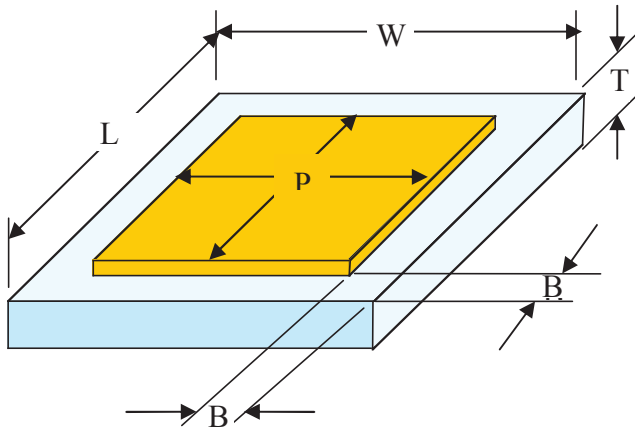


Functional Applications:

- DC Blocking
- RF Bypass
- Filtering
- Tuning
- Submounts

Benefits:

- Recessed metallization minimizes the potential for shorting during die attach
- Bordered area provides contrast for vision recognition during auto placement and bonding



Please see the Border Cap® Dimension chart below



email sales@dilabs.com
or europesales@dilabs.com
or asiasesales@dilabs.com

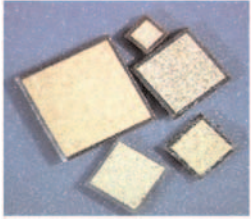
phone 315.655.8710
fax 315.655.0445
www.dilabs.com

Border Cap® Dimensions

| Style | Standard Capacitance Range | L & W Length & Width | | P Pad Size | | B Border | | T Thickness | |
|-------|----------------------------|----------------------|-------------|---------------|-----------|--------------------------|-------------------------|-------------------|------------------|
| | pF | Inches (± .001) | mm (± .025) | Inches (Nom.) | mm (Nom.) | Inches | mm | Inches | mm |
| D10 | .02 – 100 | 0.010 | 0.254 | 0.008 | 0.203 | 0.001 (+.001, -.0005) | 0.025 (+.025, -.013) | 0.0035 – 0.008 | 0.089 – 0.203 |
| D12 | .03 – 100 | 0.012 | 0.305 | 0.010 | 0.254 | | | | |
| D15 | .03 – 200 | 0.015 | 0.381 | 0.011 | 0.279 | 0.002 (+.002, -.0015) | 0.051 (+.005, -.038) | | |
| D20 | .06 – 430 | 0.020 | 0.508 | 0.016 | 0.406 | | | | |
| D25 | .10 – 700 | 0.025 | 0.635 | 0.021 | 0.533 | | | | |
| D30 | .15 – 1000 | 0.030 | 0.762 | 0.026 | 0.660 | | | | |
| D35 | .20 – 1300 | 0.035 | 0.889 | 0.031 | 0.787 | | | | |
| D40 | .25 – 1800 | 0.040 | 1.016 | 0.036 | 0.914 | | | | |
| D50 | .40 - 3000 | 0.050 | 1.270 | 0.046 | 1.168 | | | | |

UX contain special dimensional tolerances - consult factory.
UX thickness only available in .005", .010" and .015"

either single- or double-width border on one or both sides



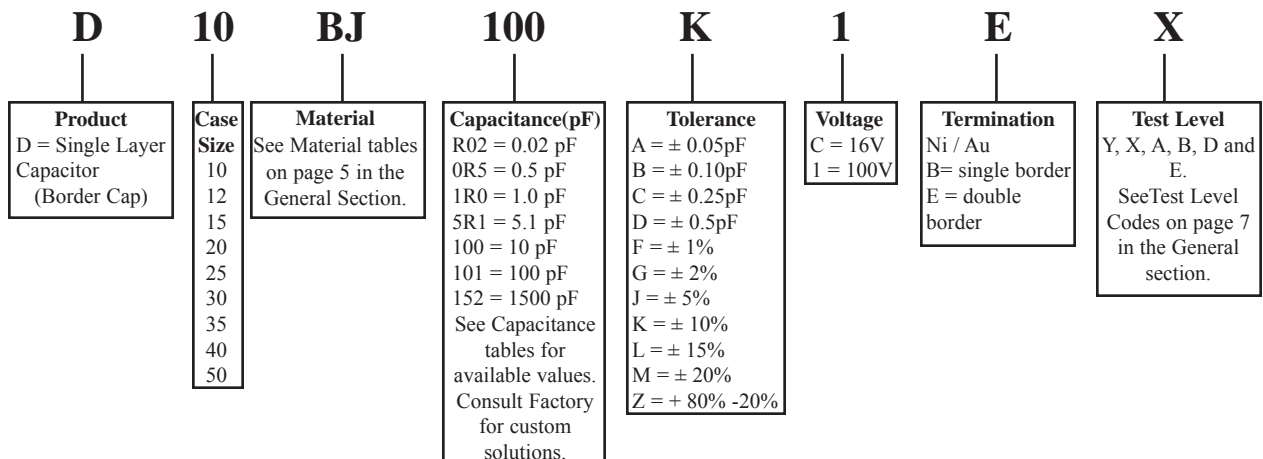
| Border Cap® Designer Kits | | | | | | | | | | |
|---|-----------------|------------------------------|-----|------|-----|------|-----|------|-----|------|
| 160 Capacitors, 10 Each of 16 Values | | | | | | | | | | |
| Part Number | Capacitor Width | 10 Capacitors of each value | | | | | | | | |
| | | Dielectric | pF | Tol. | pF | Tol. | pF | Tol. | pF | Tol. |
| D10XXKITA1EX | .010" | Class I, see codes on pg. 5 | .1 | B | .6 | C | 1.5 | C | 2.7 | D |
| | | Class II, see codes on pg. 5 | .4 | B | 1.0 | C | 2.2 | D | 3.3 | D |
| D15XXKITA1EX D20XXKITA1EX | .015" .020" | Class I, see codes on pg. 5 | 3.9 | D | 5.6 | M | 8.2 | M | 20 | M |
| | | Class II, see codes on pg. 5 | 4.6 | D | 6.2 | M | 10 | M | 33 | M |
| D25XXKITA1EX D30XXKITA1EX | .025" .030" | Class I, see codes on pg. 5 | .15 | B | .7 | C | 1.6 | C | 3.3 | D |
| | | Class II, see codes on pg. 5 | .35 | B | 1.0 | C | 2.2 | C | 6.4 | D |
| | | Class I, see codes on pg. 5 | 6.8 | K | 10 | K | 20 | M | 50 | M |
| | | Class II, see codes on pg. 5 | 8.2 | K | 15 | K | 33 | M | 100 | M |
| | | Class I, see codes on pg. 5 | .4 | B | 1.7 | C | 4.0 | D | 8.2 | K |
| | | Class II, see codes on pg. 5 | .6 | C | 1.9 | C | 5.0 | D | 10 | K |
| | | Class I, see codes on pg. 5 | 0.9 | C | 2.7 | C | 5.6 | D | 20 | K |
| | | Class II, see codes on pg. 5 | 33 | M | 50 | M | 100 | M | 180 | M |

DLI reserves the right to substitute values as required.

Customer may request particular cap value and material for sample kit to prove out designs.

| Table of Standard Values (pF) | | | | | | | | |
|--------------------------------------|------|--------|------|------|------|------|------|------|
| 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 | 0.1 |
| 0.15 | 0.2 | 0.25 | 0.3 | 0.35 | 0.4 | 0.45 | 0.5 | 0.55 |
| 0.6 | 0.65 | 0.7 | 0.75 | 0.8 | 0.85 | 0.9 | 0.95 | 1 |
| 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 |
| 2 | 2.2 | 2.4 | 2.7 | 3 | 3.3 | 3.6 | 3.9 | 4.3 |
| 4.7 | 5.1 | 5.6 | 6.2 | 6.8 | 7.5 | 8.2 | 9.1 | 10 |
| 11 | 12 | 13 | 15 | 16 | 18 | 20 | 22 | 24 |
| 27 | 30 | 33 | 36 | 39 | 43 | 47 | 51 | 56 |
| 62 | 68 | 75 | 82 | 91 | 100 | 110 | 120 | 130 |
| 150 | 160 | 180 | 200 | 220 | 240 | 270 | 300 | 330 |
| 360 | 390 | 430 | 470 | 510 | 560 | 620 | 680 | 750 |
| 820 | 910 | 1000 | 110 | 1200 | 1300 | 1500 | 1600 | 1800 |
| 2000 | 220 | 2400 | 2700 | 3000 | 3300 | 3600 | 3900 | 4300 |
| 5300 | 6500 | 10,000 | | | | | | |

Border Cap® Part Number Identification



Single Border Capacitors

Capacitance Range vs. Case Size by Dielectric Material

| Style | | Class I Dielectric Materials | | | | | | | | | | | | |
|-------|-----|------------------------------|------|------|------|------|------|------|------|------|------|------|-----|-----|
| | | LA | PF | PG | AH | CF | NA | CD | NG | CG | NR | NS | NU | NV |
| D10 | Min | 0.02 | 0.03 | 0.04 | 0.06 | 0.07 | 0.07 | 0.15 | 0.15 | 0.25 | 0.50 | 0.90 | 1.8 | 2.7 |
| | Max | 0.02 | 0.05 | 0.06 | 0.10 | 0.10 | 0.10 | 0.15 | 0.20 | 0.35 | 0.80 | 1.5 | 3.0 | 4.3 |
| D12 | Min | 0.03 | 0.05 | 0.06 | 0.09 | 0.10 | 0.15 | 0.20 | 0.20 | 0.30 | 0.70 | 1.3 | 2.7 | 3.9 |
| | Max | 0.04 | 0.07 | 0.09 | 0.10 | 0.15 | 0.15 | 0.25 | 0.30 | 0.50 | 1.1 | 2.2 | 4.3 | 6.2 |
| D15 | Min | 0.04 | 0.06 | 0.08 | 0.15 | 0.15 | 0.15 | 0.25 | 0.30 | 0.45 | 1.00 | 1.9 | 3.9 | 5.6 |
| | Max | 0.05 | 0.09 | 0.10 | 0.20 | 0.20 | 0.20 | 0.35 | 0.40 | 0.70 | 1.6 | 3.0 | 5.6 | 8.2 |
| D20 | Min | 0.07 | 0.15 | 0.15 | 0.25 | 0.25 | 0.25 | 0.45 | 0.50 | 0.80 | 1.8 | 3.6 | 6.8 | 10 |
| | Max | 0.10 | 0.15 | 0.20 | 0.35 | 0.40 | 0.45 | 0.70 | 0.80 | 1.3 | 3.0 | 5.6 | 11 | 16 |
| D25 | Min | 0.15 | 0.20 | 0.25 | 0.40 | 0.40 | 0.45 | 0.70 | 0.80 | 1.3 | 3.0 | 5.6 | 11 | 16 |
| | Max | 0.15 | 0.30 | 0.40 | 0.60 | 0.65 | 0.70 | 1.1 | 1.3 | 2.0 | 4.7 | 9.1 | 18 | 27 |
| D30 | Min | 0.15 | 0.30 | 0.35 | 0.55 | 0.60 | 0.65 | 0.95 | 1.2 | 1.8 | 4.3 | 8.2 | 16 | 24 |
| | Max | 0.25 | 0.45 | 0.55 | 0.90 | 1.0 | 1.0 | 1.6 | 1.9 | 3.0 | 6.8 | 13 | 27 | 39 |
| D35 | Min | 0.25 | 0.35 | 0.50 | 0.75 | 0.80 | 0.85 | 1.4 | 1.6 | 2.7 | 6.2 | 11 | 22 | 33 |
| | Max | 0.35 | 0.60 | 0.80 | 1.2 | 1.3 | 1.5 | 2.2 | 2.7 | 4.3 | 10 | 18 | 36 | 56 |
| D40 | Min | 0.30 | 0.50 | 0.65 | 1.0 | 1.1 | 1.2 | 1.8 | 2.0 | 3.3 | 7.5 | 15 | 30 | 43 |
| | Max | 0.40 | 0.70 | 0.95 | 1.4 | 1.6 | 1.7 | 2.7 | 3.0 | 5.1 | 11 | 22 | 43 | 62 |
| D50 | Min | 0.45 | 0.8 | 1.0 | 1.5 | 1.7 | 1.8 | 2.7 | 3.3 | 5.1 | 12 | 22 | 47 | 68 |
| | Max | 0.65 | 1.1 | 1.5 | 2.2 | 2.4 | 2.7 | 4.3 | 4.7 | 8.2 | 18 | 33 | 68 | 100 |

| Style | | Class II Materials | | | | | | | | | | | |
|-------|-----|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | | BF | BD | BG | BC | BE | BL | BJ | BN | BT | BU | BV | UX* |
| D10 | Min | 1.3 | 2.2 | 2.7 | 3.9 | 3.6 | 6.2 | 10 | 13 | 13 | 27 | 39 | |
| | Max | 2.2 | 3.3 | 4.3 | 6.2 | 6.2 | 10 | 16 | 22 | 22 | 43 | 68 | 100 |
| D12 | Min | 1.9 | 3.0 | 3.9 | 5.6 | 5.6 | 9.1 | 15 | 20 | 20 | 36 | 62 | |
| | Max | 3.3 | 5.1 | 6.2 | 9.1 | 9.1 | 13 | 24 | 33 | 33 | 62 | 100 | |
| D15 | Min | 2.7 | 4.3 | 5.6 | 8.2 | 8.2 | 13 | 20 | 30 | 30 | 56 | 82 | 130 |
| | Max | 4.3 | 6.8 | 8.2 | 13 | 12 | 20 | 33 | 43 | 43 | 82 | 130 | 200 |
| D20 | Min | 5.1 | 8.2 | 10 | 15 | 15 | 24 | 39 | 51 | 51 | 100 | 150 | 150 |
| | Max | 8.2 | 13 | 16 | 24 | 22 | 36 | 62 | 82 | 82 | 160 | 240 | 430 |
| D25 | Min | 8.2 | 13 | 16 | 24 | 24 | 36 | 62 | 82 | 82 | 150 | 240 | 250 |
| | Max | 13 | 20 | 27 | 39 | 36 | 56 | 100 | 130 | 130 | 240 | 390 | 700 |
| D30 | Min | 12 | 18 | 24 | 36 | 33 | 56 | 91 | 120 | 120 | 220 | 360 | 370 |
| | Max | 20 | 30 | 39 | 56 | 56 | 91 | 150 | 200 | 200 | 360 | 560 | 1000 |
| D35 | Min | 16 | 27 | 33 | 47 | 47 | 75 | 120 | 160 | 160 | 300 | 510 | 500 |
| | Max | 27 | 43 | 56 | 75 | 75 | 120 | 200 | 270 | 270 | 510 | 820 | 1300 |
| D40 | Min | 22 | 33 | 43 | 62 | 62 | 100 | 160 | 220 | 220 | 430 | 680 | 700 |
| | Max | 33 | 51 | 62 | 91 | 91 | 130 | 240 | 330 | 330 | 620 | 1000 | 1800 |
| D50 | Min | 33 | 51 | 68 | 100 | 91 | 150 | 270 | 330 | 330 | 620 | 1000 | 1000 |
| | Max | 51 | 82 | 100 | 150 | 130 | 220 | 390 | 510 | 510 | 1000 | 1500 | 3000 |

Consult factory for additional information or special requirements

*UX Capacitors are 16 volt rated



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Dielectric Laboratories Inc.

2777 Route 20 East
Cazenovia, New York, USA
13035-9433

either single- or double-width border on one or both sides

Double Border Capacitors

| <i>Capacitance Range vs. Case Size by Dielectric Material</i> | | | | | | | | | | | | | | |
|---|-----|--------------------|------|------|------|------|------|------|------|------|------|------|-----|-----|
| Style | | Class II Materials | | | | | | | | | | | | |
| | | LA | PI | PG | AH | CF | NA | CD | NG | CG | NR | NS | NU | NV |
| D10 | Min | 0.02 | 0.03 | 0.04 | 0.06 | 0.07 | 0.07 | 0.15 | 0.15 | 0.20 | 0.45 | 0.85 | 1.7 | 2.7 |
| | Max | 0.02 | 0.04 | 0.06 | 0.09 | 0.10 | 0.10 | 0.15 | 0.15 | 0.30 | 0.70 | 1.3 | 2.7 | 3.9 |
| D12 | Min | 0.03 | 0.04 | 0.06 | 0.09 | 0.10 | 0.09 | 0.15 | 0.20 | 0.30 | 0.65 | 1.3 | 2.7 | 3.9 |
| | Max | 0.03 | 0.06 | 0.08 | 0.10 | 0.15 | 0.15 | 0.25 | 0.25 | 0.45 | 1.1 | 2.0 | 3.9 | 6.2 |
| D15 | Min | 0.03 | 0.06 | 0.07 | 0.15 | 0.15 | 0.15 | 0.20 | 0.25 | 0.40 | 0.85 | 1.6 | 3.3 | 5.1 |
| | Max | 0.04 | 0.08 | 0.10 | 0.15 | 0.15 | 0.15 | 0.30 | 0.35 | 0.55 | 1.3 | 2.4 | 4.7 | 6.8 |
| D20 | Min | 0.06 | 0.10 | 0.15 | 0.20 | 0.25 | 0.25 | 0.40 | 0.45 | 0.70 | 1.6 | 3.0 | 6.2 | 9.1 |
| | Max | 0.09 | 0.15 | 0.20 | 0.30 | 0.35 | 0.35 | 0.60 | 0.70 | 1.1 | 2.4 | 4.7 | 9.1 | 13 |
| D25 | Min | 0.10 | 0.20 | 0.25 | 0.35 | 0.40 | 0.40 | 0.60 | 0.70 | 1.2 | 2.7 | 5.1 | 10 | 15 |
| | Max | 0.15 | 0.25 | 0.35 | 0.50 | 0.65 | 0.60 | 1.0 | 1.1 | 1.9 | 4.3 | 8.2 | 16 | 24 |
| D30 | Min | 0.15 | 0.25 | 0.35 | 0.50 | 0.60 | 0.55 | 0.90 | 1.1 | 1.7 | 3.9 | 7.5 | 15 | 22 |
| | Max | 0.20 | 0.40 | 0.50 | 0.80 | 0.95 | 0.90 | 1.5 | 1.7 | 2.7 | 6.2 | 12 | 24 | 36 |
| D35 | Min | 0.20 | 0.35 | 0.45 | 0.70 | 0.80 | 0.75 | 1.3 | 1.5 | 2.4 | 5.6 | 10 | 20 | 30 |
| | Max | 0.30 | 0.55 | 0.70 | 1.1 | 1.3 | 1.2 | 2.0 | 2.4 | 3.9 | 9.1 | 16 | 33 | 51 |
| D40 | Min | 0.25 | 0.45 | 0.60 | 0.90 | 1.1 | 1.0 | 1.7 | 1.9 | 3.3 | 7.5 | 15 | 27 | 43 |
| | Max | 0.35 | 0.65 | 0.90 | 1.3 | 1.6 | 1.5 | 2.4 | 2.7 | 4.7 | 11 | 20 | 39 | 62 |
| D50 | Min | 0.40 | 0.70 | 0.95 | 1.4 | 1.7 | 1.6 | 2.7 | 3.0 | 5.1 | 12 | 22 | 43 | 68 |
| | Max | 0.60 | 1.1 | 1.4 | 2.2 | 2.4 | 2.4 | 3.9 | 4.7 | 7.5 | 16 | 33 | 62 | 100 |



| Style | | Class II Materials | | | | | | | | | | | | |
|-------|-----|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--|
| | | BF | BD | BG | BC | BE | BL | BJ | BN | BT | BU | BV | UX* | |
| D10 | Min | 1.3 | 2.0 | 2.7 | 3.6 | 3.6 | 5.6 | 9.1 | 13 | 13 | 24 | 39 | | |
| | Max | 2.0 | 3.0 | 3.9 | 5.6 | 5.6 | 9.1 | 15 | 20 | 20 | 39 | 62 | 100 | |
| D12 | Min | 1.8 | 3.0 | 3.9 | 5.6 | 5.1 | 8.2 | 15 | 20 | 20 | 36 | 56 | | |
| | Max | 3.0 | 4.7 | 6.2 | 8.2 | 8.2 | 13 | 22 | 30 | 30 | 56 | 91 | | |
| D15 | Min | 2.4 | 3.9 | 5.1 | 6.8 | 6.8 | 11 | 18 | 24 | 24 | 47 | 75 | 100 | |
| | Max | 3.6 | 5.6 | 6.8 | 10 | 10 | 16 | 27 | 36 | 36 | 68 | 110 | 200 | |
| D20 | Min | 4.7 | 7.5 | 9.1 | 13 | 13 | 20 | 33 | 47 | 47 | 91 | 150 | 150 | |
| | Max | 6.8 | 11 | 13 | 20 | 20 | 30 | 51 | 68 | 68 | 130 | 220 | 370 | |
| D25 | Min | 7.5 | 12 | 15 | 22 | 22 | 33 | 56 | 75 | 75 | 150 | 220 | 220 | |
| | Max | 12 | 18 | 24 | 33 | 33 | 51 | 82 | 120 | 120 | 220 | 360 | 600 | |
| D30 | Min | 11 | 18 | 22 | 33 | 30 | 51 | 82 | 110 | 110 | 220 | 330 | 340 | |
| | Max | 18 | 27 | 36 | 51 | 51 | 82 | 130 | 180 | 180 | 330 | 510 | 900 | |
| D35 | Min | 15 | 24 | 30 | 43 | 43 | 68 | 110 | 150 | 150 | 300 | 470 | 470 | |
| | Max | 24 | 39 | 51 | 68 | 68 | 110 | 180 | 240 | 240 | 470 | 750 | 1300 | |
| D40 | Min | 20 | 33 | 43 | 62 | 56 | 91 | 150 | 200 | 200 | 390 | 620 | 600 | |
| | Max | 30 | 47 | 62 | 82 | 82 | 130 | 220 | 300 | 300 | 560 | 910 | 1800 | |
| D50 | Min | 33 | 51 | 68 | 91 | 91 | 150 | 240 | 330 | 330 | 620 | 1000 | 1000 | |
| | Max | 47 | 75 | 100 | 130 | 130 | 220 | 360 | 470 | 470 | 910 | 1500 | 2800 | |

Consult factory for additional information or special requirements

*UX Capacitors are 16 volt rated