

LOW COST 75A FEEDTHROUGH CAPACITORS



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DESCRIPTION

A range of low cost feedthrough capacitors designed for high volume applications suitable for use on standard dc telecoms voltages of 24Vdc and -48Vdc, as well as 250Vac. Features a high test voltage for safety and reliability. Appropriate for use in all high performance applications requiring high reliability coupled with good high frequency performance such as servers, base stations, and switches.



FEATURES

- Cost effective aluminium case design
- Suitable for multiple dc telecoms voltages
- High proof test voltage of 1200Vdc
- High capacitance per unit volume
- High reliability
- Other capacitance values, current ratings, and test voltages readily available
- Feedthrough filter versions also available
- RoHS compliant

RATINGS AND CHARACTERISTICS

Rated voltage	250V dc / 250V ac 50/60Hz
Test voltage	1200V dc 2 seconds
Insulation resistance	>500MΩ
Ambient temperature range	-40°C to +50°C
Category temperature range	-40°C to +85°C
Climatic category	40/85/21
MTBF	> 10million hours
Insulating materials flammability rating	UL94 V-0
Case material	Aluminium
Terminals	Nickel plated brass

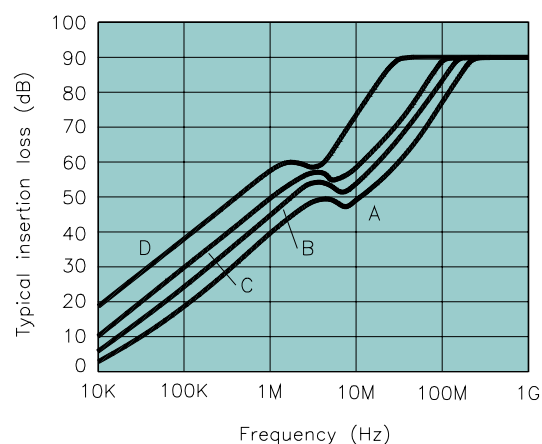
STANDARD RANGE

Part Number	Current Rating I_R (A) @50°C	Capacitance Value ($\mu\text{F} \pm 20\%$)	Major Dimensions (mm)			
			Diameter D	Length L	Terminal Stud S	Mounting Thread T
FC34430	75	0.5	32	25	M6	M20
FC34431	75	1	32	25	M6	M20
FC34432	75	2	32	34	M6	M20
FC34433	75	4	32	45	M6	M20

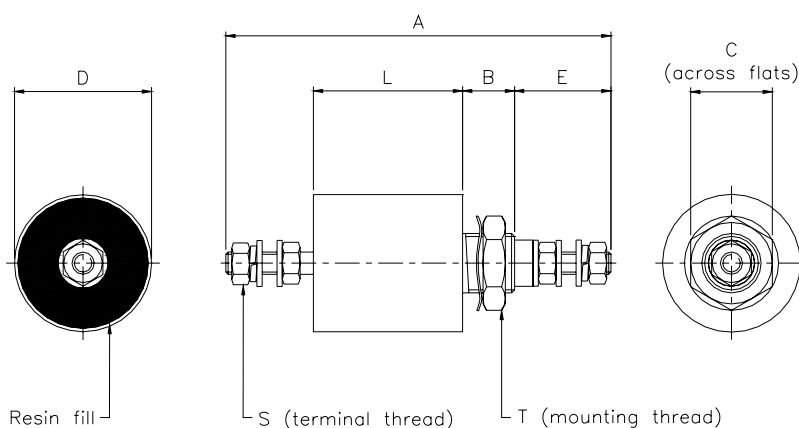
Current derating between 50°C and 85°C: For temperature, θ $I_\theta = I_R \sqrt{(85 - \theta)/35}$

INSERTION LOSS

Part Number	Graph	Typical Insertion Loss (dB) in 50Ω system with/without load							
		10 kHz	30 kHz	100 kHz	300 kHz	1 MHz	10 MHz	100 MHz	1 GHz
FC34430	A	3	9	18	28	38	50	78	90
FC34431	B	5	14	24	34	44	52	84	90
FC34432	C	10	19	29	38	49	55	90	90
FC34433	D	18	28	38	48	58	74	90	90



DIMENSIONS AND MECHANICAL DETAILS



Part Number	Dimensions (mm)										Weight (g)
	D ± 0.5	L ± 1	A ± 1	B ± 1	C	E ± 2	T	Torque on T (N-m)	S	Torque on S (N-m)	
FC34430	32	25	79	13	27	23	M20x1	10	M6	2.5	95
FC34431	32	25	79	13	27	23	M20x1	10	M6	2.5	95
FC34432	32	34	88	13	27	23	M20x1	10	M6	2.5	105
FC34433	32	45	99	13	27	23	M20x1	10	M6	2.5	120

INSTALLATION GUIDELINES

Feedthrough capacitors are designed for through-bulkhead mounting for offering high frequency filtering in line to ground applications. They should be mounted through a metal bulkhead or chassis.

The bulkhead mounting surface should be clean and unpainted to offer a low impedance path from the capacitor to the equipment chassis. Poor earth bonding will limit the available performance of the product and could compromise safety.

Conductive paint finishes should be avoided as they do not usually provide adequate conductivity.

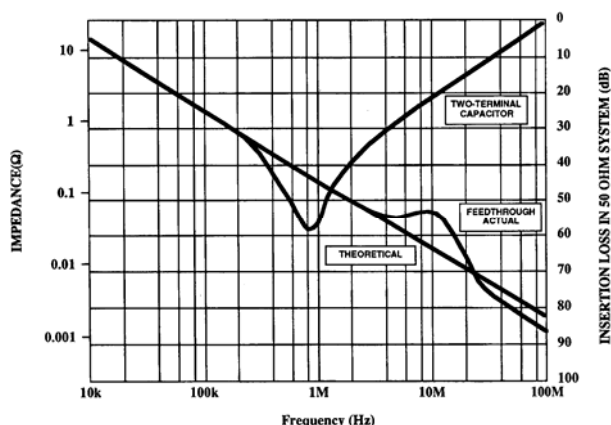
2 spanners should be used when making electrical connections to the terminals, and maximum tightening torque figures quoted should be observed.

CONSTRUCTION AND RELIABILITY

MPE have been designing and manufacturing feedthrough capacitors for more than 40 years, and plastic film feedthrough capacitors for more than 25 years. MPE has always been at the forefront of the design of feedthrough capacitors and the improvements in materials and assembly techniques, which have evolved over the years, have been incorporated into this new range.

The designs covered by this catalogue all utilise self-healing metallised plastic film capacitor material and incorporate a solderless capacitor assembly technique to avoid heat damage to the plastic dielectric material, which would reduce its life and reliability. Terminals are nickel plated for good conductivity.

FEEDTHROUGH CAPACITOR PERFORMANCE



- Normal two-terminal capacitors resonate with their lead inductance in the region 1-10MHz
- This limits their use as suppression components above a few MHz
- Feedthrough capacitors have no major resonance as they have no lead inductance
- Their performance continues to increase with frequency
- Hence feedthrough capacitors are essential for good high frequency performance
- As an example this graph compares the performance of a 1 μ F feedthrough capacitor with a 1 μ F two-terminal capacitor

SAFETY

Relevant safety standards have been adhered to in the design and manufacture of these products. However, all capacitors will store charge after power has been removed and must be treated with respect as this can be lethal when the voltage and charge are high enough. The capacitors contained within this catalogue do not contain internal discharge resistors. It is therefore recommended that they are fitted with external discharge resistors to discharge the capacitors after the power has been removed. Where necessary, terminals should be enclosed by the user to prevent any danger of electric shock or accidental shorting.

In all cases, capacitors should always be shorted to earth prior to touching to ensure they are fully discharged.

The user should ensure he is familiar with restrictions on capacitance value, earth leakage current, test voltage, and safety labelling requirements, which may be applicable to his particular installation.

CUSTOM DESIGNS

MPE offers a rapid design service for custom designs where special packaging, mounting, terminations, or multiple lines are required. Over 50% of the feedthrough components manufactured by MPE are custom designs and this can offer a very cost effective installation solution. Please ask to see examples of previously offered solutions.

FURTHER INFORMATION

For more detailed technical background information, and application notes detailing the benefits of feedthrough capacitors over traditional capacitors, please contact the factory.