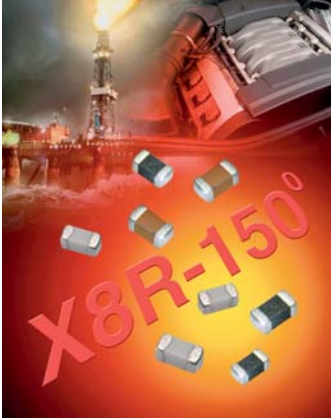


X8R Dielectric

General Specifications



AVX have developed a range of multilayer ceramic capacitors designed for use in applications up to 150°C. These capacitors are manufactured with an X8R dielectric material which has a capacitance variation of ±15% between -55°C and +150°C.

The need for X8R performance has been driven by customer requirements for parts that operate at elevated temperatures. They provide a highly reliable capacitor with low loss and stable capacitance over temperature.

They are ideal for automotive under the hood sensors, measure while drilling and log while drilling. Typical applications include wire line logging tools such as gamma ray receivers, acoustic transceivers and micro-resistivity tools. They can also be used as bulk capacitors for high temperature camera modules.

X8R capacitors are available as standard and Automotive AEC-Q200 qualified parts. Optional termination systems, tin, FLEXITERM™ and conductive epoxy for hybrid applications are available. Providing this series with our FLEXITERM™ termination system provides further advantage to customers by way of enhanced resistance to both, temperature cycling and mechanical damage.

PART NUMBER (see page 2 for complete part number explanation)

| | | | | | | | | |
|-------------------------------------|--------------------------------------|------------------------------|---|---|--|--|---|--|
| 0805 | 5 | F | 104 | K | 4 | T | 2 | A |
| | | | | | | | | |
| Size 0603 0805 1206 | Voltage 25V = 3 50V = 5 | Dielectric X8R = F | Capacitance Code (In pF) 2 Sig. Digits + Number of Zeros e.g. 10µF = 106 | Capacitance Tolerance J = ± 5% K = ±10% M = ± 20% | Failure Rate 4 = Automotive A = Not Applicable | Terminations T = Plated Ni and Sn Z = FLEXITERM™ U = Conductive Epoxy for Hybrid apps | Packaging 2 = 7" Reel 4 = 13" Reel | Special Code A = Std. Product |

NOTE: Contact factory for availability of Termination and Tolerance Options for Specific Part Numbers.

| SIZE | | 0603 | | 0805 | | 1206 | |
|------|------------|-------------|-----|-------------|-----|-------------|-----|
| | WVDC | 25V | 50V | 25V | 50V | 25V | 50V |
| 271 | Cap 270 | G | G | | | | |
| 331 | (pF) 330 | G | G | J | J | | |
| 471 | 470 | G | G | J | J | | |
| 681 | 680 | G | G | J | J | | |
| 102 | 1000 | G | G | J | J | J | J |
| 152 | 1500 | G | G | J | J | J | J |
| 182 | 1800 | G | G | J | J | J | J |
| 222 | 2200 | G | G | J | J | J | J |
| 272 | 2700 | G | G | J | J | J | J |
| 332 | 3300 | G | G | J | J | J | J |
| 392 | 3900 | G | G | J | J | J | J |
| 472 | 4700 | G | G | J | J | J | J |
| 562 | 5600 | G | G | J | J | J | J |
| 682 | 6800 | G | G | J | J | J | J |
| 822 | 8200 | G | G | J | J | J | J |
| 103 | Cap 0.01 | G | G | J | J | J | J |
| 123 | (µF) 0.012 | G | G | J | J | J | J |
| 153 | 0.015 | G | G | J | J | J | J |
| 183 | 0.018 | G | G | J | J | J | J |
| 223 | 0.022 | G | G | J | J | J | J |
| 273 | 0.027 | G | G | J | J | J | J |
| 333 | 0.033 | G | G | J | J | J | J |
| 393 | 0.039 | G | G | J | J | J | J |
| 473 | 0.047 | G | G | J | J | J | J |
| 563 | 0.056 | G | | N | N | M | M |
| 683 | 0.068 | G | | N | N | M | M |
| 823 | 0.082 | G | | N | N | M | M |
| 104 | 0.1 | G | | N | N | M | M |
| 124 | 0.12 | G | | N | N | M | M |
| 154 | 0.15 | | | N | N | M | M |
| 184 | 0.18 | | | N | | M | M |
| 224 | 0.22 | | | N | | M | M |
| 274 | 0.27 | | | N | | M | M |
| 334 | 0.33 | | | N | | M | M |
| 394 | 0.39 | | | N | | M | |
| 474 | 0.47 | | | N | | M | |
| 684 | 0.68 | | | | | M | |
| 824 | 0.82 | | | | | | |
| 105 | 1 | | | | | | |
| SIZE | WVDC | 25V | 50V | 25V | 50V | 25V | 50V |
| | | 0603 | | 0805 | | 1206 | |

| Letter | A | C | E | G | J | K | M | N | P | Q | X | Y | Z |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Max. Thickness | 0.33 (0.013) | 0.56 (0.022) | 0.71 (0.028) | 0.86 (0.034) | 0.94 (0.037) | 1.02 (0.040) | 1.27 (0.050) | 1.40 (0.055) | 1.52 (0.060) | 1.78 (0.070) | 2.29 (0.090) | 2.54 (0.100) | 2.79 (0.110) |
| | PAPER | | | | | EMBOSSED | | | | | | | |

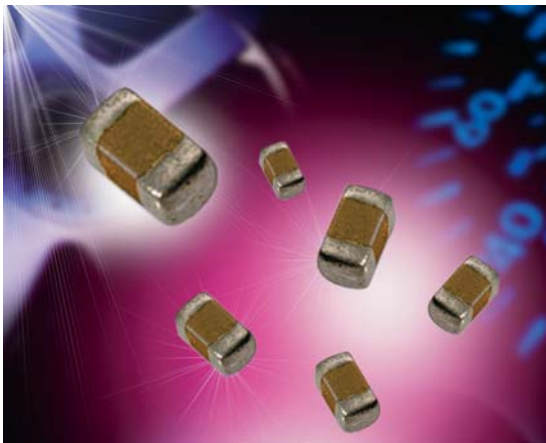
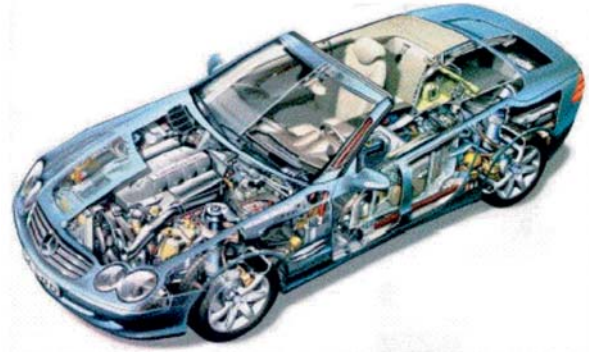
X8R Dielectric

General Specifications



APPLICATIONS FOR X8R CAPACITORS

- All market sectors with a 150°C requirement
- Automotive on engine applications
- Oil exploration applications
- Hybrid automotive applications
 - Battery control
 - Inverter / converter circuits
 - Motor control applications
 - Water pump
- Hybrid commercial applications
 - Emergency circuits
 - Sensors
 - Temperature regulation



ADVANTAGES OF X8R MLC CAPACITORS

- Capacitance variation of $\pm 15\%$ between -55°C and $+150^{\circ}\text{C}$
- Qualified to the highest automotive AEC-Q200 standards
- Excellent reliability compared to other capacitor technologies
- RoHS compliant
- Low ESR / ESL compared to other technologies
- Tin solder finish
- FLEXITERM™ available
- Hybrid available
- 50V range available

ENGINEERING TOOLS FOR HIGH VOLTAGE MLC CAPACITORS

- Samples
- Technical Articles
- Application Engineering
- Application Support

