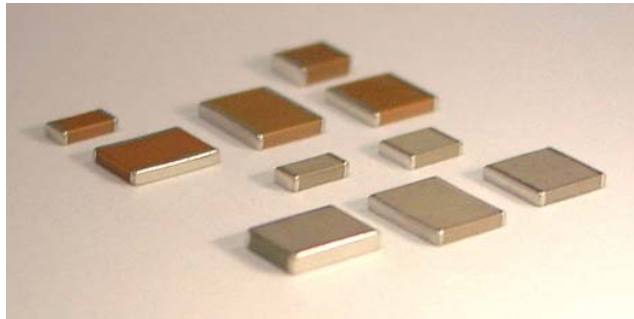




One of the World's Largest Manufacturers of
Discrete Semiconductors and Passive Components

VISHAY Surface-Mount MLCC Capacitors 2009 Review of Products



Build **Vishay**
into your **Design**



One of the World's Largest Manufacturers of
Discrete Semiconductors and Passive Components

Product and Process Strength



VISHAY Vitramon

- Wet manufacturing process
- NME technology (noble metal electrode – palladium)
- Technology strength: X7R and NP0/COG
- Manufactured specialty dielectrics: X8R, BX, high-Q
- Case sizes: 0402 to 3640
- High voltage: up to 4000 VDC
- Termination options: 100 % tin / polymer / non-magnetic / tin-lead / AgPd
- Specialty products:
 - HVArc Guard[®] / high-voltage
 - OMD cap (open mode design / polymer termination)
 - Automotive grade
 - MIL (CDR, DSCC) and “high reliability“ chips
- Market segments: Automotive, industrial, military, aerospace, and medical
- Qualifications: ISO9002 / QS9000 / TS16949 / AEC Q200

VISHAY Basic Commodity Series

- Dry sheet process
- BME (NP0/COG, X7R, X5R, Y5V) technology (base metal electrode – copper)
- Dielectrics: NP0 (COG), X7R, X5R, Y5V, High-Q
- Identified by part number (VJ.....W1BC)
- Case sizes: 0201 to 1206
- Voltage: 4 V to 100 V
- Chip arrays (4 capacitors in 0612 size)
- Market segments: Telecom, computer, industrial
- Qualifications: ISO 9002 / QS 9000 / TS16949

VISHAY Vitramon Technology Advantage

The ceramic flows in all "corners"

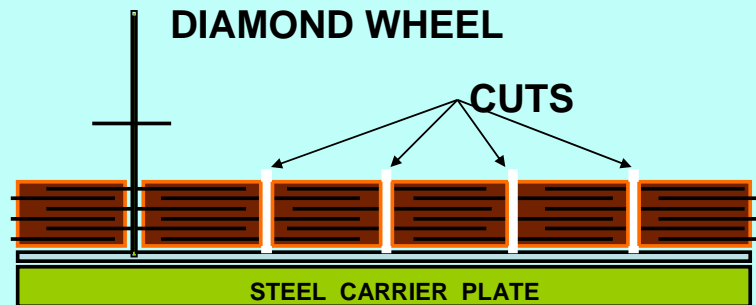


+ Wet process offers:

- + Better layer to layer bond
- + Common shrinkage
- + Higher bending strength
- + Dice cutting (no internal damage)
- + Better / higher ESD capability

- Wet process drawbacks:

- Limited cap values (limited number of layers)
- No small body sizes (0402 smallest)



VISHAY Vitramon

Focus and NEW Products

- HVArc Guard[®]
- “OMD Cap” (Open Mode Design + Polymer Term.)
- Automotive Grade Series (AECQ200/TS16949)
- “Non-Magnetic” Products
- Military Series CDR, DSCC
- “High Reliability” Products
- Termination Options: 100% Tin / Polymer / Non-Magnetic / Tin-Lead / AgPd

VISHAY Vitramon HVArc Guard[®]



FEATURES

- MLCCs with protection against surface arc-over.
- Higher voltage breakdown (VBD)
- Higher cap and smaller size saves board space
- DC/DC converters, voltage multipliers, lighting ballasts, power supplies
- **Polymer termination** for boardflex-sensitive applications (**X7R**)
- **NPO (COG)**

Sizes: 0805 / 1206 / 1210 / 2220 / 2225

Range: 10 pF to 8.2 nF

Voltage: 1000 VDC / 1500 VDC / 2500 VDC

- **X7R**

Sizes: 1206 / 1210 / 1808 / 1812

Range : 100 pF to 270 nF

Voltage: 250 VDC / 500 VDC / 630 VDC / 1000 VDC

PN: VJ1206Y682KXGAT5Z

Datasheets: <http://www.vishay.com/docs/45056/45056.pdf>

<http://www.vishay.com/docs/45057/hvarcx7r.pdf>

Application Notes: Voltage Multiplier: <http://www.vishay.com/docs/45058/hvarc.pdf>

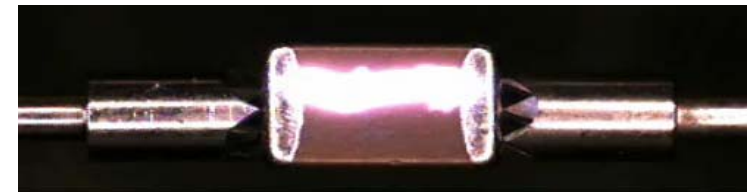
Lighting: <http://www.vishay.com/docs/45060/anpreven.pdf>

Passive Snubber: <http://www.vishay.com/docs/45059/anhvarc.pdf>

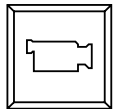
Technical Note: <http://www.vishay.com/docs/45062/tn0031.pdf>



HVArc Guard[®]



Std MLCC Design



VISHAY Vitramon OMD (Open Mode Design)

FEATURES

- Capacitor normally does not short as a result of boardflex crack
- High-frequency filtering for switching power supplies
- Input/output filter capacitors
- Snubber capacitors to reduce MOSFET voltage spikes
- Ballast capacitors in lighting applications Input filter capacitors
- High voltage breakdown compared to standard design
- **Polymer termination** (flexible termination / termination code "B")

Sizes: 0805 to 2225

Capacitance Range: 10 pF to 1.8 μ F

Voltage Rating: 50 VDC to 3000 VDC

Temperature Coefficient of Capacitance (TCC): NPO, X7R

PN: VJ1206Y102KXLAT4X

Datasheet : <http://www.vishay.com/docs/45047/vjomdnp0.pdf>

Datasheet : <http://www.vishay.com/docs/45046/vjomdx7r.pdf>

VISHAY Vitramon

AUTOMOTIVE Series VJ...31 / VJ...34

FEATURES

- AEC Q200-qualified – TS16949-certified production plant
- Operating temperature up to +175 °C (with derating)
- Termination options: - 100 % matte tin termination
- AgPd – silver/palladium termination
- Polymer term. (flexible termination layer outer 100 % matte tin) under qual.
- High-voltage (1000 VDC / 3000 VDC) under qualification

Dielectric (TCC): NPO (COG), X7R, X8R

Sizes: 0402 to 1812

Capacitance Range: 1 pF to 1.0 μ F

Voltage Rating: 10 VDC to 3000 VDC

PN Description: VJ0805Y103KXABP31

PN Description : VJ0805Y103KFAAI34

Datasheet : <http://www.vishay.com/docs/45040/45040.pdf>

VISHAY Vitramon Non- Magnetic Series

FEATURES

- Manufactured with non-magnetic materials
- Magnetic Resonance Imaging compatible
- Safety Screened for magnetic properties
- Precious Metal Technology (PMT/NME) – Palladium Electrodes.
- Wet build process for excellent robustness and reliability.
- Use in MRI Equipment , Industrial and Energy Applications (Amplifiers, Power Supplies, Filters)

Sizes: 0402 to 3640

Capacitance Range: 0.5 pF to 6.8 μ F

Voltage Rating: 10 VDC to 3000 VDC

Temperature Coefficient of Capacitance (TCC): COG(NPO), X5R, X7R

PN: VJ1206Y102KNEAT

Datasheet : <http://www.vishay.com/docs/45128/nonmagne.pdf>

VISHAY MLCCs

Literature

- Datasheets: <http://www.vishay.com/capacitors/ceramic-multilayer-smd/>
 - Ordering Info
 - Marking Info
 - Tape and Reel Info
 - Application Notes
 - Technical Notes
 - Technical Papers
 - Promotional Material
- Automotive Instructional Guide : <http://www.vishay.com/docs/49794/49794.pdf>
- Selector Guide: <http://www.vishay.com/docs/49787/49787.pdf>
- Databook: VSE-DB0097-0805