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JAXA-QTS-2040/C103B

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Superseding

JAXA-QTS-2040/C103A

Cancelled

15 November 2022

CAPACITORS, CHIP, MULTIPLE LAYER,
FIXED, CERAMIC DIELECTRIC,
(TYPE CDS),
HIGH RELIABILITY, SPACE USE,
DETAIL SPECIFICATION FOR

Prepared and Established by Fukui Murata Manufacturing Co., Ltd.

Issued by Japan Aerospace Exploration Agency

This specification was originally written and established in the Japanese language. This specification has been translated into English for international users. Note that this document is a working document for international users and is not subject to configuration control by JAXA. Any discrepancies found in this document should be verified against the latest Japanese document before any significant decisions are made.

The release date of the English version of this specification: June 14, 2023

Revision Record

Rev.	Date	Revised Contents
NC	21 Dec. 2004	This is the original version. Inspections conducted in the manufacturing process for QPL products were added as in-process inspection items. Humidity, steady state, low voltage test is applicable only to the capacitors with nominal electrode thickness not greater than 30μm.
A	6 Oct. 2005	Revised to reflect the changes from JAXA-QTS-2040 to JAXA-QTS-2040A. 1. Renumbered section/paragraph numbers to match those in JAXA-QTS-2040.
B	15 Nov. 2022	· Cover page: Changed corporate name (Applied only in Japanese). · Paragraph 4.5 Change to tests and inspections: Added paragraph 4.5.1 Resistance to solvents due to addition of paragraph 4.5.2 Random vibration and shock. · Paragraph 4.5 Change to tests and inspections: Added paragraph 4.5.2 Random vibration and shock to state that random vibration and shock are deleted and the group/order numbers of the tests are unassigned and the sample sizes of group I and group II in Table C-7 are changed because (1) these tests are applicable to lead type, not surface mount type in accordance with MIL-PRF-123, MIL-PRF-32535, and MIL-PRF-55681 and (2) the structure and mounting form of the surface mount type are less susceptible to stress concentration than the lead type. · Paragraph 4.5 Change to tests and inspections: Added paragraph 4.5.3 Solder to state that silver content of tin/lead/silver solder shall be 3wt% or less because 3wt% silver containing solder is difficult to obtain. Added the description of Tin-lead solder (Sn/Pb) of 60/40 and 63/37 in line with Appendixes L and M of JAXA-QTS-2040. · Table C-4. Parts list: Added footnote ⁽³⁾ to specify the part number of products which are scheduled to be discontinued.

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**CAPACITORS, CHIP, MUTIPLE LAYER,
FIXED, CERAMIC DIELECTRIC, (TYPE CDS),
HIGH RELIABILITY, SPACE USE,
DETAIL SPECIFICATION FOR**

1. GENERAL

1.1 Scope

This specification establishes the detail requirements for types CDS50, CDS51, CDS52, CDS53, CDS54 and CDS56 of space use, high reliability, ceramic dielectric fixed capacitors that satisfied JAXA-2040, Capacitors, Fixed, High Reliability, Space use, General Specification for (Appendix C).

1.2 Part Number

The part number shall consist of style, characteristic, nominal capacitance, rated voltage, capacitance tolerance and terminal finish as indicated as shown below.

(Example)

NASDA ⁽¹⁾	<u>CDS51</u>	<u>BX</u>	<u>392</u>	<u>A</u>	<u>K</u>	<u>S</u>
	Style	Characteristic	Nominal Capacitance	Rated voltage	Capacitance tolerance	Terminal finish
	(C.1.3.1)	(C.1.3.2)	(C.1.3.3)	(C.1.3.4)	(C.1.3.5)	(C.1.3.6)

Note: ⁽¹⁾ "NASDA" indicates the part is for space use and may be abbreviated "N".

Table C-1. Part Number

Item	Applicable paragraph of JAXA-QTS-2040	Description
Part number	C.1.3	Example: NASDA CDS51 BX 392 A K S
Style	C.1.3.1	CDS51 ⁽¹⁾
Characteristic	C.1.3.2	BX
Nominal capacitance	C.1.3.3	392 (3,900pF)
Rated voltage	C.1.3.4	A
Capacitance tolerance	C.1.3.5	K (±10%)
Terminal finish	C.1.3.6	S

Note: ⁽¹⁾ Indicates "rectangular, electrodes in both directions" (See Figure C-1.).

1.3 Rating

Ratings shall be as specified in Table C-2.

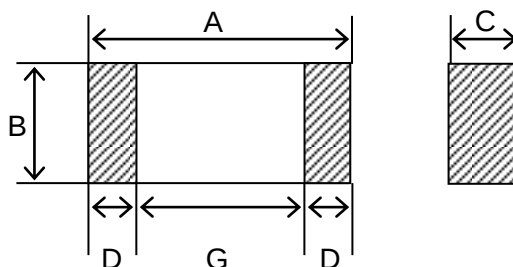
Table C-2. Rating

Item	Description					
	CDS50	CDS51	CDS52	CDS53	CDS54	CDS56
Nominal capacitance (pF)	0.5 to 3,300	0.5 to 18,000	200 to 47,000	300 to 150,000	1,100 to 220,000	3,600 to 680,000
Characteristic	BP, BX, R	BP, BX, R	BP, BX, R	BP, BX, R	BP, BX, R	BP, BX, R
Rated voltage (V)	50, 100	50, 100	50, 100	50, 100	50, 100	50, 100
Operating temperature range (°C)	-55 to +125	-55 to +125	-55 to +125	-55 to +125	-55 to +125	-55 to +125
Capacitance tolerance	C, D, F, J, K, M	C, D, F, J, K, M	J, K, M	J, K, M	J, K, M	J, K, M

Note: See Table C-4 for details.

1.4 Other Requirements

1.4.1 Externals and Dimensions

**Figure C-1. Externals****Table C-3. Dimensions**

(Unit: mm)

Symbol Style	A		B		C		D		G
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
CDS50	2.00	1.40	1.20	0.60	1.20	0.30	0.70	0.20	0.5min.
CDS51	2.41	1.65	1.65	0.89	1.40	0.51	0.76	0.26	0.7min.
CDS52	4.95	4.19	1.65	0.89	1.40	0.51	1.52	0.51	2.0min.
CDS53	4.95	4.19	2.41	1.65	2.03	0.51	1.52	0.51	1.0min.
CDS54	4.95	4.19	3.56	2.80	2.03	0.51	1.52	0.51	1.0min.
CDS56	6.23	5.34	6.86	5.97	2.03	0.51	1.52	0.51	2.0min.

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No.JMCG0-0021-R 2. APPLICABLE DOCUMENTS 2.1 Applicable Documents Refer to paragraph C.2.1 of JAXA-QTS-2040, Appendix C for applicable documents. 2.2 Reference Documents Refer to paragraph C.2.2 of JAXA-QTS-2040, Appendix C for reference documents. 3. REQUIREMENTS Requirements for capacitors shall be as specified in paragraph C.3 of JAXA-QTS-2040, Appendix C. 3.1 Performance Performance requirements shall be as specified in Table C-5.			

Table C-5. Performance Requirements

Item		Requirement paragraph of JAXA-QTS-2040	Performance
Materials	Dielectric	C.3.2	Barium titanate (for BX and R characteristics) or titanium oxide (for BP characteristic) based materials fired at a high-temperature. Dielectric constant shall be 30 to 3,500.
	Internal electrode	C.3.2	Palladium or silver-palladium
	External electrode	C.3.2.1	Silver-palladium, gold, or solder
Construction		C.3.2.2	As specified in Appendix C of JAXA-QTS-2040.
Non-destructive internal inspection		C.3.3	Ultrasonic test equipment shall be used.
Externals and marking		C.3.4.1	There shall be no cracks or corrosion on the capacitor surface. Marking is not applicable.
Dimension and mass		C.3.4.2	Dimensions shall be as specified in Figure C-1 and Table C-3. Mass shall be as specified in Table C-4.
DPA		C.3.5.1	The following items shall be examined to satisfy paragraph C.3.4 of JAXA-QTS-2040, Appendix C. (1) Inner constructions and major dimensions (2) Craze or hole on the capacitor element (3) Separation of the internal electrode and ceramic element
Electrical performance		C.3.7	As specified in Appendix C of JAXA-QTS-2040.
Mechanical performance		C.3.8	As specified in Appendix C of JAXA-QTS-2040.
Environmental performance		C.3.9	As specified in Appendix C of JAXA-QTS-2040. (However, Resistance to solvents, random vibration, and shock are not applied.)
Durability performance		C.3.10	As specified in Appendix C of JAXA-QTS-2040.

4. QUALITY ASSURANCE PROVISIONS

Quality assurance provisions shall be as specified in Section C.4 of JAXA-QTS-2040, Appendix C.

4.1 In-Process Inspection

The in-process inspection shall be as specified in paragraph C.4.1 of JAXA-QTS-2040, Appendix C and Table C-6 of this specification.

Table C-6. In-Process Inspection

Inspection item	Requirement paragraph	Test method paragraph	Quantity of samples
Non-destructive internal inspection	C.3.3	C.4.4.4	100 %
Externals	C.3.4.1	C.4.4.5	100 %
Capacitance	C.3.7.1	C.4.4.7.1	100 %
Dissipation factor	C.3.7.2	C.4.4.7.2	100 %
Dielectric withstanding voltage	C.3.7.4	C.4.4.7.4	100 %
Insulation resistance	C.3.7.3	C.4.4.7.3	100 %

4.2 Qualification Test

The qualification test shall be as specified in paragraph C.4.2 of JAXA-QTS-2040, Appendix C and Table C-7 of this specification.

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Table C-7. Qualification Test										
Group	Test order	Test item		Requirement paragraph of JAXA-QTS-2040	Test method paragraph of JAXA-QTS-2040	Pass/fail				
						Quantity of samples per terminal finish ⁽¹⁾				Quantity of allowable defects
						S	Q	M	Z	
I	1	Externals, dimensions, mass and marking ⁽²⁾		C.3.4	C.4.4.5	303	46	69	69	0
II	1	Thermal shock and voltage aging		C.3.9.4	C.4.4.9.4	303	46	69	69	0
	2	Dielectric withstanding voltage ⁽³⁾		C.3.7.4	C.4.4.7.4					
	3	Insulation resistance (at high temperature)		C.3.7.3	C.4.4.7.3					
	4	Capacitance		C.3.7.1	C.4.4.7.1					
	5	Dissipation factor		C.3.7.2	C.4.4.7.2					
	6	Insulation resistance		C.3.7.3	C.4.4.7.3					
	7	Dielectric withstanding voltage ⁽⁴⁾		C.3.7.4	C.4.4.7.4					
III	1	Solderability		C.3.8.3	C.4.4.8.3	6	N/A	6	6	0
	2	Barometric pressure (reduced)		C.3.9.8	C.4.4.9.8	6	–	–	–	0
	3	Resistance to solvents		C.3.9.9	C.4.4.9.9	6	–	–	–	0
IV	1	Voltage-temperature characteristics		C.3.7.5	C.4.4.7.5	18	18	18	18	0
	2	Thermal shock and immersion cycling		C.3.9.5	C.4.4.9.5					
V	1	Resistance to soldering heat		C.3.8.4	C.4.4.8.4	9	N/A	9	9	0
	2	Moisture resistance		C.3.9.6	C.4.4.9.6	9	–	–	–	
VI	1	Life	Rated condition	C.3.10.1	C.4.4.10.1	159	–	–	–	0
	2		Accelerated condition	C.3.10.1	C.4.4.10.1	52	–	–	–	0
VII	1	Connection strength of terminal electrode		C.3.8.1	C.4.4.8.1	18	N/A	18	18	0
VIII	1	(Deleted)		–	–	–	–	–	–	–
	2	(Deleted)		–	–	–	–	–	–	–
	3	Thermal shock (I)		C.3.9.3	C.4.4.9.3	18	18	18	18	0
IX	1	Bond strength		C.3.8.2	C.4.4.8.2	N/A	10	N/A	N/A	0
X	1	DPA		C.3.5.1	C.4.4.6.1	2	–	–	–	0
–	1	Material		C.3.2	N/A	⁽⁵⁾				N/A

Notes:
(1) The tests indicating “–” in the quantity of samples column may be exempted when they have been performed with other terminal finish. If not, the tests shall be conducted with the sample size specified in terminal finish S. Groups I and II tests shall be performed for all terminal finishes.
(2) For dimensions and mass, pass/fail may be judged by 1.0% of acceptance quality level (AQL) based on a single sampling plan for normal inspection, specified in JIS Z 9015-1, Attachment Table 2-A.
(3) Applicable to BX, R and U characteristics.
(4) Applicable to BP characteristic.
(5) Documents shall be submitted to prove that the samples satisfy the design specification.

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4.3 Quality Conformance Inspection						
The quality conformance inspections shall be as specified in paragraph C.4.3 of JAXA-QTS-2040, Appendix C and Tables C-8 through C-10 of this specification.						
Table C-8. Quality Conformance Inspection (Group A)						
Subgroup	Test order	Inspection item	Requirement paragraph of JAXA-QTS-2040	Test method paragraph of JAXA-QTS-2040	Pass/fail	
					Quantity of samples	Quantity of allowable defects
A1	1	Externals, dimensions, mass and marking	C.3.4	C.4.4.5	100 %	0 ⁽¹⁾
A2	1	Thermal shock and voltage aging	C.3.9.4	C.4.4.9.4	100 %	0
A3	1	Dielectric withstanding voltage	C.3.7.4	C.4.4.7.4	100 %	0
	2	Insulation resistance (at high temperature)	C.3.7.3	C.4.4.7.3		
	3	Capacitance	C.3.7.1	C.4.4.7.1		
	4	Dissipation factor	C.3.7.2	C.4.4.7.2		
	5	Insulation resistance (standard condition)	C.3.7.3	C.4.4.7.3		
A4 ⁽²⁾	1	DPA	C.3.5.1	C.4.4.6.1	2	0
A5 ⁽²⁾	1	Bond strength	C.3.8.2	C.4.4.8.2	10	0
Notes:						
⁽¹⁾ For dimensions, pass/fail shall be judged by 1.0% of acceptance quality level (AQL) based on a single sampling plan for normal inspection, specified in JIS Z 9015-1, Attachment Table 2-A..						
⁽²⁾ Subgroups A4 and A5 inspections shall be performed after completion of subgroups A1 through A3 inspections						
Table C-9. Quality Conformance Inspection (Group B)						
Subgroup	Test order	Inspection item	Requirement paragraph of JAXA-QTS-2040	Test method paragraph of JAXA-QTS-2040	Pass/fail	
					Quantity of samples	Quantity of allowable defects
B1	1	Solderability	C.3.8.3	C.4.4.8.3	6	0
B2	1	Resistance to soldering heat	C.3.8.4	C.4.4.8.4	18	0
	2	Resistance to solvents	C.3.9.9	C.4.4.9.9	N/A	

Table C-10. Quality Conformance Inspection (Group C)

4.4 Long-Term Storage

Long-term storage shall be as follows and in accordance with paragraphs C.4.5 of JAXA-QTS-2040, Appendix C.

4.4.1 Storage by Purchasers

Capacitors shall not be stored at high temperature and humidity or in an atmosphere polluted by sulfur or chlorine gas, for example. Storage environment shall be an ambient temperature between 5 and 40°C and humidity between 20 and 70%RH. The individual package shall be only opened just prior to use.

Opened capacitors shall be stored under the specified conditions after being appropriately packaged to avoid being adversely affected.

4.5 Change to Tests and Inspections

4.5.1 Resistance to Solvents

The test for Resistance to solvent is not applicable due to no marking on this product.

4.5.2 Random Vibration and Shock

Random vibration and shock are deleted from environmental performance of Table C-5 Performance requirements, Table C-7 Qualification test, and Table C-10 Quality

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No.JMCG0-0021-R conformance inspection (group C). Due to the deletion, the group/order numbers of the tests are unassigned and the sample sizes of group I and II of Table C-7 are changed. 4.5.3 Solder The silver content of tin/lead/silver solder specified in paragraph C.4.4.3 (Mounting of Test Samples), Appendix C of JAXA-QTS-2040 shall be 3wt% or less. Tin-lead (Sn/Pb) solder of 60/40 or 63/37 ratio may be used as alternatives. 5. PREPARATION FOR DELIVERY Preparation for delivery shall be as follows and as specified in Section 5 of JAXA-QTS-2040. 6. NOTES Details of notes shall be as specified in Section 6 of JAXA-QTS-2040.			

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Table C-4. Parts List⁽³⁾

Part number ⁽¹⁾	Rated voltage (VDC)	Characteristic	Nominal capacitance (pF)	Capacitance tolerance ⁽²⁾	Mass (mg) (reference)
CDS50BP0R5B**	100	BP	0.5	C,D	5
CDS50BPR75BC**	100	BP	0.75	C	5
CDS50BP010B**	100	BP	1.0	C,D	5
CDS50BP1R5BC**	100	BP	1.5	C	5
CDS50BP020B**	100	BP	2.0	C,D	5
CDS50BP2R5BC**	100	BP	2.5	C	5
CDS50BP030B**	100	BP	3.0	C,D	5
CDS50BP3R5BC**	100	BP	3.5	C	5
CDS50BP040B**	100	BP	4.0	C,D	5
CDS50BP4R5BC**	100	BP	4.5	C	5
CDS50BP050B**	100	BP	5.0	C,D	5
CDS50BP5R5BC**	100	BP	5.5	C	5
CDS50BP060B**	100	BP	6.0	C,D,F	5
CDS50BP6R5BC**	100	BP	6.5	C	5
CDS50BP070B**	100	BP	7.0	C,D,F	5
CDS50BP7R5BC**	100	BP	7.5	C	5
CDS50BP080B**	100	BP	8.0	C,D,F	5
CDS50BP8R5BC**	100	BP	8.5	C	5
CDS50BP090B**	100	BP	9.0	C,D,F	5
CDS50BP9R5BC**	100	BP	9.5	C	5
CDS50BP100B**	100	BP	10	C,D,F	5
CDS50BP110BJ**	100	BP	11	J	5
CDS50BP120B**	100	BP	12	J,K	5
CDS50BP130BJ**	100	BP	13	J	5
CDS50BP150B**	100	BP	15	J,K	5
CDS50BP160BJ**	100	BP	16	J	5
CDS50BP180B**	100	BP	18	J,K	5
CDS50BP200BJ**	100	BP	20	J	5
CDS50BP220B**	100	BP	22	J,K	5
CDS50BP240BJ**	100	BP	24	J	5
CDS50BP270B**	100	BP	27	J,K	5
CDS50BP300BJ**	100	BP	30	J	5
CDS50BP330B**	100	BP	33	J,K	5
CDS50BP360BJ**	100	BP	36	J	5
CDS50BP390B**	100	BP	39	J,K	5

Table C-4. Parts List⁽³⁾ (Cont.)

Part number ⁽¹⁾	Rated voltage (VDC)	Characteristic	Nominal capacitance (pF)	Capacitance tolerance ⁽²⁾	Mass (mg) (reference)
CDS50BX121BK**	100	BX	120	K	5
CDS50BX151B**	100	BX	150	K,M	5
CDS50BX181BK**	100	BX	180	K	5
CDS50BX221B**	100	BX	220	K,M	5
CDS50BX271BK**	100	BX	270	K	5
CDS50BX331B**	100	BX	330	K,M	5
CDS50BX391BK**	100	BX	390	K	5
CDS50BX471A**	50	BX	470	K,M	5
CDS50BX561AK**	50	BX	560	K	5
CDS50BX681A**	50	BX	680	K,M	5
CDS50BX821AK**	50	BX	820	K	5
CDS50BX102A**	50	BX	1,000	K,M	5
CDS50BX122AK**	50	BX	1,200	K	5
CDS50R121BK**	100	R	120	K	5
CDS50R151B**	100	R	150	K,M	5
CDS50R181BK**	100	R	180	K	5
CDS50R221B**	100	R	220	K,M	5
CDS50R271BK**	100	R	270	K	5
CDS50R331B**	100	R	330	K,M	5
CDS50R391BK**	100	R	390	K	5
CDS50R471B**	100	R	470	K,M	5
CDS50R561BK**	100	R	560	K	5
CDS50R681B**	100	R	680	K,M	5
CDS50R821BK**	100	R	820	K	5
CDS50R102A**	50	R	1,000	K,M	5
CDS50R122AK**	50	R	1,200	K	5
CDS50R152A**	50	R	1,500	K,M	5
CDS50R182AK**	50	R	1,800	K	5
CDS50R222A**	50	R	2,200	K,M	5
CDS50R272AK**	50	R	2,700	K	5
CDS50R332A**	50	R	3,300	K,M	5

Table C-4. Parts List⁽³⁾ (Cont.)

Part number ⁽¹⁾	Rated voltage (VDC)	Characteristic	Nominal capacitance (pF)	Capacitance tolerance ⁽²⁾	Mass (mg) (reference)
CDS51BP0R5B**	100	BP	0.5	C,D	18
CDS51BPR75BC**	100	BP	0.75	C	18
CDS51BP010B**	100	BP	1.0	C,D	18
CDS51BP1R5BC**	100	BP	1.5	C	18
CDS51BP020B**	100	BP	2.0	C,D	18
CDS51BP2R5BC**	100	BP	2.5	C	18
CDS51BP030B**	100	BP	3.0	C,D	18
CDS51BP3R5BC**	100	BP	3.5	C	18
CDS51BP040B**	100	BP	4.0	C,D	18
CDS51BP4R5BC**	100	BP	4.5	C	18
CDS51BP050B**	100	BP	5.0	C,D	18
CDS51BP5R5BC**	100	BP	5.5	C	18
CDS51BP060B**	100	BP	6.0	C,D,F	18
CDS51BP6R5BC**	100	BP	6.5	C	18
CDS51BP070B**	100	BP	7.0	C,D,F	18
CDS51BP7R5BC**	100	BP	7.5	C	18
CDS51BP080B**	100	BP	8.0	C,D,F	18
CDS51BP8R5BC**	100	BP	8.5	C	18
CDS51BP090B**	100	BP	9.0	C,D,F	18
CDS51BP9R5BC**	100	BP	9.5	C	18
CDS51BP100B**	100	BP	10	C,D,F	18
CDS51BP110BJ**	100	BP	11	J	18
CDS51BP120B**	100	BP	12	J,K	18
CDS51BP130BJ**	100	BP	13	J	18
CDS51BP150B**	100	BP	15	J,K	18
CDS51BP160BJ**	100	BP	16	J	18
CDS51BP180B**	100	BP	18	J,K	18
CDS51BP200BJ**	100	BP	20	J	18
CDS51BP220B**	100	BP	22	J,K	18
CDS51BP240BJ**	100	BP	24	J	18
CDS51BP270B**	100	BP	27	J,K	18
CDS51BP300BJ**	100	BP	30	J	18
CDS51BP330B**	100	BP	33	J,K	18
CDS51BP360BJ**	100	BP	36	J	18
CDS51BP390B**	100	BP	39	J,K	18

Table C-4. Parts List⁽³⁾ (Cont.)

Part number ⁽¹⁾	Rated voltage (VDC)	Characteristic	Nominal capacitance (pF)	Capacitance tolerance ⁽²⁾	Mass (mg) (reference)
CDS51BP430BJ**	100	BP	43	J	18
CDS51BP470B**	100	BP	47	J,K	18
CDS51BP510BJ**	100	BP	51	J	18
CDS51BP560B**	100	BP	56	J,K	18
CDS51BP620BJ**	100	BP	62	J	18
CDS51BP680B**	100	BP	68	J,K	18
CDS51BP750BJ**	100	BP	75	J	18
CDS51BP820B**	100	BP	82	J,K	18
CDS51BP910BJ**	100	BP	91	J	18
CDS51BP101B**	100	BP	100	J,K	18
CDS51BP111BJ**	100	BP	110	J	18
CDS51BP121B**	100	BP	120	J,K	18
CDS51BP131BJ**	100	BP	130	J	18
CDS51BP151B**	100	BP	150	J,K	18
CDS51BP161BJ**	100	BP	160	J	18
CDS51BP181B**	100	BP	180	J,K	18
CDS51BX121BK**	100	BX	120	K	18
CDS51BX151B**	100	BX	150	K,M	18
CDS51BX181BK**	100	BX	180	K	18
CDS51BX221B**	100	BX	220	K,M	18
CDS51BX271BK**	100	BX	270	K	18
CDS51BX331B**	100	BX	330	K,M	18
CDS51BX391BK**	100	BX	390	K	18
CDS51BX471B**	100	BX	470	K,M	18
CDS51BX561BK**	100	BX	560	K	18
CDS51BX681B**	100	BX	680	K,M	18
CDS51BX821BK**	100	BX	820	K	18
CDS51BX102B**	100	BX	1,000	K,M	18
CDS51BX122BK**	100	BX	1,200	K	18
CDS51BX152B**	100	BX	1,500	K,M	18
CDS51BX182BK**	100	BX	1,800	K	18
CDS51BX222B**	100	BX	2,200	K,M	18
CDS51BX272BK**	100	BX	2,700	K	18
CDS51BX332B**	100	BX	3,300	K,M	18
CDS51BX392AK**	50	BX	3,900	K	18
CDS51BX472A**	50	BX	4,700	K,M	18

Table C-4. Parts List⁽³⁾ (Cont.)

Part number ⁽¹⁾	Rated voltage (VDC)	Characteristic	Nominal capacitance (pF)	Capacitance tolerance ⁽²⁾	Mass (mg) (reference)
CDS51R121BK**	100	R	120	K	18
CDS51R151B**	100	R	150	K,M	18
CDS51R181BK**	100	R	180	K	18
CDS51R221B**	100	R	220	K,M	18
CDS51R271BK**	100	R	270	K	18
CDS51R331B**	100	R	330	K,M	18
CDS51R391BK**	100	R	390	K	18
CDS51R471B**	100	R	470	K,M	18
CDS51R561BK**	100	R	560	K	18
CDS51R681B**	100	R	680	K,M	18
CDS51R821BK**	100	R	820	K	18
CDS51R102B**	100	R	1,000	K,M	18
CDS51R122BK**	100	R	1,200	K	18
CDS51R152B**	100	R	1,500	K,M	18
CDS51R182BK**	100	R	1,800	K	18
CDS51R222B**	100	R	2,200	K,M	18
CDS51R272BK**	100	R	2,700	K	18
CDS51R332B**	100	R	3,300	K,M	18
CDS51R392BK**	100	R	3,900	K	18
CDS51R472B**	100	R	4,700	K,M	18
CDS51R562BK**	100	R	5,600	K	18
CDS51R682A**	50	R	6,800	K,M	18
CDS51R822AK**	50	R	8,200	K	18
CDS51R103A**	50	R	10,000	K,M	18
CDS51R123AK**	50	R	12,000	K	18
CDS51R153A**	50	R	15,000	K,M	18
CDS51R183AK**	50	R	18,000	K	18
CDS52BP201BJ**	100	BP	200	J	36
CDS52BP221B**	100	BP	220	J,K	36
CDS52BP241BJ**	100	BP	240	J	36
CDS52BP271B**	100	BP	270	J,K	36
CDS52BX392BK**	100	BX	3,900	K	36
CDS52BX472B**	100	BX	4,700	K,M	36
CDS52BX562BK**	100	BX	5,600	K	36
CDS52BX682B**	100	BX	6,800	K,M	36

Table C-4. Parts List⁽³⁾ (Cont.)

Part number ⁽¹⁾	Rated voltage (VDC)	Characteristic	Nominal capacitance (pF)	Capacitance tolerance ⁽²⁾	Mass (mg) (reference)
CDS52BX822BK**	100	BX	8,200	K	36
CDS52BX103B**	100	BX	10,000	K,M	36
CDS52BX123AK**	50	BX	12,000	K	36
CDS52BX153A**	50	BX	15,000	K,M	36
CDS52BX183AK**	50	BX	18,000	K	36
CDS52BX223A**	50	BX	22,000	K,M	36
CDS52R682B**	100	R	6,800	K,M	36
CDS52R822BK**	100	R	8,200	K	36
CDS52R103B**	100	R	10,000	K,M	36
CDS52R123BK**	100	R	12,000	K	36
CDS52R153B**	100	R	15,000	K,M	36
CDS52R183AK**	50	R	18,000	K	36
CDS52R223A**	50	R	22,000	K,M	36
CDS52R273AK**	50	R	27,000	K	36
CDS52R333A**	50	R	33,000	K,M	36
CDS52R393AK**	50	R	39,000	K	36
CDS52R473A**	50	R	47,000	K,M	36
CDS53BP301BJ**	100	BP	300	J	92
CDS53BP331B**	100	BP	330	J,K	92
CDS53BP361BJ**	100	BP	360	J	92
CDS53BP391B**	100	BP	390	J,K	92
CDS53BP431BJ**	100	BP	430	J	92
CDS53BP471B**	100	BP	470	J,K	92
CDS53BP511BJ**	100	BP	510	J	92
CDS53BP561B**	100	BP	560	J,K	92
CDS53BP621BJ**	100	BP	620	J	92
CDS53BP681B**	100	BP	680	J,K	92
CDS53BP751BJ**	100	BP	750	J	92
CDS53BP821B**	100	BP	820	J,K	92
CDS53BP911BJ**	100	BP	910	J	92
CDS53BP102B**	100	BP	1,000	J,K	92
CDS53BX123BK**	100	BX	12,000	K,M	92
CDS53BX153B**	100	BX	15,000	K	92
CDS53BX183BK**	100	BX	18,000	K,M	92
CDS53BX223B**	100	BX	22,000	K	92

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Table C-4. Parts List⁽³⁾ (Cont.)

Part number ⁽¹⁾	Rated voltage (VDC)	Characteristic	Nominal capacitance (pF)	Capacitance tolerance ⁽²⁾	Mass (mg) (reference)
CDS53BX273BK**	100	BX	27,000	K	92
CDS53BX333B**	100	BX	33,000	K,M	92
CDS53BX393AK**	50	BX	39,000	K	92
CDS53BX473A**	50	BX	47,000	K,M	92
CDS53BX563AK**	50	BX	56,000	K	92
CDS53BX683A**	50	BX	68,000	K,M	92
CDS53R183BK**	100	R	18,000	K	92
CDS53R223B**	100	R	22,000	K,M	92
CDS53R273BK**	100	R	27,000	K	92
CDS53R333B**	100	R	33,000	K,M	92
CDS53R393BK**	100	R	39,000	K	92
CDS53R473B**	100	R	47,000	K,M	92
CDS53R563BK**	100	R	56,000	K	92
CDS53R683A**	50	R	68,000	K,M	92
CDS53R823AK**	50	R	82,000	K	92
CDS53R104A**	50	R	100,000	K,M	92
CDS53R124AK**	50	R	120,000	K	92
CDS53R154A**	50	R	150,000	K,M	92
CDS54BP112BJ**	100	BP	1,100	J	140
CDS54BP122B**	100	BP	1,200	J,K	140
CDS54BP132BJ**	100	BP	1,300	J	140
CDS54BP152B**	100	BP	1,500	J,K	140
CDS54BP162BJ**	100	BP	1,600	J	140
CDS54BP182B**	100	BP	1,800	J,K	140
CDS54BP202BJ**	100	BP	2,000	J	140
CDS54BP222B**	100	BP	2,200	J,K	140
CDS54BP242BJ**	100	BP	2,400	J	140
CDS54BP272B**	100	BP	2,700	J,K	140
CDS54BP302BJ**	100	BP	3,000	J	140
CDS54BP332B**	100	BP	3,300	J,K	140
CDS54BX393BK**	100	BX	39,000	K	140
CDS54BX473B**	100	BX	47,000	K,M	140
CDS54BX563BK**	100	BX	56,000	K	140
CDS54BX823AK**	50	BX	82,000	K	140
CDS54BX104A**	50	BX	100,000	K,M	140

Table C-4. Parts List⁽³⁾ (Cont.)

Part number ⁽¹⁾	Rated voltage (VDC)	Characteristic	Nominal capacitance (pF)	Capacitance tolerance ⁽²⁾	Mass (mg) (reference)
CDS54BX124AK**	50	BX	120,000	K	140
CDS54BX154A**	50	BX	150,000	K,M	140
CDS54BX184AK**	50	BX	180,000	K	140
CDS54R683B**	100	R	68,000	K,M	140
CDS54R823BK**	100	R	82,000	K	140
CDS54R104A**	50	R	100,000	K,M	140
CDS54R124AK**	50	R	120,000	K	140
CDS54R154A**	50	R	150,000	K,M	140
CDS54R184AK**	50	R	180,000	K	140
CDS54R224A**	50	R	220,000	K,M	140
CDS56BP362BJ**	100	BP	3,600	J	380
CDS56BP392B**	100	BP	3,900	J,K	380
CDS56BP432BJ**	100	BP	4,300	J	380
CDS56BP472B**	100	BP	4,700	J,K	380
CDS56BP512BJ**	100	BP	5,100	J	380
CDS56BP562B**	100	BP	5,600	J,K	380
CDS56BP622BJ**	100	BP	6,200	J	380
CDS56BP682B**	100	BP	6,800	J,K	380
CDS56BP752BJ**	100	BP	7,500	J	380
CDS56BP822B**	100	BP	8,200	J,K	380
CDS56BP912BJ**	100	BP	9,100	J	380
CDS56BP103B**	100	BP	10,000	J,K	380
CDS56BX683B**	100	BX	68,000	K,M	380
CDS56BX823BK**	100	BX	82,000	K	380
CDS56BX104B**	100	BX	100,000	K,M	380
CDS56BX124BK**	100	BX	120,000	K	380
CDS56BX154B**	100	BX	150,000	K,M	380
CDS56BX224A**	50	BX	220,000	K,M	390
CDS56BX274AK**	50	BX	270,000	K	390
CDS56BX334A**	50	BX	330,000	K,M	390
CDS56BX394AK**	50	BX	390,000	K	390
CDS56BX474A**	50	BX	470,000	K,M	390

Table C-4. Parts List⁽³⁾ (Cont.)

Part number ⁽¹⁾	Rated voltage (VDC)	Characteristic	Nominal capacitance (pF)	Capacitance tolerance ⁽²⁾	Mass (mg) (reference)
CDS56R104B**	100	R	100,000	K,M	220
CDS56R124BK**	100	R	120,000	K	220
CDS56R154B**	100	R	150,000	K,M	240
CDS56R184BK**	100	R	180,000	K	240
CDS56R224B**	100	R	220,000	K,M	240
CDS56R274BK**	100	R	270,000	K	240
CDS56R334A**	50	R	330,000	K,M	260
CDS56R394AK**	50	R	390,000	K	260
CDS56R474A**	50	R	470,000	K,M	260
CDS56R564AK**	50	R	560,000	K	280
CDS56R684A**	50	R	680,000	K,M	280

Notes:

- ⁽¹⁾ Complete part number shall consist of capacitance tolerance (when not indicated) and specified symbols (S, Q, M, or Z) for terminal finish replacing the asterisks.
- ⁽²⁾ Capacitance tolerance shall be as follows:
Capacitance tolerance up to 10pF: C: $\pm 0.25\text{pF}$, D: $\pm 0.5\text{pF}$, F: $\pm 1.0\text{pF}$
Capacitance tolerance more than 10pF: J: $\pm 5.0\%$, K: $\pm 10\%$, M: $\pm 20\%$
- ⁽³⁾ The products listed in Table C-4 Parts List will be discontinued on October 31, 2024. Please consider terminating the adoption of these products to new designs or discontinuing your products.