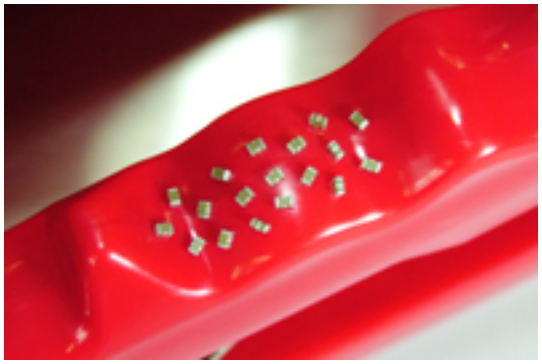
Chip Capacitors for High Speed Circuits



Syfer Technology has announced that its E01 and E07 ranges of feedthrough 3 terminal ‘C’ chip filters are now available in smaller packages, as small as 0603. These devices are designed primarily for general signal filtering in circuits incorporating high speed digital circuitry, particularly in automotive and communications industries.

In operation, the filtered signal passes through the chip’s internal electrodes and the noise is filtered to the grounded side contacts, resulting in reduced length noise transmission paths. This helps ensure reduced inductance, compared to conventional multilayer chip capacitors (MLCCs), when used in signal line filtering. When used to help provide electromagnetic compatibility, the filters effectively block electromagnetic interference (EMI) emanating from high speed circuitry, and prevent the propagation of high frequency noise along power lines.

Devices in the range are available in C0G/NP0 and X7R dielectrics, with voltage ratings ranging from 25Vdc to 200Vdc. Current ratings available include 300mA (E01), and 1A and 2A (E07). The higher current parts are ideal for installing on the DC power lines on printed circuit boards. With the DC current fed directly through the E07 chip filters, PCB designers will find that a significantly improved high frequency filtering performance is the result. Many of the parts in the E01 lower current (300mA) range are qualified to the automotive AEC-Q200 standard.

Depending on the capacitance and voltage rating required, the chip capacitors are offered in package sizes from 0603 to 1806. The newest filters come in the smallest 0603 package. Typical devices offer a capacitance range of 150pF to 390pF (300mA, C0G dielectric, 25V) or 2.7nF to 12nF (1A, X7R, 50V).

Devices in both the E01 and E07 ranges are also available with Syfer’s FlexiCap™ termination.

Manufactured at Syfer’s state of the art, Norwich, UK facility, the devices are readily available in production quantities on a 7 week lead time. Prices are competitive, and depend on type and quantity ordered. All standard versions are fully RoHS compliant. Tin-lead plated devices are optionally available for use in high reliability, RoHS exempt applications, such as in the space/aerospace industry, where tin whiskers can be considered an issue.

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