

High Voltage Ceramic Capacitors (HVCC)

Surface mount ceramic chip capacitor for high voltage applications

Features

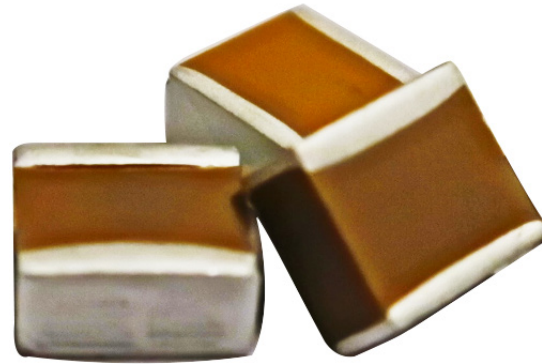
- **Voltage:** up to 2500 VDC
- **Temperature range:** -55 to 125°C
- **Termination:** fired on silver or fired on palladium silver
- **Case sizes available:** 1812, 1825, 2220, 2225, 4040, 4550

Applications

- Military power supplies
- Industrial control applications
- Medical pulse applications
- AC/DC waveform smoothing
- Filters
- Ignitors
- Power generation
- Energy storage
- Electric motors
- Pulse power/weapons
- Resonant circuits

Design and Manufacturing Overview

- Designed and produced in our State College, PA (USA) facility
- 250k sq. ft. facility with (100k sq. ft. dedicated to ceramics)
 - Variable pressure scanning electron microscope
 - Energy dispersive x-ray spectroscopy
 - Low and optical metallographic microscopes
 - Thermo graphical analysis
 - Particle size distribution and surface area analysis
- Experienced ceramics team with both design and process engineers



Advanced Ceramics Capabilities

- Research and development
- Verification
- Finishing
- Heat treatment
- Forming
- Formulating rare earth materials

| HVCC Product Characteristics | |
|--|--------------------|
| Voltage Min. | 500 VDC |
| Voltage Max. | 2500 VDC |
| Temperature Range | -55°C |
| Temperature Max. STD | 125°C |
| Capacitance Range Min. | 5000 pF |
| Capacitance Range Max. | 0.68 µF |
| Termination | Silver |
| Termination Alt. | Palladium Silver |
| Size Min. | 1812 |
| Size Max. | 4550 |
| Stacked Versions | Future Development |
| <i>*Note: BQ, BX, BR stabilities available</i> | |

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HVCC Sizes Manufactured by APITech

| 1812 | | 1825 | | 2220 | | 2225 | | 4040 | | 4550 | |
|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| L | .180±.012 | L | .180±.012 | L | .220±.012 | L | .220±.015 | L | .400±.020 | L | .460±.020 |
| W | .125±.008 | W | .250±.015 | W | .200±.012 | W | .250±.015 | W | .400±.020 | W | .500±.025 |
| T | .065 MAX | T | .065 MAX | T | .110 MAX | T | .110 MAX | T | .110 MAX | T | .110 MAX |
| MB | .24±.014 | MB | .24±.014 | MB | .03±.015 | MB | .03±.015 | MB | .03±.015 | MB | .04±.020 |

| Min. Cap. | | 502 | 502 | 502 | 502 | 502 | 502 |
|--|-------|---------|---------|----------|----------|----------|----------|
| Length | Width | 500 VDC | 630 VDC | 1000 VDC | 1500 VDC | 2000 VDC | 2500 VDC |
| 18 | 12 | 333 | 333 | 183 | -- | -- | -- |
| 18 | 25 | 503 | 503 | 333 | 183 | 822 | 822 |
| 22 | 20 | 503 | 503 | 333 | 183 | 822 | 822 |
| 22 | 25 | 224 | 224 | 104 | 253 | 103 | 103 |
| 40 | 40 | 504 | 504 | 334 | 563 | 223 | 223 |
| 45 | 50 | 684 | 684 | 474 | 683 | 333 | 333 |
| Maximum Capacitance Value (EIA values available) | | | | | | | |

Verification Process

- In-process and final testing for all customer specified parameters
- 100% Electrical testing:
 - Capacitance
 - Dissipation factor
 - Insulation resistance
 - Dielectric strength

Other Testing Available

- Internal integrity acoustic testing
- High-reliability testing via voltage conditioning and thermal shock
- Environmental testing:
 - Humidity
 - Extreme temperature
 - Barometric pressure
 - Vibration
 - Immersion
 - Solderability