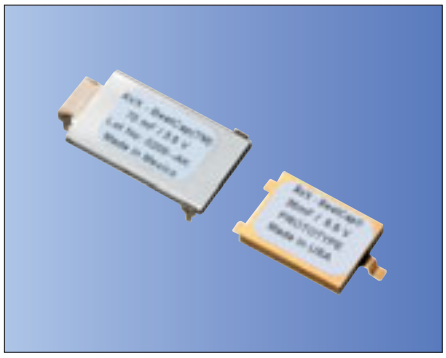
# BestCap
# Low ESR Solid State Double Layer Capacitors



RoHS Compliant

## Features

- High specific capacitance
- 0.01 farad to 1.0 farad
- Very low ESR down to 25 milliOhm
- Low profile: down to 2.1mm height
- High power pulse capability
- Leakage current 5-120 micro amperes
- Non–polar
- Foot prints 20×15mm or 28×17mm or 48×30mm
- Voltage ratings 3.6V-20V
- Operating temperature range: –20 to +70°C

## Applications

- GSM/ GPRS Wireless Communication Products
- ADSL/ xDSL and Other Communication Equipment
- Automatic Meter Reading Systems
- Wireless Alarm Systems
- Memory Back-up
- Mainframe Computer De-coupling
- Hybrid Battery Packs
- Portable Medical Laser
- Energy Harvest

## How to Order

BZ 01 5 A 503 Z A B □□

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Series (BZ: BestCap)

② Size

| | | | |
|---|---|---|---|
| **01/ 11** | 28×17mm | **02/ 12** | 48×30mm |
| **5/ 15** | 20×15mm | **09** | 17×15mm |

③ Rated Voltage (VDC)

| | | | |
|---|---|---|---|
| **3** | 3.6 | **C** | 12.0 |
| **4** | 4.5 | **F** | 15.0 |
| **5** | 5.5 | **G** | 16.0 |
| **9** | 9.0 | **K** | 20.0 |

④ A: Standard
B: LowProfile

⑤ Capacitance (μF) (three digits style)

| | | | |
|---|---|---|---|
| **ex:** | | **204** | 200mF |
| **603** | 60mF | **105** | 1000mF |

⑥ Tolerance

| | |
|---|---|
| **Z** | +80%/ –20% |

⑦ Lead Specifications

| | | | |
|---|---|---|---|
| **A** | Through Hole Type | **L** | 4 terminals surface mount type |
| **H** | Stand off Type | **S** | 3 terminals surface mount type |
| **N** | 2 terminals surface mount type | **W** | Flex wire type |

⑧ Package

| | |
|---|---|
| **B** | Bulk in tray |

⑨ Option

## Ratings and Part Number Reference

● BZ01/ BZ11 case size

| AVX Part Number | Rated Voltage | Cap (mF) | ESR (mΩ@1kHz) | | Leakage Current (μA max) | Height (mm max) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | typ. | max. | | A-lead | H-lead | S-lead | S-lead (AJ)* |
| **BZ013B503Z_B** | 3.6 | 50 | 100 | 120 | 5 | — | — | 3.2 | 2.1 |
| **BZ013A703Z_B** | 3.6 | 70 | 140 | 168 | 5 | 3.5 | 6.4 | 4.0 | 2.9 |
| **BZ113B104Z_B** | 3.6 | 100 | 100 | 120 | 10 | — | — | 3.2 | 2.1 |
| **BZ013A144Z_B** | 3.6 | 140 | 70 | 84 | 5 | 5.3 | 8.2 | 5.8 | — |
| **BZ014B333Z_B** | 4.5 | 33 | 150 | 180 | 5 | — | — | 3.5 | 2.4 |
| **BZ015B303Z_B** | 5.5 | 30 | 160 | 192 | 5 | — | — | 3.8 | 2.7 |
| **BZ015A503Z_B** | 5.5 | 50 | 160 | 192 | 5 | 4.1 | 7.0 | 4.6 | 3.5 |
| **BZ015B603Z_B** | 5.5 | 60 | 80 | 96 | 10 | 5.4 | 8.3 | 5.9 | — |
| **BZ015A104Z_B** | 5.5 | 100 | 80 | 96 | 10 | 6.7 | 9.6 | 7.2 | — |
| **BZ019B223Z_B** | 9.0 | 22 | 250 | 300 | 5 | 4.7 | 7.6 | 5.2 | 4.1 |
| **BZ019A333Z_B** | 9.0 | 33 | 250 | 300 | 5 | 5.5 | 8.4 | 6.0 | 4.9 |
| **BZ01CB153Z_B** | 12.0 | 15 | 350 | 420 | 5 | 5.9 | 8.8 | 6.4 | 5.3 |
| **BZ01CA223Z_B** | 12.0 | 22 | 350 | 420 | 5 | 7.1 | 10.0 | 7.6 | 6.5 |

* Select S-Lead BZ01 BestCap are available with insulation on the bottom of the part and zero clearance from the PCB. To order, please add special requirement AJ to the end of the part number. Example) BZ013B503ZSBAJ

● BZ02/ BZ12 case size

| AVX Part Number | Rated Voltage | Cap (mF) | ESR (mΩ@1kHz) | | Leakage Current (μA max) | Height (mm max) | | |
|---|---|---|---|---|---|---|---|---|
| | | | typ. | max. | | A-lead | H-lead | L-lead |
| **BZ023A284Z_B** | 3.6 | 280 | 45 | 54 | 20 | 3.5 | 6.4 | 3.7 |
| **BZ023A564Z_B** | 3.6 | 560 | 25 | 30 | 40 | 5.3 | 8.2 | 5.5 |
| **BZ025A204Z_B** | 5.5 | 200 | 60 | 72 | 20 | 4.1 | 7.0 | 4.3 |
| **BZ025A404Z_B** | 5.5 | 400 | 35 | 42 | 40 | 6.7 | 9.6 | 6.9 |
| **BZ125A105Z_B** | 5.5 | 1000 | 35 | 42 | 120 | 6.7 | 9.6 | 6.9 |
| **BZ029A124Z_B** | 9.0 | 120 | 70 | 84 | 20 | 5.8 | 8.7 | 6.0 |
| **BZ02CA903Z_B** | 12.0 | 90 | 90 | 108 | 20 | 7.4 | 10.3 | 7.6 |
| **BZ12GA124Z_B** | 16.0 | 120 | 160 | 192 | 60 | 9.1 | — | 9.1 |

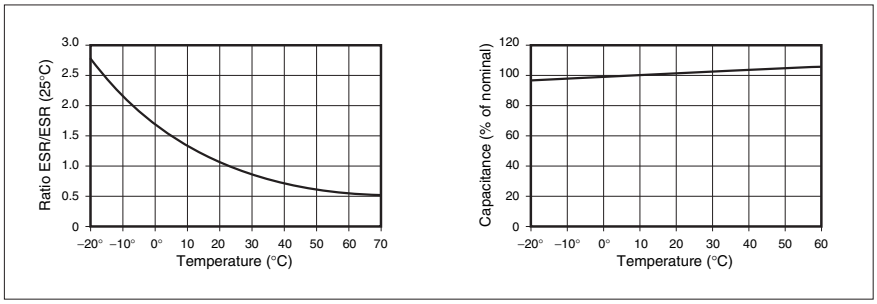
● BZ05/ BZ15 case size

| AVX Part Number | Rated Voltage | Cap (mF) | ESR (mΩ@1kHz) | | Leakage Current (μA max) | Height (mm max) | |
|---|---|---|---|---|---|---|---|
| | | | typ. | max. | | N-lead | S-lead |
| **BZ054B223Z_B** | 4.5 | 22 | 170 | 204 | 5 | 2.3 | 2.3 |
| **BZ154B473Z_B** | 4.5 | 47 | 170 | 204 | 10 | 2.3 | 2.3 |
| **BZ055B153Z_B** | 5.5 | 15 | 250 | 300 | 5 | 2.7 | 2.7 |
| **BZ055A333Z_B** | 5.5 | 33 | 250 | 300 | 5 | 3.5 | 3.5 |
| **BZ055B333Z_B** | 5.5 | 33 | 125 | 150 | 10 | — | 4.8 |
| **BZ055A683Z_B** | 5.5 | 68 | 125 | 150 | 10 | — | 6.1 |
| **BZ155A104Z_B** | 5.5 | 100 | 125 | 150 | 20 | — | 6.1 |
| **BZ05CA103Z_B** | 12.0 | 10 | 500 | 600 | 5 | 6.5 | 6.5 |
| **BZ05FB682Z_B** | 15.0 | 6.8 | 500 | 600 | 10 | 5.8 | 5.8 |
| **BZ05KB472Z_B** | 20.0 | 4.7 | 700 | 840 | 10 | — | 6.7 |

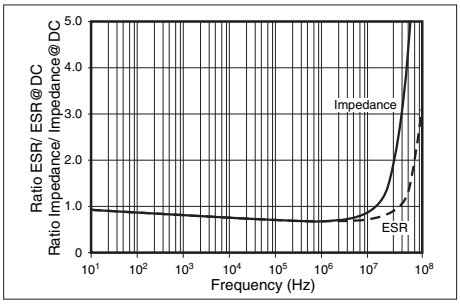
● BZ09 case size

| AVX Part Number | Rated Voltage | Cap (mF) | ESR (mΩ@1kHz) | | Leakage Current (μA max) | Height (mm max) | |
|---|---|---|---|---|---|---|---|
| | | | typ. | max. | | N-lead | S-lead |
| **BZ094B153Z_BA1** | 4.5 | 15 | 250 | 300 | 5 | 2.4 | 2.3 |

## Typical Characteristics Over Temperature Range:

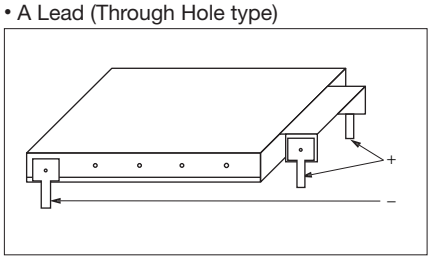



## Impedance and ESR Versus Frequency

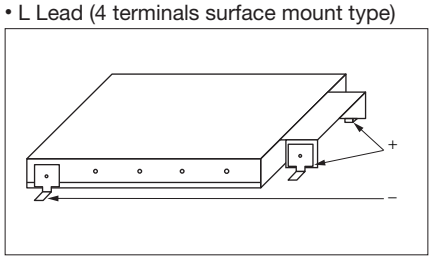



## Lead Types

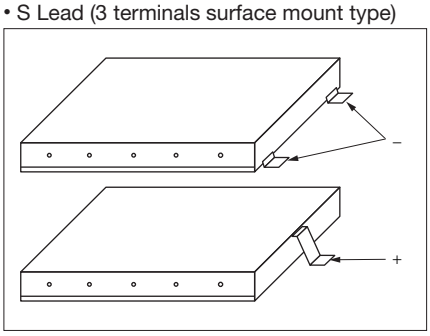
• A Lead (Through Hole type)



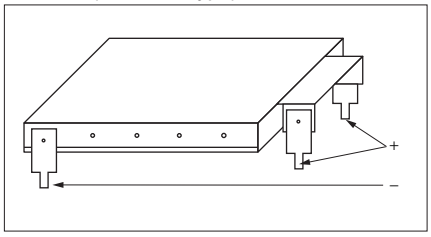

• L Lead (4 terminals surface mount type)



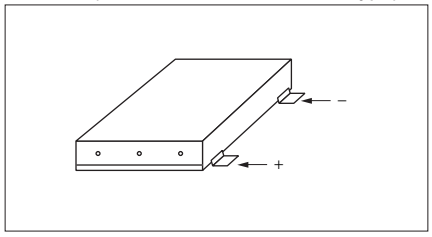

• S Lead (3 terminals surface mount type)




• H Lead (Stand off type)

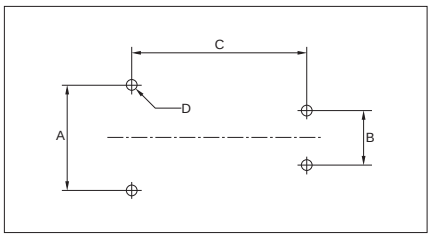



• N Lead (2 terminals surface mount type)




## Recommended Footprint Dimensions

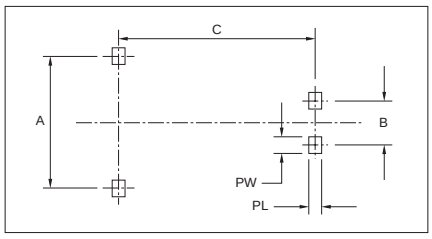
• A Lead




Pad dimensions: mm

| Case | A ±0.05 | B ±0.05 | C ±0.05 | D ±0.1 |
|---|---|---|---|---|
| BZ01 | 17.25 | 8.9 | 28 | ϕ1.4 |
| BZ02/ BZ12 | 30.25 | 8.9 | 48 | ϕ1.4 |

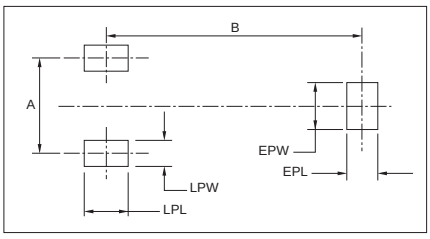
• L Lead




Pad dimensions: mm

| Case | A ±0.1 | B ±0.1 | C ±0.1 | PL ±0.2 | PW ±0.2 |
|---|---|---|---|---|---|
| BZ02 | 32.2 | 10.8 | 48 | 3.2 | 3.7 |

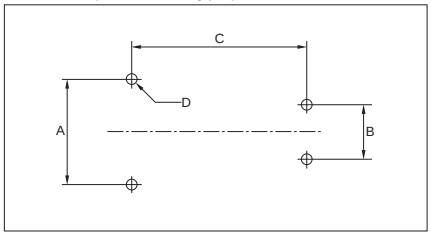
• S Lead (3 terminals surface mount type)




Pad dimensions: mm

| Case | A ±0.1 | B ±0.1 | EPL ±0.1 | EPW ±0.1 | LPL ±0.1 | LPW ±0.1 |
|---|---|---|---|---|---|---|
| BZ01 | 13.0 | 35.1 | 4.5 | 6.0 | 5.8 | 3.5 |
| BZ05 | 10.0 | 25.0 | 3.0 | 4.5 | 2.9 | 4.5 |
| BZ09 | 10.0 | 22.0 | 3.0 | 4.5 | 2.9 | 4.5 |

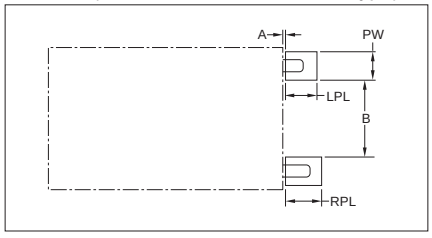
• H Lead (Stand off type)




Pad dimensions: mm

| Case | A ±0.05 | B ±0.05 | C ±0.05 | D ±0.1 |
|---|---|---|---|---|
| BZ01 | 17.25 | 8.9 | 28 | ϕ1.4 |
| BZ02/ BZ12 | 30.25 | 8.9 | 48 | ϕ1.4 |

• N Lead (2 terminals surface mount type)




Pad dimensions: mm

| Case | A ±0.5 | B ±0.1 | PW ±0.1 | LPL ±0.1 | RPL ±0.1 |
|---|---|---|---|---|---|
| BZ05 | 1.0 | 5.9 | 4.1 | 2.5 | 3.5 |
| BZ09 | 1.0 | 5.9 | 4.1 | 2.5 | 3.5 |

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