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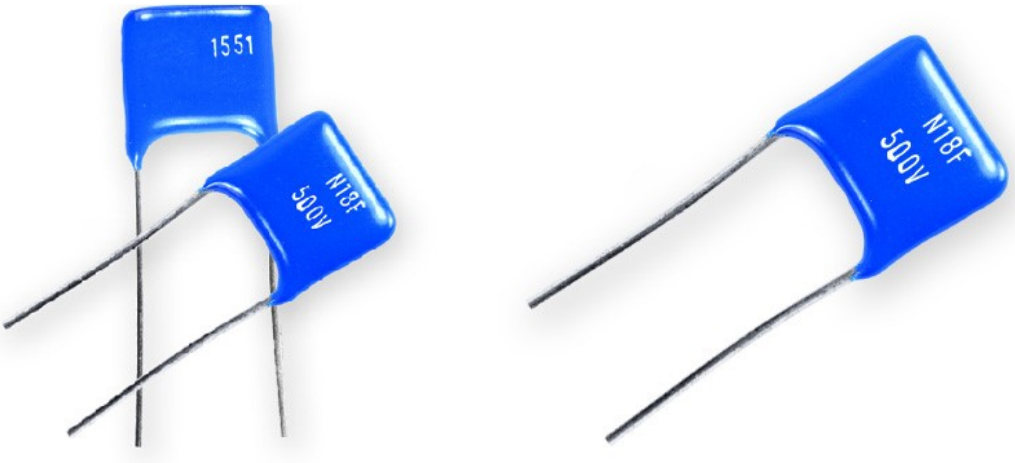
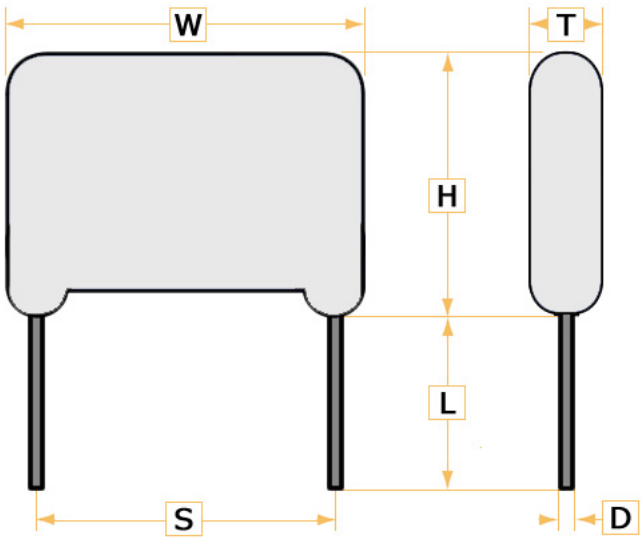
Datasheet

Audio Silver Mica Capacitor



Introduction:

RS Pro Audio Silver Mica Capacitors are designed and manufactured in the UK to the highest standards specifically for audio applications. Each capacitor is hand built using the finest Indian Ruby Mica plates which are cut by hand and have silver electrodes printed on them. The plates are stacked by hand to the required value, their edges reinforced with silver paste and then sintered at 560 degrees C. After vacuum impregnation with a specially developed wax we have a solid non-resonant structure which is far superior to the more common (and cheaper!) 'clamped' mica construction usually with copper coated **steel** lead wires. Pure silver(99.99%) lead wires are then hand attached using silver loaded solder, so the whole conducting path of the capacitor is effectively silver, eliminating any electro-potential barriers which could result in distortion. Final trimming is done by hand to the exact capacitor value required, before dipping the finished assembly in epoxy resin. Having been in existence for over 100 years, mica capacitors have proven long term stability, a low temperature coefficient, low losses and excellent high frequency response making them the ideal choice for audio applications.



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Description	RS Ref	500Vdc	Size In mm (Max)				
			W	H	T	D	S
1PF/0.5PF/500V	1683338	1pF to 10,000pF	15.0	13.0	6.5	0.8	10.2±0.1
10PF/1PF/500V	1683339						
22PF/1PF/500V	1683340						
68PF/1PF/500V	1683341						
100PF/1/500V	1683342						
220PF/1/500V	1683343						
330PF/1/500V	1683344						
470PF/1/500V	1683345						
1000PF/1/500V	1683346						
2200PF/1/500V	1683347						
3300PF/1/500V	1683336						
10000PF/1/500V	1683337						
Please contact RS		10,001pF to 50,000pF	27.0	18.0	8.0	0.8	20.2±0.1
Please contact RS		50,001pF to 200,000pF	50	35	15.0	1.0	40.2±0.1
L=25mm MIN (Longer Lead Lengths Available)							

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Product Data:

Capacitance Range	1pF to 200,000pF
Capacitance Tolerance	Cr ≤10 pF ±0.5pF Cr <100 pF ±1pF Cr ≥100 pF ±1% To Special Order Cr <100 pF ±0.5pF Cr ≥100 pF ±0.5%
Insulation Resistance	Min is 25,000MΩ or 1000ΩF which ever is less up to 1000pF typically 100,000 MΩ
Rated Voltage	500Vdc
Rated Temperature	100°C
Climatic Category	-55/100/04

Temperature Coefficient of Capacitance:

Capacitance pF	Temperature Coefficient PPM/°C	Cyclic Drift pF
50>Cr≤100	-20 to +100	0.001C+0.1
100>Cr≤1000	-20 to +50	0.0005C+0.1
Cr >1000	-20 to +50	0.0005C+0.1

Power Factor:

Capacitance pF	Tangent of loss Angle	Measurement Frequency
Cr<10	0.005 max	100kHz
10>Cr≤25	0.003 max	100kHz
25>Cr≤1000	0.002 max	100kHz
1000>Cr≤10,000	0.001 max	1kHz

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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, silver lead wires, dipped epoxy resin overcoat.
Additional small quantities of the following materials may be present: Wax type impregnates - to improve the electrical performance of the capacitor.

• 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.