

## Reference Specification

DEB Series Lead Type Disc Ceramic Capacitors of Class 2 for General Purpose

Product specifications in this catalog are as of Dec. 2017, and are subject to change or obsolescence without notice.

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

## **⚠** CAUTION

#### 1. OPERATING VOLTAGE

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

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.

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

## 2. OPERATING TEMPERATURE AND SELF-GENERATED HEAT

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

When the capacitor is used in a high-frequency current, pulse current or the like, it may have the self-generated heat due to dielectric-loss. The allowable frequency should be in less than 300kHz in sine wave. Applied voltage should be the load such as self-generated heat is within 20 °C on the condition of atmosphere temperature 25 °C. When measuring, use a thermocouple of small thermal capacity-K of  $\phi$ 0.1mm and be in the condition where capacitor is not affected by radiant heat of other components and wind of surroundings. While, in case of non-sine wave which include a harmonic frequency, please contact our sales representatives or product engineers.

## 3. FAIL-SAFE

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

#### 4. VIBRATION AND IMPACT

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

#### 5. SOLDERING

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

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

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

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

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

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

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

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

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

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

#### 8. OPERATING AND STORAGE ENVIRONMENT

The insulating coating of capacitors does not form a perfect seal; therefore, do not use or store capacitors

in a corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. And avoid exposure to moisture. Before cleaning, bonding, or molding this product, verify that these processes do not affect product quality by testing the performance of a cleaned, bonded or molded product in the intended equipment. Store the capacitors where the temperature and relative humidity do not exceed -10 to 40 °C and 15 to 85%. Use capacitors within 6 months after delivered.

Check the solderability after 6 months or more.

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

EGD06F

#### **NOTICE**

#### 1. CLEANING (ULTRASONIC CLEANING)

To perform ultrasonic cleaning, observe the following conditions.

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

Rinsing time: 5 min maximum.

Do not vibrate the PCB/PWB directly.

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

#### 2. CAPACITANCE CHANGE OF CAPACITORS

- Class 1 capacitors

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

- Class 2 and 3 capacitors

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

Please contact us if you need a detail information.

## **⚠** NOTE

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

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## 1. Application

This specification is applied to Lead Type Disc Ceramic Capacitors of DC2kV  $\sim$ 3.15kV ratings and Class 2 of DEB series used for General Electric equipment.

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

## 2. Rating

## 2-1. Operating temperature range

## 2-2. Part number configuration

ex.) <u>DEB</u>	B3	<u>3D</u>	332	K	_A3_	<u> </u>	
Series	Temperature	Rated	Capacitance	Capacitance	Lead	Packing	Individual
	characteristic	voltage		tolerance	code	style code	specification

•Temperature characteristic

Code	Temperature characteristic
B3	В
E3	Е
F3	F

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

• Rated voltage

Code	Rated voltage
3D	DC2kV
3F	DC3.15kV

#### Capacitance

The first two digits denote significant figures; the last digit denotes the multiplier of 10 in pF. ex.) In case of 332.

$$33 \times 10^2 = 3300 pF$$

## • Capacitance tolerance

Please refer to [ Part number list ].

#### • Lead code

Code	Lead style				
A*	Vertical crimp long type				
C*	Straight long type				
B*	Vertical crimp short type				
D*	Straight short type				
N*	Vertical crimp taping type				
P*	Straight taping type				

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

Solder coated copper wire is applied for termination.

• Packing style code

Code	Packing type				
В	Bulk type				
Α	Ammo pack taping type				

## • Individual specification

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

#### 3. Marking

Temperature characteristic : Letter code

Identified by code for char. B or char. E.

(Omitted for maximum body diameter  $\phi$  9mm and under )

Nominal capacitance : 3 digit system

Capacitance tolerance : Code(Omitted for maximum body diameter  $\phi$  6mm and under)

Rated voltage : Letter code(In case of DC3.15kV, marked with 3KV)

Company name code : Abbreviation (

(Omitted for maximum body diameter  $\phi$  9mm and under)

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

(Omitted for maximum body diameter  $\phi$  5mm and under)

Manufacturing month : Code(Omitted for maximum body diameter φ 5mm and under)

 Feb./Mar. → 2
 Aug./Sep. → 8

 Apr./May → 4
 Oct./Nov. → O

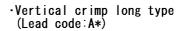
 Jun./Jul. → 6
 Dec./Jan. → D

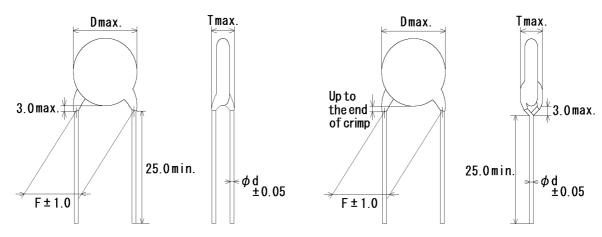
(Example)

B 332K 2KV (M 0D

## 4. Part number list

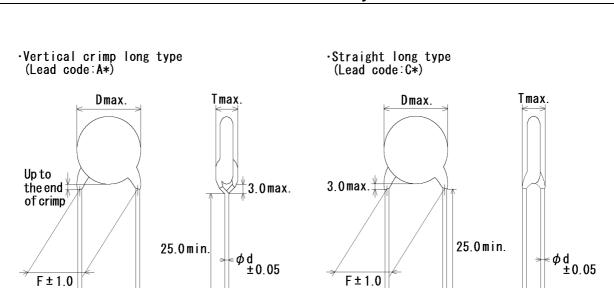
·Straight long type
(Lead code:C\*)





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

T.C. Cap. Cap. tol. Customer Part Number Murata Part Number Rated Volt. Code qty.											UIIIL .	1111111
B   100   ±10%   DEB33D101KC1B   2000   4.5   5.0   5.0   0.5   C1   500     B   150   ±10%   DEB33D101KC1B   2000   4.5   5.0   5.0   0.5   C1   500     B   220   ±10%   DEB33D21KC1B   2000   4.5   5.0   5.0   0.5   C1   500     B   330   ±10%   DEB33D21KC1B   2000   4.5   5.0   5.0   0.5   C1   500     B   330   ±10%   DEB33D471KA2B   2000   5.0   5.0   5.0   5.0   0.6   A2   500     B   470   ±10%   DEB33D471KA2B   2000   8.0   5.0   5.0   5.0   6.0   A2   250     B   1500   ±10%   DEB33D152KA2B   2000   3.0   5.0   5.0   6.0   A2   250     B   1500   ±10%   DEB33D152KA2B   2000   3.0   5.0   5.0   6.0   A2   250     B   1500   ±10%   DEB33D152KA2B   2000   3.0   5.0   5.0   6.0   A2   250     B   1500   ±10%   DEB33D152KA2B   2000   3.0   5.0   5.0   6.0   A2   250     B   3300   ±10%   DEB33D32KA3B   2000   1.0   5.0   5.0   6.0   A3   200     B   4700   ±10%   DEB33D33XA3B   2000   1.0   5.0   5.0   6.0   7.5   0.6   A3   200     B   4700   ±10%   DEB33D152KA2B   2000   1.0   5.0   5.0   5.0   5.0   5.0   5.0     B   2200   ±10%   DEB33D152KA2B   2000   1.0   5.0   5.0   5.0   5.0   5.0   5.0     B   2200   ±10%   DEB33D152KA3B   2000   1.0   5.0   5.0   5.0   5.0   5.0   5.0     B   4700   ±10%   DEB33F15KCDB   3150   5.0   6.0   7.5   0.5   CD   500     B   330   ±10%   DEB33F15KCDB   3150   5.0   6.0   7.5   0.5   CD   500     B   330   ±10%   DEB33F31KC3B   3150   5.0   6.0   7.5   0.5   CD   500     B   330   ±10%   DEB33F331KC3B   3150   5.0   6.0   7.5   0.6   A3   250     B   470   ±10%   DEB33F15KABB   3150   5.0   6.0   7.5   0.6   A3   250     B   330   ±10%   DEB33F331KA3B   3150   5.0   6.0   7.5   0.6   A3   250     B   330   ±10%   DEB33F331KA3B   3150   5.0   6.0   7.5   0.6   A3   250     B   330   ±10%   DEB33F331KA3B   3150   5.0   6.0   7.5   0.6   A3   250     B   300   ±10%   DEB33F33XA3B   3150   5.0   6.0   7.5   0.6   A3   250     B   300   ±10%   DEB33F33XA3B   3150   5.0   6.0   7.5   0.6   A3   250     B   300   ±10%   DEB33F33XA3B   3150   5.0   6.0   7.5   0.6   A3   250	TC	Cap.	Can tol	Customor Part Number	Murata Part Number		Dir	Dimension (mm)			Lead	Pack
B	1.0.	(pF)	Сар. тог.	Customer Fait Number	iviulata Fait Nullibei		D	Т	F	d	Code	(pcs)
B   220	В	100	±10%	DEBB33D101KC1B		2000	4.5	5.0	5.0	0.5	C1	500
B   330	В	150	±10%		DEBB33D151KC1B	2000	4.5	5.0	5.0	0.5	C1	500
B         470         ±10%         DEBB33D471KA2B         2000         6.0         5.0         0.6         A2         500           B         680         ±10%         DEBB33D681KA2B         2000         7.0         5.0         0.6         A2         500           B         1000         ±10%         DEBB33D102KA2B         2000         8.0         5.0         5.0         0.6         A2         250           B         1500         ±10%         DEBB33D162KA2B         2000         9.0         5.0         5.0         0.6         A2         250           B         2200         ±10%         DEBB33D22ZKA2B         2000         10.0         5.0         5.0         0.6         A2         250           B         3300         ±10%         DEBB33D472KA3B         2000         15.0         5.0         7.5         0.6         A3         200           B         4700         ±10%         DEBB33F101KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         150         ±10%         DEBB33F151KCDB         3150         5.0         6.0         7.5         0.5         CD         500	В	220	±10%		DEBB33D221KC1B	2000	4.5	5.0	5.0	0.5	C1	500
B         680         ±10%         DEBB33D681KA2B         2000         7.0         5.0         5.0         0.6         A2         500           B         1000         ±10%         DEBB33D102KA2B         2000         8.0         5.0         0.6         A2         250           B         1500         ±10%         DEBB33D152KA2B         2000         9.0         5.0         5.0         0.6         A2         250           B         2200         ±10%         DEBB33D22KA2B         2000         10.0         5.0         5.0         0.6         A2         250           B         3300         ±10%         DEBB33D472KA3B         2000         15.0         5.0         7.5         0.6         A3         200           B         4700         ±10%         DEBB33F101KCDB         3150         5.0         6.0         7.5         0.6         A3         100           B         150         ±10%         DEBB33F151KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         220         ±10%         DEBB33F221KCDB         3150         5.0         6.0         7.5         0.5         CD <t< td=""><td>В</td><td>330</td><td>±10%</td><td></td><td>DEBB33D331KC1B</td><td>2000</td><td>5.0</td><td>5.0</td><td>5.0</td><td>0.5</td><td>C1</td><td>500</td></t<>	В	330	±10%		DEBB33D331KC1B	2000	5.0	5.0	5.0	0.5	C1	500
B         1000         ±10%         DEBB33D102KA2B         2000         8.0         5.0         5.0         0.6         A2         250           B         1500         ±10%         DEBB33D152KA2B         2000         9.0         5.0         5.0         0.6         A2         250           B         2200         ±10%         DEBB33D32ZKA3B         2000         12.0         5.0         7.5         0.6         A2         250           B         3300         ±10%         DEBB33D32ZKA3B         2000         12.0         5.0         7.5         0.6         A3         200           B         4700         ±10%         DEBB33H701KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         150         ±10%         DEBB33F151KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         220         ±10%         DEBB33F151KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         330         ±10%         DEBB33F31KC3B         3150         5.0         6.0         7.5         0.6         <	В	470	±10%		DEBB33D471KA2B	2000	6.0	5.0	5.0	0.6	A2	500
B 1500 ±10% DEBB33D152KA2B 2000 9,0 5,0 5,0 0,6 A2 250 DEBB33D152KA2B 2000 10,0 5,0 5,0 0,6 A2 250 DEBB33D22ZKA2B 2000 10,0 5,0 5,0 0,6 A2 250 DEBB33D333KA3B 2000 12,0 5,0 7,5 0,6 A3 200 DEBB33D37KA3B 2000 15,0 5,0 7,5 0,6 A3 100 DEBB33D47ZKA3B 2000 15,0 5,0 7,5 0,6 A3 100 DEBB33D47ZKA3B 2000 15,0 5,0 7,5 0,6 A3 100 DEBB33F101KCDB 3150 5,0 6,0 7,5 0,5 CD 500 DEBB33F151KCDB 3150 5,0 6,0 7,5 0,5 CD 500 DEBB33F151KCDB 3150 5,0 6,0 7,5 0,5 CD 500 DEBB33F221KCDB 3150 5,0 6,0 7,5 0,5 CD 500 DEBB33F331KC3B 3150 6,0 6,0 7,5 0,6 C3 500 DEBB33F331KC3B 3150 6,0 6,0 7,5 0,6 C3 250 DEBB33F102KA3B 3150 7,0 6,0 7,5 0,6 A3 250 DEBB33F102KA3B 3150 8,0 6,0 7,5 0,6 A3 250 DEBB33F152KA3B 3150 11,0 6,0 7,5 0,6 A3 250 DEBB33D102ZA2B 2000 8,0 5,0 5,0 0,6 A2 250 DEBB33D102ZA2B 2000 8,0 5,0 5,0 0,6 A2 250 DEBB33D102ZA2B 2000 11,0 5,0 5,0 0,6 A2 250 DEBB33D103ZA3B 2000 11,0 5,0 5,0 0,6 A2 250 DEBB33D103ZA3B 2000 16,0 5,0 7,5 0,6 A3 100 DEBB33D103ZA3B 2000 16,0 5,0 7,5 0,6 A3 250 DEBB33D103ZA3B 2000 16,0 5,0 7,5 0,6 A3 100 DEBB33D103ZA3B 2000 16,0 5,0 7,5 0,6 C3 250	В	680	±10%		DEBB33D681KA2B	2000	7.0	5.0	5.0	0.6	A2	500
B         2200         ±10%         DEBB33D222KA2B         2000         10.0         5.0         0.6         A2         250           B         3300         ±10%         DEBB33D32KA3B         2000         12.0         5.0         7.5         0.6         A3         200           B         4700         ±10%         DEBB33D472KA3B         2000         15.0         5.0         7.5         0.6         A3         100           B         100         ±10%         DEBB33F101KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         150         ±10%         DEBB33F151KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         220         ±10%         DEBB33F221KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         330         ±10%         DEBB33F31KC3B         3150         5.0         6.0         7.5         0.6         C3         500           B         470         ±10%         DEBB33F31KC3B         3150         7.0         6.0         7.5         0.6         C3	В	1000	±10%		DEBB33D102KA2B	2000	8.0	5.0	5.0	0.6	A2	250
B       3300       ±10%       DEBB33D332KA3B       2000       12.0       5.0       7.5       0.6       A3       200         B       4700       ±10%       DEBB33D472KA3B       2000       15.0       5.0       7.5       0.6       A3       100         B       100       ±10%       DEBB3F101KCDB       3150       5.0       6.0       7.5       0.5       CD       500         B       150       ±10%       DEBB3F151KCDB       3150       5.0       6.0       7.5       0.5       CD       500         B       220       ±10%       DEBB3F221KCDB       3150       5.0       6.0       7.5       0.5       CD       500         B       330       ±10%       DEBB3F3F31KC3B       3150       6.0       7.5       0.6       C3       500         B       470       ±10%       DEBB3F471KC3B       3150       7.0       6.0       7.5       0.6       C3       250         B       680       ±10%       DEBB3F5681KA3B       3150       8.0       6.0       7.5       0.6       A3       250         B       1500       ±10%       DEBB3F52KA3B       3150       11.0       6.0<	В	1500	±10%		DEBB33D152KA2B	2000	9.0	5.0	5.0	0.6	A2	250
B       4700       ±10%       DEBB33D472KA3B       2000       15.0       5.0       7.5       0.6       A3       100         B       100       ±10%       DEBB33F101KCDB       3150       5.0       6.0       7.5       0.5       CD       500         B       150       ±10%       DEBB33F151KCDB       3150       5.0       6.0       7.5       0.5       CD       500         B       220       ±10%       DEBB33F221KCDB       3150       5.0       6.0       7.5       0.5       CD       500         B       330       ±10%       DEBB33F331KC3B       3150       6.0       6.0       7.5       0.6       C3       500         B       470       ±10%       DEBB33F41KC3B       3150       7.0       6.0       7.5       0.6       C3       250         B       680       ±10%       DEBB33F102KA3B       3150       8.0       6.0       7.5       0.6       A3       250         B       1500       ±10%       DEBB33F152KA3B       3150       9.0       6.0       7.5       0.6       A3       250         B       2200       ±10%       DEBB33F32Z2KA3B       3150	В	2200	±10%		DEBB33D222KA2B	2000	10.0	5.0	5.0	0.6	A2	250
B 100 ±10% DEBB33F101KCDB 3150 5.0 6.0 7.5 0.5 CD 500 B 150 ±10% DEBB33F151KCDB 3150 5.0 6.0 7.5 0.5 CD 500 B 220 ±10% DEBB33F221KCDB 3150 5.0 6.0 7.5 0.5 CD 500 B 330 ±10% DEBB33F331KC3B 3150 6.0 6.0 7.5 0.6 C3 500 B 470 ±10% DEBB33F471KC3B 3150 7.0 6.0 7.5 0.6 C3 250 B 680 ±10% DEBB33F681KA3B 3150 8.0 6.0 7.5 0.6 A3 250 B 1000 ±10% DEBB33F102KA3B 3150 9.0 6.0 7.5 0.6 A3 250 B 1500 ±10% DEBB33F152KA3B 3150 11.0 6.0 7.5 0.6 A3 250 B 2200 ±10% DEBB33F332KA3B 3150 11.0 6.0 7.5 0.6 A3 200 B 3300 ±10% DEBB33F332KA3B 3150 13.0 6.0 7.5 0.6 A3 200 B 3300 ±10% DEBB33F332KA3B 3150 15.0 6.0 7.5 0.6 A3 200 B 3300 ±10% DEBB33F332KA3B 3150 15.0 6.0 7.5 0.6 A3 200 DEBB33F332KA3B 3150 15.0 6.0 7.5 0.6 A3 200 DEBB33D102ZA2B 2000 6.0 5.0 5.0 0.6 A2 500 DEBB33D102ZA2B 2000 6.0 5.0 5.0 0.6 A2 250 DEBB33D472ZA2B 2000 11.0 5.0 5.0 0.6 A3 100 DEBB33D472ZA2B 2000 11.0 5.0 5.0 0.6 A2 250 DEBB33D472ZA2B 2000 11.0 5.0 5.0 0.6 A3 100 DEBB33D472ZA2B 2000 11.0 5.0 5.0 0.6 A3 100 DEBB33D472ZA2B 2000 11.0	В	3300	±10%		DEBB33D332KA3B	2000	12.0	5.0	7.5	0.6	А3	200
B         150         ±10%         DEBB33F151KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         220         ±10%         DEBB33F221KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         330         ±10%         DEBB33F31KC3B         3150         6.0         6.0         7.5         0.6         C3         500           B         470         ±10%         DEBB33F471KC3B         3150         7.0         6.0         7.5         0.6         C3         250           B         680         ±10%         DEBB33F681KA3B         3150         8.0         6.0         7.5         0.6         A3         250           B         1000         ±10%         DEBB33F102KA3B         3150         9.0         6.0         7.5         0.6         A3         250           B         1500         ±10%         DEBB33F152KA3B         3150         11.0         6.0         7.5         0.6         A3         250           B         2200         ±10%         DEBB33F32KA3B         3150         13.0         6.0         7.5         0.6	В	4700	±10%		DEBB33D472KA3B	2000	15.0	5.0	7.5	0.6	А3	100
B         220         ±10%         DEBB33F221KCDB         3150         5.0         6.0         7.5         0.5         CD         500           B         330         ±10%         DEBB33F331KC3B         3150         6.0         6.0         7.5         0.6         C3         500           B         470         ±10%         DEBB33F471KC3B         3150         7.0         6.0         7.5         0.6         C3         250           B         680         ±10%         DEBB33F681KA3B         3150         8.0         6.0         7.5         0.6         A3         250           B         1000         ±10%         DEBB33F102KA3B         3150         9.0         6.0         7.5         0.6         A3         250           B         1500         ±10%         DEBB33F152KA3B         3150         11.0         6.0         7.5         0.6         A3         250           B         2200         ±10%         DEBB33F22KA3B         3150         13.0         6.0         7.5         0.6         A3         250           B         3300         ±10%         DEBB33F102KA3B         3150         15.0         6.0         7.5         0.6         <	В	100	±10%		DEBB33F101KCDB	3150	5.0	6.0	7.5	0.5	CD	500
B 330 ±10% DEBB33F331KC3B 3150 6.0 6.0 7.5 0.6 C3 500 DEBB33F471KC3B 3150 7.0 6.0 7.5 0.6 C3 250 DEBB33F681KA3B 3150 8.0 6.0 7.5 0.6 C3 250 DEBB33F681KA3B 3150 9.0 6.0 7.5 0.6 A3 250 DEBB33F102KA3B 3150 11.0 6.0 7.5 0.6 A3 250 DEBB33F152KA3B 3150 11.0 6.0 7.5 0.6 A3 250 DEBB33F152KA3B 3150 11.0 6.0 7.5 0.6 A3 250 DEBB33F222KA3B 3150 11.0 6.0 7.5 0.6 A3 250 DEBB33F332KA3B 3150 13.0 6.0 7.5 0.6 A3 200 DEBB33F332KA3B 3150 15.0 6.0 7.5 0.6 A3 100 DEBB33F332KA3B 3150 15.0 6.0 7.5 0.6 A3 100 DEBB33F332KA3B 3150 15.0 6.0 7.5 0.6 A2 500 DEBE33D102ZA2B 2000 6.0 5.0 5.0 0.6 A2 500 DEBE33D22ZZA2B 2000 8.0 5.0 5.0 0.6 A2 250 DEBE33D472ZA2B 2000 11.0 5.0 5.0 0.6 A2 250 DEBE33D472ZA2B 2000 11.0 5.0 5.0 0.6 A2 250 DEBE33D103ZA3B 2000 16.0 5.0 7.5 0.6 A3 100 DEBE33D103ZA3B 2000 16.0 5.0 7.5 0.6 C3 250	В	150	±10%		DEBB33F151KCDB	3150	5.0	6.0	7.5	0.5	CD	500
B       470       ±10%       DEBB33F471KC3B       3150       7.0       6.0       7.5       0.6       C3       250         B       680       ±10%       DEBB33F681KA3B       3150       8.0       6.0       7.5       0.6       A3       250         B       1000       ±10%       DEBB33F102KA3B       3150       11.0       6.0       7.5       0.6       A3       250         B       2200       ±10%       DEBB33F152KA3B       3150       11.0       6.0       7.5       0.6       A3       250         B       3300       ±10%       DEBB33F322KA3B       3150       13.0       6.0       7.5       0.6       A3       200         B       3300       ±10%       DEBB33F332KA3B       3150       15.0       6.0       7.5       0.6       A3       100         E       1000       +80/-20%       DEBE33D102ZA2B       2000       6.0       5.0       5.0       0.6       A2       250         E       4700       +80/-20%       DEBE33D472ZA2B       2000       11.0       5.0       5.0       0.6       A2       250         E       10000       +80/-20%       DEBE33D103ZA3B <td< td=""><td>В</td><td>220</td><td>±10%</td><td></td><td>DEBB33F221KCDB</td><td>3150</td><td>5.0</td><td>6.0</td><td>7.5</td><td>0.5</td><td>CD</td><td>500</td></td<>	В	220	±10%		DEBB33F221KCDB	3150	5.0	6.0	7.5	0.5	CD	500
B       680       ±10%       DEBB33F681KA3B       3150       8.0       6.0       7.5       0.6       A3       250         B       1000       ±10%       DEBB33F102KA3B       3150       9.0       6.0       7.5       0.6       A3       250         B       1500       ±10%       DEBB33F152KA3B       3150       11.0       6.0       7.5       0.6       A3       250         B       2200       ±10%       DEBB33F222KA3B       3150       13.0       6.0       7.5       0.6       A3       200         B       3300       ±10%       DEBB33F332KA3B       3150       15.0       6.0       7.5       0.6       A3       100         E       1000       +80/-20%       DEBE33D102ZA2B       2000       6.0       5.0       5.0       0.6       A2       250         E       4700       +80/-20%       DEBE33D472ZA2B       2000       11.0       5.0       5.0       0.6       A2       250         E       1000       +80/-20%       DEBE33D103ZA3B       2000       16.0       5.0       7.5       0.6       A3       100         E       1000       +80/-20%       DEBE33F102ZC3B	В	330	±10%		DEBB33F331KC3B	3150	6.0	6.0	7.5	0.6	C3	500
B       1000       ±10%       DEBB33F102KA3B       3150       9.0       6.0       7.5       0.6       A3       250         B       1500       ±10%       DEBB33F152KA3B       3150       11.0       6.0       7.5       0.6       A3       250         B       2200       ±10%       DEBB33F222KA3B       3150       13.0       6.0       7.5       0.6       A3       200         B       3300       ±10%       DEBB33F332KA3B       3150       15.0       6.0       7.5       0.6       A3       100         E       1000       +80/-20%       DEBE33D102ZA2B       2000       6.0       5.0       5.0       0.6       A2       500         E       4700       +80/-20%       DEBE33D472ZA2B       2000       11.0       5.0       5.0       0.6       A2       250         E       10000       +80/-20%       DEBE33D103ZA3B       2000       11.0       5.0       7.5       0.6       A3       100         E       1000       +80/-20%       DEBE33F102ZC3B       3150       7.0       6.0       7.5       0.6       C3       250	В	470	±10%		DEBB33F471KC3B	3150	7.0	6.0	7.5	0.6	C3	250
B 1500 ±10% DEBB33F152KA3B 3150 11.0 6.0 7.5 0.6 A3 250 DEBB33F222KA3B 3150 13.0 6.0 7.5 0.6 A3 200 B 3300 ±10% DEBB33F332KA3B 3150 15.0 6.0 7.5 0.6 A3 100 DEBB33F332KA3B 3150 15.0 6.0 7.5 0.6 A3 100 DEBE33D102ZA2B 2000 6.0 5.0 5.0 0.6 A2 500 DEBE33D22ZA2B 2000 8.0 5.0 5.0 0.6 A2 250 DEBE33D472ZA2B 2000 11.0 5.0 5.0 0.6 A2 250 DEBE33D472ZA2B 2000 11.0 5.0 5.0 0.6 A2 250 DEBE33D103ZA3B 2000 16.0 5.0 7.5 0.6 A3 100 DEBE33D103ZA3B 2000 16.0 5.0 7.5 0.6 A3 100 DEBE33D103ZA3B 2000 16.0 5.0 7.5 0.6 C3 250	В	680	±10%		DEBB33F681KA3B	3150	8.0	6.0	7.5	0.6	А3	250
B 2200 ±10% DEBB33F222KA3B 3150 13.0 6.0 7.5 0.6 A3 200 B 3300 ±10% DEBB33F332KA3B 3150 15.0 6.0 7.5 0.6 A3 100 E 1000 +80/-20% DEBE33D102ZA2B 2000 6.0 5.0 5.0 0.6 A2 500 E 2200 +80/-20% DEBE33D222ZA2B 2000 8.0 5.0 5.0 0.6 A2 250 E 4700 +80/-20% DEBE33D472ZA2B 2000 11.0 5.0 5.0 0.6 A2 250 E 10000 +80/-20% DEBE33D103ZA3B 2000 16.0 5.0 7.5 0.6 A3 100 E 1000 +80/-20% DEBE33D103ZA3B 2000 16.0 5.0 7.5 0.6 C3 250	В	1000	±10%		DEBB33F102KA3B	3150	9.0	6.0	7.5	0.6	А3	250
B 3300 ±10% DEBB33F332KA3B 3150 15.0 6.0 7.5 0.6 A3 100 E 1000 +80/-20% DEBE33D102ZA2B 2000 6.0 5.0 5.0 0.6 A2 500 E 2200 +80/-20% DEBE33D22ZZA2B 2000 8.0 5.0 5.0 0.6 A2 250 E 4700 +80/-20% DEBE33D472ZA2B 2000 11.0 5.0 5.0 0.6 A2 250 E 10000 +80/-20% DEBE33D103ZA3B 2000 16.0 5.0 7.5 0.6 A3 100 E 1000 +80/-20% DEBE33F102ZC3B 3150 7.0 6.0 7.5 0.6 C3 250	В	1500	±10%		DEBB33F152KA3B	3150	11.0	6.0	7.5	0.6	А3	250
E       1000 +80/-20%       DEBE33D102ZA2B       2000       6.0       5.0       5.0       0.6       A2       500         E       2200 +80/-20%       DEBE33D22ZZA2B       2000       8.0       5.0       5.0       0.6       A2       250         E       4700 +80/-20%       DEBE33D472ZA2B       2000       11.0       5.0       5.0       0.6       A2       250         E       10000 +80/-20%       DEBE33D103ZA3B       2000       16.0       5.0       7.5       0.6       A3       100         E       1000 +80/-20%       DEBE33F102ZC3B       3150       7.0       6.0       7.5       0.6       C3       250	В	2200	±10%		DEBB33F222KA3B	3150	13.0	6.0	7.5	0.6	А3	200
E       2200 +80/-20%       DEBE33D222ZA2B       2000       8.0       5.0       5.0       0.6       A2       250         E       4700 +80/-20%       DEBE33D472ZA2B       2000       11.0       5.0       5.0       0.6       A2       250         E       10000 +80/-20%       DEBE33D103ZA3B       2000       16.0       5.0       7.5       0.6       A3       100         E       1000 +80/-20%       DEBE33F102ZC3B       3150       7.0       6.0       7.5       0.6       C3       250	В	3300	±10%		DEBB33F332KA3B	3150	15.0	6.0	7.5	0.6	А3	100
E       4700 +80/-20%       DEBE33D472ZA2B       2000       11.0       5.0       5.0       0.6       A2       250         E       10000 +80/-20%       DEBE33D103ZA3B       2000       16.0       5.0       7.5       0.6       A3       100         E       1000 +80/-20%       DEBE33F102ZC3B       3150       7.0       6.0       7.5       0.6       C3       250	Е	1000	+80/-20%		DEBE33D102ZA2B	2000	6.0	5.0	5.0	0.6	A2	500
E       10000 +80/-20%       DEBE33D103ZA3B       2000       16.0       5.0       7.5       0.6       A3       100         E       1000 +80/-20%       DEBE33F102ZC3B       3150       7.0       6.0       7.5       0.6       C3       250	Е	2200	+80/-20%		DEBE33D222ZA2B	2000	8.0	5.0	5.0	0.6	A2	250
E 1000 +80/-20% DEBE33F102ZC3B 3150 7.0 6.0 7.5 0.6 C3 250	Е	4700	+80/-20%		DEBE33D472ZA2B	2000	11.0	5.0	5.0	0.6	A2	250
	Е	10000	+80/-20%		DEBE33D103ZA3B	2000	16.0	5.0	7.5	0.6	A3	100
E 2200 +80/-20% DEBE33F222ZA3B 3150 10.0 6.0 7.5 0.6 A3 250	Е	1000	+80/-20%		DEBE33F102ZC3B	3150	7.0	6.0	7.5	0.6	C3	250
	Е	2200	+80/-20%		DEBE33F222ZA3B	3150	10.0	6.0	7.5	0.6	A3	250
		•			•	•						

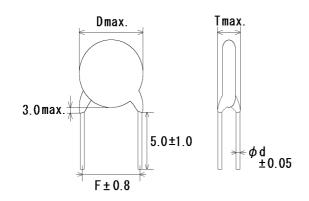


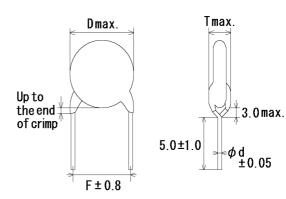
Note) The mark '\*' of lead code differ from lead spacing(F) and lead diameter(d). Please see the following list about details.

Unit: mm DC Dimension (mm) Pack Lead Cap. T.C. Cap. tol. **Customer Part Number** Murata Part Number Rated Volt qty. (pF) Code (V) D Т (pcs) DEBE33F472ZA3B 4700 +80/-20% 3150 13.0 6.0 7.5 0.6 АЗ 200 F 1000 +80/-20% DEBF33D102ZC1B 2000 5.0 5.0 5.0 0.5 C1 500 F +80/-20% DEBF33D222ZA2B 2000 7.0 500 2200 5.0 5.0 0.6 A2 F 4700 DEBF33D472ZA2B +80/-20% 2000 250 9.0 5.0 5.0 0.6 A2 F 10000 +80/-20% DEBF33D103ZA3B 12.0 7.5 200 2000 5.0 0.6 А3

·Straight short type (Lead code:D\*)

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



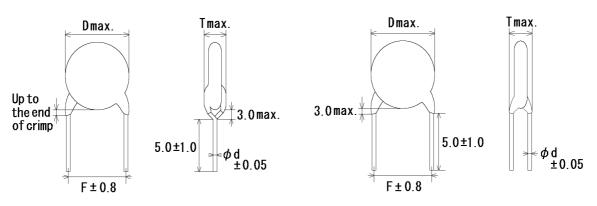


Note) The mark '\*' of lead code differ from lead spacing(F) and lead diameter(d).
Please see the following list about details.

					,					OTHE.	
Τ.Ο	Cap.	0 (-1	Out to so an Boot Mouse on	Marrie Bard Novels	DC	Dir	nensi	on (m	m)	Lead	Pack
T.C.	(pF)	Cap. tol.	Customer Part Number	Murata Part Number	Rated Volt. (V)	D	Т	F	d	Code	qty. (pcs)
В	100	±10%		DEBB33D101KD1B	2000	4.5	5.0	5.0	0.5	D1	500
В	150	±10%		DEBB33D151KD1B	2000	4.5	5.0	5.0	0.5	D1	500
В	220	±10%		DEBB33D221KD1B	2000	4.5	5.0	5.0	0.5	D1	500
В	330	±10%		DEBB33D331KD1B	2000	5.0	5.0	5.0	0.5	D1	500
В	470	±10%		DEBB33D471KB2B	2000	6.0	5.0	5.0	0.6	B2	500
В	680	±10%		DEBB33D681KB2B	2000	7.0	5.0	5.0	0.6	B2	500
В	1000	±10%		DEBB33D102KB2B	2000	8.0	5.0	5.0	0.6	B2	500
В	1500	±10%		DEBB33D152KB2B	2000	9.0	5.0	5.0	0.6	B2	500
В	2200	±10%		DEBB33D222KB2B	2000	10.0	5.0	5.0	0.6	B2	500
В	3300	±10%		DEBB33D332KB3B	2000	12.0	5.0	7.5	0.6	В3	250
В	4700	±10%		DEBB33D472KB3B	2000	15.0	5.0	7.5	0.6	В3	200
В	100	±10%		DEBB33F101KDDB	3150	5.0	6.0	7.5	0.5	DD	500
В	150	±10%		DEBB33F151KDDB	3150	5.0	6.0	7.5	0.5	DD	500
В	220	±10%		DEBB33F221KDDB	3150	5.0	6.0	7.5	0.5	DD	500
В	330	±10%		DEBB33F331KD3B	3150	6.0	6.0	7.5	0.6	D3	500
В	470	±10%		DEBB33F471KD3B	3150	7.0	6.0	7.5	0.6	D3	500
В	680	±10%		DEBB33F681KB3B	3150	8.0	6.0	7.5	0.6	В3	500
В	1000	±10%		DEBB33F102KB3B	3150	9.0	6.0	7.5	0.6	В3	500
В	1500	±10%		DEBB33F152KB3B	3150	11.0	6.0	7.5	0.6	В3	500
В	2200	±10%		DEBB33F222KB3B	3150	13.0	6.0	7.5	0.6	В3	250
В	3300	±10%		DEBB33F332KB3B	3150	15.0	6.0	7.5	0.6	В3	200
Е	1000	+80/-20%		DEBE33D102ZB2B	2000	6.0	5.0	5.0	0.6	B2	500
Е	2200	+80/-20%		DEBE33D222ZB2B	2000	8.0	5.0	5.0	0.6	B2	500
Е	4700	+80/-20%		DEBE33D472ZB2B	2000	11.0	5.0	5.0	0.6	B2	500
Е	10000	+80/-20%		DEBE33D103ZB3B	2000	16.0	5.0	7.5	0.6	В3	200
Е	1000	+80/-20%		DEBE33F102ZD3B	3150	7.0	6.0	7.5	0.6	D3	500
Е	2200	+80/-20%		DEBE33F222ZB3B	3150	10.0	6.0	7.5	0.6	В3	500
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·Vertical crimp short type (Lead code:B\*)

·Straight short type (Lead code: D\*)

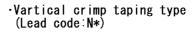


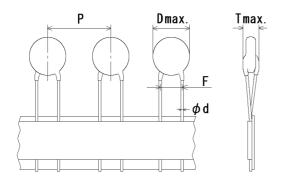
Note) The mark '\*' of lead code differ from lead spacing(F) and lead diameter(d).

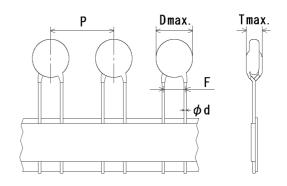
Please see the following list about details.

Unit: mm DC Dimension (mm) Pack Lead Cap. T.C. Cap. tol. **Customer Part Number** Murata Part Number Rated Volt qty. (pF) Code (V) D Т (pcs) DEBE33F472ZB3B ВЗ 4700 +80/-20% 3150 13.0 6.0 7.5 0.6 250 F 1000 +80/-20% DEBF33D102ZD1B 2000 5.0 5.0 5.0 0.5 D1 500 F +80/-20% DEBF33D222ZB2B 2000 7.0 500 2200 5.0 5.0 0.6 B2 F DEBF33D472ZB2B 4700 +80/-20% 2000 B2 500 9.0 5.0 5.0 0.6 F 10000 +80/-20% DEBF33D103ZB3B 2000 12.0 7.5 В3 250 5.0 0.6

## ·Straight taping type (Lead code:P\*)



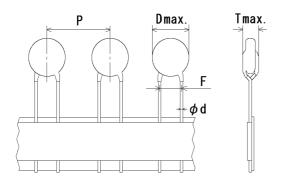




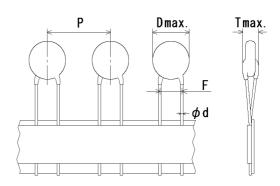
Note) The mark '\*' of lead code differ from lead spacing(F), lead diameter(d) and pitch of component(P). Please see the following list or taping specification about details.

T.C.   CGP)   CGP)   Customer Part Number   Murata Part Number   Rated volt (V)   D   T   F   d   P   code   Code   (pc   Code		I	<u> </u>									ווונ. ו	11111
CPF   TOL.     COURT	TC	Сар.	Сар.	Customer Part Number	Murata Part Number			Dime	nsion	(mm)		Lead	Pack
B	1.0.	(pF)	tol.	Customer Fart Number	ividiata Fait Number		D	Т	F	d	Р	code	(pcs)
B 220 ±10% DEBB3D221KP2A 2000 4.5 5.0 5.0 6.6 12.7 P2 15 B 330 ±10% DEBB3D331KP2A 2000 5.0 5.0 5.0 6.6 12.7 P2 15 B 470 ±10% DEBB3D471KN2A 2000 6.0 5.0 5.0 6.6 12.7 N2 15 B 680 ±10% DEBB3D471KN2A 2000 7.0 5.0 5.0 6.6 12.7 N2 15 B 1000 ±10% DEBB3D162KN2A 2000 8.0 5.0 5.0 6.6 12.7 N2 15 B 1500 ±10% DEBB3D152KN2A 2000 9.0 5.0 5.0 6.6 12.7 N2 15 B 1500 ±10% DEBB3D152KN2A 2000 9.0 5.0 5.0 6.6 12.7 N2 15 B 3300 ±10% DEBB3D152KN2A 2000 10.0 5.0 5.0 6.6 12.7 N2 15 B 3300 ±10% DEBB3D152KN2A 2000 10.0 5.0 5.0 6.6 12.7 N2 15 B 3300 ±10% DEBB3D152KN2A 2000 10.0 5.0 5.0 6.6 12.7 N2 15 B 3470 ±10% DEBB3D47ZKN7A 2000 15.0 5.0 7.5 0.6 15.0 N3 90 B 4700 ±10% DEBB3D47ZKN7A 2000 15.0 5.0 7.5 0.6 15.0 N3 90 B 100 ±10% DEBB3D47ZKN7A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 B 150 ±10% DEBB3D47ZKN7A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 B 330 ±10% DEBB3SF31KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 B 330 ±10% DEBB3SF31KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 B 330 ±10% DEBB3SF31KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 B 330 ±10% DEBB3SF31KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 B 330 ±10% DEBB3SF31KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 B 330 ±10% DEBB3SF31KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 330 ±10% DEBB3SF31KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF31KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF31KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF31KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3SF32XP3N3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 B 150 ±10% DEBB3	В	100	±10%		DEBB33D101KP2A	2000	4.5	5.0	5.0	0.6	12.7	P2	1500
B 330 ±10% DEBB33D31KP2A 2000 5.0 5.0 5.0 6.1 12.7 P2 15.0 B 470 ±10% DEBB33D471KN2A 2000 6.0 5.0 5.0 6.0 12.7 N2 15.0 B 680 ±10% DEBB33D681KN2A 2000 7.0 5.0 5.0 6.1 12.7 N2 15.0 B 1000 ±10% DEBB33D102KN2A 2000 8.0 5.0 5.0 6.1 12.7 N2 15.0 B 1500 ±10% DEBB33D102KN2A 2000 9.0 5.0 5.0 6.1 12.7 N2 15.0 B 1500 ±10% DEBB33D152KN2A 2000 9.0 5.0 5.0 6.1 12.7 N2 15.0 B 1500 ±10% DEBB33D152KN2A 2000 10.0 5.0 5.0 6.1 12.7 N2 15.0 B 1500 ±10% DEBB33D152KN2A 2000 10.0 5.0 5.0 6.1 12.7 N2 15.0 B 1500 ±10% DEBB33D32ZKN3A 2000 11.0 5.0 5.0 6.1 12.7 N2 15.0 B 1500 ±10% DEBB33D32ZKN3A 2000 11.0 5.0 5.0 7.5 0.6 15.0 N3 90.0 B 170% DEBB33D47ZKN7A 2000 15.0 5.0 7.5 0.6 15.0 N3 90.0 B 170% DEBB33D101KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90.0 B 1500 ±10% DEBB33D151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90.0 B 1500 ±10% DEBB33D151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90.0 B 1500 ±10% DEBB33D151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90.0 B 1500 ±10% DEBB33D151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90.0 B 1500 ±10% DEBB33D151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90.0 B 1500 ±10% DEBB33D151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90.0 B 1500 ±10% DEBB33D151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90.0 B 1500 ±10% DEBB33D151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90.0 B 1500 ±10% DEBB33D151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90.0 B 1500 ±10% DEBB33D151KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90.0 B 1500 ±10% DEBB33D152KN3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90.0 B 1500 ±10% DEBB33D152KN3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90.0 B 1500 ±10% DEBB33D152KN3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90.0 B 1500 ±10% DEBB33D152KN3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90.0 B 1500 ±10% DEBB33D152KN3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90.0 B 1500 ±10% DEBB33D152KN3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90.0 B 1500 ±10% DEBB33D152KN3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90.0 B 1500 ±10% DEBB33D152KN3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90.0 B 1500 ±10% DEBB33D152KN3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90.0 B 1500 ±10% DEBB33D102ZN2A 2000 6.0 5.0 5.0 6.0 12.7 N2 1500 ±10% DEBB3D102ZN2A 2000 6.0 5.0 5.0 6.0 12.7 N2 1500 ±1000 ±1000 ±1000 ±1000 ±1000 ±1000 ±1000 ±100	В	150	±10%		DEBB33D151KP2A	2000	4.5	5.0	5.0	0.6	12.7	P2	1500
B         470         ±10%         DEBB33D471KNZA         2000         6.0         5.0         0.6         12.7         N2         15           B         680         ±10%         DEBB33D681KNZA         2000         7.0         5.0         5.0         0.6         12.7         N2         15           B         1000         ±10%         DEBB33D10ZKNZA         2000         8.0         5.0         5.0         6.6         12.7         N2         15           B         1500         ±10%         DEBB33D15ZKNZA         2000         9.0         5.0         5.0         6.6         12.7         N2         15           B         2200         ±10%         DEBB33D15ZKNZA         2000         10.0         5.0         5.0         6.6         12.7         N2         15           B         2200         ±10%         DEBB33D47ZKNZA         2000         15.0         5.0         7.5         6.6         15.0         N3         90           B         4700         ±10%         DEBB33D47ZKNZA         2000         15.0         5.0         6.0         7.5         0.6         15.0         N3         90         6.0         7.5         0.6         15.0	В	220	±10%		DEBB33D221KP2A	2000	4.5	5.0	5.0	0.6	12.7	P2	1500
B 680 ±10% DEBB33D681KN2A 2000 7.0 5.0 5.0 0.6 12.7 N2 15.0 B 1000 ±10% DEBB33D102KN2A 2000 8.0 5.0 5.0 0.6 12.7 N2 15.0 B 1500 ±10% DEBB33D102KN2A 2000 9.0 5.0 5.0 0.6 12.7 N2 15.0 B 2200 ±10% DEBB33D322KN2A 2000 10.0 5.0 5.0 0.6 12.7 N2 15.0 B 3300 ±10% DEBB33D472KN7A 2000 12.0 5.0 7.5 0.6 15.0 N3 90 DEBB33D472KN7A 2000 15.0 5.0 7.5 0.6 15.0 N3 90 DEBB33D472KN7A 2000 15.0 5.0 7.5 0.6 15.0 N3 90 DEBB33D472KN7A 2000 15.0 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33D101KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33D101KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 7.5 0.6 15.0 N3 90 DEBB33F151KP3A 3150 5.0 0.6 0.7 5.0 0.6 12.	В	330	±10%		DEBB33D331KP2A	2000	5.0	5.0	5.0	0.6	12.7	P2	1500
B 1000 ±10%   DEBB33D102KN2A   2000   8.0   5.0   6.0   12.7   N2   15.0   B   1500 ±10%   DEBB33D152KN2A   2000   10.0   5.0   5.0   6.0   12.7   N2   15.0   B   2200 ±10%   DEBB33D32EXN3A   2000   12.0   5.0   5.0   6.0   12.7   N2   15.0   B   3300 ±10%   DEBB33D33EXN3A   2000   12.0   5.0   7.5   0.6   15.0   N3   90   0.0   10.0	В	470	±10%		DEBB33D471KN2A	2000	6.0	5.0	5.0	0.6	12.7	N2	1500
B 1500 ±10% DEBB33D152KN2A 2000 9.0 5.0 5.0 0.6 12.7 N2 150	В	680	±10%		DEBB33D681KN2A	2000	7.0	5.0	5.0	0.6	12.7	N2	1500
B 2200 ±10% DEBB33D222KN2A 2000 10.0 5.0 5.0 0.6 12.7 N2 150   B 3300 ±10% DEBB33D332KN3A 2000 12.0 5.0 7.5 0.6 15.0 N3 90   B 4700 ±10% DEBB33D472KN7A 2000 15.0 5.0 7.5 0.6 15.0 N3 90   B 100 ±10% DEBB33D472KN7A 3150 5.0 6.0 7.5 0.6 15.0 P3 90   B 150 ±10% DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90   B 220 ±10% DEBB33F221KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90   B 330 ±10% DEBB33F221KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90   B 470 ±10% DEBB33F31KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90   B 680 ±10% DEBB33F31KP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90   B 680 ±10% DEBB33F31KP3A 3150 7.0 6.0 7.5 0.6 15.0 N3 90   B 1000 ±10% DEBB33F310KN3A 3150 9.0 6.0 7.5 0.6 15.0 N3 90   B 1500 ±10% DEBB33F32KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90   B 1500 ±10% DEBB33F32KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F32KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F32KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F32KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F32KN3A 3150 15.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F32KN3A 3150 15.0 6.0 7.5 0.6 15.0 N3 90   B 3300 ±10% DEBB33F32KN3A 3150 15.0 6.0 7.5 0.6 15.0 N3 90   B 3300 ±10% DEBB33F32KN3A 3150 15.0 6.0 7.5 0.6 15.0 N3 90   B 3400 ±80/-20% DEBB33F32KN3A 3150 15.0 6.0 7.5 0.6 15.0 N3 90   DEBB33F32ZXN3A 3150 15.0 6.0 7.5 0.6 15.0 N3 90   DEBB33D47ZXN3A 3150 15.0 6.0 7.5 0.6 12.7 N2 150   DEBB33D47ZXN3A 2000 16.0 5.0 5.0 0.6 12.7 N2 150   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D47ZXN3A	В	1000	±10%		DEBB33D102KN2A	2000	8.0	5.0	5.0	0.6	12.7	N2	1500
B 3300 ±10% DEBB33D332KN3A 2000 12.0 5.0 7.5 0.6 15.0 N3 90 DEBB33D332KN3A 2000 15.0 5.0 7.5 0.6 15.0 N3 90 DEBB33D472KN7A 2000 15.0 5.0 7.5 0.6 15.0 N3 90 DEBB33F101KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F21KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F21KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F331KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F331KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F31KP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F471KP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90 DEBB33F471KP3A 3150 7.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F102KN3A 3150 8.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F102KN3A 3150 9.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F102KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 30.0 N7 50 DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 30.0 N7 50 DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 30.0 N7 50 DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 30.0 N7 50 DEBB33D103ZN7A 2000 11.0 5.0 5.0 0.6 12.7 N2 150 DEBB33D103ZN7A 2000 11.0 5.0 5.0 0.6 12.7 N2 150 DEBB33D103ZN7A 2000 11.0 5.0 7.5 0.6 30.0 N7 50 DEBB33D103ZN7A 2000 11.0 5.0 7.5 0.6 30.0 N7 50 DEBB33D103ZN7A 2000 11.0 5.0 7	В	1500	±10%		DEBB33D152KN2A	2000	9.0	5.0	5.0	0.6	12.7	N2	1500
B 4700 ±10%   DEBB33D472KN7A   2000   15.0   5.0   7.5   0.6   30.0   N7   50.0	В	2200	±10%		DEBB33D222KN2A	2000	10.0	5.0	5.0	0.6	12.7	N2	1500
B 100 ±10% DEBB33F101KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 00 00 00 00 00 00 00 00 00 00 00 00	В	3300	±10%		DEBB33D332KN3A	2000	12.0	5.0	7.5	0.6	15.0	N3	900
B 150 ±10% DEBB33F151KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90   B 220 ±10% DEBB33F221KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90   B 330 ±10% DEBB33F331KP3A 3150 6.0 6.0 7.5 0.6 15.0 P3 90   B 470 ±10% DEBB33F471KP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90   B 680 ±10% DEBB33F681KN3A 3150 8.0 6.0 7.5 0.6 15.0 N3 90   B 1000 ±10% DEBB33F102KN3A 3150 9.0 6.0 7.5 0.6 15.0 N3 90   B 1500 ±10% DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F322KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F322KN3A 3150 13.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F322KN3A 3150 15.0 6.0 7.5 0.6 15.0 N3 90   B 3300 ±10% DEBB33F322KN3A 3150 15.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F322KN3A 3150 15.0 6.0 7.5 0.6 15.0 N3 90   C 2200 ±80/-20% DEBB33F322KN3A 3150 15.0 6.0 7.5 0.6 30.0 N7 50   C 2200 ±80/-20% DEBB33D102ZN2A 2000 6.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   C 2200 ±80/-20% DEBB33D103ZN3A 2000 11.0 5	В	4700	±10%		DEBB33D472KN7A	2000	15.0	5.0	7.5	0.6	30.0	N7	500
B 220 ±10% DEBB33F221KP3A 3150 5.0 6.0 7.5 0.6 15.0 P3 90 B 330 ±10% DEBB33F331KP3A 3150 6.0 6.0 7.5 0.6 15.0 P3 90 B 470 ±10% DEBB33F471KP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90 B 680 ±10% DEBB33F681KN3A 3150 8.0 6.0 7.5 0.6 15.0 N3 90 B 1000 ±10% DEBB33F102KN3A 3150 9.0 6.0 7.5 0.6 15.0 N3 90 B 1500 ±10% DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90 B 2200 ±10% DEBB33F322KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90 B 3300 ±10% DEBB33F322KN3A 3150 13.0 6.0 7.5 0.6 15.0 N3 90 B 3300 ±10% DEBB33F332KN7A 3150 15.0 6.0 7.5 0.6 15.0 N3 90 DEBB33F332KN7A 3150 15.0 6.0 7.5 0.6 15.0 N3 90 DEBB33D102ZN2A 2000 6.0 5.0 5.0 0.6 12.7 N2 150 DEBB33D102ZN2A 2000 11.0 5.0 5.0 0.6 12.7 N2 150 DEBB33D103ZN7A 2000 11.0 5.0 5.0 0.6 12.7 N2 150 DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90	В	100	±10%		DEBB33F101KP3A	3150	5.0	6.0	7.5	0.6	15.0	P3	900
B 330 ±10% DEBB33F331KP3A 3150 6.0 6.0 7.5 0.6 15.0 P3 90   B 470 ±10% DEBB33F471KP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90   B 680 ±10% DEBB33F681KN3A 3150 8.0 6.0 7.5 0.6 15.0 N3 90   B 1000 ±10% DEBB33F102KN3A 3150 9.0 6.0 7.5 0.6 15.0 N3 90   B 1500 ±10% DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F222KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90   B 3300 ±10% DEBB33F322KN3A 3150 15.0 6.0 7.5 0.6 15.0 N3 90   B 3300 ±10% DEBB33F332KN7A 3150 15.0 6.0 7.5 0.6 30.0 N7 50   E 1000 +80/-20% DEBB33D102ZN2A 2000 6.0 5.0 5.0 0.6 12.7 N2 150   E 4700 +80/-20% DEBB33D472ZN2A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   E 1000 +80/-20% DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90   DEBB33D1	В	150	±10%		DEBB33F151KP3A	3150	5.0	6.0	7.5	0.6	15.0	P3	900
B 470 ±10% DEBB33F471KP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90 B 680 ±10% DEBB33F681KN3A 3150 8.0 6.0 7.5 0.6 15.0 N3 90 B 1000 ±10% DEBB33F102KN3A 3150 9.0 6.0 7.5 0.6 15.0 N3 90 B 1500 ±10% DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90 B 2200 ±10% DEBB33F322KN3A 3150 13.0 6.0 7.5 0.6 15.0 N3 90 B 3300 ±10% DEBB33F332KN7A 3150 15.0 6.0 7.5 0.6 30.0 N7 50 E 1000 +80/-20% DEBE33D102ZN2A 2000 6.0 5.0 5.0 0.6 12.7 N2 150 E 4700 +80/-20% DEBE33D472ZN2A 2000 11.0 5.0 5.0 0.6 12.7 N2 150 E 10000 +80/-20% DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50	В	220	±10%		DEBB33F221KP3A	3150	5.0	6.0	7.5	0.6	15.0	P3	900
B 680 ±10% DEBB33F681KN3A 3150 8.0 6.0 7.5 0.6 15.0 N3 90   B 1000 ±10% DEBB33F102KN3A 3150 9.0 6.0 7.5 0.6 15.0 N3 90   B 1500 ±10% DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90   B 2200 ±10% DEBB33F222KN3A 3150 13.0 6.0 7.5 0.6 15.0 N3 90   B 3300 ±10% DEBB33F332KN7A 3150 15.0 6.0 7.5 0.6 30.0 N7 50   E 1000 +80/-20% DEBE33D102ZN2A 2000 6.0 5.0 5.0 0.6 12.7 N2 150   E 2200 +80/-20% DEBE33D472ZN2A 2000 11.0 5.0 5.0 0.6 12.7 N2 150   E 4700 +80/-20% DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50   DEBE33F102ZP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90   DEBE33F102ZP3A	В	330	±10%		DEBB33F331KP3A	3150	6.0	6.0	7.5	0.6	15.0	P3	900
B 1000 ±10% DEBB33F102KN3A 3150 9.0 6.0 7.5 0.6 15.0 N3 90 B 1500 ±10% DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90 B 2200 ±10% DEBB33F222KN3A 3150 13.0 6.0 7.5 0.6 15.0 N3 90 B 3300 ±10% DEBB33F332KN7A 3150 15.0 6.0 7.5 0.6 30.0 N7 50 E 1000 +80/-20% DEBB33D102ZN2A 2000 6.0 5.0 5.0 0.6 12.7 N2 150 E 2200 +80/-20% DEBE33D472ZN2A 2000 11.0 5.0 5.0 0.6 12.7 N2 150 E 4700 +80/-20% DEBE33D472ZN2A 2000 11.0 5.0 5.0 0.6 12.7 N2 150 E 10000 +80/-20% DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33F102ZP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90	В	470	±10%		DEBB33F471KP3A	3150	7.0	6.0	7.5	0.6	15.0	P3	900
B 1500 ±10% DEBB33F152KN3A 3150 11.0 6.0 7.5 0.6 15.0 N3 90 B 2200 ±10% DEBB33F222KN3A 3150 13.0 6.0 7.5 0.6 15.0 N3 90 B 3300 ±10% DEBB33F332KN7A 3150 15.0 6.0 7.5 0.6 30.0 N7 50 E 1000 +80/-20% DEBE33D102ZN2A 2000 6.0 5.0 5.0 0.6 12.7 N2 150 E 2200 +80/-20% DEBE33D472ZN2A 2000 8.0 5.0 5.0 0.6 12.7 N2 150 E 4700 +80/-20% DEBE33D472ZN2A 2000 11.0 5.0 5.0 0.6 12.7 N2 150 E 10000 +80/-20% DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50 DEBE33F102ZP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90	В	680	±10%		DEBB33F681KN3A	3150	8.0	6.0	7.5	0.6	15.0	N3	900
B 2200 ±10% DEBB33F222KN3A 3150 13.0 6.0 7.5 0.6 15.0 N3 90.0 B 3300 ±10% DEBB33F332KN7A 3150 15.0 6.0 7.5 0.6 30.0 N7 50.0 E 1000 +80/-20% DEBE33D102ZN2A 2000 6.0 5.0 5.0 0.6 12.7 N2 150.0 E 2200 +80/-20% DEBE33D222ZN2A 2000 8.0 5.0 5.0 0.6 12.7 N2 150.0 E 4700 +80/-20% DEBE33D472ZN2A 2000 11.0 5.0 5.0 0.6 12.7 N2 150.0 E 10000 +80/-20% DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50.0 E 10000 +80/-20% DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50.0 E 10000 +80/-20% DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 15.0 P3 90.0 E 10000 +80/-20% DEBE33F102ZP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90.0	В	1000	±10%		DEBB33F102KN3A	3150	9.0	6.0	7.5	0.6	15.0	N3	900
B 3300 ±10% DEBB33F332KN7A 3150 15.0 6.0 7.5 0.6 30.0 N7 50	В	1500	±10%		DEBB33F152KN3A	3150	11.0	6.0	7.5	0.6	15.0	N3	900
E       1000 +80/-20%       DEBE33D102ZN2A       2000       6.0       5.0       5.0       0.6       12.7       N2       150         E       2200 +80/-20%       DEBE33D22ZN2A       2000       8.0       5.0       5.0       0.6       12.7       N2       150         E       4700 +80/-20%       DEBE33D472ZN2A       2000       11.0       5.0       5.0       0.6       12.7       N2       150         E       10000 +80/-20%       DEBE33D103ZN7A       2000       16.0       5.0       7.5       0.6       30.0       N7       50         E       1000 +80/-20%       DEBE33F102ZP3A       3150       7.0       6.0       7.5       0.6       15.0       P3       90	В	2200	±10%		DEBB33F222KN3A	3150	13.0	6.0	7.5	0.6	15.0	N3	900
E       2200 +80/-20%       DEBE33D222ZN2A       2000       8.0       5.0       5.0       0.6       12.7       N2       150         E       4700 +80/-20%       DEBE33D472ZN2A       2000       11.0       5.0       5.0       0.6       12.7       N2       150         E       10000 +80/-20%       DEBE33D103ZN7A       2000       16.0       5.0       7.5       0.6       30.0       N7       50         E       1000 +80/-20%       DEBE33F102ZP3A       3150       7.0       6.0       7.5       0.6       15.0       P3       90	В	3300	±10%		DEBB33F332KN7A	3150	15.0	6.0	7.5	0.6	30.0	N7	500
E       4700 +80/-20%       DEBE33D472ZN2A       2000       11.0 5.0 5.0 0.6 12.7 N2 150         E       10000 +80/-20%       DEBE33D103ZN7A       2000       16.0 5.0 7.5 0.6 30.0 N7 50         E       1000 +80/-20%       DEBE33F102ZP3A       3150 7.0 6.0 7.5 0.6 15.0 P3 90	Е	1000	+80/-20%		DEBE33D102ZN2A	2000	6.0	5.0	5.0	0.6	12.7	N2	1500
E 1000 +80/-20% DEBE33D103ZN7A 2000 16.0 5.0 7.5 0.6 30.0 N7 50.0 E 1000 +80/-20% DEBE33F102ZP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90.0 DEBE33F102ZP3A 3150 7.0 6.0 7.5 0.6 15.0 P3	Е	2200	+80/-20%		DEBE33D222ZN2A	2000	8.0	5.0	5.0	0.6	12.7	N2	1500
E 1000 +80/-20% DEBE33F102ZP3A 3150 7.0 6.0 7.5 0.6 15.0 P3 90	Е	4700	+80/-20%		DEBE33D472ZN2A	2000	11.0	5.0	5.0	0.6	12.7	N2	1500
	Е	10000	+80/-20%		DEBE33D103ZN7A	2000	16.0	5.0	7.5	0.6	30.0	N7	500
E 2200 +80/-20% DEBE33F222ZN3A 3150 10.0 6.0 7.5 0.6 15.0 N3 90	Е	1000	+80/-20%		DEBE33F102ZP3A	3150	7.0	6.0	7.5	0.6	15.0	P3	900
	Е	2200	+80/-20%		DEBE33F222ZN3A	3150	10.0	6.0	7.5	0.6	15.0	N3	900
					•								

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



·Straight taping type (Lead code:P\*)



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

T.C.	Cap. Cap. Customer Part Number M		Murata Part Number R	DC Rated volt.		Dime	Lead	Pack				
1.0.	(pF)	tol.	Customer Part Number Murata Part Number		(V)	О	Τ	F	d	Р	(2000	qty. (pcs)
E	4700	+80/-20%		DEBE33F472ZN3A	3150	13.0	6.0	7.5	0.6	15.0	N3	900
F	1000	+80/-20%		DEBF33D102ZP2A	2000	5.0	5.0	5.0	0.6	12.7	P2	1500
F	2200	+80/-20%		DEBF33D222ZN2A	2000	7.0	5.0	5.0	0.6	12.7	N2	1500
F	4700	+80/-20%		DEBF33D472ZN2A	2000	9.0	5.0	5.0	0.6	12.7	N2	1500
F	10000	+80/-20%		DEBF33D103ZN3A	2000	12.0	5.0	7.5	0.6	15.0	N3	900

5. Sp	ecification and test	methods							
No.	Ite		Spec	ification			Test me	ethod	
1	Appearance and c	limensions	No marked defe form and dimen	ect on appearance	for visit	ole eviden	ould be ins	spected by ct.	naked eyes n slide calipers.
2	Marking		To be easily leg	ible.	The ca	pacitor she	ould be ins	spected by	naked eyes.
3	Dielectric strength	Between lead wires	No failure.		The capacitor should not be damaged when DC voltage of 200% of the rated voltage are applied between the lead wires for 1 to 5 s. (Charge/Discharge current≤50mA.)				
		Body insulation	No failure.	The capacitor is placed in the container w balls of diameter 1mm so that each lead w shortcircuited, is kept about 2mm off the balls as shown in the figure, and DC voltage of 1.3kV is applied for 1 to 5 s between capacitor lead wires and small metals. (Charge/Discharge current≤50mA.)					
4	Insulation Between lead Resistance (I.R.)		10 000MΩ min.		DC500	±50V with	in 60±5 s d	of chargin	
5	Capacitance		Within specified		1±0.2kl	Hz and AC	25V(r.m.s.)	max	d at 20°C with
6	Dissipation Factor (D.F.)		Char. B,E: 2.59 Char. F: 5.09		The dissipation factor should be measure with 1±0.2kHz and AC5V(r.m.s.) max				
7	7 Temperature characteristic		Char. B : Within ±10% Char. E : Within +20/-55% Char. F : Within +30/-80%  Pre-treatment : Capacitor should be condition for 24±2 h  Step Temp.(°C)		each st e stored	ep specifi at 85±2°C	ed in Table for 1 h, the	e. en placed	at *room  5 20±2
8	Strength of lead	Pull Bending	Lead wire should not cut off. Capacitor should not be broken.		As shown in the figure at right, fix the body of the capacitor and apply a tensile weight gradually to each lead wire in the radial direction of the capacitor up to 10N (5N for lead diameter 0.5mm), and keep it for 10±1 s.  Each lead wire should be subjected to 5N (2.5N lead diameter 0.5mm) of weight and bent 90° at 10 point of egress, in one direction, then returned to original position, and bent 90° in the opposite direction at the rate of one bend in 2 to 3 s.				
9	Vibration resistance	Appearance Capacitance D.F.	No marked defect.  Within specified tolerance.  Char. B,E: 2.5% max.  Char. F: 5.0% max.		range of about a to 55Hz	ting lead vor of 10 to 55 a 1min rate z and back	Hz, 1.5mm of vibration of to 10Hz.	brated at a n in total a on change Apply for	a frequency implitude, with a from 10Hz a total of 6 h;
10	10 Solderability of leads  * "room condition" Temperature: 15 to 3		direction over 3 circumferential	oated on the axial /4 of the direction.	molten solder for 2±0.5 s. In both cases the de dipping is up to about 1.5 to 2mm from the root lead wires.  Temp. of solder:  245±5°C Lead Free Solder (Sn-3Ag-0.5Cu) 235±5°C H63 Eutectic Solder			hen into ses the depth of m the root of	

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

			Reference only	
No.	Item	1	Specification	Test method
11	Soldering effect	Appearance	No marked defect.	The lead wire should be immersed into the melted
	(Non-preheat)	Capacitance	Char. B: Within ± 5%	solder of 350±10°C ( Body of φ5 and under:
		change	Char. E: Within ± 15%	270±5°C) up to about 1.5 to 2.0mm from the
			Char. F: Within ± 20%	main body for 3.5±0.5 s. ( Body of φ5 and under:
		Dielectric	Per item 3.	5±0.5 s.)
		strength		Pre-treatment: Capacitor should be stored at
		(Between lead wires)		85±2°C for 1 h, then placed at
		lead wires)		* room condition for 24±2 h
				before initial measurements.
				Post-treatment : Capacitor should be stored for
12	Soldering effect	Appearance	No marked defect.	4 to 24 h at * room condition.  First the capacitor should be stored at
12	(On-preheat)	Capacitance	Char. B: Within ± 5%	120+0/-5°C for 60+0/-5 s.
	(on pronout)	change	Char. E: Within ± 15%	Then, as in figure, the lead wires should be
		3.19	Char. F: Within ± 20%	immersed solder of 260+0/-5°C up to 1.5 to
		Dielectric	Per item 3.	2.0mm from the root of terminal for 7.5+0/-1 s.
		strength	l or norm or	
		(Between		Thermal Capacitor
		lead wires)		1.5
				10 2.0mm
				Molten solder
				zoidet.
				Pre-treatment: Capacitor should be stored at
				85±2°C for 1 h, then placed at
				* room condition for 24±2 h
				before initial measurements.
				Post-treatment: Capacitor should be stored for
				4 to 24 h at * room condition.
13	Humidity	Appearance	No marked defect.	Set the capacitor for 500 +24/-0 h at 40±2°C in
	(Under steady	Capacitance	Char. B: Within ±10%	90 to 95% relative humidity.
	state)	change	Char. E: Within ±20%	Pre-treatment : Capacitor should be stored at
			Char. F: Within ±30%	85±2°C for 1 h, then placed at
		D.F.	Char. B,E : 5.0% max.	* room condition for 24±2 h
		I.R.	Char. F : 7.5% max.	before initial measurements.  Post-treatment: Capacitor should be stored for 1
		I.K.	1 000MΩ min.	to 2 h at * room condition.
14	Humidity loading	Appearance	No marked defect.	Apply the rated voltage for 500 +24/-0 h at
	3	Capacitance	Char. B: Within ±10%	40±2°C in 90 to 95% relative humidity.
		change	Char. E: Within ±20%	(Charge/Discharge current≤50mA.)
			Char. F: Within ±30%	Pre-treatment : Capacitor should be stored at
		D.F.	Char. B,E : 5.0% max.	85±2°C for 1 h, then placed at
			Char. F : 7.5% max.	* room condition for 24±2 h
		I.R.	500M $Ω$ min.	before initial measurements.
				Post-treatment : Capacitor should be stored at
				85±2°C for 1 h, then placed at
4-	1.4	1		* room condition for 24±2 h.
15	Life	Appearance	No marked defect.	Apply a DC voltage of 150% of the rated voltage
		Capacitance	Char. B: Within ±10%	for 1000 +48/-0 h at 85±2°C, and relative
		change	Char. E: Within ±20%	humidity of 50% max
		D.F.	Char. F : Within ±30%	(Charge/Discharge current≤50mA.)  Pre-treatment : Capacitor should be stored at
		D.F.	Char. B,E: 4.0% max. Char. F: 7.5% max.	85±2°C for 1 h, then placed at
		LD		* room condition for 24±2 h
		I.R.	2000MΩ min.	before initial measurements.
				Post-treatment : Capacitor should be stored at
				85±2°C for 1 h, then placed at
				* room condition for 24±2 h.
* !	room condition" Tem	perature: 15 to 3	5°C, Relative humidity: 45 to 75%, At	
	TOOTH CONDITION TEN	iperature. 15 to 3	55 C, Nelative humbility. 45 to 75%, At	unospheno pressure. Oo to TookFa

			recipied of the					
No.	Item		Specification		Test method			
16 Te	emperature and	Appearance	No marked defect.		The capacitor should be subjected to			
In	mmersion cycle	Capacitance	Char. B: Within ±10% 5 temper		5 temperature cycles, then consecutively to			
		change	Char. E: Within ±20%		2 immersion cycles.			
			Char. F: Within ±30%	<	<temperature cycle=""></temperature>			
	-	D.F.	Char. B,E: 4.0% max.		Step	Temperature(°C	C) Tin	ne
			Char. F : 7.5% max.		1	-25±3	30 r	min
		I.R.	2000M $Ω$ min.		2	Room Temp.	3 n	
		Dielectric	Per item 3.		3	+85±3	ı 06	
		strength			4	Room Temp.	3 n	nin
		(Between					Сус	le time : 5 cycle
		lead wires)		<	<li><li>Immersion cycle&gt;</li></li>			
				S	Step -	Temperature(°C)	Time	Immersion water
					1	+65+5/-0	15 min	Clean water
					2	0±3	15 min	Salt water
			Cycle time: 2 cycle Pre-treatment: Capacitor should be stored at 85±2°C for 1 h, then placed at * room condition for 24±2 h before initial measurements. Post-treatment: Capacitor should be stored for 4 to 24 h at * room condition.					
* "room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa								

## 6.Packing specification

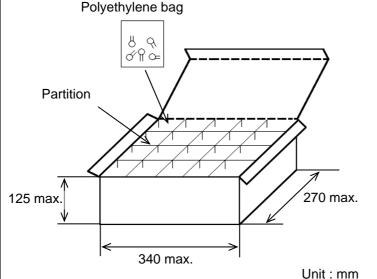
•Bulk type (Packing style code : B)

The number of packing =  $^{*1}$  Packing quantity  $^{*2}$  n

The size of packing case and packing way

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

\*2 : Standard n = 20 (bag)

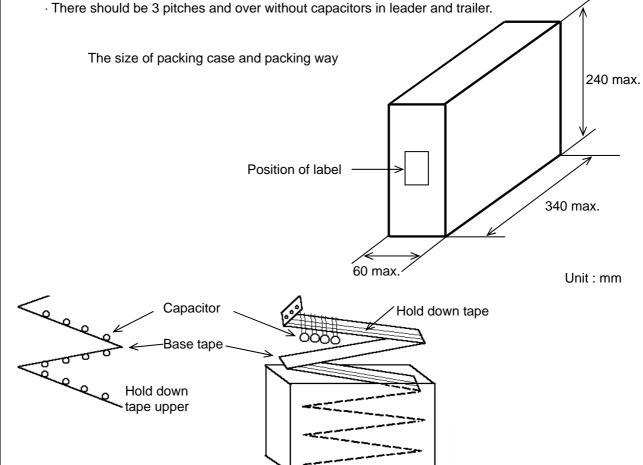


Note)

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

•Ammo pack taping type (Packing style code : A)

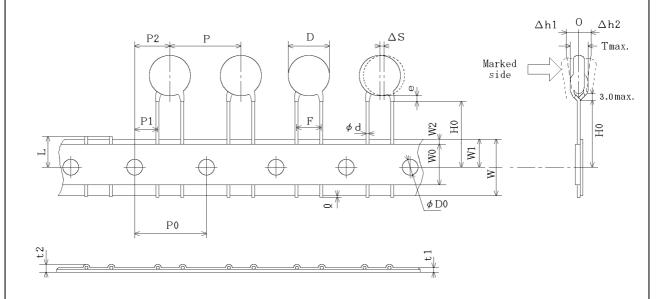
- · The tape with capacitors is packed zigzag into a case.
- $\cdot$  When body of the capacitor is piled on other body under it.



## 7. Taping specification

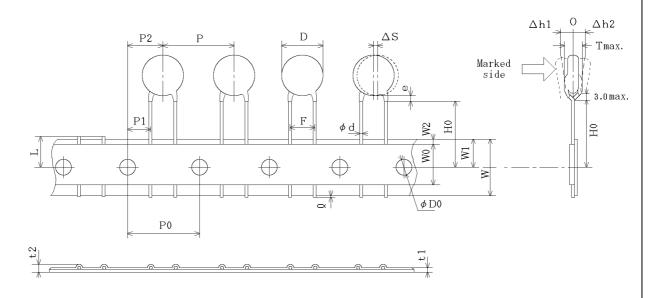
## 7-1. Dimension of capacitors on tape

Vertical crimp taping type < Lead code : N2 > Pitch of component 12.7mm / Lead spacing 5.0mm



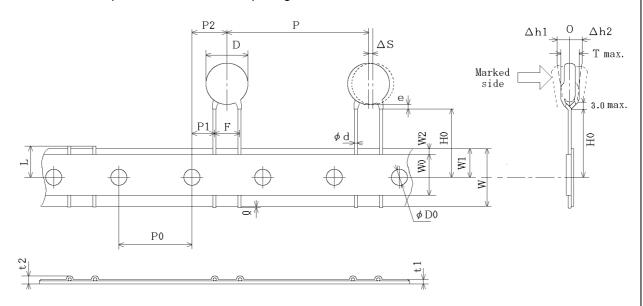
Item		Dimensions	Remarks	
Pitch of component		12.7±1.0		
Pitch of sprocket hole		12.7±0.3		
Lead spacing		$5.0\pm^{0.8}_{0.2}$		
Length from hole center to component center		6.35±1.3		
Length from hole center to lead	P1	3.85±0.7	Deviation of progress direction	
Body diameter		Please refer to [Part number list ].		
Deviation along tape, left or right	ΔS	0±1.0	They include deviation by lead bend .	
Carrier tape width	W	18.0±0.5		
Position of sprocket hole	W1	9.0±0.5	Deviation of tape width direction	
Lead distance between reference and bottom planes	Н0	18.0±2.0		
Protrusion length	Q	+0.5~-1.0		
Diameter of sprocket hole	φ <b>D</b> 0	4.0±0.1		
Lead diameter	φd	0.60±0.05		
Total tape thickness	t1	0.6±0.3	l	
Total thickness, tape and lead wire	t2	1.5 max.	They include hold down tape thickness.	
Deviation across tape, front	∆h1	4.0		
Deviation across tape, rear	∆h2	1.0 max.		
Portion to cut in case of defect	L	11.0± <sup>0</sup> <sub>1.0</sub>		
Hold down tape width	W0	11.5 min.		
Hold down tape position	W2	1.5±1.5		
Coating extension on lead	е	Up to the end of crimp		
Body thickness	Т	Please refer to [Part number list ].		

Vertical crimp taping type < Lead code : N3 > Pitch of component 15.0mm / Lead spacing 7.5mm



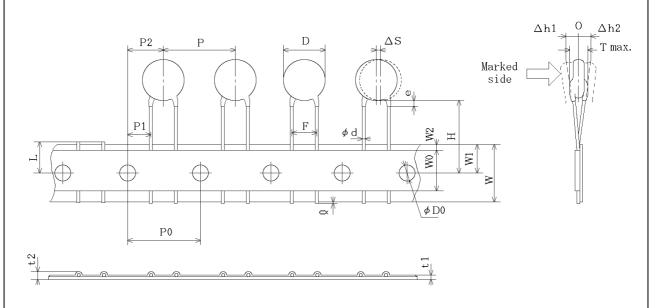
Item	Code	Dimensions	Remarks	
Pitch of component	Р	15.0±2.0		
Pitch of sprocket hole	P0	15.0±0.3		
Lead spacing	F	7.5±1.0		
Length from hole center to component center		7.5±1.5	Dovinting of programs direction	
Length from hole center to lead	P1	3.75±1.0	Deviation of progress direction	
Body diameter	D	Please refer to [ Part number list ].		
Deviation along tape, left or right	ΔS	0±2.0	They include deviation by lead bend .	
Carrier tape width	W	18.0±0.5		
Position of sprocket hole	W1	9.0±0.5	Deviation of tape width direction	
Lead distance between reference and bottom planes	H0	18.0±2.0		
Protrusion length	Q	+0.5~-1.0		
Diameter of sprocket hole	φ <b>D</b> 0	4.0±0.1		
Lead diameter	φd	0.60±0.05		
Total tape thickness	t1	0.6±0.3		
Total thickness, tape and lead wire	t2	1.5 max.	They include hold down tape thickness.	
Deviation across tape, front	∆h1	2.0 max.		
Deviation across tape, rear	∆h2			
Portion to cut in case of defect	L	11.0± <sup>0</sup> <sub>1.0</sub>		
Hold down tape width	W0	11.5 min.		
Hold down tape position	W2	1.5±1.5		
Coating extension on lead	е	Up to the end of crimp		
Body thickness	Т	Please refer to [ Part number list ].		

Vertical crimp taping type < Lead code : N7 > Pitch of component 30.0mm /Lead spacing 7.5mm



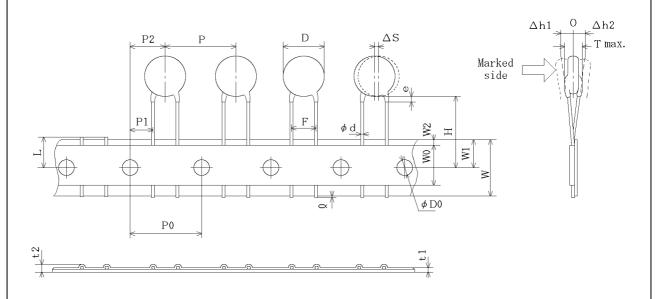
Item		Dimensions	Remarks	
Pitch of component		30.0±2.0		
Pitch of sprocket hole		15.0±0.3		
Lead spacing		7.5±1.0		
Length from hole center to component center		7.5±1.5		
Length from hole center to lead		3.75±1.0	Deviation of progress direction	
Body diameter		Please refer to [Part number list].		
Deviation along tape, left or right	ΔS	0±2.0	They include deviation by lead bend.	
Carrier tape width	W	18.0±0.5		
Position of sprocket hole	W1	9.0±0.5	Deviation of tape width direction	
Lead distance between reference and bottom planes	НО	18.0± <sup>2.0</sup>		
Protrusion length	Q	+0.5~-1.0		
Diameter of sprocket hole	φD0	4.0±0.1		
Lead diameter	φd	0.60±0.05		
Total tape thickness	t1	0.6±0.3		
Total thickness, tape and lead wire	t2	1.5 max.	They include hold down tape thickness.	
Deviation across tape, front	∆h1	2.0		
Deviation across tape, rear	∆h2	2.0 max.		
Portion to cut in case of defect	L	11.0±0 1.0		
Hold down tape width	W0	11.5 min.		
Hold down tape position	W2	1.5±1.5		
Coating extension on lead	е	Up to the end of crimp		
Body thickness	Т	Please refer to [ Part number list ].		

# Straight taping type < Lead code: P2 > Pitch of component 12.7mm / Lead spacing 5.0mm



Item		Dimensions	Remarks
Pitch of component	Р	12.7±1.0	
Pitch of sprocket hole		12.7±0.3	
Lead spacing		$5.0\pm^{0.8}_{0.2}$	
Length from hole center to component center		6.35±1.3	Deviation of annual discretion
Length from hole center to lead	P1	3.85±0.7	Deviation of progress direction
Body diameter		Please refer to [ Part number list ].	
Deviation along tape, left or right	ΔS	0±1.0	They include deviation by lead bend .
Carrier tape width	W	18.0±0.5	
Position of sprocket hole	W1	9.0±0.5	Deviation of tape width direction
Lead distance between reference and bottom planes	Н	20.0±1.5	
Protrusion length	Q	+0.5~-1.0	
Diameter of sprocket hole	φ <b>D</b> 0	4.0±0.1	
Lead diameter	φd	0.60±0.05	
Total tape thickness	t1	0.6±0.3	
Total thickness, tape and lead wire	t2	1.5 max.	They include hold down tape thickness.
Deviation across tape, front	∆h1	1.0 max.	
Deviation across tape, rear	∆h2		
Portion to cut in case of defect	L	11.0± <sup>0</sup> 1.0	
Hold down tape width	W0	11.5 min.	
Hold down tape position	W2	1.5±1.5	
Coating extension on lead	е	3.0 max.	
Body thickness	Т	Please refer to [ F	Part number list ].

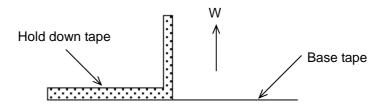
Straight taping type < Lead code : P3 > Pitch of component 15.0mm / Lead spacing 7.5mm



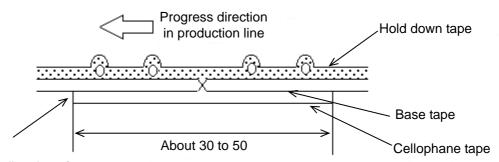
Item		Dimensions	Remarks
Pitch of component		15.0±2.0	
Pitch of sprocket hole		15.0±0.3	
Lead spacing		7.5±1.0	
Length from hole center to component center		7.5±1.5	
Length from hole center to lead		3.75±1.0	Deviation of progress direction
Body diameter		Please refer to [ Part number list ].	
Deviation along tape, left or right	ΔS	0±2.0	They include deviation by lead bend .
Carrier tape width	W	18.0±0.5	
Position of sprocket hole	W1	9.0±0.5	Deviation of tape width direction
Lead distance between reference and bottom planes	Н	20.0±1.5 1.0	
Protrusion length	Q	+0.5~-1.0	
Diameter of sprocket hole	φ <b>D</b> 0	4.0±0.1	
Lead diameter	φd	0.60±0.05	
Total tape thickness	t1	0.6±0.3	
Total thickness, tape and lead wire	t2	1.5 max.	They include hold down tape thickness.
Deviation across tape, front	∆h1	0.0	
Deviation across tape, rear	∆h2	2.0 max.	
Portion to cut in case of defect	L	11.0± <sup>0</sup> <sub>1.0</sub>	
Hold down tape width	W0	11.5 min.	
Hold down tape position	W2	1.5±1.5	
Coating extension on lead	е	3.0 max.	
Body thickness	Т	Please refer to [	Part number list ].

## 7-2. Splicing way of tape

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



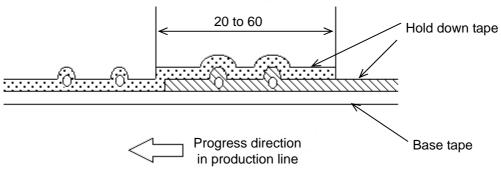
- 2) Splicing of tape
  - a) When base tape is spliced
    - •Base tape should be spliced by cellophane tape. (Total tape thickness should be less than 1.05mm.)



No lifting for the direction of progressing

Unit: mm

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



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

## **EU RoHS**

This products of the following crresponds to EU RoHS.

## **RoHS**

maximum concentration values tolerated by weight in homogeneous materials

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