

Features

- Working Voltage: 50 V
- High Q
- Excellent Stability

Applications

- MACOM KV CAPS™ are suitable for use in resonant circuits, as DC blocks and as RF bypass capacitors.

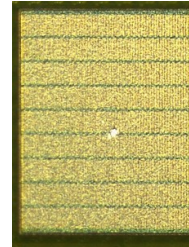
Description

The MACOM KV CAPS™ Si capacitors feature very low loss and excellent stability by virtue of their novel internal construction and very high quality dielectric layers. These capacitors are available as unpackaged chips. The chips have gold bonding surfaces on both terminals to enable excellent bonding and minimum contact resistance.

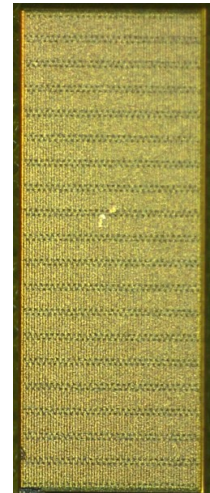
The capacitance tolerance is $\pm 20\%$ of nominal value. Contact the factory for other tolerance values.

These capacitors have high insulation resistance, low dissipation factor and low temperature coefficient, as well as excellent long term stability.

These capacitors are capable of meeting the environmental requirements of MIL-STD-750 and MIL-STD-883.



ODS-1455



ODS-1456

Ordering Information

Part Number	Package
MKVC-0504N7---14530G	gel pack
MKVC-0504N7--14530W	waffle pack
MKVC-0510N0-14530G	gel pack
MKVC-0510N0-14530W	waffle pack

Electrical Specifications:

Working Voltage = 50 V @ $T_A = +25\text{ }^\circ\text{C}$

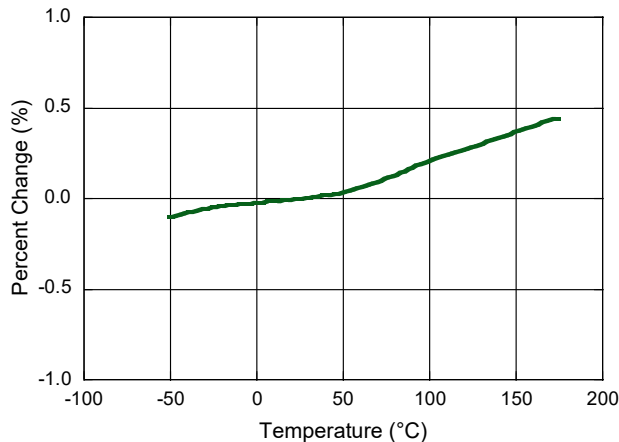
Part Number	Capacitance (nF)
MKVC-0504N7-1455xx	4.7
MKVC-0510N0-1456xx	10

Absolute Maximum Ratings^{1,2}

Parameter	Absolute Maximum
Applied Voltage	75 V
Operating Temperature	-55 °C to +175 °C
Storage Temperature	-65 °C to +200 °C

1. Exceeding any one or more of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.

Percent Change in Capacitance vs. Temperature



Assembly Instructions

MACOM KV CAPS™ may be attached to a circuit substrate using solder or conductive epoxy.

Solder Die Attach

Solder die attach may be accomplished using a eutectic solder, such as Au(80)/Sn(20), leaded solders such as Sn63Pb37 or with any of several RoHS-compatible solders such as Sn96.53Ag0.5Cu (SAC305), etc. For leaded or RoHS solder pastes it is recommended that a no-clean solder paste be used to prevent trapped fluxes which cannot be cleaned, as recommended by IPC-7093.

Conductive Epoxy Die Attach

MACOM recommends that the surface preparation and curing profiles provided by the manufacturer of the conductive epoxy should be followed. The typical epoxy bondline thickness is 0.0005 to 0.001 inches (12.5 to 25 µm). The curing temperature shall not exceed 350°C.

Refer to MACOM application note M541 for more information.

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

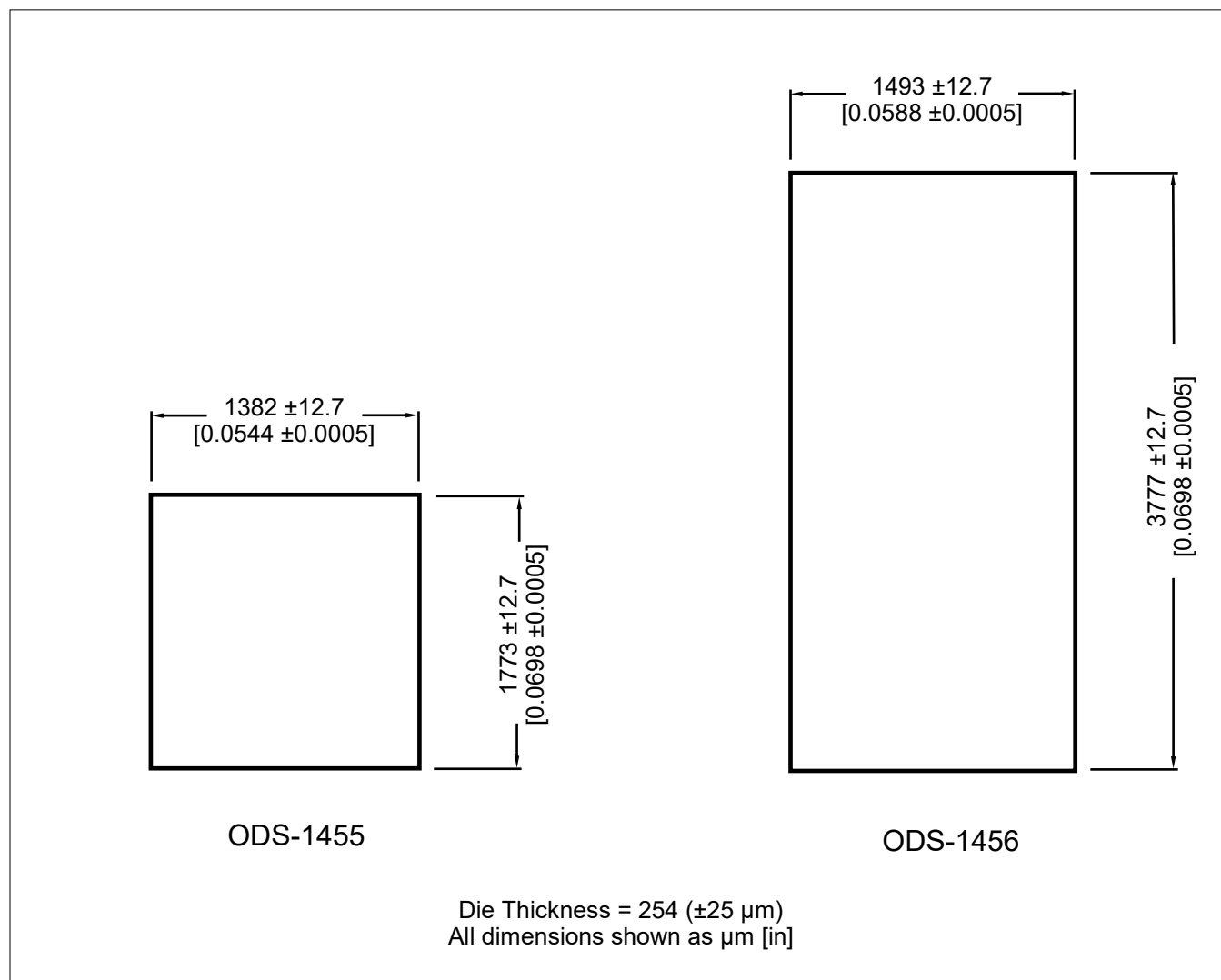
Radiation Hardness

MACOM KV CAPS™ have been qualified to survive 300 krad(Si) total dose irradiation per MIL-STD-750 Method 1019.5, condition A.

Wire/Ribbon Bonding

While the construction of the MACOM KV CAPS™ is very robust, it is recommended that wires or ribbons should be attached near to the center of the top contact to prevent mechanical damage, such as micro cracking, to the die which could degrade the working voltage capability of the die. Thermo-compression or ultrasonic bonding can be used. For most capacitance values, the top contact of the capacitor is sufficiently large to accept the attachment of multiple wires or ribbons. The top contact of the capacitor has a gold plating. Prior to wire or ribbon bonding, plasma cleaning may be required to remove any organic contaminants that could affect the quality of the bond interface.

Outline (ODS-1455 & ODS-1456)



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