



Solid-Electrolyte TANTALEX™ Capacitors, Hermetically Sealed, Axial-Lead, CECC Approved



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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



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 | |

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

APPLICATIONS

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

| CTS13 | 105 | X0 | 040 | A | 2 | P | E3 |
|---|--|---|--|-----------------------------------|--|-----------------------------|---|
| TYPE | CAPACITANCE | CAPACITANCE TOLERANCE | DC VOLTAGE RATING AT +85 °C | CASE CODE | STYLE NUMBER | PACKAGING | RoHS-COMPLIANT |
| Identifies the basic capacitor design CTS1 = CECC 30201-002 CTS13 = CECC 30201-005 749DX = CECC 30201-001 / CECC 30201-029 | 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 Ratings and Case Codes table. | 0 = bare case 2 = plastic-film insulation | See Tape and Reel Packaging | E3 = 100 % tin termination (RoHS-compliant) Blank = SnPb termination |

| DIMENSIONS in inches [millimeters] | | | | |
|------------------------------------|------------------------|--------------|-------------|------------------------------|
| | | | | |
| CASE CODE | $L_1 \pm 0.031$ [0.79] | J max. | D max. | LEAD DIAMETER + 10 %, - 0.05 |
| A | 0.286 [7.26] | 0.402 [10.2] | 0.141 [3.6] | 0.020 [0.5] |
| B | 0.474 [12.04] | 0.590 [15.0] | 0.192 [4.9] | 0.020 [0.5] |
| C | 0.686 [17.42] | 0.807 [20.5] | 0.295 [7.5] | 0.025 [0.6] |
| D | 0.786 [19.96] | 0.945 [24.0] | 0.364 [9.1] | 0.025 [0.6] |



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



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



| RATINGS AND CASE CODES - TYPE 749DX | | | | | | | | | |
|-------------------------------------|---|-------|------|------|------|------|------|------|------|
| C _R (μF) | 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 | | | | | | | | | |
| 0.10 | | | | | | A | A | | A |
| 0.12 | | | | | | A | A | | A |
| 0.15 | | | | | | A | A | | A |
| 0.18 | | | | | | A | A | | A |
| 0.22 | | | | | | A | A | | A |
| 0.27 | | | | | | A | A | | A |
| 0.33 | | | | | | A | A | | A |
| 0.39 | | | | | | A | A | | A |
| 0.47 | | | | | | A | A | | A |
| 0.56 | | | | | | A | A | | A |
| 0.68 | | | | | | A | A | | A |
| 0.82 | | | | | | A | A | A | B |
| 1.0 | | | | | | A | A | A | B |
| 1.2 | | | | | A | B | B | B | B |
| 1.5 | | | | | A | B | B | B | B |
| 1.8 | | | | A | | B | B | B | B |
| 2.2 | | | | A | | B | B | B | B |
| 2.7 | | | A | | | B | B | B | B |
| 3.3 | | | A | | | B | B | B | B |
| 3.9 | | A | | | | B | B | B | B |
| 4.7 | | A | | | | B | B | B | C |
| 5.6 | A | | | | | B | B | C | C |
| 6.8 | A | | | | | B | B | C | C |
| 8.2 | | | | | B | C | C | C | C |
| 10 | | | | | B | C | C | C | C |
| 12 | | | | B | | C | C | C | D |
| 15 | | | | B | | C | C | C | D |
| 18 | | | B | | | C | C | C | D |
| 22 | | | B | | | C | C | D | |
| 27 | | B | | | C | D | D | | |
| 33 | | B | | | C | D | D | | |
| 39 | | B | | C | | D | D | | |
| 47 | B | | | C | | D | | | |
| 56 | B | | C | | D | D | | | |
| 68 | | | C | | D | | | | |
| 82 | | C | | D | | | | | |
| 100 | | C | | D | | | | | |
| 120 | | C | D | | | | | | |
| 150 | C | | D | | | | | | |
| 180 | C | D | | | | | | | |
| 220 | | D | | | | | | | |
| 270 | D | | | | | | | | |
| 330 | D | | | | | | | | |



| STANDARD RATINGS / EXTENDED RATINGS - CTS1 | | | | | | |
|---|-----------|----------------------|-------------------------------------|---------------------------------------|--|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT +25 °C (μ A) | MAX. DF AT +25 °C 120 Hz (%) | MAX. IMPEDANCE AT +25 °C 100 kHz (Ω) | |
| 6.3 V_{DC} AT +85 °C; 4 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 10 V_{DC} AT +85 °C; 6.3 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 16 V_{DC} AT +85 °C; 10 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 25 V_{DC} AT +85 °C; 16 V_{DC} AT +125 °C | | | | | | |
| 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 | |

Note

- Part number definitions:
 - Capacitance tolerance code: X5, X9, X0
 - Style number: 0 or 2
 - Packaging code



| STANDARD RATINGS / EXTENDED RATINGS - CTS1 | | | | | | |
|--|-----------|----------------------|-------------------------------------|---------------------------------------|--|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT +25 °C (μ A) | MAX. DF AT +25 °C 120 Hz (%) | MAX. IMPEDANCE AT +25 °C 100 kHz (Ω) | |
| 40 V_{DC} AT +85 °C; 25 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 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 | |
| 50 V_{DC} AT +85 °C; 33 V_{DC} AT +125 °C | | | | | | |
| 0.27 | A | CTS1274(1)050A(2)(3) | 1.0 | 6 | n/a | |
| 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 | |

Note

- Part number definitions:
 - Capacitance tolerance code: X5, X9, X0
 - Style number: 0 or 2
 - Packaging code



| STANDARD RATINGS / EXTENDED RATINGS - CTS1 | | | | | | |
|--|-----------|----------------------|-------------------------------------|---------------------------------------|--|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT +25 °C (μ A) | MAX. DF AT +25 °C 120 Hz (%) | MAX. IMPEDANCE AT +25 °C 100 kHz (Ω) | |
| 50 V_{DC} AT +85 °C; 33 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 63 V_{DC} AT +85 °C; 40 V_{DC} AT +125 °C | | | | | | |
| 0.10 | A | CTS1104(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.12 | A | CTS1124(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.15 | A | CTS1154(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.18 | A | CTS1184(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.22 | A | CTS1224(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.27 | A | CTS1274(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 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 | |

Note

- Part number definitions:
 - Capacitance tolerance code: X5, X9, X0
 - Style number: 0 or 2
 - Packaging code



| STANDARD RATINGS / EXTENDED RATINGS - CTS13 | | | | | | |
|---|-----------|-----------------------|-------------------------------------|---------------------------------------|--|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT +25 °C (μ A) | MAX. DF AT +25 °C 120 Hz (%) | MAX. IMPEDANCE AT +25 °C 100 kHz (Ω) | |
| 6.3 V_{DC} AT +85 °C | | | | | | |
| 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 | |
| 10 V_{DC} AT +85 °C | | | | | | |
| 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 | |
| 16 V_{DC} AT +85 °C | | | | | | |
| 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 | |
| 20 V_{DC} AT +85 °C | | | | | | |
| 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 | |
| 25 V_{DC} AT +85 °C | | | | | | |
| 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 | |

Note

- Part number definitions:
 - Capacitance tolerance code: X5, X9, X0
 - Style number: 0 or 2
 - Packaging code



| STANDARD RATINGS / EXTENDED RATINGS - CTS13 | | | | | | |
|---|-----------|-----------------------|-------------------------------------|---------------------------------------|--|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT +25 °C (μ A) | MAX. DF AT +25 °C 120 Hz (%) | MAX. IMPEDANCE AT +25 °C 100 kHz (Ω) | |
| 40 V_{DC} AT +85 °C | | | | | | |
| 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 | |
| 50 V_{DC} AT +85 °C | | | | | | |
| 0.27 | A | CTS13274(1)050A(2)(3) | 1.0 | 6 | n/a | |
| 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 | |

Note

- Part number definitions:
 - Capacitance tolerance code: X5, X9, X0
 - Style number: 0 or 2
 - Packaging code



| STANDARD RATINGS / EXTENDED RATINGS - CTS13 | | | | | | |
|---|-----------|-----------------------|-------------------------------------|---------------------------------------|--|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT +25 °C (μ A) | MAX. DF AT +25 °C 120 Hz (%) | MAX. IMPEDANCE AT +25 °C 100 kHz (Ω) | |
| 50 V_{DC} AT +85 °C | | | | | | |
| 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 | |
| 63 V_{DC} AT +85 °C | | | | | | |
| 0.10 | A | CTS13104(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.12 | A | CTS13124(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.15 | A | CTS13154(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.18 | A | CTS13184(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.22 | A | CTS13224(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.27 | A | CTS13274(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 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 | |

Note

- Part number definitions:
 - (1) Capacitance tolerance code: X5, X9, X0
 - (2) Style number: 0 or 2
 - (3) Packaging code



| STANDARD RATINGS / EXTENDED RATINGS - 749DX | | | | | | |
|---|-----------|-----------------------|-------------------------------------|---------------------------------------|--|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT +25 °C (μ A) | MAX. DF AT +25 °C 120 Hz (%) | MAX. IMPEDANCE AT +25 °C 100 kHz (Ω) | |
| 6.3 V_{DC} AT +85 °C; 4 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 10 V_{DC} AT +85 °C; 6.3 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 16 V_{DC} AT +85 °C; 10 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 20 V_{DC} AT +85 °C; 13 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 25 V_{DC} AT +85 °C; 16 V_{DC} AT +125 °C | | | | | | |
| 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 | |

Note

- Part number definitions:
 - Capacitance tolerance code: X5, X9, X0
 - Style number: 0 or 2
 - Packaging code



| STANDARD RATINGS / EXTENDED RATINGS - 749DX | | | | | | |
|--|-----------|-----------------------|-------------------------------------|---------------------------------------|--|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT +25 °C (μ A) | MAX. DF AT +25 °C 120 Hz (%) | MAX. IMPEDANCE AT +25 °C 100 kHz (Ω) | |
| 25 V_{DC} AT +85 °C; 16 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 35 V_{DC} AT +85 °C; 23 V_{DC} AT +125 °C | | | | | | |
| 0.10 | A | 749DX104(1)035A(2)(3) | 1.0 | 6 | n/a | |
| 0.12 | A | 749DX124(1)035A(2)(3) | 1.0 | 6 | n/a | |
| 0.15 | A | 749DX154(1)035A(2)(3) | 1.0 | 6 | n/a | |
| 0.18 | A | 749DX184(1)035A(2)(3) | 1.0 | 6 | n/a | |
| 0.22 | A | 749DX224(1)035A(2)(3) | 1.0 | 6 | n/a | |
| 0.27 | A | 749DX274(1)035A(2)(3) | 1.0 | 6 | n/a | |
| 0.33 | A | 749DX334(1)035A(2)(3) | 1.0 | 6 | n/a | |
| 0.39 | A | 749DX394(1)035A(2)(3) | 1.0 | 6 | n/a | |
| 0.47 | A | 749DX474(1)035A(2)(3) | 1.0 | 6 | n/a | |
| 0.56 | A | 749DX564(1)035A(2)(3) | 1.0 | 6 | n/a | |
| 0.68 | A | 749DX684(1)035A(2)(3) | 1.0 | 6 | 10 | |
| 0.82 | A | 749DX824(1)035A(2)(3) | 1.0 | 6 | 10 | |
| 1.0 | 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 | |

Note

- Part number definitions:
 - Capacitance tolerance code: X5, X9, X0
 - Style number: 0 or 2
 - Packaging code



| STANDARD RATINGS / EXTENDED RATINGS - 749DX | | | | | | |
|--|-----------|-----------------------|-------------------------------------|---------------------------------------|--|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT +25 °C (μ A) | MAX. DF AT +25 °C 120 Hz (%) | MAX. IMPEDANCE AT +25 °C 100 kHz (Ω) | |
| 40 V_{DC} AT +85 °C; 25 V_{DC} AT +125 °C | | | | | | |
| 0.10 | A | 749DX104(1)040A(2)(3) | 1.0 | 6 | n/a | |
| 0.12 | A | 749DX124(1)040A(2)(3) | 1.0 | 6 | n/a | |
| 0.15 | A | 749DX154(1)040A(2)(3) | 1.0 | 6 | n/a | |
| 0.18 | A | 749DX184(1)040A(2)(3) | 1.0 | 6 | n/a | |
| 0.22 | A | 749DX224(1)040A(2)(3) | 1.0 | 6 | n/a | |
| 0.27 | A | 749DX274(1)040A(2)(3) | 1.0 | 6 | n/a | |
| 0.33 | A | 749DX334(1)040A(2)(3) | 1.0 | 6 | n/a | |
| 0.39 | A | 749DX394(1)040A(2)(3) | 1.0 | 6 | n/a | |
| 0.47 | A | 749DX474(1)040A(2)(3) | 1.0 | 6 | n/a | |
| 0.56 | A | 749DX564(1)040A(2)(3) | 1.0 | 6 | n/a | |
| 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 | |
| 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 | |
| 50 V_{DC} AT +85 °C; 33 V_{DC} AT +125 °C | | | | | | |
| 0.82 | A | 749DX824(1)050A(2)(3) | 1.0 | 6 | 10 | |
| 1.0 | 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 | |

Note

- Part number definitions:
 - Capacitance tolerance code: X5, X9, X0
 - Style number: 0 or 2
 - Packaging code



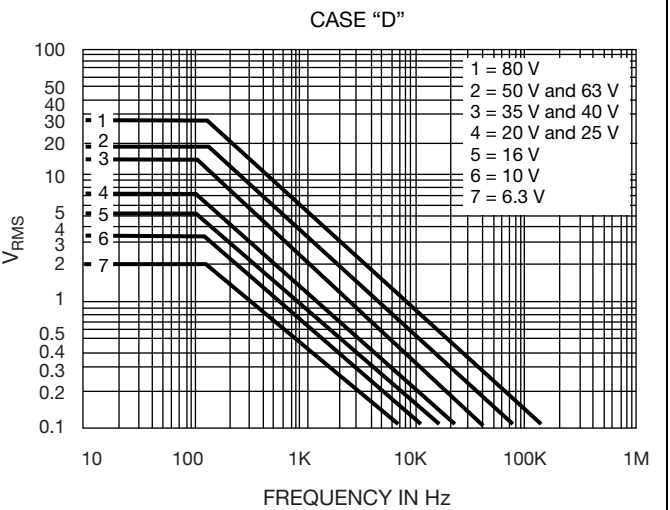
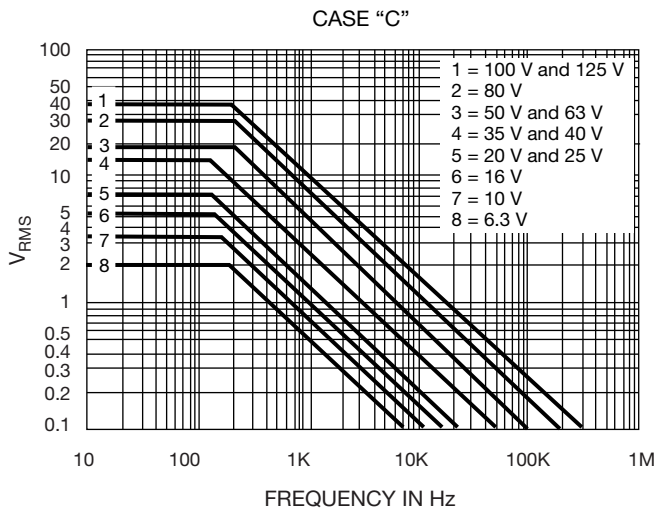
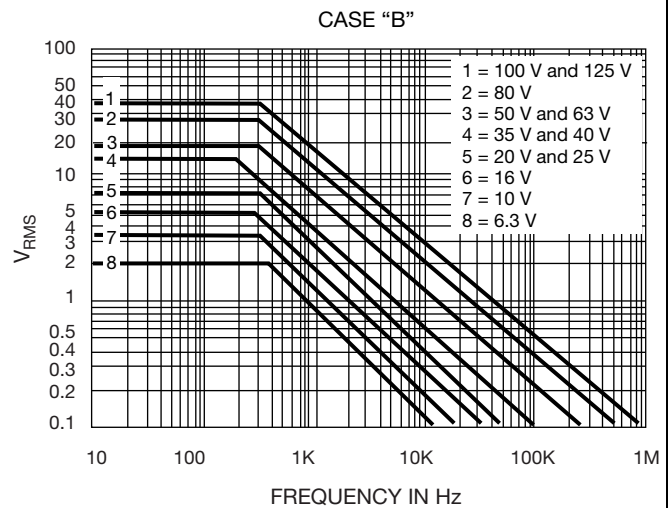
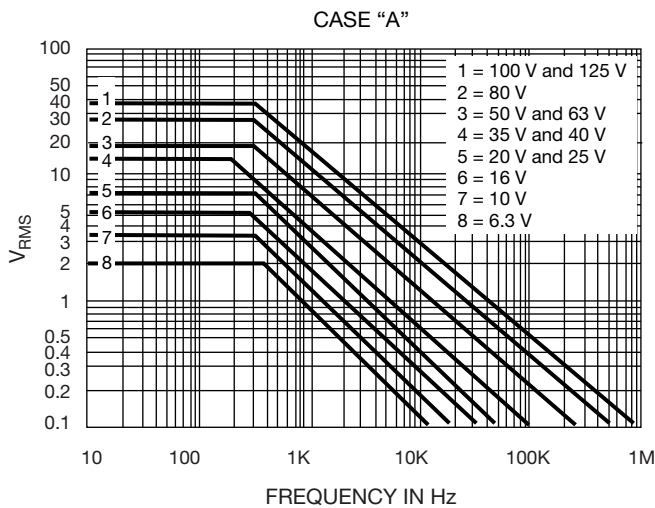
| STANDARD RATINGS / EXTENDED RATINGS - 749DX | | | | | | |
|--|-----------|-----------------------|-------------------------------------|---------------------------------------|--|--|
| CAPACITANCE (μ F) | CASE CODE | PART NUMBER | MAX. DCL AT +25 °C (μ A) | MAX. DF AT +25 °C 120 Hz (%) | MAX. IMPEDANCE AT +25 °C 100 kHz (Ω) | |
| 50 V_{DC} AT +85 °C; 33 V_{DC} AT +125 °C | | | | | | |
| 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 | |
| 63 V_{DC} AT +85 °C; 40 V_{DC} AT +125 °C | | | | | | |
| 0.10 | A | 749DX104(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.12 | A | 749DX124(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.15 | A | 749DX154(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.18 | A | 749DX184(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.22 | A | 749DX224(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.27 | A | 749DX274(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.33 | A | 749DX334(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.39 | A | 749DX394(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.47 | A | 749DX474(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.56 | A | 749DX564(1)063A(2)(3) | 1.0 | 6 | n/a | |
| 0.68 | A | 749DX684(1)063A(2)(3) | 1.0 | 6 | 10 | |
| 0.82 | B | 749DX824(1)063B(2)(3) | 1.0 | 6 | 5 | |
| 1.0 | 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 | |

Note

- Part number definitions:
 - (1) Capacitance tolerance code: X5, X9, X0
 - (2) Style number: 0 or 2
 - (3) Packaging code



TYPICAL CURVES RIPPLE VOLTAGE AT +25 °C



| PRODUCT INFORMATION | |
|--|--|
| Mounting of Through Hole Components | www.vishay.com/doc?40108 |
| Solid Tantalum Capacitors (With MnO ₂ Electrolyte) Voltage Derating | www.vishay.com/doc?40246 |
| SELECTOR GUIDES | |
| Quick Reference Guide | www.vishay.com/doc?40037 |
| Selector Guide | www.vishay.com/doc?49054 |
| Parameter Comparison Guide | www.vishay.com/doc?40033 |
| FAQ | |
| Frequently Asked Questions | www.vishay.com/doc?40110 |



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 W 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 μA whichever is greater |
| +85 °C | 0.1 $C_R \times U_R$ or 10 μA whichever is greater |
| +125 °C | 0.125 $C_R \times U_R$ or 12.5 μA 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 ⁽¹⁾ | +15 % |

Note

⁽¹⁾ 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 (W) ⁽¹⁾ |
|-----------|----------------------|
| A | 10 |
| B | 5 |
| C | 2 |
| D | 1 |

Note

⁽¹⁾ 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

Table with 2 columns: Parameter (Capacitance Change, DC Leakage Current, Dissipation Factor) and Requirement (Within ± 3 % of initial value, etc.)

Table 8

Table with 2 columns: Parameter (Capacitance Change, DC Leakage Current, Dissipation Factor) and Requirement (Within ± 5 % of initial value, etc.)

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

Table with 2 columns: Rated Voltage UR (V) and Charge-Discharge Current (A). Rows include values from 6.3V to 63V.

11. 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.

12. 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 consecutive rotations of 180°

GUIDE TO APPLICATION

1. AC Ripple Current:

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

IRMS = sqrt(P / RESR)

where,

P = power dissipation in W at +25 °C as given below

RESR = the capacitor equivalent series resistance at the specified frequency.

2. AC Ripple Voltage:

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

VRMS = sqrt(P / RESR) x Z

where,

Z = the capacitor impedance at the specified frequency.

The calculations are summarized on the graphs in table "Typical Curves Ripple Voltage at +25 °C" 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:

Table with 2 columns: Temperature and Derating Factor. Rows include values for +25 °C, +55 °C, +85 °C, and +125 °C.

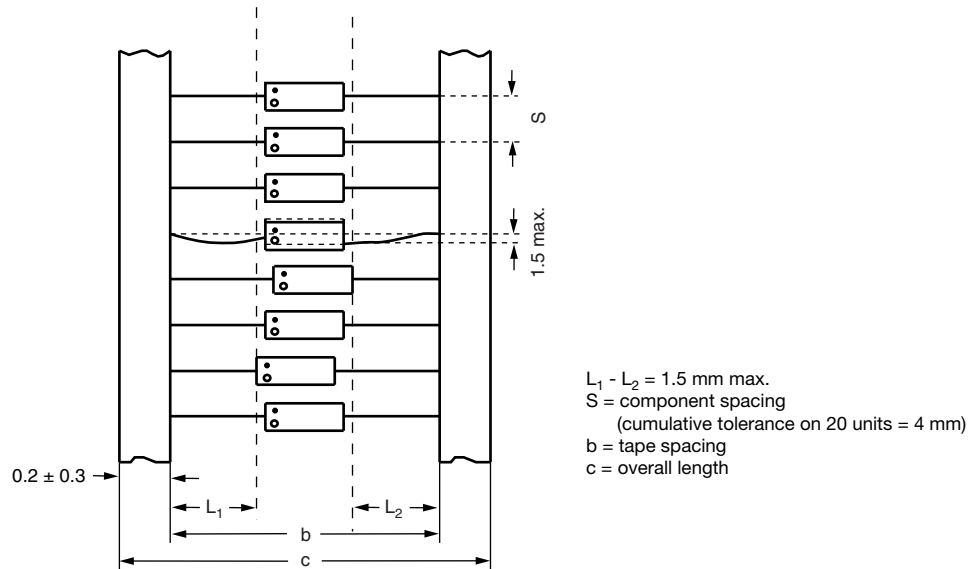
4. Power Dissipation:

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.

Table with 2 columns: Case Code and Power Dissipation at +25 °C (W). Rows include values for cases A, B, C, and D.

TAPE AND REEL PACKAGING

Meets EIA standard RS-296


STANDARD PACKAGING QUANTITY AND 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 ± 0.3 | 63 ± 2 | 78 | 53 ± 2 | 68 | 1000 | 53 ± 2 | 68 | 500 | 100 |
| B | 5.0 ± 0.3 | 63 ± 2 | 78 | 53 ± 2 | 68 | 1000 | 53 ± 2 | 68 | 500 | 75 |
| C | 10.0 ± 0.3 | 63 ± 2 | 78 | 63 ± 2 | 78 | 500 | 53 ± 2 | 68 | 250 | 50 |
| D | 10.0 ± 0.3 | 63 ± 2 | 78 | 63 ± 2 | 78 | 500 | 53 ± 2 | 68 | 250 | 25 |
| PACKAGING CODE | | P | | R | | | G | | | B |

MARKING

Capacitors shall be marked with Vishay Sprague marking (circled 2); 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.



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