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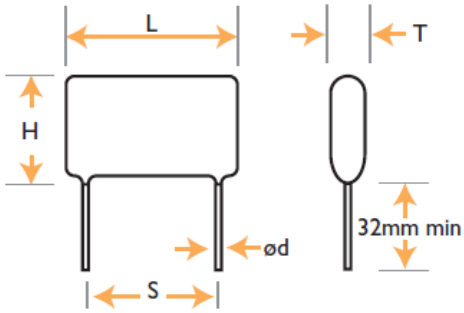
# Datasheet
## Mica Capacitor

**Introduction**:
RS Pro Silvered Mica Capacitors are designed and manufactured to the highest standards. Intended for applications in professional and military equipment, these quality components are available in standard ranges in resin moulded and resin dipped formats. There is a whole range of technical advantages to be gained through the use of RS Pro Mica Capacitors including: circuit stability over full equipment life, small size, high insulation resistance, low value through to high value capacitance, low capacitance change with temperature, high Q, and high resistance to radiation (gamma rays in atomic plants) for aircraft and missile equipment. They have been designed for the following applications: logic and transmission circuits, pulse forming networks, delay lines, filters, dc voltage blocking, timing circuits, high reliable electronic instruments for flight electronics, measuring and test devices, navigation etc.

**Quick Reference Guide – MIL Style DM Style Radial**

| Voltages Offered | Rated Temperature | Capacitance Range over all voltages |
|---|---|---|
| 300; 500 | 125°C | 150 to 12000 |

**Note:** There has been a recent Product marking change due to resource of distributer.
Manufacturer origin remains unchanged.

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## Dimensions:

| RS Stock No. | L Max. | H Max. | T Max. | S±0.4 Suffix A | S+0.4 Suffix E | Ød*Suffix A | Ød*Suffix E |
|---|---|---|---|---|---|---|---|
| **495947** | 20.5 | 15.7 | 10.9 | 11.1 | 11.0 | 0.8 | 0.8 |
| **495953** | 20.8 | 16.0 | 11.4 | 11.1 | 11.0 | 0.8 | 0.8 |

## Product Data:

| | |
|---|---|
| **Capacitance Range** | 2.2 pF to 100,000 pF |
| **Capacitance Tolerance** | Cr ≤100 pF ±1 pF Standard<br>Cr >100 pF ±1%, 2%, 5%<br>To Special Order<br>Cr ≤100 pF ±0.5 pF<br>Cr >100 pF ±0.5% |
| **Insulation Resistance** | Cr <10000 pF: R ins >100000MΩ<br>Cr >10000 pF: RC ≥1000s |
| **Rated Voltage** | 300 Vdc and 500 Vdc |
| **Rated Temperature** | 125ºC |
| **Climatic Category** | –55/125/21 |

## Temperature Coefficient of Capacitance:

| Capacitance pF | Temperature Coefficient $10^6$/°C | Capacitance Drift |
|---|---|---|
| 50≥Cr | -200 to +200 | +(0.5%+0.1 pF) |
| 50<Cr≤100 | -100 to +100 | +(0.3%+0.1 pF) |
| 100<Cr≤500 | -20 to +100 | +(0.1%+0.1 pF) |
| 500<Cr | -0 to +70 | +(0.5%+0.1 pF) |

## Tangent of loss Angle:

| Capacitance pF | Tangent of loss Angle | Measurement Frequency |
|---|---|---|
| Cr<10 | 0.005 max | 100 kHz |
| 10≤Cr≤25 | 0.003 max | 100 kHz |
| 25<Cr≤100 | 0.002 max | 100 kHz |
| 100<Cr≤1000 | 0.001 max | 100 kHz |
| 1000<Cr | 0.001 max | 1 kHz |

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## Product Safety Information:

**• Material Content**

Mica capacitors do not normally contain hazardous materials. The main constituents are:- Multilayer mica stack: Mica, Printed silver electrodes, Silver/glaze end terminations
Assembled stack: Solder, Solder coated copper or nickel lead wires, Epoxy resin (moulded or dipped).
Additional small quantities of the following materials may be present: Wax type impregnates - to improve the electrical performance of the capacitor.
Thermal plastic sleeve or flexible epoxy dip - to provide additional mechanical and environmental protection.

**• Physical Form**

These capacitors are normally rectangular in shape with axial or radial leads. The surface finish of the capacitor may be moulded resin, conformal epoxy coat or wax dip.

**• Intrinsic Properties**

Operating; Mica capacitors are non-polar and may therefore be used with d.c. of either polarity. When operated within the rated conditions a long period of satisfactory operation can be obtained with a normal failure rate probability.
Non-Operating; Cracking or damage to the encapsulation may lead to premature failure due to ingress of material such as moisture and cleaning fluids, or to stress transmitted to the multilayer mica stack. An excessive force applied to the terminal wires will produce an open circuit failure.

**• Fire Characteristics**

Primary; Any component subjected to abnormal power dissipation may : 1 self ignite. 2 become red hot. 3 break open or explode, emitting flaming or red hot materials, solid, liquid or gaseous. The component maximum safe power should not be exceeded. Where test results are available and specifications agreed, guidance on power limits will be specified on the data sheet.
Secondary; Induced ignition may occur from an adjacent burning or red hot component. The resin formulations used on the standard moulded mica capacitors are chosen so as to be fire retardant. When subjected to excessive heat, impregnation material and internal surface coatings can ignite and emit organic decomposition products which may be toxic.

**• Handling**

No special risks are involved in handling these capacitors. Normal care should be taken in handling the pointed ends of terminal wires.

**• Storage**

Apart from a very low random failure rate after long periods of storage, there are no known modes of failure under normal storage conditions. All capacitors will withstand any environmental condition within their rating for the periods given in the detail specifications. Storage for longer periods under high humidity conditions may affect the leakage current of resin protected capacitors.
Solder ability may also be affected by storage in excess of one year under high temperatures (>40ºC) or humidities (> 80% R.H.) The limits of solder ability after ageing to BS 2011 (part 2t, method 3) are specified on the data sheet.

**• Disposal**

No special hazards are involved in disposal. Incineration of resin encapsulated mica capacitors can cause emission of toxic fumes.

**• Unsafe use**

Most failures are of a passive nature and do not represent a safety hazard. A hazard may, however, arise if this failure causes a dangerous malfunction of the equipment in which the capacitor is employed. Circuits should be designed to fail safe under the normal modes of failure. The usual failure mode is an increase in leakage current or short circuit. Other possible modes are change of capacitance, increase in dissipation factor (and impedance) or an open-circuit.
Operations outside the ratings quoted in the data sheets represent unsafe use.