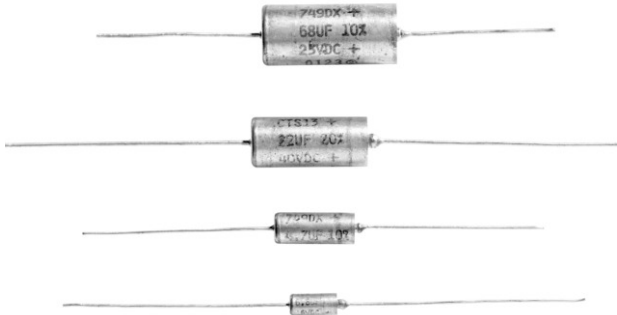


## Hermetically Sealed, Axial-Lead to CECC Specifications


**FEATURES**

- Terminations: Tin/lead (SnPb), 100 % tin (RoHS compliant)
- Hermetically sealed metal case with plastic film insulation
- Extended capacitance range (type 749DX)
- High operational stability with both time and temperature
- Low leakage current
- Low dissipation factor
- Compliant to RoHS directive 2002/95/EC


**RoHS\***  
COMPLIANT

**APPLICATIONS**

Performance and reliability has been proven in a wide range of applications such as: filtering, by-pass, coupling, energy storage, timing circuits.

**PERFORMANCE CHARACTERISTICS**
**Operating Temperature:**

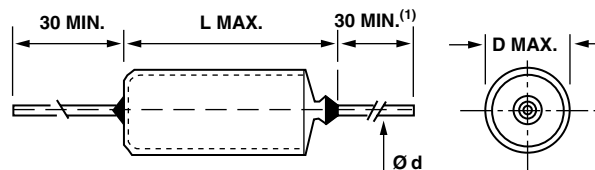
- 55 °C to + 85 °C (types CTS13)
- 55 °C to + 125 °C (types CTS1, 749DX)

**SPECIFICATIONS**

CECC	BS
30201-001	749DX 9073-N001 749DX
30201-002	CTS1
30201-005	CTS13
30201-029	749DX

**ORDERING INFORMATION**

CTS13 TYPE	105 CAPACITANCE	X0 CAPACITANCE TOLERANCE	040 DC VOLTAGE RATING AT + 85 °C	A CASE CODE	2 STYLE NUMBER	P PACKAGING	E3 ROHS COMPLIANT
Identifies the Basic Capacitor Design CTS1 = CECC 30201-002 CTS13 = CECC 30201-005 749DX = CECC 30201-001/029	Expressed in picofarads. First two digits are significant. Third digit is the number of zeros following.	X0 = ± 20 % X9 = ± 10 % X5 = ± 5 % (Special Order)	Expressed in volts. Where necessary, zeros precede the voltage rating to complete the 3 digit block 6R3 = 6.3 V	See Table Ratings and Case Codes.	0 = Bare Case 2 = Plastic-Film Insulation	See Taping and Packaging	E3 = 100 % tin termination (RoHS compliant) Blank = SnPb termination

**DIMENSIONS** in millimeters

<sup>(1)</sup> 23 mm MAX. FOR TAPED CAPACITORS

CASE CODE	BS D MAX.	NF D MAX.	L MAX.	+ 10 % Ø d - 0.05
A	3.6	3.8	10.2	0.5
B	4.9	5.1	15.0	0.5
C	7.5	7.7	20.5	0.6
D	9.1	9.3	24.0	0.6

\* Pb containing terminations are not RoHS compliant, exemptions may apply

<b>RATINGS AND CASE CODES - TYPE CTS1</b>							
<b>C<sub>R</sub></b> <b>μF</b>	<b>RATED VOLTAGE U<sub>R</sub> (+ 85 °C)</b>						
	<b>6.3 V</b>	<b>10 V</b>	<b>16 V</b>	<b>25 V</b>	<b>40 V</b>	<b>50 V</b>	<b>63 V</b>
	<b>CATEGORY VOLTAGE U<sub>C</sub> (+ 125 °C)</b>						
	<b>4 V</b>	<b>6.3 V</b>	<b>10 V</b>	<b>13 V</b>	<b>25 V</b>	<b>33 V</b>	<b>40 V</b>
<b>0.10</b>							<b>A</b>
0.12							A
<b>0.15</b>							<b>A</b>
0.18							A
<b>0.22</b>							<b>A</b>
0.27						A	A
<b>0.33</b>						<b>A</b>	<b>A</b>
0.39						A	A
<b>0.47</b>					<b>A</b>	<b>A</b>	<b>A</b>
0.56					A	A	A
<b>0.68</b>					<b>A</b>	<b>A</b>	<b>A</b>
0.82					A	A	B
<b>1.0</b>					<b>A</b>	<b>A</b>	<b>B</b>
1.2					A	B	B
<b>1.5</b>				<b>A</b>	<b>B</b>	<b>B</b>	<b>B</b>
1.8			A		B	B	B
<b>2.2</b>			<b>A</b>		<b>B</b>	<b>B</b>	<b>B</b>
2.7			A		B	B	B
<b>3.3</b>			<b>A</b>		<b>B</b>	<b>B</b>	<b>B</b>
3.9		A			B	B	B
<b>4.7</b>		<b>A</b>			<b>B</b>	<b>B</b>	<b>C</b>
5.6	A				B	C	C
<b>6.8</b>	<b>A</b>				<b>B</b>	<b>C</b>	<b>C</b>
8.2				B	C	C	C
<b>10</b>				<b>B</b>	<b>C</b>	<b>C</b>	<b>C</b>
12			B		C	C	D
<b>15</b>			<b>B</b>		<b>C</b>	<b>C</b>	<b>D</b>
18			B		C	C	D
<b>22</b>			<b>B</b>		<b>C</b>	<b>D</b>	
27		B		C	D		
<b>33</b>		<b>B</b>		<b>C</b>	<b>D</b>		
39	B		C		D		
<b>47</b>	<b>B</b>		<b>C</b>		<b>D</b>		
56	B		C	D			
<b>68</b>			<b>C</b>	<b>D</b>			
82		C	D				
<b>100</b>		<b>C</b>	<b>D</b>				
120	C		D				
<b>150</b>	<b>C</b>		<b>D</b>				
180		D					
<b>220</b>		<b>D</b>					
270	D						
<b>330</b>	<b>D</b>						

**Note**

Preferred ratings are in bold characters. Non-preferred ratings are available only with a capacitance tolerance of ± 10 % or ± 5 % (special order).



<b>RATINGS AND CASE CODES - TYPE CTS13</b>								
<b>C<sub>R</sub></b> <b>μF</b>	<b>RATED VOLTAGE U<sub>R</sub> (+ 85 °C )</b>							
	<b>6.3 V</b>	<b>10 V</b>	<b>16 V</b>	<b>20 V</b>	<b>25V</b>	<b>40 V</b>	<b>50 V</b>	<b>63 V</b>
<b>0.10</b>								<b>A</b>
0.12								A
<b>0.15</b>								<b>A</b>
0.18								A
<b>0.22</b>								<b>A</b>
0.27							A	A
<b>0.33</b>							<b>A</b>	<b>A</b>
0.39							A	A
<b>0.47</b>						<b>A</b>	<b>A</b>	<b>A</b>
0.56						A	A	A
<b>0.68</b>						<b>A</b>	<b>A</b>	<b>A</b>
0.82						A	A	B
<b>1.0</b>						<b>A</b>	<b>A</b>	<b>B</b>
1.2					A	A	B	B
<b>1.5</b>					<b>A</b>	<b>B</b>	<b>B</b>	<b>B</b>
1.8				A		B	B	B
<b>2.2</b>				<b>A</b>		<b>B</b>	<b>B</b>	<b>B</b>
2.7			A			B	B	B
<b>3.3</b>			<b>A</b>			<b>B</b>	<b>B</b>	<b>B</b>
3.9		A				B	B	B
<b>4.7</b>		<b>A</b>				<b>B</b>	<b>B</b>	<b>C</b>
5.6	A					B	C	C
<b>6.8</b>	<b>A</b>					<b>B</b>	<b>C</b>	<b>C</b>
8.2					B	C	C	C
<b>10</b>					<b>B</b>	<b>C</b>	<b>C</b>	<b>C</b>
12				B		C	C	D
<b>15</b>				<b>B</b>		<b>C</b>	<b>C</b>	<b>D</b>
18			B			C	C	D
<b>22</b>			<b>B</b>			<b>C</b>	<b>D</b>	
27		B			C	D		
<b>33</b>		<b>B</b>			<b>C</b>	<b>D</b>		
39	B			C		D		
<b>47</b>	<b>B</b>			<b>C</b>		<b>D</b>		
56	B		C		D			
<b>68</b>			<b>C</b>		<b>D</b>			
82		C		D				
<b>100</b>		<b>C</b>		<b>D</b>				
120	C		D					
<b>150</b>	<b>C</b>		<b>D</b>					
180		D						
<b>220</b>		<b>D</b>						
270	D							
<b>330</b>	<b>D</b>							

**Note**

Preferred ratings are in bold characters. Non-preferred ratings are available only with a capacitance tolerance of ± 10 % or ± 5 % (special order).

<b>RATINGS AND CASE CODES - TYPE 749DX</b>									
$C_R$ $\mu F$	RATED VOLTAGE $U_R$ ( + 85 °C )								
	6.3 V	10 V	16 V	20 V	25 V	35 V	40 V	50 V	63 V
	CATEGORY VOLTAGE $U_C$ ( + 125 °C )								
	4 V	6.3 V	10 V	13 V	16 V	23 V	25 V	33 V	40 V
0.068									
<b>0.10</b>						<b>A</b>	<b>A</b>		<b>A</b>
0.12						A	A		A
<b>0.15</b>						<b>A</b>	<b>A</b>		<b>A</b>
0.18						A	A		A
<b>0.22</b>						<b>A</b>	<b>A</b>		<b>A</b>
0.27						A	A		A
<b>0.33</b>						<b>A</b>	<b>A</b>		<b>A</b>
0.39						A	A		A
<b>0.47</b>						<b>A</b>	<b>A</b>		<b>A</b>
0.56						A	A		A
<b>0.68</b>						<b>A</b>	<b>A</b>		<b>A</b>
0.82						A	A	A	B
<b>1.0</b>						<b>A</b>	<b>A</b>	<b>A</b>	<b>B</b>
1.2					A	B	B	B	B
<b>1.5</b>					<b>A</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
1.8				A		B	B	B	B
<b>2.2</b>				<b>A</b>		<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
2.7			A			B	B	B	B
<b>3.3</b>			<b>A</b>			<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
3.9		A				B	B	B	B
<b>4.7</b>		<b>A</b>				<b>B</b>	<b>B</b>	B	<b>C</b>
5.6	A					B	B	C	C
<b>6.8</b>	<b>A</b>					B	B	<b>C</b>	<b>C</b>
8.2					B	C	C	C	C
<b>10</b>					<b>B</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>
12				B		C	C	C	D
<b>15</b>				<b>B</b>		<b>C</b>	<b>C</b>	<b>C</b>	<b>D</b>
18			B			C	C	C	D
<b>22</b>			<b>B</b>			<b>C</b>	<b>C</b>	<b>D</b>	
27		B			C	D	D		
<b>33</b>		<b>B</b>			<b>C</b>	<b>D</b>	<b>D</b>		
39		B		C		D	D		
<b>47</b>	<b>B</b>			<b>C</b>		<b>D</b>			
56	B		C		D	D			
<b>68</b>			<b>C</b>		<b>D</b>				
82		C		D					
<b>100</b>		<b>C</b>		<b>D</b>					
120		C	D						
<b>150</b>	<b>C</b>		<b>D</b>						
180	C	D							
<b>220</b>		<b>D</b>							
270	D								
<b>330</b>	<b>D</b>								

**Note**  
Preferred ratings are in bold characters. Non-preferred ratings are available only with a capacitance tolerance of  $\pm 10\%$  or  $\pm 5\%$  (special order).



<b>STANDARD/EXTENDED RATINGS - CTS1</b>						
<b>CAPACITANCE</b> C <sub>R</sub> (μF)	<b>CASE CODE</b>	<b>PART NUMBER</b>	<b>MAX. DC LEAKAGE</b> AT + 25 °C (μA)	<b>MAX. DF</b> AT + 25 °C 120 Hz, (%)	<b>MAX. IMPEDANCE</b> AT + 25 °C 100 kHz (Ω)	
<b>6.3 VDC AT + 85 °C, 4 VDC AT 125 °C</b>						
5.6	A	CTS1565(1)6R3A(2)(3)	1.0	6	10	
6.8	A	CTS1685(1)6R3A(2)(3)	1.0	6	10	
39	B	CTS1396(1)6R3B(2)(3)	2.3	6	5	
47	B	CTS1476(1)6R3B(2)(3)	2.8	6	5	
56	B	CTS1566(1)6R3B(2)(3)	3.4	6	5	
120	C	CTS1127(1)6R3C(2)(3)	7.2	6	2	
150	C	CTS1157(1)6R3C(2)(3)	9.0	6	2	
270	D	CTS1277(1)6R3D(2)(3)	16.2	6	1	
330	D	CTS1337(1)6R3D(2)(3)	19.8	8	1	
<b>10 VDC AT + 85 °C, 6.3 VDC AT 125 °C</b>						
3.9	A	CTS1395(1)010A(2)(3)	1.0	6	10	
4.7	A	CTS1475(1)010A(2)(3)	1.0	6	10	
27	B	CTS1276(1)010B(2)(3)	2.7	6	5	
33	B	CTS1336(1)010B(2)(3)	3.3	6	5	
82	C	CTS1826(1)010C(2)(3)	8.2	6	2	
100	C	CTS1107(1)010C(2)(3)	10.0	6	2	
180	D	CTS1187(1)010D(2)(3)	18.0	6	1	
220	D	CTS1227(1)010D(2)(3)	22.0	8	1	
<b>16 VDC AT + 85 °C, 10 VDC AT + 125 °C</b>						
1.8	A	CTS1185(1)016A(2)(3)	1.0	6	10	
2.2	A	CTS1225(1)016A(2)(3)	1.0	6	10	
2.7	A	CTS1275(1)016A(2)(3)	1.0	6	10	
3.3	A	CTS1335(1)016A(2)(3)	1.0	6	10	
12	B	CTS1126(1)016B(2)(3)	1.9	6	5	
15	B	CTS1156(1)016B(2)(3)	2.4	6	5	
18	B	CTS1186(1)016B(2)(3)	2.9	6	5	
22	B	CTS1226(1)016B(2)(3)	3.5	6	5	
39	C	CTS1396(1)016C(2)(3)	6.2	6	2	
47	C	CTS1476(1)016C(2)(3)	7.5	6	2	
56	C	CTS1566(1)016C(2)(3)	9.0	6	2	
68	C	CTS1686(1)016C(2)(3)	10.9	6	2	
82	D	CTS1826(1)016D(2)(3)	13.1	6	1	
100	D	CTS1107(1)016D(2)(3)	16.0	6	1	
120	D	CTS1127(1)016D(2)(3)	19.2	8	1	
150	D	CTS1157(1)016D(2)(3)	24.0	8	1	
<b>25 VDC AT + 85 °C, 16 VDC AT + 125 °C</b>						
1.5	A	CTS1155(1)025A(2)(3)	1.0	6	10	
8.2	B	CTS1825(1)025B(2)(3)	2.1	6	5	
10	B	CTS1106(1)025B(2)(3)	2.5	6	5	
27	C	CTS1276(1)025C(2)(3)	6.8	6	2	
33	C	CTS1336(1)025C(2)(3)	8.3	6	2	
56	D	CTS1566(1)025D(2)(3)	14.0	6	1	
68	D	CTS1686(1)025D(2)(3)	17.0	6	1	
<b>40 VDC AT + 85 °C, 25 VDC AT + 125 °C</b>						
0.47	A	CTS1474(1)040A(2)(3)	1.0	6	10	
0.56	A	CTS1564(1)040A(2)(3)	1.0	6	10	
0.68	A	CTS1684(1)040A(2)(3)	1.0	6	10	
0.82	A	CTS1824(1)040A(2)(3)	1.0	6	10	
1.0	A	CTS1105(1)040A(2)(3)	1.0	6	10	

<b>STANDARD/EXTENDED RATINGS - CTS1</b>					
<b>CAPACITANCE</b> $C_R$ ( $\mu$ F)	<b>CASE CODE</b>	<b>PART NUMBER</b>	<b>MAX. DC LEAKAGE</b> AT + 25 °C ( $\mu$ A)	<b>MAX. DF</b> AT + 25 °C 120 Hz, (%)	<b>MAX. IMPEDANCE</b> AT + 25 °C 100 kHz ( $\Omega$ )
<b>40 VDC AT + 85 °C, 25 VDC AT + 125 °C</b>					
1.2	A	CTS1125(1)040A(2)(3)	1.0	6	10
1.5	B	CTS1155(1)040B(2)(3)	1.0	6	5
1.8	B	CTS1185(1)040B(2)(3)	1.0	6	5
2.2	B	CTS1225(1)040B(2)(3)	1.0	6	5
2.7	B	CTS1275(1)040B(2)(3)	1.1	6	5
3.3	B	CTS1335(1)040B(2)(3)	1.3	6	5
3.9	B	CTS1395(1)040B(2)(3)	1.6	6	5
4.7	B	CTS1475(1)040B(2)(3)	1.9	6	5
5.6	B	CTS1565(1)040B(2)(3)	2.2	6	5
6.8	B	CTS1685(1)040B(2)(3)	2.7	6	5
8.2	C	CTS1825(1)040C(2)(3)	3.3	6	2
10	C	CTS1106(1)040C(2)(3)	4.0	6	2
12	C	CTS1126(1)040C(2)(3)	4.8	6	2
15	C	CTS1156(1)040C(2)(3)	6.0	6	2
18	C	CTS1186(1)040C(2)(3)	7.2	6	2
22	C	CTS1226(1)040C(2)(3)	8.8	6	2
27	D	CTS1276(1)040D(2)(3)	10.8	6	1
33	D	CTS1336(1)040D(2)(3)	13.2	6	1
39	D	CTS1396(1)040D(2)(3)	15.6	6	1
47	D	CTS1476(1)040D(2)(3)	18.8	6	1
<b>50 VDC AT + 85 °C, 33 VDC AT + 125 °C</b>					
0.27	A	CTS1274(1)050A(2)(3)	1.0	6	10
0.33	A	CTS1334(1)050A(2)(3)	1.0	6	10
0.39	A	CTS1394(1)050A(2)(3)	1.0	6	10
0.47	A	CTS1474(1)050A(2)(3)	1.0	6	10
0.56	A	CTS1564(1)050A(2)(3)	1.0	6	10
0.68	A	CTS1684(1)050A(2)(3)	1.0	6	10
0.82	A	CTS1824(1)050A(2)(3)	1.0	6	10
1.0	A	CTS1105(1)050A(2)(3)	1.0	6	10
1.2	B	CTS1125(1)050B(2)(3)	1.0	6	5
1.5	B	CTS1155(1)050B(2)(3)	1.0	6	5
1.8	B	CTS1185(1)050B(2)(3)	1.0	6	5
2.2	B	CTS1225(1)050B(2)(3)	1.1	6	5
2.7	B	CTS1275(1)050B(2)(3)	1.4	6	5
3.3	B	CTS1335(1)050B(2)(3)	1.7	6	5
3.9	B	CTS1395(1)050B(2)(3)	2.0	6	5
4.7	B	CTS1475(1)050B(2)(3)	2.4	6	5
5.6	C	CTS1565(1)050C(2)(3)	2.8	6	2
6.8	C	CTS1685(1)050C(2)(3)	3.4	6	2
8.2	C	CTS1825(1)050C(2)(3)	4.1	6	2
10	C	CTS1106(1)050C(2)(3)	5.0	6	2
12	C	CTS1126(1)050C(2)(3)	6.0	6	2
15	C	CTS1156(1)050C(2)(3)	7.5	6	2
18	C	CTS1186(1)050C(2)(3)	9.0	6	2
22	D	CTS1226(1)050D(2)(3)	11.0	6	1



<b>STANDARD/EXTENDED RATINGS - CTS1</b>					
<b>CAPACITANCE</b> C <sub>R</sub> (μF)	<b>CASE CODE</b>	<b>PART NUMBER</b>	<b>MAX. DC LEAKAGE</b> AT + 25 °C (μA)	<b>MAX. DF</b> AT + 25 °C 120 Hz, (%)	<b>MAX. IMPEDANCE</b> AT + 25 °C 100 kHz (Ω)
<b>63 VDC AT + 85 °C, 40 VDC AT + 125 °C</b>					
0.10	A	CTS1104(1)063A(2)(3)	1.0	6	10
0.12	A	CTS1124(1)063A(2)(3)	1.0	6	10
0.15	A	CTS1154(1)063A(2)(3)	1.0	6	10
0.18	A	CTS1184(1)063A(2)(3)	1.0	6	10
0.22	A	CTS1224(1)063A(2)(3)	1.0	6	10
0.27	A	CTS1274(1)063A(2)(3)	1.0	6	10
0.33	A	CTS1334(1)063A(2)(3)	1.0	6	10
0.39	A	CTS1394(1)063A(2)(3)	1.0	6	10
0.47	A	CTS1474(1)063A(2)(3)	1.0	6	10
0.56	A	CTS1564(1)063A(2)(3)	1.0	6	10
0.68	A	CTS1684(1)063A(2)(3)	1.0	6	10
0.82	B	CTS1824(1)063B(2)(3)	1.0	6	5
1.0	B	CTS1105(1)063B(2)(3)	1.0	6	5
1.2	B	CTS1125(1)063B(2)(3)	1.0	6	5
1.5	B	CTS1155(1)063B(2)(3)	1.0	6	5
1.8	B	CTS1185(1)063B(2)(3)	1.1	6	5
2.2	B	CTS1225(1)063B(2)(3)	1.4	6	5
2.7	B	CTS1275(1)063B(2)(3)	1.7	6	5
3.3	B	CTS1335(1)063B(2)(3)	2.1	6	5
3.9	B	CTS1395(1)063B(2)(3)	2.5	6	5
4.7	C	CTS1475(1)063C(2)(3)	3.0	6	2
5.6	C	CTS1565(1)063C(2)(3)	3.5	6	2
6.8	C	CTS1685(1)063C(2)(3)	4.3	6	2
8.2	C	CTS1825(1)063C(2)(3)	5.2	6	2
10	C	CTS1106(1)063C(2)(3)	6.3	6	2
12	D	CTS1126(1)063D(2)(3)	7.6	6	1
15	D	CTS1156(1)063D(2)(3)	9.5	6	1
18	D	CTS1186(1)063D(2)(3)	11.3	6	1

**Notes**

- (1) Capacitance Tolerance Code: X5, X9, X0
- (2) Style number - 0 or 2
- (3) Packaging Code



<b>STANDARD/EXTENDED RATINGS - CTS13</b>						
<b>CAPACITANCE</b> $C_R$ ( $\mu$ F)	<b>CASE CODE</b>	<b>PART NUMBER</b>	<b>MAX. DC LEAKAGE</b> AT + 25 °C ( $\mu$ A)	<b>MAX. DF</b> AT + 25 °C 120 Hz, (%)	<b>MAX. IMPEDANCE</b> AT + 25 °C 100 kHz ( $\Omega$ )	
<b>6.3 VDC AT + 85 °C</b>						
5.6	A	CTS13565(1)6R3A(2)(3)	1.0	6	10	
6.8	A	CTS13685(1)6R3A(2)(3)	1.0	6	10	
39	B	CTS13396(1)6R3B(2)(3)	2.3	6	5	
47	B	CTS13476(1)6R3B(2)(3)	2.8	6	5	
56	B	CTS13566(1)6R3B(2)(3)	3.4	6	5	
120	C	CTS13127(1)6R3C(2)(3)	7.2	6	2	
150	C	CTS13157(1)6R3C(2)(3)	9.0	6	2	
270	D	CTS13277(1)6R3D(2)(3)	16.2	6	1	
330	D	CTS13337(1)6R3D(2)(3)	19.8	8	1	
<b>10 VDC AT + 85 °C</b>						
3.9	A	CTS13395(1)010A(2)(3)	1.0	6	10	
4.7	A	CTS13475(1)010A(2)(3)	1.0	6	10	
27	B	CTS13276(1)010B(2)(3)	2.7	6	5	
33	B	CTS13336(1)010B(2)(3)	3.3	6	5	
82	C	CTS13826(1)010C(2)(3)	8.2	6	2	
100	C	CTS13107(1)010C(2)(3)	10.0	6	2	
180	D	CTS13187(1)010D(2)(3)	18.0	6	1	
220	D	CTS13227(1)010D(2)(3)	22.0	8	1	
<b>16 VDC AT + 85 °C</b>						
2.7	A	CTS13275(1)016A(2)(3)	1.0	6	10	
3.3	A	CTS13335(1)016A(2)(3)	1.0	6	10	
18	B	CTS13186(1)016B(2)(3)	2.9	6	5	
22	B	CTS13226(1)016B(2)(3)	3.5	6	5	
56	C	CTS13566(1)016C(2)(3)	9.0	6	2	
68	C	CTS13686(1)016C(2)(3)	10.9	6	2	
120	D	CTS13127(1)016D(2)(3)	19.2	8	1	
150	D	CTS13157(1)016D(2)(3)	24.0	8	1	
<b>20 VDC AT + 85 °C</b>						
1.8	A	CTS13185(1)020A(2)(3)	1.0	6	10	
2.2	A	CTS13225(1)020A(2)(3)	1.0	6	10	
12	B	CTS13126(1)020B(2)(3)	2.4	6	5	
15	B	CTS13156(1)020B(2)(3)	3.0	6	5	
39	C	CTS13396(1)020C(2)(3)	7.8	6	2	
47	C	CTS13476(1)020C(2)(3)	9.4	6	2	
82	D	CTS13826(1)020D(2)(3)	16.4	6	1	
100	D	CTS13107(1)020D(2)(3)	20.0	8	1	
<b>25 VDC AT + 85 °C</b>						
1.2	A	CTS13125(1)025A(2)(3)	1.0	6	10	
1.5	A	CTS13155(1)025A(2)(3)	1.0	6	10	
8.2	B	CTS13825(1)025B(2)(3)	2.1	6	5	
10	B	CTS13106(1)025B(2)(3)	2.5	6	5	
27	C	CTS13276(1)025C(2)(3)	6.8	6	2	
33	C	CTS13336(1)025C(2)(3)	8.3	6	2	
56	D	CTS13566(1)025D(2)(3)	14.0	6	1	
68	D	CTS13686(1)025D(2)(3)	17.0	6	1	





<b>STANDARD/EXTENDED RATINGS - CTS13</b>						
<b>CAPACITANCE</b>	<b>CASE CODE</b>	<b>PART NUMBER</b>	<b>MAX. DC LEAKAGE</b>	<b>MAX. DF</b>	<b>MAX. IMPEDANCE</b>	
<b>C<sub>R</sub></b>			<b>AT + 25 °C</b>	<b>AT + 25 °C</b>	<b>AT + 25 °C</b>	
<b>(μF)</b>			<b>(μA)</b>	<b>120 Hz,</b>	<b>100 kHz</b>	
				<b>(%)</b>	<b>(Ω)</b>	
<b>40 VDC AT + 85 °C</b>						
0.47	A	CTS13474(1)040A(2)(3)	1.0	6	10	
0.56	A	CTS13564(1)040A(2)(3)	1.0	6	10	
0.68	A	CTS13684(1)040A(2)(3)	1.0	6	10	
0.82	A	CTS13824(1)040A(2)(3)	1.0	6	10	
1.0	A	CTS13105(1)040A(2)(3)	1.0	6	10	
1.2	A	CTS13125(1)040A(2)(3)	1.0	6	10	
1.5	B	CTS13155(1)040B(2)(3)	1.0	6	5	
1.8	B	CTS13185(1)040B(2)(3)	1.0	6	5	
2.2	B	CTS13225(1)040B(2)(3)	1.0	6	5	
2.7	B	CTS13275(1)040B(2)(3)	1.1	6	5	
3.3	B	CTS13335(1)040B(2)(3)	1.3	6	5	
3.9	B	CTS13395(1)040B(2)(3)	1.6	6	5	
4.7	B	CTS13475(1)040B(2)(3)	1.9	6	5	
5.6	B	CTS13565(1)040B(2)(3)	2.2	6	5	
6.8	B	CTS13685(1)040B(2)(3)	2.7	6	5	
8.2	C	CTS13825(1)040C(2)(3)	3.3	6	2	
10	C	CTS13106(1)040C(2)(3)	4.0	6	2	
12	C	CTS13126(1)040C(2)(3)	4.8	6	2	
15	C	CTS13156(1)040C(2)(3)	6.0	6	2	
18	C	CTS13186(1)040C(2)(3)	7.2	6	2	
22	C	CTS13226(1)040C(2)(3)	8.8	6	2	
27	D	CTS13276(1)040D(2)(3)	10.8	6	1	
33	D	CTS13336(1)040D(2)(3)	13.2	6	1	
39	D	CTS13396(1)040D(2)(3)	15.6	6	1	
47	D	CTS13476(1)040D(2)(3)	18.8	6	1	
<b>50 VDC AT + 85 °C</b>						
0.27	A	CTS13274(1)050A(2)(3)	1.0	6	10	
0.33	A	CTS13334(1)050A(2)(3)	1.0	6	10	
0.39	A	CTS13394(1)050A(2)(3)	1.0	6	10	
0.47	A	CTS13474(1)050A(2)(3)	1.0	6	10	
0.56	A	CTS13564(1)050A(2)(3)	1.0	6	10	
0.68	A	CTS13684(1)050A(2)(3)	1.0	6	10	
0.82	A	CTS13824(1)050A(2)(3)	1.0	6	10	
1.0	A	CTS13105(1)050A(2)(3)	1.0	6	10	
1.2	B	CTS13125(1)050B(2)(3)	1.0	6	5	
1.5	B	CTS13155(1)050B(2)(3)	1.0	6	5	
1.8	B	CTS13185(1)050B(2)(3)	1.0	6	5	
2.2	B	CTS13225(1)050B(2)(3)	1.1	6	5	
2.7	B	CTS13275(1)050B(2)(3)	1.4	6	5	
3.3	B	CTS13335(1)050B(2)(3)	1.7	6	5	
3.9	B	CTS13395(1)050B(2)(3)	2.0	6	5	
4.7	B	CTS13475(1)050B(2)(3)	2.4	6	5	
5.6	C	CTS13565(1)050C(2)(3)	2.8	6	2	
6.8	C	CTS13685(1)050C(2)(3)	3.4	6	2	
8.2	C	CTS13825(1)050C(2)(3)	4.1	6	2	
10	C	CTS13106(1)050C(2)(3)	5.0	6	2	
12	C	CTS13126(1)050C(2)(3)	6.0	6	2	
15	C	CTS13156(1)050C(2)(3)	7.5	6	2	
18	C	CTS13186(1)050C(2)(3)	9.0	6	2	
22	D	CTS13226(1)050D(2)(3)	11.0	6	1	

<b>STANDARD/EXTENDED RATINGS - CTS13</b>						
<b>CAPACITANCE</b> $C_R$ ( $\mu$ F)	<b>CASE CODE</b>	<b>PART NUMBER</b>	<b>MAX. DC LEAKAGE</b> AT + 25 °C ( $\mu$ A)	<b>MAX. DF</b> AT + 25 °C 120 Hz, (%)	<b>MAX. IMPEDANCE</b> AT + 25 °C 100 kHz ( $\Omega$ )	
<b>63 VDC AT + 85 °C</b>						
0.1	A	CTS13104(1)063A(2)(3)	1.0	6	10	
0.12	A	CTS13124(1)063A(2)(3)	1.0	6	10	
0.15	A	CTS13154(1)063A(2)(3)	1.0	6	10	
0.18	A	CTS13184(1)063A(2)(3)	1.0	6	10	
0.22	A	CTS13224(1)063A(2)(3)	1.0	6	10	
0.27	A	CTS13274(1)063A(2)(3)	1.0	6	10	
0.33	A	CTS13334(1)063A(2)(3)	1.0	6	10	
0.39	A	CTS13394(1)063A(2)(3)	1.0	6	10	
0.47	A	CTS13474(1)063A(2)(3)	1.0	6	10	
0.56	A	CTS13564(1)063A(2)(3)	1.0	6	10	
0.68	A	CTS13684(1)063A(2)(3)	1.0	6	10	
0.82	B	CTS13824(1)063B(2)(3)	1.0	6	5	
1.0	B	CTS13105(1)063B(2)(3)	1.0	6	5	
1.2	B	CTS13125(1)063B(2)(3)	1.0	6	5	
1.5	B	CTS13155(1)063B(2)(3)	1.0	6	5	
1.8	B	CTS13185(1)063B(2)(3)	1.1	6	5	
2.2	B	CTS13225(1)063B(2)(3)	1.4	6	5	
2.7	B	CTS13275(1)063B(2)(3)	1.7	6	5	
3.3	B	CTS13335(1)063B(2)(3)	2.1	6	5	
3.9	B	CTS13395(1)063B(2)(3)	2.5	6	5	
4.7	C	CTS13475(1)063C(2)(3)	3.0	6	2	
5.6	C	CTS13565(1)063C(2)(3)	3.5	6	2	
6.8	C	CTS13685(1)063C(2)(3)	4.3	6	2	
8.2	C	CTS13825(1)063C(2)(3)	5.2	6	2	
10	C	CTS13106(1)063C(2)(3)	6.3	6	2	
12	D	CTS13126(1)063D(2)(3)	7.6	6	1	
15	D	CTS13156(1)063D(2)(3)	9.5	6	1	
18	D	CTS13186(1)063D(2)(3)	11.3	6	1	

**Notes**

- (1) Capacitance Tolerance Code: X5, X9, X0
- (2) Style number - 0 or 2
- (3) Packaging Code



<b>STANDARD/EXTENDED RATINGS - 749DX</b>						
<b>CAPACITANCE C<sub>R</sub> (μF)</b>	<b>CASE CODE</b>	<b>PART NUMBER</b>	<b>MAX. DC LEAKAGE AT + 25 °C (μA)</b>	<b>MAX. DF AT + 25 °C 120 Hz, (%)</b>	<b>MAX. IMPEDANCE AT + 25 °C 100 kHz (Ω)</b>	
<b>6.3 VDC AT + 85 °C, 4 VDC AT 125 °C</b>						
5.6	A	749DX565(1)6R3A(2)(3)	1.0	6	10	
6.8	A	749DX685(1)6R3A(2)(3)	1.0	6	10	
47	B	749DX476(1)6R3B(2)(3)	2.8	6	5	
56	B	749DX566(1)6R3B(2)(3)	3.4	6	5	
150	C	749DX157(1)6R3C(2)(3)	9.0	8	2	
180	C	749DX187(1)6R3C(2)(3)	10.8	8	2	
270	D	749DX277(1)6R3D(2)(3)	16.2	8	1	
330	D	749DX337(1)6R3D(2)(3)	19.8	8	1	
<b>10 VDC AT + 85 °C, 6.3 VDC AT 125 °C</b>						
3.9	A	749DX395(1)010A(2)(3)	1.0	6	10	
4.7	A	749DX475(1)010A(2)(3)	1.0	6	10	
27	B	749DX276(1)010B(2)(3)	2.7	6	5	
33	B	749DX336(1)010B(2)(3)	3.3	6	5	
39	B	749DX396(1)010B(2)(3)	3.9	6	5	
82	C	749DX826(1)010C(2)(3)	8.2	6	2	
100	C	749DX107(1)010C(2)(3)	10.0	6	2	
120	C	749DX127(1)010C(2)(3)	12.0	8	2	
180	D	749DX187(1)010D(2)(3)	18.0	8	1	
220	D	749DX227(1)010D(2)(3)	22.0	8	1	
<b>16 VDC AT + 85 °C, 10 VDC AT + 125 °C</b>						
2.7	A	749DX275(1)016A(2)(3)	1.0	6	10	
3.3	A	749DX335(1)016A(2)(3)	1.0	6	10	
18	B	749DX186(1)016B(2)(3)	2.9	6	5	
22	B	749DX226(1)016B(2)(3)	3.5	6	5	
56	C	749DX566(1)016C(2)(3)	9.0	6	2	
68	C	749DX686(1)016C(2)(3)	10.9	6	2	
120	D	749DX127(1)016D(2)(3)	19.2	8	1	
150	D	749DX157(1)016D(2)(3)	24.0	8	1	
<b>20 VDC AT + 85 °C, 13 VDC AT + 125 °C</b>						
1.8	A	749DX185(1)020A(2)(3)	1.0	6	10	
2.2	A	749DX225(1)020A(2)(3)	1.0	6	10	
12	B	749DX126(1)020B(2)(3)	2.4	6	5	
15	B	749DX156(1)020B(2)(3)	3.0	6	5	
39	C	749DX396(1)020C(2)(3)	7.8	6	2	
47	C	749DX476(1)020C(2)(3)	9.4	6	2	
82	D	749DX826(1)020D(2)(3)	16.4	6	1	
100	D	749DX107(1)020D(2)(3)	20.0	6	1	
<b>25 VDC AT + 85 °C, 16 VDC AT + 125 °C</b>						
1.2	A	749DX125(1)025A(2)(3)	1.0	6	10	
1.5	A	749DX155(1)025A(2)(3)	1.0	6	10	
8.2	B	749DX825(1)025B(2)(3)	2.1	6	5	
10	B	749DX106(1)025B(2)(3)	2.5	6	5	
27	C	749DX276(1)025C(2)(3)	6.8	6	2	
33	C	749DX336(1)025C(2)(3)	8.3	6	2	
56	D	749DX566(1)025D(2)(3)	14.0	6	1	
68	D	749DX686(1)025D(2)(3)	17.0	6	1	

<b>STANDARD/EXTENDED RATINGS - 749DX</b>						
<b>CAPACITANCE</b> $C_R$ ( $\mu$ F)	<b>CASE CODE</b>	<b>PART NUMBER</b>	<b>MAX. DC LEAKAGE</b> AT + 25 °C ( $\mu$ A)	<b>MAX. DF</b> AT + 25 °C 120 Hz, (%)	<b>MAX. IMPEDANCE</b> AT + 25 °C 100 kHz ( $\Omega$ )	
<b>35 VDC AT + 85 °C, 23 VDC AT + 125 °C</b>						
0.1	A	749DX104(1)035A(2)(3)	1.0	6	10	
0.12	A	749DX124(1)035A(2)(3)	1.0	6	10	
0.15	A	749DX154(1)035A(2)(3)	1.0	6	10	
0.18	A	749DX184(1)035A(2)(3)	1.0	6	10	
0.22	A	749DX224(1)035A(2)(3)	1.0	6	10	
0.27	A	749DX274(1)035A(2)(3)	1.0	6	10	
0.33	A	749DX334(1)035A(2)(3)	1.0	6	10	
0.39	A	749DX394(1)035A(2)(3)	1.0	6	10	
0.47	A	749DX474(1)035A(2)(3)	1.0	6	10	
0.56	A	749DX564(1)035A(2)(3)	1.0	6	10	
0.68	A	749DX684(1)035A(2)(3)	1.0	6	10	
0.82	A	749DX824(1)035A(2)(3)	1.0	6	10	
1	A	749DX105(1)035A(2)(3)	1.0	6	10	
1.2	B	749DX125(1)035B(2)(3)	1.0	6	5	
1.5	B	749DX155(1)035B(2)(3)	1.0	6	5	
1.8	B	749DX185(1)035B(2)(3)	1.0	6	5	
2.2	B	749DX225(1)035B(2)(3)	1.0	6	5	
2.7	B	749DX275(1)035B(2)(3)	1.0	6	5	
3.3	B	749DX335(1)035B(2)(3)	1.2	6	5	
3.9	B	749DX395(1)035B(2)(3)	1.4	6	5	
4.7	B	749DX475(1)035B(2)(3)	1.6	6	5	
5.6	B	749DX565(1)035B(2)(3)	2.0	6	5	
6.8	B	749DX685(1)035B(2)(3)	2.4	6	5	
8.2	C	749DX825(1)035C(2)(3)	2.9	6	2	
10	C	749DX106(1)035C(2)(3)	3.5	6	2	
12	C	749DX126(1)035C(2)(3)	4.2	6	2	
15	C	749DX156(1)035C(2)(3)	5.3	6	2	
18	C	749DX186(1)035C(2)(3)	6.3	6	2	
22	C	749DX226(1)035C(2)(3)	7.7	6	2	
27	D	749DX276(1)035D(2)(3)	9.5	6	1	
33	D	749DX336(1)035D(2)(3)	11.6	6	1	
39	D	749DX396(1)035D(2)(3)	13.7	6	1	
47	D	749DX476(1)035D(2)(3)	16.5	6	1	
56	D	749DX566(1)035D(2)(3)	19.6	6	1	
<b>40 VDC AT + 85 °C, 25 VDC AT + 125 °C</b>						
0.1	A	749DX104(1)040A(2)(3)	1.0	6	10	
0.12	A	749DX124(1)040A(2)(3)	1.0	6	10	
0.15	A	749DX154(1)040A(2)(3)	1.0	6	10	
0.18	A	749DX184(1)040A(2)(3)	1.0	6	10	
0.22	A	749DX224(1)040A(2)(3)	1.0	6	10	
0.27	A	749DX274(1)040A(2)(3)	1.0	6	10	
0.33	A	749DX334(1)040A(2)(3)	1.0	6	10	
0.39	A	749DX394(1)040A(2)(3)	1.0	6	10	
0.47	A	749DX474(1)040A(2)(3)	1.0	6	10	
0.56	A	749DX564(1)040A(2)(3)	1.0	6	10	
0.68	A	749DX684(1)040A(2)(3)	1.0	6	10	
0.82	A	749DX824(1)040A(2)(3)	1.0	6	10	
1.0	A	749DX105(1)040A(2)(3)	1.0	6	10	
1.2	B	749DX125(1)040B(2)(3)	1.0	6	5	



<b>STANDARD/EXTENDED RATINGS - 749DX</b>					
<b>CAPACITANCE C<sub>R</sub> (μF)</b>	<b>CASE CODE</b>	<b>PART NUMBER</b>	<b>MAX. DC LEAKAGE AT + 25 °C (μA)</b>	<b>MAX. DF AT + 25 °C 120 Hz, (%)</b>	<b>MAX. IMPEDANCE AT + 25 °C 100 kHz (Ω)</b>
<b>40 VDC AT + 85 °C, 25 VDC AT + 125 °C</b>					
1.5	B	749DX155(1)040B(2)(3)	1.0	6	5
1.8	B	749DX185(1)040B(2)(3)	1.0	6	5
2.2	B	749DX225(1)040B(2)(3)	1.0	6	5
2.7	B	749DX275(1)040B(2)(3)	1.1	6	5
3.3	B	749DX335(1)040B(2)(3)	1.3	6	5
3.9	B	749DX395(1)040B(2)(3)	1.6	6	5
4.7	B	749DX475(1)040B(2)(3)	1.9	6	5
5.6	B	749DX565(1)040B(2)(3)	2.2	6	5
6.8	B	749DX685(1)040B(2)(3)	2.7	6	5
8.2	C	749DX825(1)040C(2)(3)	3.3	6	2
10	C	749DX106(1)040C(2)(3)	4.0	6	2
12	C	749DX126(1)040C(2)(3)	4.8	6	2
15	C	749DX156(1)040C(2)(3)	6.0	6	2
18	C	749DX186(1)040C(2)(3)	7.2	6	2
22	C	749DX226(1)040C(2)(3)	8.8	6	2
27	D	749DX276(1)040D(2)(3)	10.8	6	1
33	D	749DX336(1)040D(2)(3)	13.2	6	1
39	D	749DX396(1)040D(2)(3)	15.6	6	1
<b>50 VDC AT + 85 °C, 33 VDC AT + 125 °C</b>					
0.82	A	749DX824(1)050A(2)(3)	1.0	6	10
1	A	749DX105(1)050A(2)(3)	1.0	6	10
1.2	B	749DX125(1)050B(2)(3)	1.0	6	5
1.5	B	749DX155(1)050B(2)(3)	1.0	6	5
1.8	B	749DX185(1)050B(2)(3)	1.0	6	5
2.2	B	749DX225(1)050B(2)(3)	1.1	6	5
2.7	B	749DX275(1)050B(2)(3)	1.4	6	5
3.3	B	749DX335(1)050B(2)(3)	1.7	6	5
3.9	B	749DX395(1)050B(2)(3)	2.0	6	5
4.7	B	749DX475(1)050B(2)(3)	2.4	6	5
5.6	C	749DX565(1)050C(2)(3)	2.8	6	2
6.8	C	749DX685(1)050C(2)(3)	3.4	6	2
8.2	C	749DX825(1)050C(2)(3)	4.1	6	2
10	C	749DX106(1)050C(2)(3)	5.0	6	2
12	C	749DX126(1)050C(2)(3)	6.0	6	2
15	C	749DX156(1)050C(2)(3)	7.5	6	2
18	C	749DX186(1)050C(2)(3)	9.0	6	2
22	D	749DX226(1)050D(2)(3)	11.0	6	1
<b>63 VDC AT + 85 °C, 40 VDC AT + 125 °C</b>					
0.1	A	749DX104(1)063A(2)(3)	1.0	6	10
0.12	A	749DX124(1)063A(2)(3)	1.0	6	10
0.15	A	749DX154(1)063A(2)(3)	1.0	6	10
0.18	A	749DX184(1)063A(2)(3)	1.0	6	10
0.22	A	749DX224(1)063A(2)(3)	1.0	6	10
0.27	A	749DX274(1)063A(2)(3)	1.0	6	10
0.33	A	749DX334(1)063A(2)(3)	1.0	6	10
0.39	A	749DX394(1)063A(2)(3)	1.0	6	10
0.47	A	749DX474(1)063A(2)(3)	1.0	6	10
0.56	A	749DX564(1)063A(2)(3)	1.0	6	10
0.68	A	749DX684(1)063A(2)(3)	1.0	6	10



<b>STANDARD/EXTENDED RATINGS - 749DX</b>					
<b>CAPACITANCE</b> $C_R$ ( $\mu$ F)	<b>CASE CODE</b>	<b>PART NUMBER</b>	<b>MAX. DC LEAKAGE</b> AT + 25 °C ( $\mu$ A)	<b>MAX. DF</b> AT + 25 °C 120 Hz, (%)	<b>MAX. IMPEDANCE</b> AT + 25 °C 100 kHz ( $\Omega$ )
<b>63 VDC AT + 85 °C, 40 VDC AT + 125 °C</b>					
0.82	B	749DX824(1)063B(2)(3)	1.0	6	5
1	B	749DX105(1)063B(2)(3)	1.0	6	5
1.2	B	749DX125(1)063B(2)(3)	1.0	6	5
1.5	B	749DX155(1)063B(2)(3)	1.0	6	5
1.8	B	749DX185(1)063B(2)(3)	1.1	6	5
2.2	B	749DX225(1)063B(2)(3)	1.4	6	5
2.7	B	749DX275(1)063B(2)(3)	1.7	6	5
3.3	B	749DX335(1)063B(2)(3)	2.1	6	5
3.9	B	749DX395(1)063B(2)(3)	2.5	6	5
4.7	C	749DX475(1)063C(2)(3)	3.0	6	2
5.6	C	749DX565(1)063C(2)(3)	3.5	6	2
6.8	C	749DX685(1)063C(2)(3)	4.3	6	2
8.2	C	749DX825(1)063C(2)(3)	5.2	6	2
10	C	749DX106(1)063C(2)(3)	6.3	6	2
12	D	749DX126(1)063D(2)(3)	7.6	6	1
15	D	749DX156(1)063D(2)(3)	9.5	6	1
18	D	749DX186(1)063D(2)(3)	11.3	6	1

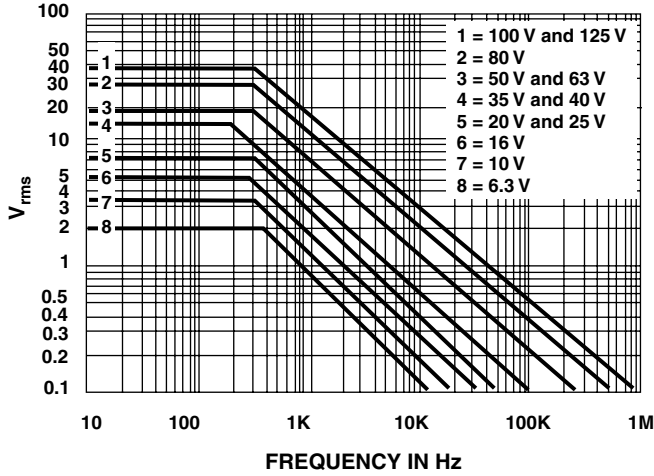
**Notes**

- (1) Capacitance Tolerance Code: X5, X9, X0
- (2) Style number - 0 or 2
- (3) Packaging Code

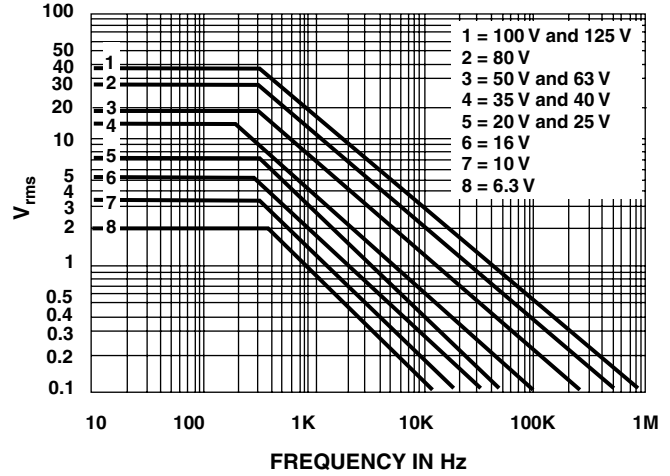


**TYPICAL CURVES RIPPLE VOLTAGE AT + 25 °C**

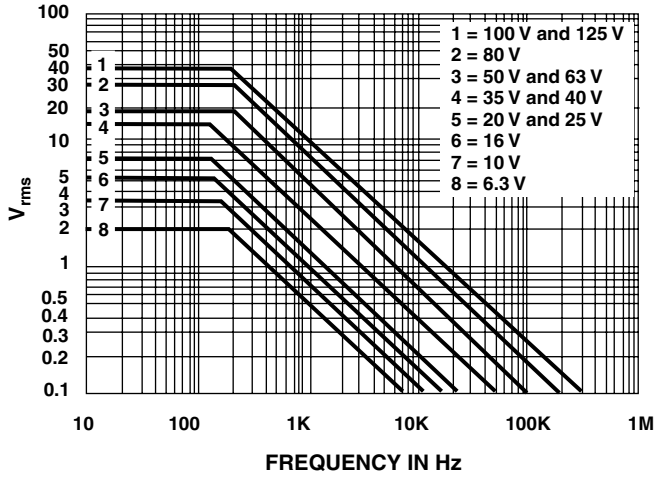
**CASE "A" CAPACITORS**



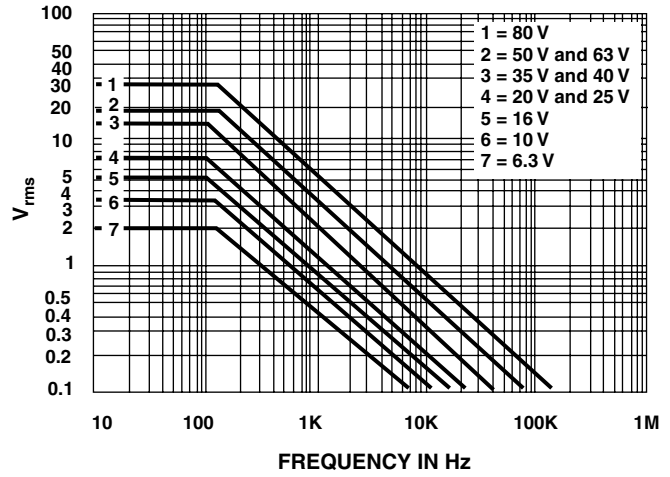
**CASE "B" CAPACITORS**



**CASE "C" CAPACITORS**



**CASE "D" CAPACITORS**



**PERFORMANCE CHARACTERISTICS**

**1. Operating temperature:**

- 55 °C to + 85 °C with rated DC voltage  $U_R$  applied,  
+ 85 °C to + 125 °C with linear voltage derating  
to category voltage  $U_C$  (only for types CTS1, 749DX).

**2. Capacitance and tolerance:**

Capacitance measured at 100 Hz and + 25 °C shall be within the specified tolerance limits of the nominal rating. Capacitance measurement shall be made by means of a polarized capacitance bridge. The polarizing voltage shall be of 2.2 V. The maximum voltage applied during measurements shall be 1.0  $V_{rms}$  at 100 Hz and + 25 °C.

**3. Reverse voltage:**

These capacitors are capable of withstanding peak voltage in the reverse direction equal to: 15 % of the rated DC voltage at + 25 °C, 5 % of the rated DC voltage at + 85 °C.

**4. Surge voltage:**

Table 1

PRODUCT TYPE	SURGE VOLTAGE AT + 85 °C	SURGE VOLTAGE AT + 125 °C
CTS13	1.30 $U_R$	-
749DX/CTS1	1.30 $U_R$	1.30 $U_C$

Capacitors shall withstand the surge voltage applied in series with a 1000 W resistor, at the rate of 1.5 min on, 5.5 min off, for 1000 successive test cycles at + 85 °C or at + 125 °C. After test, dissipation factor and leakage current shall meet the initial requirements at + 25 °C (see below), capacitance change shall not exceed ± 10 % of initial value at + 25 °C.

**5. Leakage current:**

Rated voltage  $U_R$  shall be applied to capacitors during five minutes with a resistor of 1000  $\Omega$  in series with each capacitor, before making DC leakage current measurements. The leakage current shall not exceed the following limits:

Table 2

TEMPERATURE	CTS1/CTS13/749DX
+ 25 °C	0.01 $C_R \times U_R$ or 1 $\mu A$ whichever is greater
+ 85 °C	0.1 $C_R \times U_R$ or 10 $\mu A$ whichever is greater
+ 125 °C	0.125 $C_R \times U_R$ or 12.5 $\mu A$ whichever is greater

**6. Dissipation factor:**

The dissipation factor, when measured at 100 Hz, shall not exceed the values below:

Table 3

TEMP.	CTS1/CTS13		749DX	
	$C_R U_R \leq 1900$	$C_R U_R > 1900$	$C_R \leq 100$	$C_R > 100$
- 55 °C	9 %	11 %	8 %	10 %
+ 25 °C	6 %	8 %	6 %	8 %
+ 85 °C	9 %	11 %	-	-
+ 125 °C (1)	12 %	14 %	10 %	11 %

Note (1) Not applicable for CTS13

**7. Stability at low and high temperature:**

Capacitance change with temperature shall not exceed the limits of the following table, leakage current and dissipation factor shall be within the limits specified in Tables 2 and 3.

Table 4

TEMPERATURE	CTS1/CTS13/749DX
- 55 °C	- 10 %
+ 85 °C	+ 12 %
+ 125 °C (2)	+ 15 %

Note (2) Not applicable for CTS13

**8. Impedance:**

The impedance measured at 100 kHz and 25 °C shall not exceed the following values:

Table 5

CASE CODE	Z ( $\Omega$ ) (3)
A	10
B	5
C	2
D	1

Note (3) Not applicable for  $C_R \leq 0.68 \mu F$

**9. Life test:**

After 2000 h at + 85 °C with rated DC voltage applied, or after 2000 h at + 125 °C with category DC voltage applied (for types CTS1, 749DX only) capacitors shall meet the requirements in table 6.

Table 6

PRODUCT TYPE	CAPACITANCE CHANGE	DISSIPATION FACTOR	DC LEAKAGE CURRENT
CTS1 CTS13 749DX	Within ± 10 % of initial value at + 25 °C	Within initial requirement at + 25 °C	Within 125 % of initial requirements at + 25 °C





**PERFORMANCE CHARACTERISTICS**

(Continued)

**10. Humidity test:**

After 56 days (1350 h) at + 40 °C, 90 % to 95 % of relative humidity (per IEC 68-2-3) with no voltage applied, capacitors shall meet the requirements in table 7 below.

Table 7

<b>CAPACITANCE CHANGE</b>	Within ± 3 % of initial value
<b>DC LEAKAGE CURRENT</b>	Within initial requirement at + 25 °C - Table 2
<b>DISSIPATION FACTOR</b>	Within initial requirement at + 25 °C - Table 3

Table 8

<b>CAPACITANCE CHANGE</b>	Within ± 5 % of initial value at + 25 °C
<b>DC LEAKAGE CURRENT</b>	Within initial requirement at + 25 °C - Table 2
<b>DISSIPATION FACTOR</b>	Within initial requirement at + 25 °C - Table 3

Typical values of charge-discharge current (per above test conditions).

<b>RATED VOLTAGE U<sub>R</sub> (V)</b>	<b>CHARGE-DISCHARGE CURRENT (A)</b>
6.3	13
10	20
16	32
25	50
40	80
50	100
63	126

**12. Insulation test:**

For capacitors with insulating sleeves, a DC voltage of 100 V shall be applied for one minute between the case of the capacitor and a metal “V” block in intimate contact with the insulating sleeve. The insulating resistance measured in these conditions shall be at least 100 MΩ.

**13. Lead pull test:**

Leads shall withstand the following test (IEC 68-2-2): Tensile stress of 5N (cases A and B) or 10N (cases C and D) for 10 s in any direction

One bend in each direction  
Two cosecutive rotations of 180°

**GUIDE TO APPLICATION**

**1. A-C Ripple current:**

The maximum allowable ripple current shall be determined from the formula:

$$I_{rms} = \sqrt{\frac{P}{R_{ESR}}}$$

where,

P = Power Dissipation in W at + 25 °C as given below  
R<sub>ESR</sub> = The capacitor Equivalent Series resistance at the specified frequency.

**2. A-C Ripple voltage:**

The maximum allowable ripple voltage shall be determined from the formula:

$$V_{rms} = \sqrt{\frac{P}{R_{ESR}}} \times Z$$

where,

Z = The capacitor Impedance at the specified frequency.

The calculations are summarized on the graphs page 59 giving the maximum available ripple voltage as a function of frequency.

However, the sum of the peak AC voltage plus the DC voltage shall not exceed the rated DC voltage at + 85 °C of the capacitor. The sum of the negative peak AC voltage plus the DC voltage shall not allow a voltage reversal exceeding 15 % of the rated DC voltage.

**3. AC Ripple current or voltage derating factor:**

If these capacitors are to be operated at temperatures above + 25 °C, the permissible rms ripple current or voltage shall be calculated using the derating factors in the table below:

<b>TEMPERATURE</b>	<b>DERATING FACTOR</b>
+ 25 °C	1.0
+ 55 °C	0.8
+ 85 °C	0.6
+ 125 °C	0.4

**4. Power dissipation:**

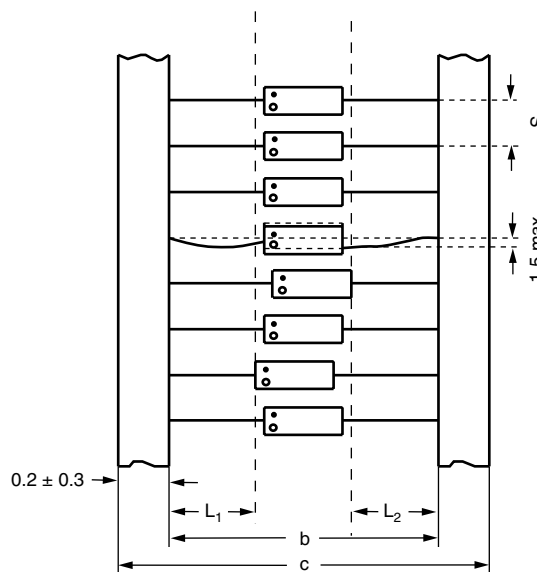
Power dissipation will be affected by the heat sinking capability of the mounting surface. Non-sinusoidal ripple current may produce heating effects which differ from those shown in the following table. It is important that the equivalent I<sub>rms</sub> value be established when calculating permissible operating levels.

<b>CASE CODE</b>	<b>POWER DISSIPATION AT + 25 °C (W)</b>
A	0.115
B	0.145
C	0.185
D	0.225

## TAPE AND REEL PACKING

MEETS IEC 286-1

$L_1 - L_2 = 1.5 \text{ mm max.}$   
 S = component spacing (cumulative tolerance on 20 units = 4 mm)  
 b = tape spacing  
 c = overall length



## DIMENSIONS in millimeters

CASE SIZE	REEL AND AMMO S	REEL PACK					AMMO PACK			BULK
		OPTION P		OPTION R		QTY PER REEL	OPTION G		QTY PER BOX	QTY PER PACK
		b	c MAX.	b	c MAX.		b	c MAX.		
A	$5.0 \pm 0.3$	$63 \pm 2$	78	$53 \pm 2$	68	1000	$53 \pm 2$	68	500	100
B	$5.0 \pm 0.3$	$63 \pm 2$	78	$53 \pm 2$	68	1000	$53 \pm 2$	68	500	75
C	$10.0 \pm 0.3$	$63 \pm 2$	78	$63 \pm 2$	78	500	$53 \pm 2$	68	250	50
D	$10.0 \pm 0.3$	$63 \pm 2$	78	$63 \pm 2$	78	500	$53 \pm 2$	68	250	25
PACKAGING CODE		P		R			G			B

## MARKING

Capacitors shall be marked with SPRAGUE and/or the registered trademark 2 at vendor's option; the type number; rated capacitance and tolerance (with a letter code, if different from  $\pm 20\%$ ,  $K = \pm 10\%$ ;  $J = \pm 5\%$ ); rated DC voltage at  $+ 85^\circ\text{C}$  and the date code of manufacture.

Capacitors shall be marked on one end with a "plus" sign (+) to identify the positive terminal.



## Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Tantalum Capacitors - Solid SMD category:](#)*

*Click to view products by [Vishay manufacturer:](#)*

Other Similar products are found below :

[B45197-A2157-M509](#) [B45197A5226M409](#) [CWR09JC105KCB\M100](#) [CWR11CH107KBA](#) [TCSCS1A336KBAR](#) [419-2060-501](#) [B45196-H5106-K309](#) [B45196-H6226-K509](#) [CWR29JC106KBEZ](#) [T83D475K050RCCL](#) [591D158X06R3R2T20H](#) [M39006/22-0640H](#) [M39003/01-2596](#) [TCSCS1A476KBAR](#) [T83E107K016RCCL](#) [T83D685K035RCCL](#) [293D475X0035B2DE3](#) [TMCMB1C475KTRF](#) [293D155X9020A2DE3](#) [298W476X06R3M2T](#) [298W107X0004M2T](#) [CWR29NC225KDFC](#) [CWR29KC156KDHC\100](#) [CWR29HH155KCBB](#) [293D476X9035E2TE3](#) [CWR29KC226JCGC](#) [T513X227K016BH4585](#) [T97H107M040HSA](#) [595D686X9010B2T](#) [T25D337M016CSZ](#) [591D156X9025R8T15H](#) [594D686X9016C2T](#) [595D106X0025C8T](#) [CWR29DC226KBDA\TR](#) [CWR29FC106KBBA\TR](#) [CWR29FC686KBGA\TR](#) [CWR29FC157KBXA\TR](#) [CWR29HC105KBAA\TR](#) [CA55-B6R3M107T](#) [CA55-E025M107T](#) [TC212B475K035Y](#) [TAZH685K035LBSB0824](#) [TAZG107K010LBSB0800](#) [TAZH475K050LBSB0H23](#) [TAZH156K025CBSZ0824](#) [TBJD156K025CBSZ0824](#) [TMCSA1V154MTRF](#) [TMCSA0J225MTRF](#) [TMCSA1A155MTRF](#) [TMCSA1D684MTRF](#)