$30pF \leq C : Q \geq 200$	Temperature Humidity Humidity							
			30pF > C : Q ≧ 100+10C/3	(°C) Humidity 80~98% Humidity 80~98% Humidity 90~98% ♥ 90~98% ♥ 90~98%							
			C : Nominal Capacitance (pF)								
		I.R.	500MΩ or 25MΩ • μF min.								
			(Whichever is smaller)	950 245 940 935							
				10 Initial measurement							
				5							
				One cycle 24 hours							
				0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24							
				Hours							
5	Diess	Anne	No defecto en china munaliti								
	Biased	Appearance	No defects or abnormalities	Apply the rated voltage and DC1.3+0.2/-0V (add 100k $\Omega$ resistor)							
	Humidity	Capacitance	Within $\pm 5\%$ or $\pm 0.5$ pF	at 85±3°C and 80 to 85% humidity for 1000±12h.							
		Change	(Whichever is larger)	Remove and let sit for 24±2 h at *room condition, then measure.							
		Q	$30 \text{pF} \leq \text{C} : \text{Q} \geq 200$	The charge/discharge current is less than 50mA.							
			30pF > C : Q ≧ 100+10C/3								
			C : Nominal Capacitance (pF)								
		I.R.	500MΩ or 25MΩ · $\mu$ F min.								

			Refere	ence only		
No.		-Q200 t Item	Specification	AEC-Q200 Test Method		
6		1	No defecto en obvervacióne			
6	Operational	Appearance	No defects or abnormalities.	Apply voltage in Table for 1000±12h at 125±3°C.		
	Life	Capacitance	Within ±3% or ±0.3pF	Let sit for 24±2 h at *room condition, then measure.		
		Change	(Whichever is larger)	The charge/discharge current is less than 50mA.		
		Q	30pF ≦ C : Q ≧ 350			
			$10pF \le C < 30pF : Q \ge 275+5C/2$	Rated Voltage Test Voltage		
			10pF > C : Q ≧ 200+10C	DC250V 150% of the rated voltage		
				DC630V		
				DC1000V 120% of the rated voltage		
			C : Nominal Capacitance (pF)			
		I.R.	1,000MΩ or 50MΩ • μF min.			
			(Whichever is smaller)			
7	External Visua		No defects or abnormalities.	Visual inspection.		
8	Physical Dime	nsion	Within the specified dimensions.	Using calipers and micrometers.		
9	Marking		To be easily legible.	Visual inspection.		
-	Resistance	A	, ,			
10		Appearance	No defects or abnormalities. Per MIL-STD-202 Method 215			
	to Solvents	Capacitance	Within the specified tolerance.	Solvent 1 : 1 part (by volume) of isopropyl alcohol		
		Q	30pF ≦ C : Q ≧ 1,000	3 parts (by volume) of mineral spirits		
			30pF > C : Q ≧ 400+20C	Solvent 2 : Terpene defluxer		
				Solvent 3 : 42 parts (by volume) of water		
			C : Nominal Capacitance (pF)	1 part (by volume) of propylene glycol		
		I.R.	More than 10,000MΩ or 500 MΩ • μF	monomethyl ether		
			(Whichever is smaller)	1 part (by volume) of monoethanolamine		
11	Mechanical	Appearance	No defects or abnormalities.	Three shocks in each direction should be applied along 3		
	Shock	Capacitance	Within the specified tolerance.	mutually perpendicular axes of the test specimen (18 shocks).		
		Q	$30\text{pF} \leq \text{C} : \text{Q} \geq 1,000$	The specified test pulse should be Half-sine and should have a		
		4				
			30pF > C : Q ≧ 400+20C	duration : 0.5ms, peak value : 1500G and velocity change : 4.7m/s.		
			C : Nominal Capacitance (pF)			
12	Vibration	Appearance	No defects or abnormalities.	The capacitor should be subjected to a simple harmonic motion		
		Capacitance	Within the specified tolerance.	having a total amplitude of 1.5mm, the frequency being varied		
		Q	$30pF \leq C : Q \geq 1,000$	uniformly between the approximate limits of 10 and 2,000Hz.		
			30pF > C : Q ≧ 400+20C	The frequency range, from 10 to 2000Hz and return to 10Hz,		
				should be traversed in approximately 20 min. This motion		
			C : Nominal Capacitance (pF)	should be applied for 12 items in each 3 mutually perpendicular		
				directions (total of 36 times).		
3-1	Resistance	Appearance	No defects or abnormalities.	The lead wires should be immersed in the melted solder 1.5 to 2.0mm		
10-1						
	to	Capacitance	Within ±2.5% or ±0.25pF	from the root of terminal at 260±5°C for 10±1 seconds.		
	Soldering	Change	(Whichever is larger)	Post-treatment		
	Heat	Dielectric	No defects	Capacitor should be stored for 24±2 hours at *room condition.		
	(Non- Strength					
	Preheat)	(Between				
	,	` terminals)				
2.0	Resistance	,	No defecto en obnerma lítico	First the conscitut should be stared at 120,0/ 5°C for 60,0/ 5 accords		
3-Z		Appearance	No defects or abnormalities.	First the capacitor should be stored at 120+0/-5°C for 60+0/-5 seconds.		
	to	Capacitance	Within ±2.5% or ±0.25pF	Then, the lead wires should be immersed in the melted solder 1.5 to		
	Soldering	Change	(Whichever is larger)	2.0mm from the root of terminal at 260±5°C for 7.5+0/-1 seconds.		
	Heat Dielectric (On- Strength		No defects			
				<ul> <li>Post-treatment</li> <li>Capacitor should be stored for 24±2 hours at *room condition.</li> </ul>		
	Preheat)	(Between		Capacitor Should be Stored for 2412 hours at 100m condition.		
		terminals)				
13-3	Resistance	Appearance	No defects or abnormalities.	Test condition		
	to	Capacitance	Within ±2.5% or ±0.25pF	Temperature of iron-tip : 350±10°C		
	Soldering	Change	(Whichever is larger)	Soldering time : 3.5±0.5 seconds Soldering position		
	Heat	Dielectric	No defects			
	(soldering	Strength		Straight Lead : 1.5 to 2.0mm from the root of terminal.		
	iron method) (Between			Crimp Lead : 1.5 to 2.0mm from the end of lead bend.		
		terminals)				
				Post-treatment		
				Capacitor should be stored for 24±2 hours at *room condition.		
14	Thermal	Appearance	No defects or abnormalities.			
1-7				Perform the 300 cycles according to the two heat treatments listed in the following table (Maximum transfer time is 20s.). Let sit for $24\pm 2$ h at		
	Shock	Capacitance	Within ±5% or ±0.5pF			
		Change	(Whichever is larger)	*room condition, then measure.		
		Q	$30pF \leq C : Q \geq 350$			
			10pF ≦ C < 30pF : Q ≧ 275+5C/2	Step 1 2		
			$10pF > C : Q \ge 200+10C$	Temp55+0/-3 125+3/-0		
			$10\mu$ $20.4 \pm 200 \pm 100$	(°C) -55+0/-3 125+3/-0		
				Time		
			C : Nominal Capacitance (pF)	Time 15±3 15±3		
		I.R.	C : Nominal Capacitance (pF) 1,000MΩ or 50MΩ+μF min.	Time 15±3 15±3		
		I.R.		15±3 15±3		

No.         AEC-Q200 Text Method         Specification         AEC-Q200 Text Method           15         ESD         Ageneration         No defects or attenmatilies. CQ         Per AEC-Q200-002           16         ESD         Ageneration         Notified to attenmatilies. CQ         Per AEC-Q200-002           17         ESD         Ageneration         Notified to attenmatilies. CQ         Per AEC-Q200-002           18         Safet 2-0: 2-2: 10.001 (2000)         Safet 2-0: 2-2: 0.001 (2000)         Per AEC-Q200-002           18         Safet 2-0: 2-2: 0.001 (2000)         Safet 2-0: 2-2: 0.001 (2000)         Safet 2-0: 2-0: 0.002 (2000)         Per AEC-Q200-002           18         Ageneration         No defects or attemmating at the statum applies for Mult Smith to the construction of Participant at the statum applies for Mult Smith to the construction of Participant at the statum applies of Mult Smith terminal toxy. Temp of safet 2-0: 0.001 (2000)         No defects or attermatilies. The impathone, 0.4000 and members at the table.         No defects or attermatilies. The impathone, 0.4000 and members at the table.           17         External         No defects or attermatilies. Ternal         No defects or attermatilies. Ternal         No defects or attermatilies. Ternal         Notified								
Description         Writing the specified startance.           0         Stip F 0: 0: 2 400-200           10         Solderability           11         Solderability           12         Solderability           13         Solderability           14         Solderability           15         Solderability           16         Solderability           17         Electrical Character         Notified so rationwalliss.           17         Electrical Character         Appearance Vita Papacity and Sold Sold Sold Sold Sold Sold Sold Sol					Specifications	AEC-Q200 Test Method		
Description         Writing the specified startance.           0         Stip F 0: 0: 2 400-200           10         Solderability           11         Solderability           12         Solderability           13         Solderability           14         Solderability           15         Solderability           16         Solderability           17         Electrical Character         Notified so rationwalliss.           17         Electrical Character         Appearance Vita Papacity and Sold Sold Sold Sold Sold Sold Sold Sol	15			No defects	or abnormalities.	Per AEC-0200-002		
Q         Stop F ⊂ C : Q ≥ 1000 Stop F ⊂ C : Q ≥ 400-20 C C. Nonitial Capacitance (pr)         Should be placed into steam aging for the 15 min. Control on the anal formous own 16% of the circumferential director.         Should be placed into steam aging for the 15 min. Control on the anal formous own 16% of the circumferential director.         Should be placed into steam aging for the 15 min. Control on the anal formous own 16% of the circumferential director.           10         Solderability         Lead Wire should be soldered with utilities own and the sold steam own 16% of the circumferential director.         Should be placed into steam aging for the 15 min.           17         Electrical Clanadere Capacitance Ration         No defects or athornmalities.         The capacitance (GA 10 Ag 0.5Cu) 2355°C Hold Fore Solder (GA 0.4Dg 0.5Cu) 255°C Hold Fore Hold Common (Mind Were is smaller)         The capacital instance of the director of the solder (GA 0.4Dg 0.5Cu) 255°C Hold Fore (GA 0.4Dg 0.5Cu) 250°C Hold Fore (GA 0.4Dg 0.5Cu) 250°		200						
Image: Supplex C: Q ≥ 400-000         C: Nominal Capacitance (pF)           16         More than 10,000M or 560MO upf (Whithews III analler)         Should be placed into interm aging for Bhu15 mm.           16         Soldwalaity         Lead More thanks III analler)         Should be placed into interm aging for Bhu15 mm.           17         Bodina Should State III and Should State III and Should State III and Should State IIII and Should State IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				-		_		
Image: Constraint Capacitance (pF)         Image: Constraint Capacitance (pF)           10         Solderabily         Call we should be addeed with uniform         Should be placed into steam aging for 8he15 mm.           10         Solderabily         Call we should be addeed with uniform         The terminal of capacitance is digged into a solution of ethanol (US K 6501) rand resis (US K 5502) (25% rote in weight)           11         Solderabily         Call and we should be addeed with uniform         The terminal for 8he15 mm.           17         Electrical         Appeartance         No defects or abnormalities.         The capacitance, 0 should be measured at 25°C at the frequency and weight projects in the steam aging for 8he15 mm.           17         Electrical         Capacitance         Vittin the specified toterance.         The capacitance, 0 should be measured at 25°C at the frequency and weight projects in the steam.           17         Electrical         Capacitance (F)         The result and inspection.         The capacitance, 0 should be measured at 25°C at the frequency and weight projects in the steam.           17         Electrical         Capacitance (F)         The result of the steam and on the base.         The capacitance (F)           18         Between         10.0000Cc or 5000LC project in the steam.         The capacitance in table.         The capacitance in table.           19         Dielectrito         Between         No defect			Q	-				
IR         More than 10.000M0 or S00M0 µF           16         Solderability         Last wire should be soldered with untifund commentation over 5% of the circumferential direction over 5% of 24457C 12000 Are 1630 Are 1740 Are 240 S of the terminal direction for 1600 Are 240 C are 1000 Are 240 C are to circumferential direction over 5% of the circumferential direction over 5% of the circumferential direction of the circumferential to circumferential direction of the circumferential direction of the circumferential to circumferential direction of the circumferential to circumferential direction of the circumferential to circumferential direction of the circumferential circumferentis the circumferentia circumferential circumferential ci				30pF > C :	Q ≧ 400+20C			
IR         More than 10.000M0 or S00M0 µF           16         Solderability         Last wire should be soldered with untifund commentation over 5% of the circumferential direction over 5% of 24457C 12000 Are 1630 Are 1740 Are 240 S of the terminal direction for 1600 Are 240 C are 1000 Are 240 C are to circumferential direction over 5% of the circumferential direction over 5% of the circumferential direction of the circumferential to circumferential direction of the circumferential direction of the circumferential to circumferential direction of the circumferential to circumferential direction of the circumferential to circumferential direction of the circumferential circumferentis the circumferentia circumferential circumferential ci								
Image: standard base in the special of the standard in the special of the standard in the special standard standard standard in the special standard stan								
16         Solderability         Lead wire should be exidened with uniform one and wire should be exidened with uniform the circumferential direction.         Should be paiced into steam aping for first 16 min.         The terminal composition is diposed into ackeling of the station maintain tool.           17         Chestrical character.         Appearance:         No diefects or athromalities.         Should be paiced into station aping for first 16 min.           17         Chestrical character.         Appearance:         No diefects or athromalities.         Should be paiced into station aping for first 15 min.           17         Chestrical character.         Appearance:         No diefects or athromalities.         Should be paiced into station aping for first 15 min.           17         Chestrical character.         Appearance:         No diefects or athromalities.         The spacetance.         Opposition (5000 oppositio			I.R.	More than 1	10,000MΩ or 500MΩ • μF			
Institution         cosing on the adual direction out 95% of the circumferential direction.         The terminal of capacitors is depend in a souther of thandi (JK 84 901) and one (JK 85 902) and (GK 95 902) and (				(Whicheve	r is smaller)			
18         coaling on the axial direction over 05% of the encounterential direction.         The entities of coaling (3K 8402) 4305 words in weight proposed, (3K 8402) 4305 words in weight proposed (3K 8402) 4305 words in a weight proposed (3K 8402) 4305 words in a weight proposed (3K 8402) 4305 words in a weight	16	Solderability		,		Should be placed into steam aging for 8h±15 min.		
1         Period         UIS K R0101 and coin (UIS K S002) (25% cost in weight proportion). Investment body, proportion (S020) (25% cost in weight proportion). Investment body, and the 32.0 Seconds. In both cases the depth of dipping is up to about 1.5 to 2mm from the terminal body. Tamp, of older : 23457 CH000 re H03A Eukodic Solder           17         Electrical Characher         No diffects or abnormalities.         Visual impaction.           17         Electrical Characher         No diffects or abnormalities.         Visual impaction.           18         Capacitance         Wile the specified Ucleance.         The capacitance, 0 ahout be measured at 25°C at the frequency and votinge control (Sin SVICms.)           18         Terminals         Between         10.000MQ or 500MQ.)/F min. Terminals (Whichever is smaller)         The insulation nestitance should be measured with DCSOW (DC2SW) in case of raid voltage: DC2SW) at 25 °C within 2 min. di charging the problem.           18         Terminals         Defective         Between         No diffects or abnormalities.         The capacitor hould not be damaged when voltage in Table is applied between the terminals of not to be broken or loosend.           18         Terminal         Terminals on to be broken or loosend.         The capacitor hould not be damaged when voltage in Table is applied between the terminals and routed sharped point and the raided voltage in Case of raid voltage.           18         Terminal         Terminals on to be broken or loosend.         Terestate with more habal.		,		coating on the axial direction over 95% of		The terminal of capacitor is dipped into a solution of ethanol		
18         Ferminal         Steegth         Appearance         No defects or abnormalities.         Temp, is doider: 30,02,05,00,25,00,23,05,0								
In both cases the depth of diping is up to about 1.5 to 2mm from the termination of diping is up to about 1.5 to 2mm from the termination of diping is up to about 1.5 to 2mm from the termination of diping is up to about 1.5 to 2mm from the termination of diping is up to about 1.5 to 2mm from the termination of t								
Image: Strength         Appearance         No defects or abnormalities.         Visual inspection.           17         Electrical Characterization         No defects or abnormalities.         Visual inspection.           17         Electrical Characterization         No defects or abnormalities.         Visual inspection.           18         Terminal Strength         Between Terminals         No defects or abnormalities.         No defects or abnormalities.           18         Terminal Strength         Terminal Strength         No defects or abnormalities.         The capacitor should be measured at 25 °C within 2 min. of charging.           18         Terminal Strength         Terminals         No defects or abnormalities.         The capacitor should not be demaged when voltage in Table is aspector should not be demaged voltage in Cap2(N) at 32 °C within 2 min. of charging.           18         Terminal         Terminals         No defects or abnormalities.         The capacitor should not be demaged voltage in Cap2(N) at 32 °C within 2 min. of charging.           18         Terminal         Terminals         No defects or abnormalities.         The capacitor termination of the capacitor termination and metal table. ChargedDatacterization and the balls, and 200% of the rable of termination and metal table. ChargedDatacterization and the capacitor termination and metal table.           18         Terminal         Terminals         Termination not to be troken or looseend.         As in the								
Image: state in the specified interval in the specified interval inte								
Image: section of the sectio						terminal body.		
Instrume         23545°C HEAA or HEAA Extended Soluter           17         Electrical Character         Anodefactor antonmalities.         Yeau Inspection:         Yeau Inspection:           17         Electrical Character         Op 15 ≤ 0: 0 ≥ 1.000 StyF + 0: 0 ≥ 4.0002 C : Nominal Capacitance (pF)         The capacitance, 0 should be measured at 25°C at the frequency and votage shown in the table.           18         Between Delectric Strength         10,000M2 or 500M2 uF min. Terminals         The instalation resistance should be measured with DC500V (C2260V in case or rated votage : DC220V) at 25 °C within 2 min. of charaging.           18         Between Strength         Terminals         No defects or abnormalities. Strength         The capacitor should be measured with DC500V (DC260V in case or rated votage : DC220V) at 25 °C within 2 min. of charaging.           18         Terminals         Bedween Strength         No defects or abnormalities. Strength         The capacitor should not be damage there wotage DC260V in case or rated votage : DC250V or for the rate votage DC260V in case or rated votage : DC250V or of the rate or votage DC260V in case or rated votage : DC250V or the rate votage DC300V in table or table should be soluble or the rate or votage DC300V in the rate or votage in Case in a container with metal balls. (CharageDischarge current ≤ 50mA)           18         Terminal Strength         Termination not to be broken or loosened. Strength         As in the figure, fix the capacitor body, apply the force gradually to each teaced or table or organizator body, apply the force gradually to each teaced or table organis n						Temp. of solder :		
17       Electrical Characteric       Appearance Characteric       No defects or abnormalities.       Ysual inspection:         17       Electrical Characteric       O       30pF ≤ C: Q ≥ 10000 30pF > C: Q ≥ 400+20C C: Nominal Capacitance (pF)       The capacitance capacitance (appearance) C ≥ 1000pF ± 1:0.11Hzt 2 ACD.51 to 5V(rm.s.)]         18       R.R. Berkeen Dielectric       Between Termination       No defects or abnormalities.       The capacitance should be measured at DS*COVU (CC2SOV) to case of rade voltage : DC250V) at DS*C within 2 min. d' charaging.         18       Termination       Strength       Termination not to be broken or tooseend.       As in the figure, fix the capacitance divel as once and voltage in the capacitance divel as of rade voltage (100V) if the rated voltage (100V) if the rated voltage (100V) if the rated voltage (100V) is of the rated voltage (100V) if the rated voltage (100V) is of the rated voltage (100V) if the rated voltage (100V) is of the rated voltage (100V) if the rated voltage (100V) is of the rated voltage (100V) is impressed for 1 to 5 seconds between capacitor body, apply the force gradually to cach lead in the radial direction of the capacitor until section gradual balls. (Charge/Discharge current ≤ 50mA).         18       Termination       Termination not to be broken or tooseend.       As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until section and then be bent 90° in the rate of the rate of the rate of the rate of to 5 capacitor body, apply the force gradually to each lead in the radial direction of the capacitance measured after 50m. Al cas the displaced to a force of 2.5N and then b						245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu)		
Character         Character         White the spacefield tolerance.         The capacitance.         The capacitance.         The capacitance.         Notage shown in the table.           0         30pF 5 C: Q ≥ 1,000         30pF 5 C: Q ≥ 1,000         Super 5 C: Q ≥ 0,000						235±5°C H60A or H63A Eutectic Solder		
Character         Character         White the spacefield tolerance.         The capacitance.         The capacitance.         The capacitance.         Notage shown in the table.           0         30pF 5 C: Q ≥ 1,000         30pF 5 C: Q ≥ 1,000         Super 5 C: Q ≥ 0,000	17	Electrical	Appearance	No defects	or abnormalities.	Visual inspection.		
rization     Q     30pF ≤ C: Q ≥ 1000     voltage shown in the table.       Voltage shown in the table.     Nominal Cop.     Fequency     Voltage       LR     Between     10,000M0 or 500M0 · µF min. Terminals     The insulation resistance should be measured with DCS00V (DC250V in case of raid voltage : DC250V) at 25 ° C within z min. Terminals     The insulation resistance should be measured with DCS00V (DC250V in case of raid voltage : DC250V) at 25 ° C within z min. Terminals       Detectric     Between Terminals     Terminals     Retween Terminals     No defects or abnormalities.     The capacitor should not be damaged when voltage in Table is applied between the terminations for 11 o5 seconds.       (Charge/Discharge current ≤ 50mA)     Terminals     No defects or abnormalities.     The capacitor is placed in a container with metal balls of from diameters of raid voltage : DC250V, DC100V) to impressed for 1 to 5 seconds between capacitor terminals and 200% of the rated voltage DC1000V       18     Terminal     Termination not to be broken or loosend.     As in the figure, fix the capacitor body, apply the force gradually to each lead in the raid of direction of the capacitor until reaching 10N and then keep the force applied for 10s1 acconds.       19     Capacitance Termination     Termination not to be broken or loosend.     Each lead with eshuid be subjected to a force of 2.5N and then be hert 90° at the point of greess in one direction. Each wire is then returned to the origing lopeiton and ben to 2.5N and then be hert 90° at the point of greess in one direction. Each wire is then returned to the origing lopeiton and ben tof 0.51 Sin 4.25(C) 1.						•		
18     Terminal     Terminal     Termination not to be broken or loosened.     As in the figure days broken capacitor to the applied between the radial direction of the capacitor of the capa								
Image: Instrument Capacitance (pF)         Image: Image: Image: C + Nominal Capacitance (pF)         Image: Image: Image: C + Image: C			*					
Image: C: Nominal Capacitance (pF)         E < 1000pF         19.1MHz         ZC 15 05 V(rm.s.)           IR.         Between         10.000MO or \$000MO · µF min. Terminals         The insulation resistance shuld be measured with OCS00V (DC250V in case of rated voltage : DC250V) at 25 °C within 2 min. of charging.           Dielectric Strength         Between Terminals         No defects or abnormalities.         The insulation resistance shuld be measured with OCS00V (DC250V in case of rated voltage : DC250V) at 25 °C within 2 min. of charging.           Dielectric Strength         Between Terminals         No defects or abnormalities.         The capacitor should not be damaged when voltage in Table is applied between the forminations for 1 to 5 seconds. (Charge/Uscharge current \$ 50mA)           Body Insulation         No defects or abnormalities.         The capacitor is placed in a container with metal balls of trum discounce case of rated voltage 102/30% of the rated voltage DC1000V 130% of the rated voltage 1100 % in presede for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Uscharge current \$ 50mA)           18         Termination not to be broken or loosened.         Strength         Termination not to be broken or loosened.         Strength to a seconds. (The capacitance charge should be subjected to a seconds. (The application and berl 90° in the opposite direction at the rate of one bendpe 7 to 3 seconds. (The application and berl 90° in the opposite direction at the rate of one bendpe 7 to 3 seconds. (The application and berl 90° in the opposite direction at the rate of one bendpe 7 to 3 seconds. (The capacitance charge should be escapicitance measured in step 3 as a r				oopr 201		Nominal Cap. Frequency Voltage		
Image: Communic Construction (pr)         Communic Construction (pr)           I.R.         Between Terminals         10.000M0 or 500M0*µF min. (Whichever is smaller)         The insulation resistance should be measured with DCS00V (DC250V) at 25 °C within 2 min. dr drarging.           Dielectric Strength         Between Between Errinals         No defects or abnormalities.         The capacitor should not be damaged when voltage in Table is applied between the terminations for 1 to 5 seconds. (Charge/Discharge current \$ 50mA).           Bedween Insulation         No defects or abnormalities.         The capacitor is placed in a container with metal balls of mm diameter so that each terminal, short-circuit is kept approximately Zmm from the balls, and 200% of the rated voltage (130% of the rated voltage). DC1000V 130% of the rated voltage (130% of the rated voltage (130% of the r				·				
IR.         Between Terminals         10.000MQ or 500MQ · µF min. (Whichever is smaller)         The insulation resistance should be measured with DC500V (DC250V in case of rated voltage : DC250V) at 25 °C within 2 min. of charging.           Dielectric Strength         Between Terminals         No defects or abnormalities. Terminals         The capacitor should not be damaged when voltage in Table is applied between the terminations for 1 to 5 seconds. (ChargeDischarge current ≦ 50mA)           Body Insulation         No defects or abnormalities.         The capacitor should not be damaged when voltage in Table is applied between the terminations for 1 to 5 seconds. (ChargeDischarge current ≦ 50mA)           Body Insulation         No defects or abnormalities.         The capacitor should not be damaged when voltage in Table is applied between the terminations is best paproximately 2000 1130% of the rated voltage DC1000V 1130% of the rated voltage DC1000V 130% of the rated voltage DC1000V 130% of the rated voltage DC1000V 130% of the rated voltage (130% of the rated voltage in case of rated voltage (130% of the rated voltage in case of rated voltage (130% of the rated voltage in case of rated voltage (130% of the rated voltage (130% of the rated DC voltage (130% of the rated voltage (130% of the rated DC voltage (130% of the rated voltage (120% of the capacitor body, apply the force gradually to each lead in the rated of the capacitor body, apply the force gradually to each lead in the rated of the capacitor body, apply the force gradually to each lead wire should be subjected to a force of 2.0 K and then be bent 90° in the paposite direction at the rate of one bend set of the capacitance change should be measured after 5min. at each specified temperature (*C) <u>Sec to 125*C : -750+120/-347 ppm*C</u>				C : Nomina	I Capacitance (pF)			
Image: space in the specified Tolerance         Terminals         (Whichever is smaller)         (DC250V in case of rated voltage : DC250V) at 25 °C within 2 min. of charging.           Delectric Strength         Between Terminals         No defects or abnormalities.         The capacitor should not be damaged when voltage in Table is applied between the terminations for 1 to 5 seconds. (Charge/Discharge current \le 5 ObMA.)           Bedy         Ferminals         No defects or abnormalities.         The capacitor should not be damaged when voltage in Table is applied between the terminations of 1 to 5 seconds. (Charge/Discharge current \le 5 ObMA.)           Bedy         Insulation         No defects or abnormalities.         The capacitor is placed in a container with metal balls of 1mm diameters of that each terminal, should not be lowledge (10%) of the rated voltage in 20% of the rated voltage i								
Image: Strength         Terminals         No defects or abnormalities.         The capacitor should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be damaged when voltage in Table is sponder should not be down in the balls, sponder should not be down in the sponder in the capacitor body, apply the force gradually to each lead in the rated of voltage in Table is sponder in the organize provimately to sponder should not be down in the sponder in the capacitor body, apply the force gradually to each lead in the rate of organ provimately in the organize provimately in the organize proviment is the returned to the organize proviment is the organize proviment in the sponder in the organize proviment is the returned to the organize proviment is the returned to the organize proviment is the organize proviment is the organize proviment is the returned to the organize proviment is the returned to the organize proviment is the organize proviment is the organis proviment is the organize provimantex the organize pro			I.R.	Between	10,000MΩ or 500MΩ • μF min.	The insulation resistance should be measured with DC500V		
Image: Strength         Between termination         No defects or abnormalities.         The capacitor should not be damaged when voltage in Table is applied between the terminations for 1 to 5 seconds. (Charge/Discharge current ≤ 50mA)           Rated Voltage         Test Voltage         DC230V         120% of the rated voltage           DC30V         130% of the rated voltage         DC30V         130% of the rated voltage           DC30V         130% of the rated voltage         DC30V         130% of the rated voltage           DC30V         130% of the rated voltage         DC30V         130% of the rated voltage           Body         No defects or abnormalities.         The capacitor is placed in a container with metal balls of from diameters of the rated voltage in Case of rated voltage in Case of rated voltage in Case of rated voltage.         DC30V           18         Terminal         Termination not to be broken or loosened.         As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor with especified Tolerance           19         Capacitance         Within the specified Tolerance         25° to 125°C : -750+120/-347 ppm'C           19         Capacitance there advise the orgonal be may be capacitance there with especified Tolerance         25° to 125°C : -750+120/-347 ppm'C           26         51°C to 25°C : -750+120/-347 ppm'C         158 the premerature of the steremore withe specified tolerance case base due ton cycling the capa				Terminals	(Whichever is smaller)	(DC250V in case of rated voltage : DC250V) at 25 °C within 2 min.		
18         Strength         Terminals         Terminals         applied between the terminations of 1 to 5 seconds. (Charge/Discharge current 2 50mA).         Image: Charge Current 2 50mA).         Image: Character Charge Charge Character Ch						of charging.		
Image: strength         Terminals         Terminals         applied between the terminators for 1 to 5 seconds. (Charge/Discharge current \$ 50mA).           Image: strength         Terminals         Image: strength         Imag			Dielectric	Between	No defects or abnormalities.	The capacitor should not be damaged when voltage in Table is		
10         Terminal         Termination not to be broken or loosened.         Each lead wire should be subjected to a force of 2.5N and then be been for 10±1 seconds.           11         Termination         Termination not to be broken or loosened.         Each lead wire should be subjected to a force of 2.5N and then be been for 10±1 seconds.           12         Termination not to be broken or loosened.         Each lead wire should be subjected to a force of 2.5N and then be been for 10±1 seconds.           13         Termination not to be broken or loosened.         Each lead wire should be subjected to a force of 2.5N and then be been for 10±1 seconds.           14         Termination not to be broken or loosened.         Each lead wire should be subjected to a force of 2.5N and then be been for 10±1 seconds.           13         Termination not to be broken or loosened.         Each lead wire should be subjected to a force of 2.5N and then be been for 10±1 seconds.           14         Termination not to be broken or loosened.         Each lead wire should be subjected to a force of 2.5N and then be been for 10±1 seconds.           15         Capacitance         Within the specified Tolerance         Each lead wire should be subjected to a force of 2.5N and then be been for 10±1 seconds.           16         Capacitance theraperature step.         -55°C to 25°C : -750+120/-347 ppm/°C         The taperature coefficient is determined using the capacitance three second be and per 2 to 3 seconds.           17         Capacitance three second be second o			Strength	Terminals		applied between the terminations for 1 to 5 seconds.		
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Body Insulation       No defects or abnormalities.       The capacitor is placed in a container with metal balls of trum diameters to that each terminal, short-circuit is kept approximately 2mm from the balls, and 200% of the rated DC voltage (130% of the rated voltage in case of rated voltage : 10C30V, DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (ChargeDischarge current ≤ 50mA)         18       Terminal Strength       Termination not to be broken or loosened.       As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.         19       Capacitance Temperature Characteristics       Within the specified Tolerance 25°C to 125°C : -750±120 ppm/°C       Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the poling should be measured after 5min. at each specified temperature step.         19       Capacitance Temperature Characteristics       Within the specified Tolerance 25°C to 125°C : -750±120,-347 ppm/°C       The capacitance charge should be measured after 5min. at each specified temperature step.         19       Capacitance there is a seference. When cycling the temperature contracteristics       Within the specified Tolerance 25°C to 125°C : -750±120,-347 ppm/°C         19       Capacitance there is a seference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C ) - 255°C to 125°C : -750±120,-347 ppm/°C       The capacitance should be measured after 5min. at each specified temperature officient is determined using the capacitance measured in step 3 as a reference. When cycling the temper								
Image: Strength     Insulation     Insulation     diameter so that each terminal, short-circuit is kept approximately Zmm from the balks, and 200% of the rated DC voltage (130% of the rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balks. (Charge/Discharge current $\leq$ 50mA.)       18     Terminal     Termination not to be broken or loosened.     As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.       8     Bending Strength     Termination not to be broken or loosened.     Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.       19     Capacitance Temperature Characteristics     Within the specified Tolerance 25°C to 25°C : -750+120/-347 ppm/°C     The capacitance change should be measured after 5min, at each specified temperature setp.       10     Step     Temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C) the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance when maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.						DC1000V 130% of the rated voltage		
Image: Strength     Insulation     Insulation     diameter so that each terminal, short-circuit is kept approximately Zmm from the balks, and 200% of the rated DC voltage (130% of the rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balks. (Charge/Discharge current $\leq$ 50mA.)       18     Terminal     Termination not to be broken or loosened.     As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.       8     Bending Strength     Termination not to be broken or loosened.     Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.       19     Capacitance Temperature Characteristics     Within the specified Tolerance 25°C to 25°C : -750+120/-347 ppm/°C     The capacitance change should be measured after 5min, at each specified temperature setp.       10     Step     Temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C) the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance when maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.								
2mm from the balls, and 200% of the rated DC voltage (130% of the rated voltage in case of rate voltage in case of rated voltage in case of rate voltage in case of					diameter so that each terminal, short-circuit is kept approximately			
Image: strength     Image: strength     Terminal ion not to be broken or loosened.     As in the figure, fix the capacitor of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.       18     Terminal Strength     Termination not to be broken or loosened.     As in the figure, fix the capacitor of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.       19     Capacitance     Termination not to be broken or loosened.     Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction and bent 90° in the opposite direction and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.       19     Capacitance Temperature Characteristics     Within the specified Tolerance       25°C to 125°C : -750+120/-347 ppm/°C     Steregth       19     Capacitance the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.       19     Capacitance the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.       19     Capacitance the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.       19     Capacitance the original position at the second seco								
Image: Characteristics         Termination not to be broken or loosened.         For 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discarge current 5 \$0mA.)           18         Terminal         Termination not to be broken or loosened.         As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.           Bending Strength         Termination not to be broken or loosened.         Each lead wire should be subjected to a force of 2.5N and then be ben 90° in the opposite direction and ben 90° in the opposite direction and ben 90° in the opposite direction and ben 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.           19         Capacitance Temperature Characteristics         Within the specified Tolerance 25°C to 125°C : -750±120 pm/°C -55°C to 25°C : -750±120/-347 ppm/°C           55°C to 25°C : -750±120/-347 ppm/°C         -55°C to 25°C : -750±120/-347 ppm/°C           50°C to 25°C : -750±120/-347 ppm/°C         Termeperature (C) -55°C to 25°C : -750±120/-347 ppm/°C           10         Step						2mm from the balls, and 200% of the rated DC voltage (130% of the		
18       Terminal       Tensile       Termination not to be broken or loosened.       As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.         18       Strength       Strength       Termination not to be broken or loosened.       Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.         19       Capacitance       25°C to 125°C : -750±120 ppm/°C         Characteristics       -55°C to 25°C : -750±120/-347 ppm/°C         Steright       Steright       Within the specified Tolerance         19       Capacitance       -55°C to 25°C : -750±120/-347 ppm/°C         Characteristics       -55°C to 25°C : -750±120/-347 ppm/°C         19       Step Temperature (Characteristics)       -55°C to 25°C : -750±120/-347 ppm/°C         19       Capacitance       -55°C to 25°C : -750±120/-347 ppm/°C         19       Capacitance       -55°C to 25°C to 125°C : -750±120/-347 ppm/°C         19       Capacitance       -55°C to 25°C to 125°C : -750±120/-347 ppm/°C         10       -55°C to 25°C to 125°C : -750±120/-347 ppm/°C       -51         11       25±2       -25±2         2 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td></t<>								
18       Terminal Strength       Terminal Strength       Termination not to be broken or loosened.       As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.         Bending Strength       Termination not to be broken or loosened.       Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.         19       Capacitance Temperature Characteristics       Within the specified Tolerance 25°C to 125°C : -750+120 ppm/°C -55°C to 25°C : -750+120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature (*C) 1         5       C to 25°C : -750+120/-347 ppm/°C       The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C) the capacitance change as Table A. The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.								
Strength       Strength       Strength       Termination not to be broken or loosened.         Bending       Termination not to be broken or loosened.       Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.         19       Capacitance       Within the specified Tolerance       25°C to 125°C : -750±120 ppm/°C         Characteristics       -55°C to 25°C : -750±120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Image: the opposite direction is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)       The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance diff is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.						rated voltage in case of rated voltage : DC630V,DC1000V) is impressed		
and then keep the force applied for 10±1 seconds.       and then keep the force applied for 10±1 seconds.         Bending Strength       Termination not to be broken or loosened.       Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.         19       Capacitance Temperature Characteristics       Within the specified Tolerance 25°C to 125°C : -750±120 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Characteristics       -55°C to 25°C : -750±120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         The capacitance change should be measured after 5min. at each specified temperature step.       -55°C to 25°C : -750±120/-347 ppm/°C         -55°C to 25°C : -750±120/-347 ppm/°C       Step Temperature(°C) 1 2 - 55±3 3 25±2         19       Capacitance the step - 10347 ppm/°C         -55°C to 25°C : -750±120/-347 ppm/°C       Step Temperature(°C) 1 2 - 55±3 3 25±2         -55°C to 25°C to 25°C to 25°C : -750±120/-347 ppm/°C       Step Temperature(°C) 1 2 - 55±3 3 25±2         -55°C to 25°C to 25°C to 25°C to 125°C)       the temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coeffic						rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls.		
Bending Strength       Termination not to be broken or loosened.       Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.         19       Capacitance Temperature Characteristics       Within the specified Tolerance 25°C to 125°C : -750±120 ppm/°C -55°C to 25°C : -750±120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Step Temperature Characteristics       55°C to 25°C : -750±120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C) the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.	18	Terminal	Tensile	Terminatior	n not to be broken or loosened.	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq$ 50mA.)		
Bending Strength       Termination not to be broken or loosened.       Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.         19       Capacitance Temperature Characteristics       Within the specified Tolerance 25°C to 125°C : -750±120 ppm/°C -55°C to 25°C : -750±120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Step Temperature Characteristics       55°C to 25°C : -750±120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C) the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.	18			Terminatior	n not to be broken or loosened.	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually		
Strength       Strength       Be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.         19       Capacitance       Within the specified Tolerance       The capacitance change should be measured after 5min. at each specified temperature step.         Characteristics       S5°C to 25°C : -750+120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Step       Temperature(°C)       Step       Step         Characteristics       -55°C to 25°C : -750+120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Temperature       -55°C to 25°C : -750+120/-347 ppm/°C       The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance will be within the subscription and be will be within the step 1, 3 and 5 by the capacitance value in step 3.	18			Terminatior	n not to be broken or loosened.	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current ≦ 50mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N		
Strength       Strength       Be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.         19       Capacitance       Within the specified Tolerance       The capacitance change should be measured after 5min. at each specified temperature step.         Characteristics       S5°C to 25°C : -750+120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Step       Temperature(°C)       Step       Step         Characteristics       -55°C to 25°C : -750+120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Temperature       -55°C to 25°C : -750+120/-347 ppm/°C       The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance will be within the subscription and be will be within the step 1, 3 and 5 by the capacitance value in step 3.	18			Termination	n not to be broken or loosened.	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current ≦ 50mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N		
Strength       Strength       Be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.         19       Capacitance       Within the specified Tolerance       The capacitance change should be measured after 5min. at each specified temperature step.         Characteristics       S5°C to 25°C : -750+120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Step       Temperature(°C)       Step       Step         Characteristics       -55°C to 25°C : -750+120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Temperature       -55°C to 25°C : -750+120/-347 ppm/°C       The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance will be within the subscription and be will be within the step 1, 3 and 5 by the capacitance value in step 3.	18			Terminatior	n not to be broken or loosened.	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current ≦ 50mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N		
Strength       Strength       Be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds.         19       Capacitance       Within the specified Tolerance       The capacitance change should be measured after 5min. at each specified temperature step.         Characteristics       S5°C to 25°C : -750+120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Step       Temperature(°C)       Step       Step         Characteristics       -55°C to 25°C : -750+120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Temperature       -55°C to 25°C : -750+120/-347 ppm/°C       The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance will be within the subscription and be will be within the step 1, 3 and 5 by the capacitance value in step 3.	18			Terminatior	n not to be broken or loosened.	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current ≦ 50mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N		
19       Capacitance Temperature Characteristics       Within the specified Tolerance 25°C to 125°C : -750±120 ppm/°C -55°C to 25°C : -750±120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         10       Step       Temperature Characteristics       -55°C to 25°C : -750±120/-347 ppm/°C         -55°C to 25°C : -750±120/-347 ppm/°C       Step       Temperature (°C) 1         2       -55±3         3       25±2         4       125±3         5       25±2         4       125±3         5       25±2         4       125±3         5       25±2         4       125±3         5       25±2         4       125±3         5       25±2         4       125±3         5       25±2         4       125±3         5       25±2         4       125±3         5       25±2         4       125±3         5       25±2         5       25±2         5       25±2         5       25±2         5       25°C to 125°C)         the capacitance should be within the specified tolerance for t	18		Strength			rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.		
19       Capacitance Temperature Characteristics       Within the specified Tolerance 25°C to 125°C : -750±120 ppm/°C -55°C to 25°C : -750±120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         1       25±2 2       -55°C to 25°C : -750±120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature (°C) 1       25±2 2         2       -55±3 3       25±2         4       125±3 5       25±2         4       125±3         5       25±2         4       125±3         5       25±2         2       -55±C)         1       25±2         4       125±3         5       25±2         2       -55°C to 125°C)         The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.	18		Strength			rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.		
19       Capacitance       Within the specified Tolerance       The capacitance change should be measured after 5min. at each specified temperature step.         Characteristics       -55°C to 25°C : -750+120/-347 ppm/°C       The capacitance change should be measured after 5min. at each specified temperature step.         Step       Temperature(°C)       1       25±2         2       -55±3       3       25±2         4       125±3       5       25±2         4       125±3       5       25±2         5       25±2       2       -55±3         3       25±2       2       -55±2         4       125±3       5       25±2         5       25±2       2       -55°C to 125°C)         The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)       the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A.         The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.	18		Strength			rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.		
Temperature Characteristics25°C to 125°C : -750±120 ppm/°C -55°C to 25°C : -750±120/-347 ppm/°Ceach specified temperature step. 	18		Strength			rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.		
Characteristics       -55°C to 25°C : -750+120/-347 ppm/°C       Step       Temperature(°C)         1       25±2         2       -55±3         3       25±2         4       125±3         5       25±2         4       125±3         5       25±2         1       25±2         2       -55±3         3       25±2         4       125±3         5       25±2         3       5         4       125±3         5       25±2         4       125±3         5       25±2         The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A.         The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.		Strength	Strength	Termination	n not to be broken or loosened.	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds.		
Step       Temperature(C)         1       25±2         2       -55±3         3       25±2         4       125±3         5       25±2    The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C) the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.		Strength	Strength	Termination Within the s	n not to be broken or loosened. specified Tolerance	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds. Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds. The capacitance change should be measured after 5min. at		
2       -55±3         3       25±2         4       125±3         5       25±2         The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A.         The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.		Strength Capacitance Temperature	Strength Bending Strength	Termination Within the s 25°C to 125	n not to be broken or loosened. specified Tolerance °C : -750±120 ppm/°C	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds. Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds. The capacitance change should be measured after 5min. at		
3       25±2         4       125±3         5       25±2         The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A.         The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.		Strength Capacitance Temperature	Strength Bending Strength	Termination Within the s 25°C to 125	n not to be broken or loosened. specified Tolerance °C : -750±120 ppm/°C	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds. Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds. The capacitance change should be measured after 5min. at each specified temperature step.		
4       125±3         5       25±2         The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C)         the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A.         The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.		Strength Capacitance Temperature	Strength Bending Strength	Termination Within the s 25°C to 125	n not to be broken or loosened. specified Tolerance °C : -750±120 ppm/°C	rated voltage in case of rated voltage : DC630V,DC1000V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds. Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds. The capacitance change should be measured after 5min. at each specified temperature step. Step Temperature(°C)		
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the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5 by the capacitance value in step 3.		Strength Capacitance Temperature	Strength Bending Strength	Termination Within the s 25°C to 125	n not to be broken or loosened. specified Tolerance °C : -750±120 ppm/°C	rated voltage in case of rated voltage : DC630V,DC100V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds. Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds. The capacitance change should be measured after 5min. at each specified temperature step. $\underbrace{\frac{Step Temperature(°C)}{1 25\pm2}}_{3 25\pm2}$ The temperature coefficient is determined using the capacitance		
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1, 3 and 5 by the capacitance value in step 3.		Strength Capacitance Temperature	Strength Bending Strength	Termination Within the s 25°C to 125	n not to be broken or loosened. specified Tolerance °C : -750±120 ppm/°C	rated voltage in case of rated voltage : DC630V,DC100V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds. Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds. The capacitance change should be measured after 5min. at each specified temperature step. $\underbrace{\frac{Step \ Temperature(°C)}{1 \ 25\pm2}}_{2 \ 5\pm2}_{2 $		
		Strength Capacitance Temperature	Strength Bending Strength	Termination Within the s 25°C to 125	n not to be broken or loosened. specified Tolerance °C : -750±120 ppm/°C	rated voltage in case of rated voltage : DC630V,DC100V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds. Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds. The capacitance change should be measured after 5min. at each specified temperature step. $\underbrace{\frac{Step  Temperature(°C)}{1  25\pm2}}_{2  -55\pm3}_{3  25\pm2}_{2  -55\pm3}_{3  25\pm2}_{2  -55\pm2}_{2  -55\pm$		
"room condition" Temperature : 15 to 35°C, Relative humidity : 45 to 75%, Atmosphere pressure : 86 to 106kPa		Strength Capacitance Temperature	Strength Bending Strength	Termination Within the s 25°C to 125	n not to be broken or loosened. specified Tolerance °C : -750±120 ppm/°C	rated voltage in case of rated voltage : DC630V,DC100V) is impressed for 1 to 5 seconds between capacitor terminals and metal balls. (Charge/Discharge current $\leq 50$ mA.) As in the figure, fix the capacitor body, apply the force gradually to each lead in the radial direction of the capacitor until reaching 10N and then keep the force applied for 10±1 seconds. Each lead wire should be subjected to a force of 2.5N and then be bent 90° at the point of egress in one direction. Each wire is then returned to the original position and bent 90° in the opposite direction at the rate of one bend per 2 to 3 seconds. The capacitance change should be measured after 5min. at each specified temperature step. $\underbrace{\frac{Step  Temperature(°C)}{1  25\pm2} \\ 2  -55\pm3} \\ 3  25\pm2 \\ 4  125\pm3 \\ 5  25\pm2 \\ \hline \end{array}}$ The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5 (-55°C to 125°C) the capacitance should be within the specified tolerance for the temperature coefficient and capacitance change as Table A. The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step		

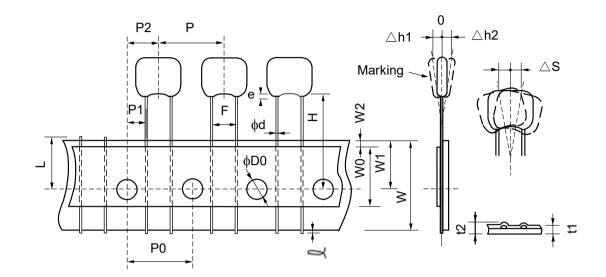
ESRCE04D





#### 7. Taping specification

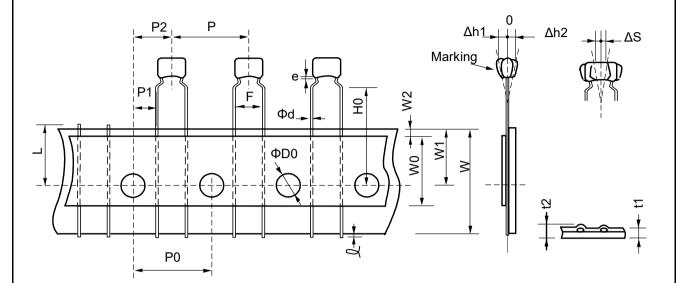
7-1. Dimension of capacitors on tapeStraight taping type < Lead Style : E1 >Pitch of component 12.7mm / Lead spacing 5.0mm



Unit : mm

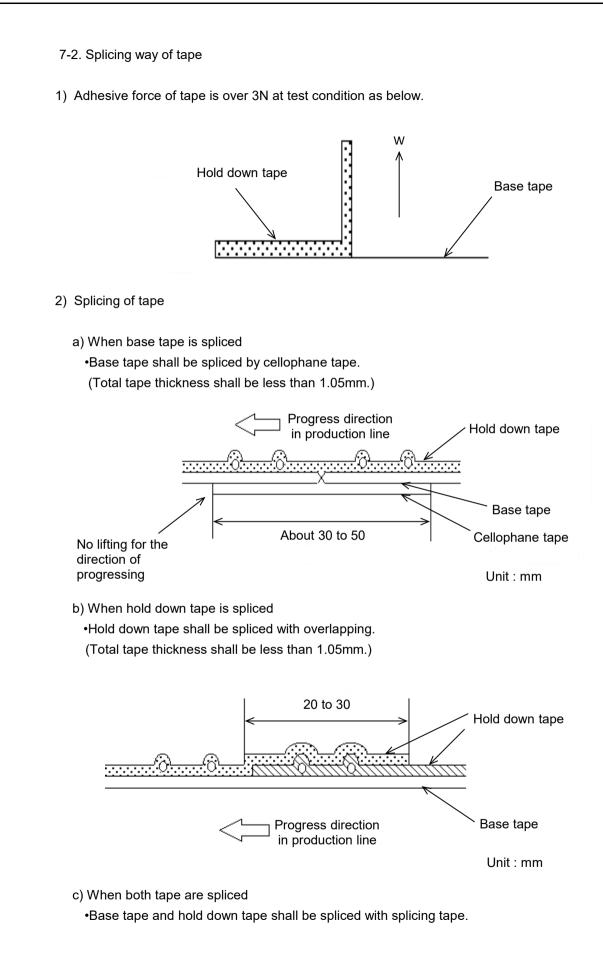
Item	Code	Dimensions	Remarks
Pitch of component	Р	12.7+/-1.0	
Pitch of sprocket hole	P0	12.7+/-0.2	
Lead spacing	F	5.0+0.6/-0.2	
Length from hole center to component center	P2	6.35+/-1.3	Deviation of progress direction
Length from hole center to lead	P1	3.85+/-0.7	
Deviation along tape, left or right defect	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/-0.5	Deviation of tape width direction
For straight lead type	Н	17.5+/-0.5	
Protrusion length	l	0.5 max.	
Diameter of sprocket hole	ΦD0	4.0+/-0.1	
Lead diameter	Φd	0.5+/-0.05	
Total tape thickness	t1	0.6+/-0.3	They include hold down tape
Total thickness of tape and lead wire	t2	1.5 max.	thickness.
Deviation corose tone	∆h1	2.0 max. (Dimension code : U)	
Deviation across tape	∆h2	1.0 max. (except as above)	
Portion to cut in case of defect	L	11.0+0/-1.0	
Hold down tape width	W0	9.5 min.	
Hold down tape position	W2	1.5+/-1.5	
Coating extension on lead		2.0 max. (Dime 1.5 max. (exce	ension code:U) pt as above)

Inside crimp taping type < Lead Style : M1 > Pitch of component 12.7mm / Lead spacing 5.0mm



Unit : mm

Item	Code	Dimensions	Remarks
Pitch of component	Р	12.7+/-1.0	
Pitch of sprocket hole	P0	12.7+/-0.2	
Lead spacing	F	5.0+0.6/-0.2	
Length from hole center to component center	P2	6.35+/-1.3	Deviation of progress direction
Length from hole center to lead	P1	3.85+/-0.7	
Deviation along tape, left or right defect	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/-0.5	Deviation of tape width direction
Lead distance between reference and bottom plane	H0	16.0+/-0.5	
Protrusion length	l	0.5 max.	
Diameter of sprocket hole	ΦD0	4.0+/-0.1	
Lead diameter	Φd	0.5+/-0.05	
Total tape thickness	t1	0.6+/-0.3	They include hold down tape thickness
Total thickness of tape and lead wire	t2	1.5 max.	
Deviation corose tane	∆h1	2.0 max. (Dimension code : W)	
Deviation across tape	∆h2	1.0 max. (except as above)	
Portion to cut in case of defect	L	11.0+0/-1.0	
Hold down tape width	W0	9.5 min.	
Hold down tape position	W2	1.5+/-1.5	
Coating extension on lead	е	Up to the end of	crimp



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### Murata:

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