DC FEEDTHROUGH CAPACITORS

ROXBURGH EMC

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DESCRIPTION

A range of low cost dc feedthrough capacitors designed for high volume applications, utilising metallised plastic film capacitor construction for high reliability.
Suitable for use in all high performance dc applications requiring high reliability coupled with good high frequency performance such as servers, base stations, and switches.

FEATURES

- **Cost effective aluminium case design**
- **Self-healing metallised plastic film dielectric**
- **High capacitance per unit volume**
- **High reliability**
- **RoHS compliant**

RATINGS AND CHARACTERISTICS

Rated voltage	63Vdc, 100V dc, 250Vdc as tabulated
Test voltage	Twice rated voltage
Insulation resistance	>200MΩ
Ambient temperature range (full load)	-55ºC to +60ºC
Category temperature range (no load)	-55ºC to +85ºC
Climatic category	55/85/21
MTBF	Typically > 1 million hours
Insulating materials flammability rating	UL94 V-0

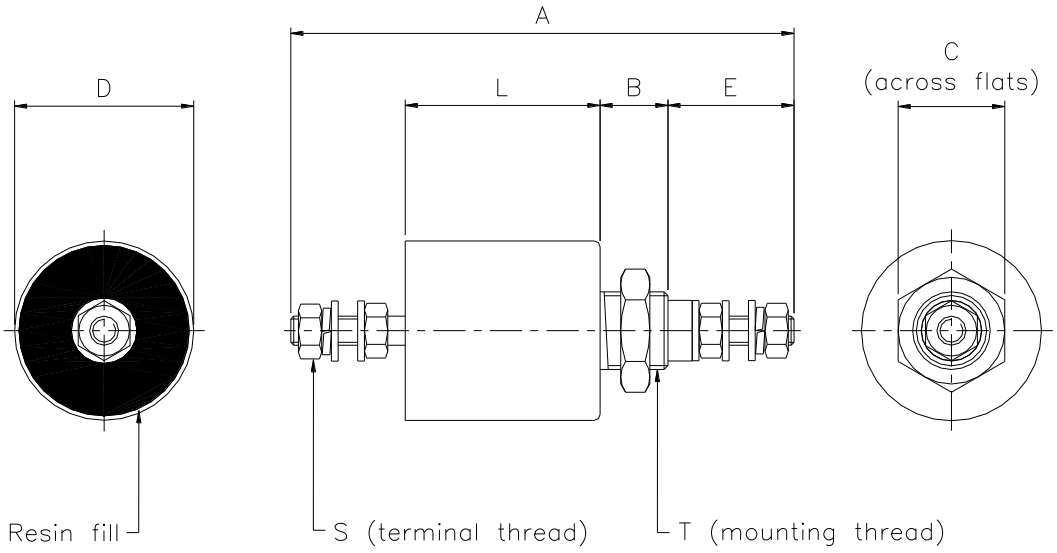
PRODUCT RANGE

Part Number	Current Rating I_R (A) @60ºC	Voltage Rating VDC	Capacitance Value (µF ± 20%)	Typical Insertion Loss (dB) in 50 Ω system with/without load							
				10 kHz	30 kHz	100 kHz	300 kHz	1 MHz	10 MHz	100 MHz	1 GHz
RFT326332	32	63	32	35	45	55	60	65	75	90	90
RFT3210022	32	100	22	30	40	50	60	65	75	90	90
RFT322508	32	250	8	25	30	40	50	60	75	90	90
RFT636332	63	63	32	35	45	55	60	65	70	80	90
RFT6310022	63	100	22	30	40	50	60	65	80	90	90
RFT632508	63	250	8	25	30	40	50	60	75	80	90
RFT1006332	100	63	32	35	45	55	60	65	75	90	90
RFT10010022	100	100	22	30	40	50	60	65	80	90	90
RFT1002508	100	250	8	25	30	40	50	60	75	90	90

Current derating between 60ºC and 85ºC For temperature, θ $I_\theta = I_R\sqrt{(85-\theta)/25}$

ISSUE 4

DIMENSIONS AND MECHANICAL DETAILS



Case Material: Aluminium
Mounting Nut: Stainless steel
Terminals: Nickel plated brass

Part Number	Dimensions (mm)										Typical 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)	
RFT326332	32	34	90	13	27	17	M20x1	10	M4	1.2	82
RFT3210022	32	34	90	13	27	17	M20x1	10	M4	1.2	82
RFT322508	32	34	90	13	27	17	M20x1	10	M4	1.2	82
RFT636332	32	34	105	13	27	25	M20x1	10	M6	2.5	91
RFT6310022	32	34	105	13	27	25	M20x1	10	M6	2.5	91
RFT632508	32	34	105	13	27	25	M20x1	10	M6	2.5	91
RFT1006332	32	34	120	13	27	33	M20x1	10	M8	5.0	107
RFT10010022	32	34	120	13	27	33	M20x1	10	M8	5.0	107
RFT1002508	32	34	120	13	27	33	M20x1	10	M8	5.0	107

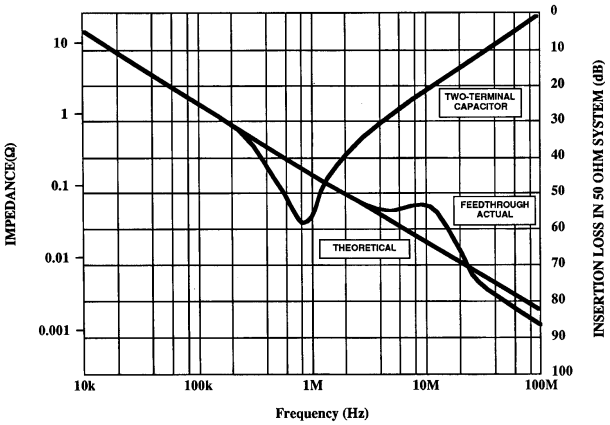
INSTALLATION GUIDELINES

Feedthrough capacitors and filters 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 filter to the equipment chassis. Poor earth bonding will limit the available performance of the product and could compromise safety. The user should check materials compatibility between the aluminium case and the intended mounting surface to avoid any potential galvanic corrosion issues.EN60950 table J1 can be used for guidance on compatible materials.
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

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 1µF feedthrough capacitor with a 1µF two-terminal capacitor
- Feedthrough filters incorporate feedthrough capacitors for the same benefits

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 filters covered by this catalogue do not contain internal discharge resistors. It is therefore recommended that they are fitted with external discharge resistors to discharge their 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, filters 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.