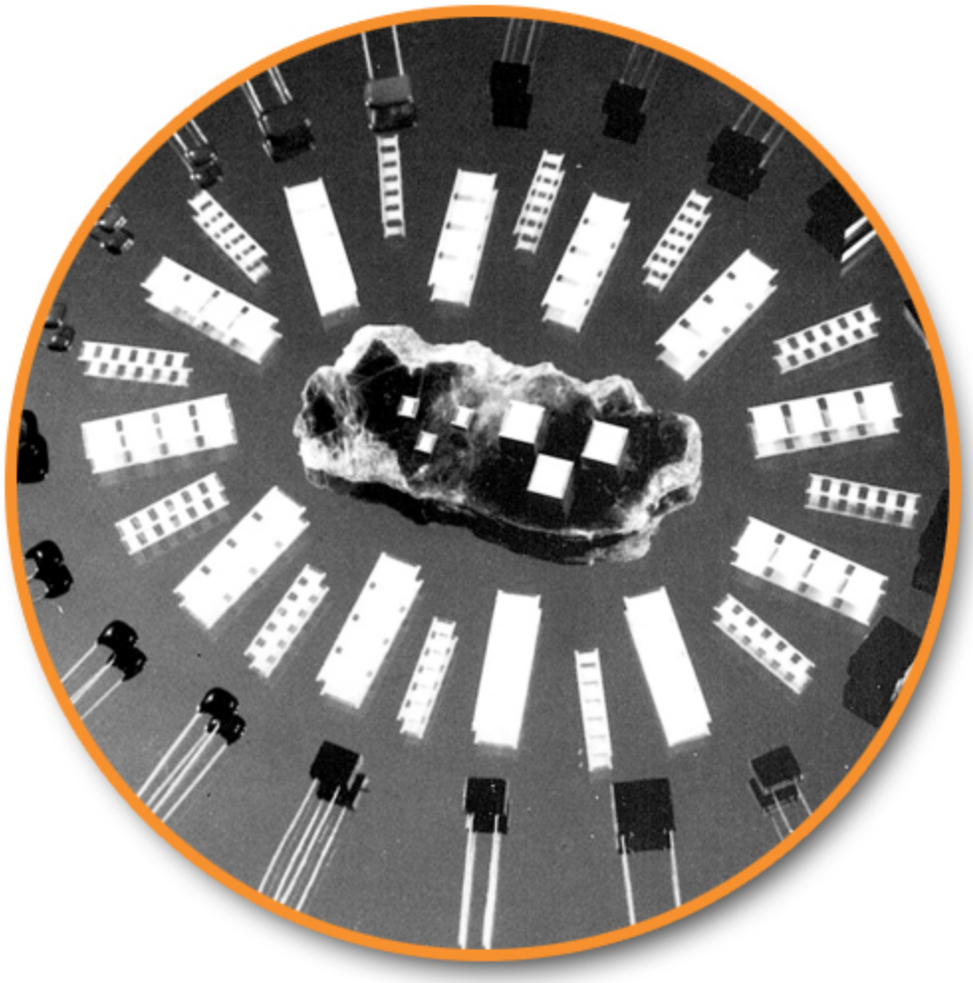

Charcroft Silver Mica Capacitors

Quality-led Distribution & Manufacturing

Passives, Power, Interconnect, Emech and more

charcroft

ELECTRONICS

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INTRODUCTION

Charcroft Silver Mica Capacitors are designed and manufactured using best quality mica. The electrodes on the individual plates are silvered using a process which ensures excellent adhesion, sharp definition and accurate location.

These features make Charcroft Silver Mica capacitors the ideal choice for circuit engineers demanding quality components with exceptional electrical characteristics.

They are intended for applications in professional and military equipment, where high quality and precision are paramount, such as oscillators, logic and transmission circuits, filters, delay lines and pulse forming networks.

Charcroft manufacture sintered Silver Mica capacitors made from the best quality mica and produce a standard resin moulded radial product range, a standard radial resin dipped range and also two ranges of high frequency, high voltage capacitors with operating frequencies up to 30 MHZ .

All Charcroft mica capacitors are RoHS compliant (**EXCLUDING HIGH TEMPERATURE TYPES THAT HAVE LEADED SOLDER IN THEIR CONSTRUCTION**).

Charcroft mica capacitors perform extremely well in high quality audio equipment giving excellent sonic qualities because of their unique manufacture and use of non magnetic materials in their construction.

TECHNICAL SUMMARY

POWER FACTOR

Power factor limits for Charcroft Silver Mica Capacitors are as follows:

Capacitance (pf)	Tan δ (MAX)
< 10	0.005 (Measured at 100 khz)
> 10 but ≤ 25	0.003 (Measured at 100 khz)
> 25 but ≤ 1,000	0.002 (Measured at 100 khz)
> 1,000	0.001 (Measured at 1 khz)

INSULATION RESISTANCE

The minimum insulation resistance measured between terminals at rated dc voltage is 25000 MΩ or 1000 ΩF whichever is the less. However typical performance of capacitors up to 1000pf will exceed 100,000 MΩ.

TEMPERATURE COEFFICIENT & CYCLIC DRIFT WITH TEMPERATURE

Over the full working temperature range the temperature coefficient and cyclic drift is:

Capacitance range (pf)	Temperature coefficient (PPM/° C)	Cyclic Drift (pf)
> 50 TO ≤100	-20 + 100	0.001C + 0.1
> 100 TO ≤1,000	-20 + 50	0.0005C + 0.1
>1,000	- 20 + 50	0.0005C + 0.1

CAPACITANCE TOLERANCE

±1 % standard (±1 pf ≤ 100pf) closer tolerance available on request. For applications not requiring close tolerance, capacitors can be supplied up to ±5%.

VOLTAGE RATING

Voltage ratings outside those stated are available on request.

VOLTAGE PROOF

2 X working voltage

NOTE

Characteristics outside those shown can be supplied on request.

SPECIAL DESIGNS

The mica capacitor types given in this data sheet are specifically designed to meet national and international standards. However customers individual requirements can also be catered for. Mica capacitors are extensively used in high frequency applications where a high degree of stability is also required.

When your application is not met by our standard range we have the capability to design and manufacture customised silvered mica capacitors and our sales and design team will be pleased to discuss particular requirements.

When enquiring for special designs it will be useful if the following information could be supplied:

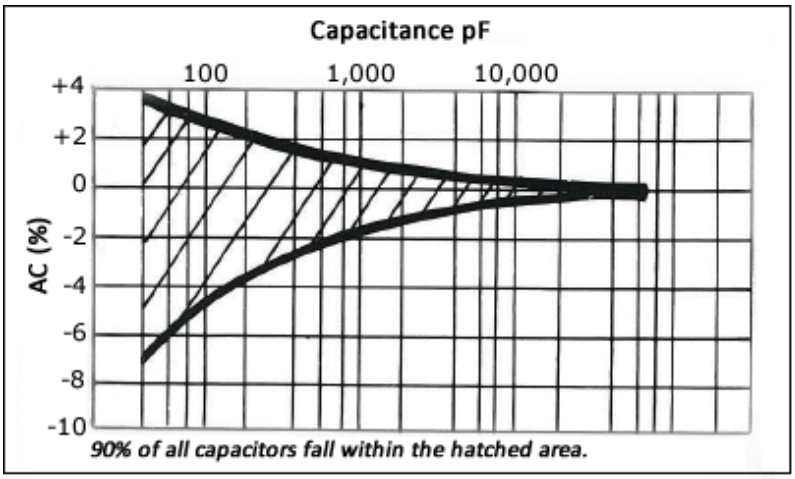
- **Capacitance value required**
- **Tolerance**
  In some cases tolerance can be as low as +0.1%
- **Physical size restrictions**
- **Operating frequency**
- **Voltage (AC or DC)**
  In the case of AC r.m.s or peak) - Voltages up to 5KVdc can be supplied
- **Current (AC or DC)**
- **Waveform seen by capacitor if available**
- **In the case of Pulse Applications, the pulse rise time**
- **Ambient temperature (°C)**

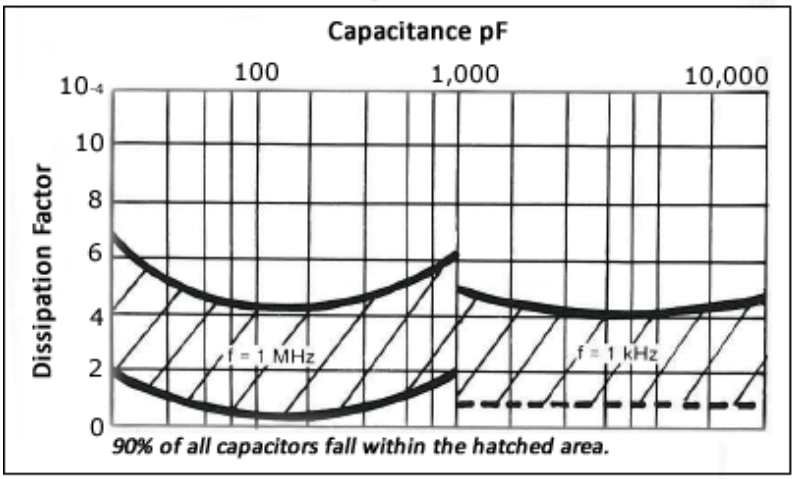
Tape & Reel to IEC 286 Part II is available.

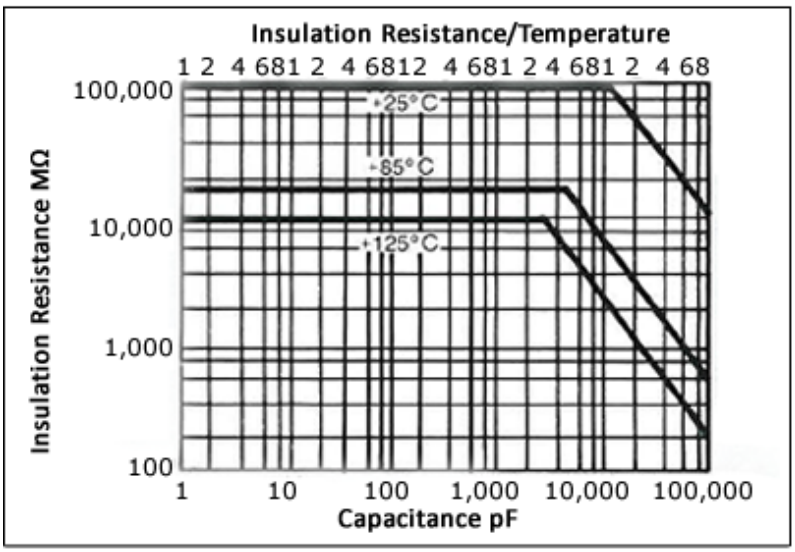
Devices can be coded to customer's specifications. i.e. Date Code, etc

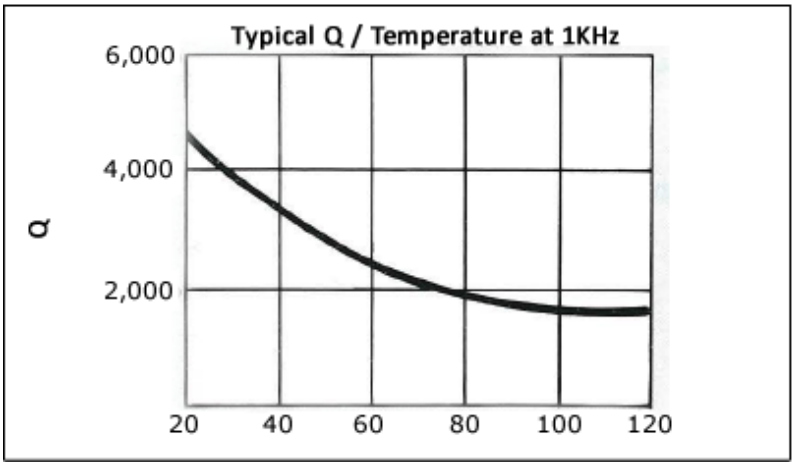
A range of Discoidal Mica Capacitor Plates and Mica Insulator Plates are available on request.

TYPICAL PERFORMANCE









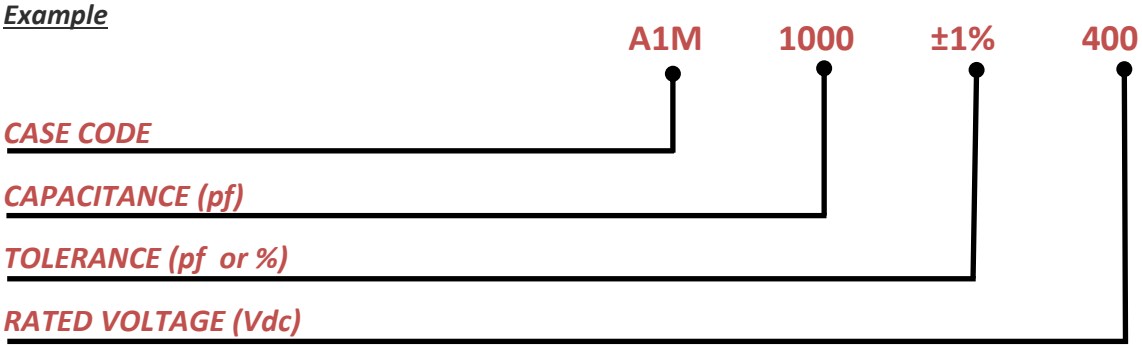
Long Term Stability

Endurance test for 10,000 hours at 70° C with rated voltage applied at 100° C with % rated voltage applied

ORDERING INSTRUCTIONS

Please specify your requirements as follows as well as quantity and delivery required.

Example



MARKING

Typical coding of Radial Moulded Mica Capacitors

Front	*Back*
TAB A1M	IN0F 400V

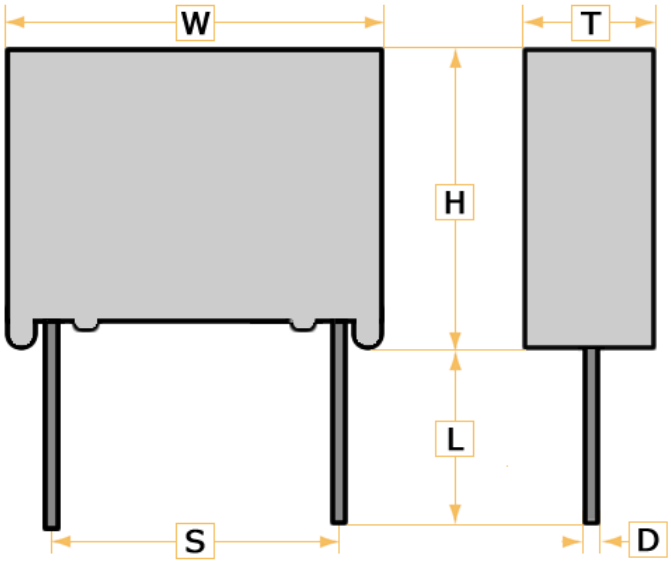
NOTE

IN SOME CASES THE NUMERICAL TOLERANCE WILL BE REPLACED BY THE BS 1852 TOLERANCE CODE

i.e. ±1 pf (F), ±0.5% (D), ±1% (F), ±2% (G), ±5% (J).

Moulded Radial

Terminations are tin coated copper wire and meet the requirements of BS2011 robustness of terminations. All capacitors are encapsulated in Thermo setting resin to provide excellent humidity and mechanical protection. In addition these devices are moulded with 'stand-off feet to ensure flux vapours escape and stability is ensured during flow soldering. The encapsulation and coding materials have been specially selected to ensure they are not affected by solvents commonly used for cleaning and flux removal on PCB's.



Code	Style C2AED Pattern Ref	Capacitance Range in pF			Size in MM (max)				
		100, 125 & 250 Vdc	350 & 400 Vdc	700 Vdc	W	H	T	D	S
B1M	C1	4 TO 1,500	4 TO 750		8.9	8.0	3.6	0.5	5.0±0.4
B2M	C2	1,501 TO 2,500	751 TO 1,500		8.9	8.0	5.2	0.5	5.0±0.4
L1M	A	4 TO 1,500	4 TO 750		7.6	7.6	2.5	0.6	5.0±0.4
E1M	E1	4 TO 6,000	4 TO 4,000		13.2	10.3	3.6	0.6	10.2±0.4
E2M	E2	6,001 TO 10,000	4,001 TO 7,500		13.2	10.3	5.2	0.6	10.2±0.4
A1M	D1	4 TO 7,500	4 TO 5,000	4 TO 1,000	12.7	12.5	3.4	0.6	10.2±0.3
A2M	D2	7,501 TO 15,000	4 TO 10,000	1,001 TO 2,000	12.7	12.5	5.3	0.6	10.2±0.3
A3M	D3	15,001 TO 27,000	10,001 TO 15,000	2,001 TO 3,500	12.7	12.5	7.8	0.6	10.2±0.3
A4M	D4/ D5	27,001 TO 40,000	15,001 TO 20,000	3,500 TO 5,000	12.7	12.5	10.4	0.6	10.2±0.3
SM1	G	4 TO 60,000	4 TO 50,000		26.0	16.2	7.5	0.8	15.2±0.4

L - 15mm (*30mm available to special order*)

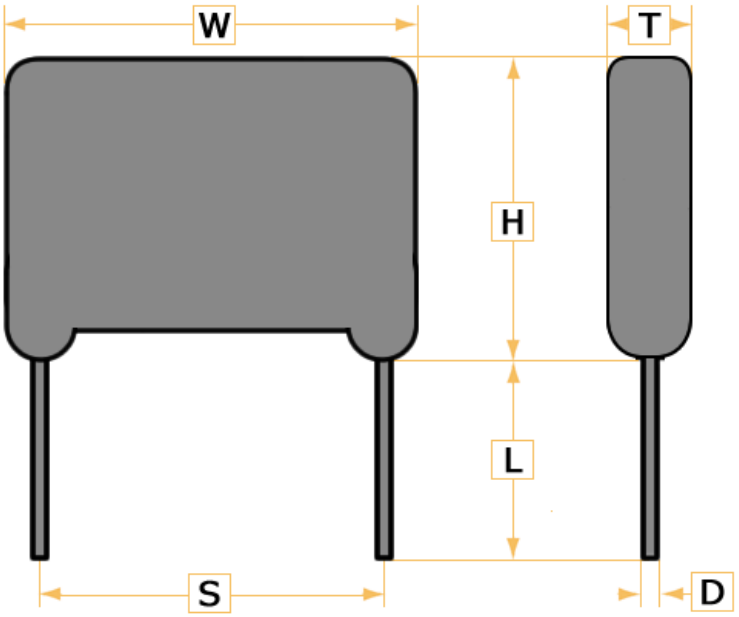
Working Temperature Range	-55°C TO 100°C
Climatic Category	55 / 100 / 21

Dipped Radial

Terminations are tin coated copper wire and meet the requirements of BS2011 robustness of termination.

All capacitors are encapsulated in thermo setting resin to provide excellent humidity and mechanical protection. In addition these devices are moulded with 'stand-off' feet to ensure flux vapours escape and stability is ensured during flow soldering.

The encapsulation and coding materials have been specially selected to ensure they are not affected by solvents commonly used for cleaning and flux removal on PWB's.



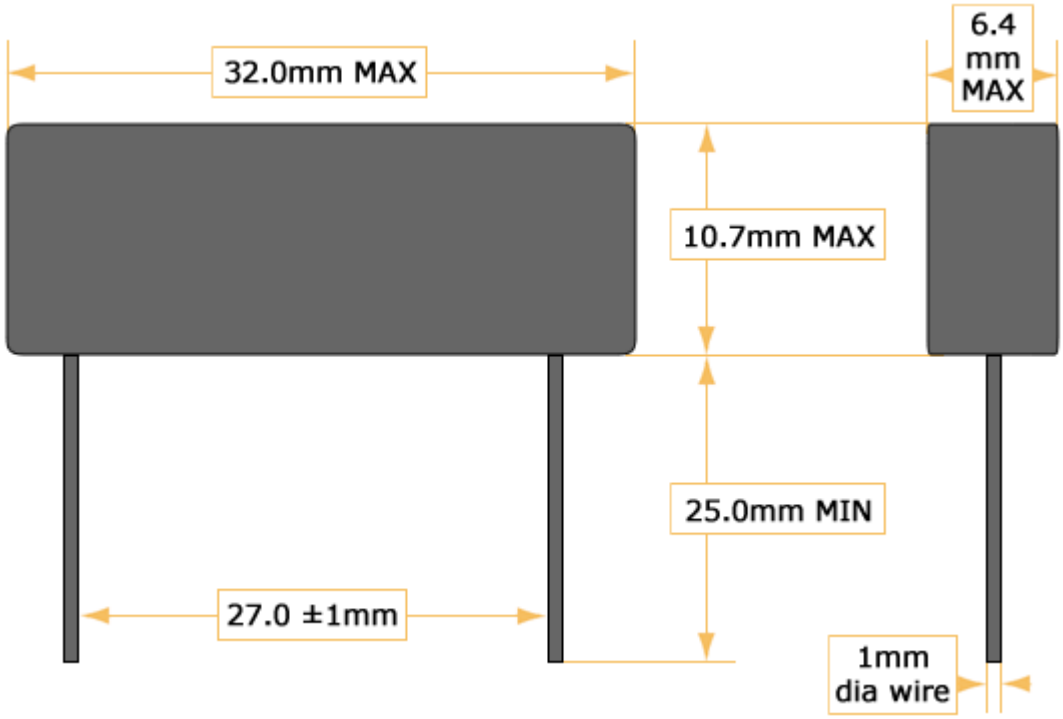
Code	Capacitance Range in pF		Size in MM (max)				
	125 Vdc	400 Vdc	W	H	T	D	S
K1D	4 TO 1,000	4 TO 500	7.6	6.4	3.8	0.6	5.1±0.1
F1D	6 TO 6,000	6 TO 3,000	13.0	12.2	4.8	0.6	7.6±0.1
	6,001 TO 10,000	3,001 TO 6,000	13.0	12.2	6.5	0.6	7.6±0.1
G1D	2,001 TO 7,500	6 TO 5,000	13.3	12.2	5.1	0.6	10.2±0.1
	7,501 TO 10,000	5,001 TO 7,500	13.3	12.2	6.5	0.6	10.2±0.1
J1D	4 TO 4,800	4 TO 2,700	13.3	9.0	3.5	0.6	10.2±0.1
	4,801 TO 6,000	2,701 TO 4,000	13.3	9.0	6.4	0.6	10.2±0.1
M1D	10,000 TO 20,000	5,001 TO 10,000	24.0	15.0	5.8	0.6	15.2±0.1

L - 25mm Nominal (*Other lengths available on special order*)

Working Temperature Range	-55°C TO 100°C
Climatic Category	55 / 100 / 04

SBH Dipped Radial

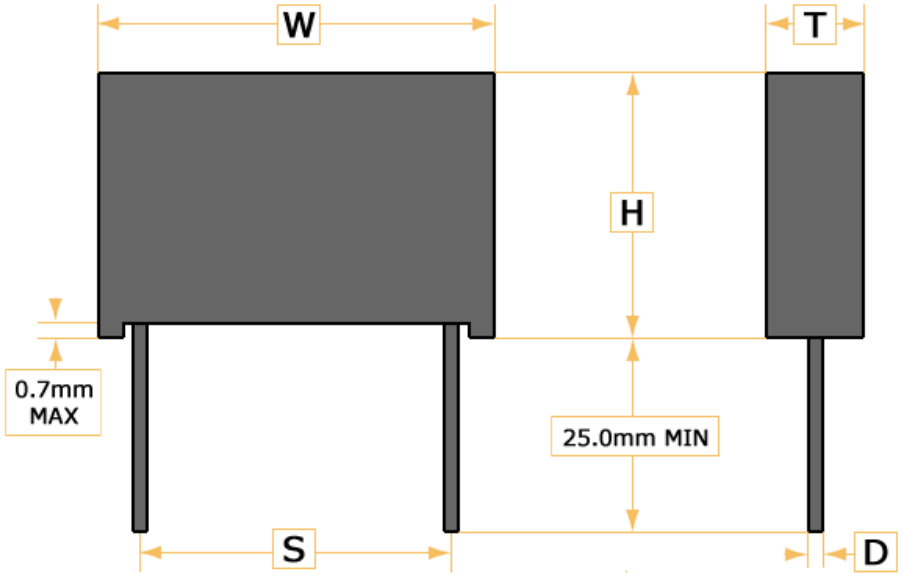
These capacitors are specially designed for use with transmitter filters of up to 1kW power output. Any capacitance value can be supplied within the range stated below in 1pF steps. Capacitance tolerance is ±1pF up 100pF and ±1% above. Capacitors are designed to operate at RF and will run cool under normal transmitting conditions. All materials used in their construction are non ferrous therefore minimising inductive effects and subsequent heating of capacitors and other components in close proximity.



Capacitance Range (Pf)	V.R.M.S	V.W.K.G	AC Current
10 TO 600	750V	1,000Vdc	<200pF 8.5A
601 to 950	500V	1,000Vdc	>200pF 10A
951 to 3,500	300V	500Vdc	10A

High Temp Capacitors

These capacitors are encapsulated in silicone rubber and designed to operate at high temperatures, a very small change in mica capacitance with temperature ensures that the capacitance remains within the stated tolerance over the entire working temperature range.



Code	Capacitance Range in pF			Size in MM (max)				
	100, 125 & 250 Vdc	100 & 200 Vdc	350 & 400 Vdc	W	H	T	D	S
A3M HT	100 TO 20,000		100 TO 5,000	12.7	12.5	7.8	0.6	10.2 ±0.3
SM1 HT		100 TO 50,000	100 TO 30,000	26.0	16.2	7.5	0.8	15.2±0.4

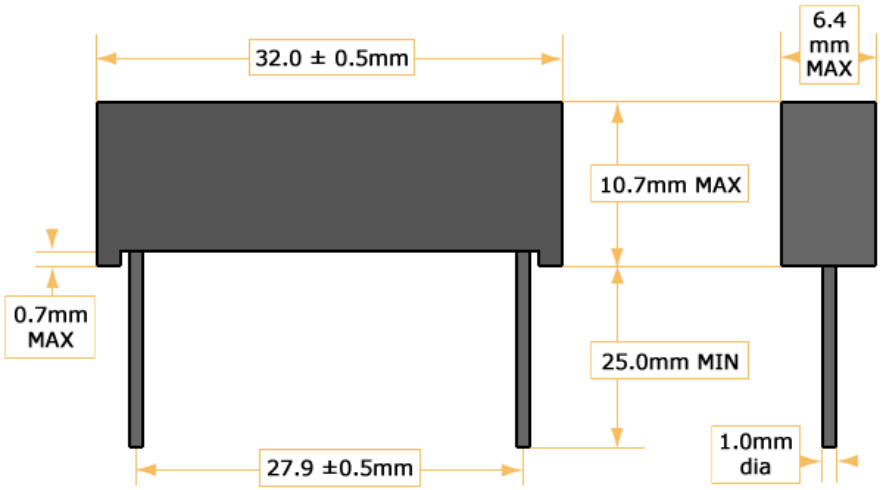
Working Temperature Range	-55°C TO 250°C
Tolerance	±5% Standard
Capacitance Change (+20°C TO 250°C)	+1% Nominal
TANd @ +20°C	0.001 MAX @ 1KHz
TANd Increase (+20°C TO 250°C)	X 10 Typically
PROOF Voltage	2 X WKG Voltage
Insulation Resistance	25,000MΩ @ 100Vdc 20°C

HV & HF Capacitors

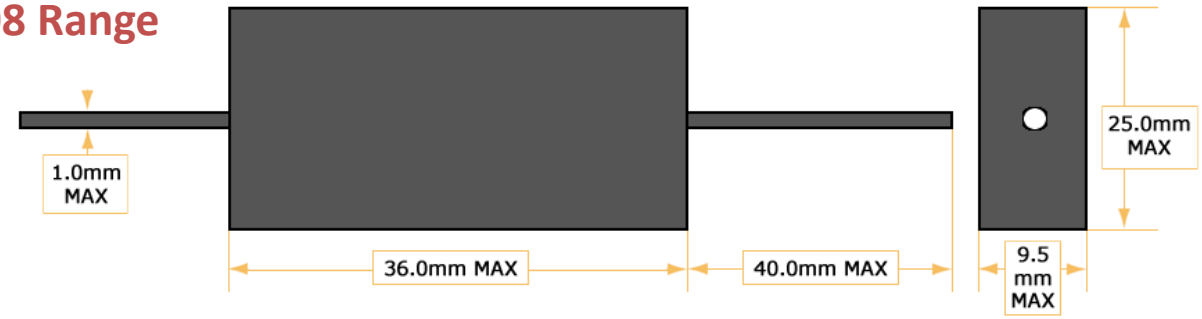
The SB1 and SBA108 capacitors have a low loss dielectric, making it suitable for use in equipment such as transmitter filters which involve high alternating voltages, high frequencies and high currents. The internal construction of the capacitor ensures that the rated voltage is well below the voltages where ionisation discharges occur.

A very small change in mica capacitance with temperature ensures that the capacitance remains within the stated tolerance over the entire working temperature range.

SB1 Range



SBA108 Range



Capacitance Range (Pf)	V.R.M.S	V PROOF	V.W.K.G	AC Current
10 TO 600	750V	2,000Vdc	1,000Vdc	<200pF 8.5A
601 TO 950	500V	2,000Vdc	1,000Vdc	>200pF 10A
951 TO 3,500	300V	1,000Vdc	500Vdc	10A
Tolerance ±1 OR 2%				

Working Temperature Range	-55°C TO +85°C
Tolerance	±5% Standard (closer available)
TANd	0.0015 MAX
Max WKG Voltage	2,500Vdc (50 TO 2,000pF) 1,000Vdc (2,001 TO 4,300pF)
PROOF Voltage	2 X WKG Voltage
Max Current @ 3MHz	[A] 5.0A [B] 8.0A
Insulation Resistance	25,000MΩ @ 500Vdc 20°C