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# DID YOU KNOW?

## LONG TERM AVAILABILITY CONSIDERATIONS AND ALTERNATIVES FOR 1206 SMD RESISTORS

### Chip Resistor Market Shifts to Sizes 0603 and Smaller

1206 flat chip resistors were quite popular for several decades, starting in the 1980s. Since then, much smaller case sizes like the 0402 and 0603 have become dominant in the automotive and industrial markets, while the 01005 and 0201 sizes have gained traction in the consumer, computing, and communication markets. However, resistors in the 1206 case size remain relevant for applications requiring features that are not available with smaller sizes, like handling higher pulse loads, precision performance with resistance above 500 kΩ, or higher power and voltage ratings. For the 1206 case size, Vishay focuses on special resistors.

### Sizes 1206 and Larger are Becoming Less Popular

Many high volume resistor suppliers seem to have started shifting focus away from sizes of 1206 and larger. However, a low volume, high mix portfolio results in higher production costs due to smaller lot sizes. Furthermore, 1206 size resistors occupy a significantly higher front-end production capacity than 0402 products. Both facts result in higher production efforts and lower profitability. Investments in equipment, if not entirely ceased, are only made for maintenance. Consequently, the supply of chip resistors in 1206 and larger case sizes has shrunk and prices are expected to increase. Vishay Draloric / Beyschlag continues to offer resistors in 1206 and larger case sizes. However, our focus will move away from standard resistors to more special ones with features requiring a larger case size.

### Available Alternatives

There are two alternatives available for 1206 standard resistors. One is to use advanced products in smaller case sizes. For example, we offer a 250 mW power rating in the 0603 size (RCS0603 e3, CRCW0603-HP, MCT 0603 HP). If 200 mW are sufficient, even 0402 size resistors could be used (RCS0402, CRCW0402-HP, MCS 0402 HP). The drawback is the necessary PCB redesign. The other alternative is to use a MELF in the 0204 case size (MMA 0204, SMM0204). These products have been on the market for 40 years now and continue to be available long term. There have been investments in production capacity and upgrades in recent years that are expected to be sufficient for at least the next decade. It is thus expected that there will be a greater availability of MELF resistors than 1206 chip resistors in the long term. A big advantage is that MELF 0204 resistors fit on existing 1206 soldering pads, so they don't usually require a PCB redesign.

To summarize, in the face of a limited supply of 1206 resistors, a move towards 0603 and 0402 sized resistors with a PCB redesign, or MELF 0204 resistors without a PCB redesign, should be considered.

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