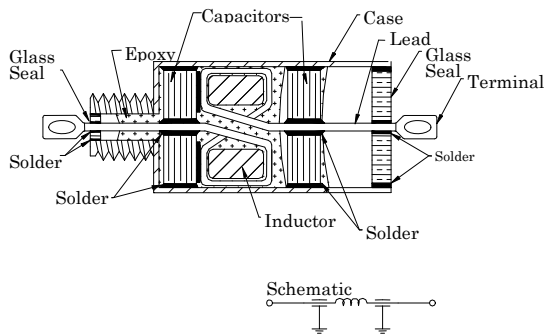


BROADBAND

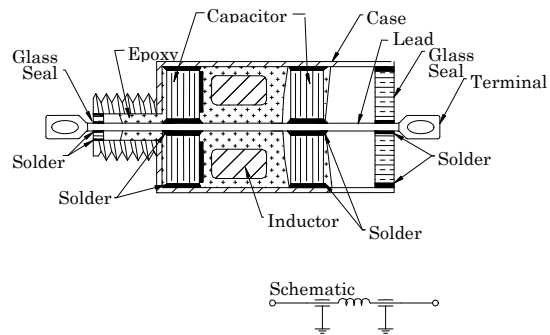
EMI FILTERS

“PI” TYPE

Hermetic Low Current Pi-Section Broadband Filter



Hermetic High Current Pi-Section Broadband Filter



FEATURES:

- Meets or exceeds requirements of MIL-F-15733 and MIL-F-28861
- Extreme resistance to adverse environments.
- Wide capacitance/inductance voltage ranges.
- Excellent input to output signal isolation.
- Shock and vibration immunity.
- Highly reliable multiplayer capacitor construction.

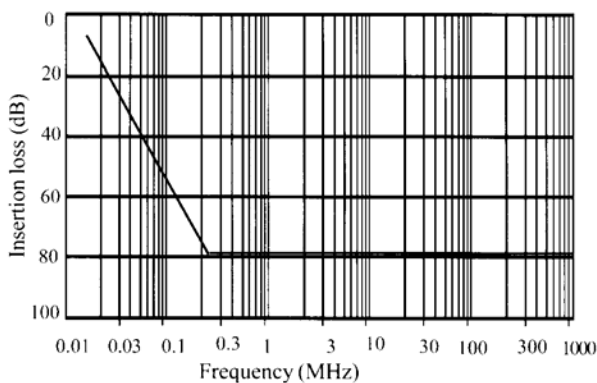
APPLICATIONS:

The “PI” filter is a three element device that contains two capacitors with an inductor between them. The inductor can be either a wound coil for current ratings up to 5 amp or a ferrite bead for applications requiring 10 amp or more.

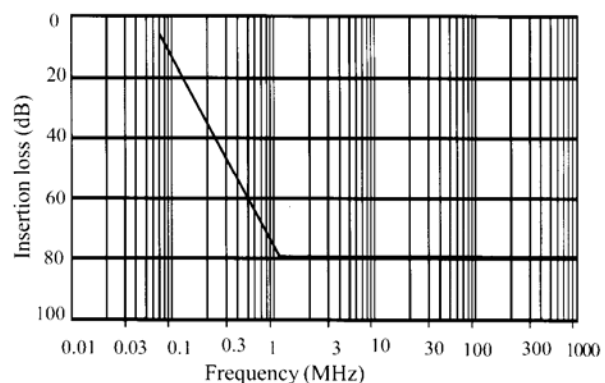
Having a capacitor at both input and output, the PI filter presents a symmetrical circuit providing low impedance especially at higher frequencies to both system source and load.

It will produce optimal results in systems where source and load impedances are relatively high (typically above 50 Ω) and where no attenuation is allowed in the low pass band but the sharp roll-off of 60 dB / decade is desired beyond the cut-off frequency. Due to its multiple element construction a PI filter is also recommended for circuits where source and load impedances vary from low to high depending on circuit functions. However, caution should be used for applications employing switching circuits where actual increase in conducted interference could be caused due to possible LC network resonance.

TYPICAL INSERTION LOSS 1.4μF 0.5 AMP



TYPICAL INSERTION LOSS 1.4μF 5 AMP



EMI FILTERS “PI” TYPE

BROADBAND

GENERAL SPECIFICATIONS:

Capacitance / Tolerance:	Measured @ 1 KHz and .1-1 Vrms, 25°C / -0% +100%
Dissipation Factor:	2.5% max @ 1 KHz and .1-1 Vrms, 25°C
Insulation Resistance:	10 GΩ min or 1000 MΩ -mF, whichever is less @ 25°C, WVDC
Working Voltage:	50 VDC to 240 VAC
Dielectric Withstanding Voltage:	250 % of WVDC min. @ 25°C for 5±1 sec, 50 mA max chg. Current
Volt-Temperature Limit:	+10% -30% @ WVDC and -55°C to +125°C
Current Rating:	.25 Amp through 10 Amp
DC Resistance:	.005Ω through 1.7Ω
Insertion Loss:	Measured per Mil-STD-220, IL between any two adjacent specified frequencies shall be that of the lower of the two frequencies in order to accommodate resonant dips.
Operating Temperature:	-55°C to +125°C
Storage Temperature:	-65°C to +160°C
Materials: Case	Brass, ½ hard per QQ-B-626 (composition #22)
Terminals	Iron-nickel alloy (alloy 52) per ASTM F-30
Finish: Case	Tin/Lead per MIL-T-10727 / Gold or Silver Optional
Terminals	Tin/Lead per MIL-T-10727 / Gold or Silver Optional
Applicable MIL Specifications:	Mil-F-28861 / Mil-F-15733
Environmental Test Spec:	Mil-STD-202
Thermal Shock:	Method 107, Condition A except step 3 @ 125°C
Immersion:	Method 104, Condition A
Salt Spray:	Method 101, Condition B
Moisture Resistance:	Method 106
Barometric Pressure:	Method 105, Condition B
Resistance to Soldering Heat:	Method 210, Condition B
Seal:	Method 112, Condition A
Vibration:	Method 204, Condition D
Shock:	Method 213, Condition I
Terminal Strength:	Method 211, Condition A
Solderability:	Method 208
Life:	Method 108, Condition D

Marking per Mil-STD-130

Filter body size permitting:

PA&E logo
PA&E part number
Date code

INSTALLATION GUIDE

Although PA&E filters are rugged with excellent resistance to physical damage, good working practices should be utilized in the installation process to avoid possible post-installation problems.

1) Maximum recommended mounting torque should be applied to the nut only and observed as follows:

Thread size	0-80	2-56	4-40 UNC	8-32 UNC	12-32 UNC	1/4-28 UNF	5/16-24 UNF
Mount torque	10 in oz.	18 in oz.	3 in. lbs.	3-5 in. lbs.	6-8 in. lbs.	7-9 in. lbs.	7-9 in. lbs.

2) Avoid bending or flexing terminals at the point of exit from the glass or epoxy seal to preserve the integrity of the seal and/or ceramic capacitor.

3) Solder connections to the terminals should be performed with temperatures not exceeding 230°C, placing a heat sink between soldering point and filter body whenever possible.

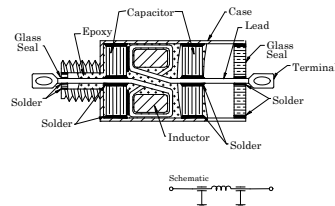
BROADBAND



EMI FILTERS

“PI” TYPE

Hermetic Low Current Pi-Section Broadband Filter



PA&E FILTERS PART NUMBER	L MAX (in.)	WORKING VOLTAGE (VDC)	I _{dc} (A)	MIN CAP (μF)	MIN IR (MΩ)	MAX Rdc (Ω)	MINIMUM INSERTION LOSS (dB)							
							Per Mil-STD-220							
							30 KHz	100 KHz	150 KHz	300 KHz	1 MHz	10 MHz	100 MHz	1 GHz
3412-7K63-285**	.793	50	.5	2.8	200	.6	33	65	76	80	80	80	80	80
3413-7K63-285**	.793	50	1	2.8	200	.25	20	55	66	80	80	80	80	80
3414-7K63-285**	.793	50	3	2.8	200	.05	-	31	42	63	80	80	80	80
3415-7K63-285**	.793	50	5	2.8	200	.015	-	15	37	51	78	80	80	80
3416-7K63-285**	.793	50	10	2.8	200	.005	21	30	34	40	50	68		80
342T-7K63-145**	.793	70	.1	1.4	500	1.7	34	67	77	80	80	80	80	80
342V-7K63-145**	.793	70	.3	1.4	500	.75	27	60	71	80	80	80	80	80
3422-7K63-145**	.793	70	.5	1.4	500	.36	19	54	65	78	80	80	80	80
3423-7K63-145**	.793	70	1	1.4	500	.14	-	39	50	69	78	80	80	80
3429-7K63-145**	.793	70	2	1.4	500	.07	-	31	44	63	74	80	80	80
3424-7K63-145**	.793	70	3	1.4	500	.05	-	20	39	54	80	80	80	80
3425-7K63-145**	.793	70	5	1.4	500	.015	-	7	20	42	78	80	80	80
3426-7K63-145**	.793	70	10	1.4	500	.005	14	23	30	34	44	60	80	80
3421-7K63-664**	.793	100	.25	.66	1000	1.5	7	41	51	68	80	80	80	80
3423-7K63-664**	.793	100	1	.66	1000	.25	-	28	40	59	80	80	80	80
3424-7K63-664**	.793	100	3	.66	1000	.05	-	-	15	36	68	80	80	80
3425-7K63-664**	.793	100	5	.66	1000	.015	-	-	-	18	61	80	80	80
3426-7K63-664**	.793	100	10	.66	1000	.005	6	14	17	24	38	58	78	80
3441-7K63-304**	.793	125VAC	.25	.3	2000	1.5	-	18	27	44	70	80	80	80
3443-7K63-304**	.793	125VAC	1	.3	2000	.25	-	-	12	30	62	80	80	80
3444-7K63-304**	.793	125VAC	3	.3	2000	.05	-	-	4	20	46	80	80	80
3445-7K63-304**	.793	125VAC	5	.3	2000	.015	-	-	-	15	41	80	80	80
3446-7K63-304**	.793	125VAC	10	.3	2000	.005	-	-	-	10	31	50	80	80
3462-7K63-503**	.793	300	.5	.05	5000	.6	-	-	-	20	50	80	80	80
3463-7K63-503**	.793	300	1	.05	5000	.25	-	-	-	10	40	80	80	80
3464-7K63-503**	.793	300	3	.05	5000	.05	-	-	-	-	25	80	80	80
3465-7K63-503**	.793	300	5	.05	5000	.015	-	-	-	-	10	65	80	80
3466-7K63-503**	.793	300	10	.05	5000	.005	-	-	-	-	10	35	70	80

Details subject to change without notice.

** PART NUMBERS ARE INCOMPLETE. PLEASE SEE PAGE 48 TO COMPLETE THE NUMBERS.

NOTE: For case style Figure 1, use 7 in the fifth place of the part number. For case style Figure 2, use 8 in the fifth place of the part number. * For .312 thread length, substitute 7 for 6 in the seventh digit of the part number.

Tolerances: ±.10 and as noted.

Hermetic Low Current Pi-Section Broadband Filter

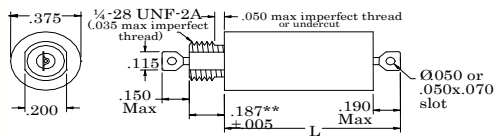


Figure 1

Hermetic Low Current Pi-Section Broadband Filter

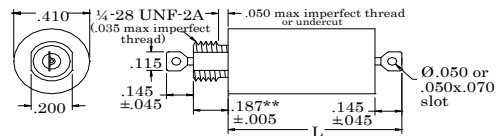
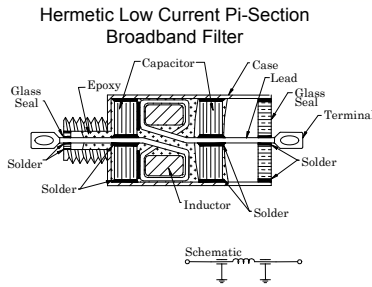


Figure 2

EMI FILTERS "PI" TYPE

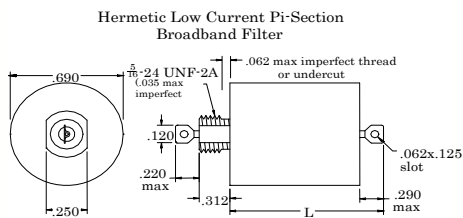
BROADBAND



PA&E FILTERS PART NUMBER	L MAX (in.)	WORKING VOLTAGE (VDC)	I _{dc} (A)	MIN CAP (μF)	MIN IR (MΩ)	MAX Rdc (Ω)	MINIMUM INSERTION LOSS (dB) Per Mil-STD-220							
							30 KHz	100 KHz	150 KHz	300 KHz	1 MHz	10 MHz	100 MHz	1 GHz
3422-9M83-285**	1.180	100	.5	2.8	200	.3	36	69	80	80	80	80	80	
3423-9M83-285**	1.180	100	1	2.8	200	.21	32	65	76	80	80	80	80	
3424-9M83-285**	1.180	100	3	2.8	200	.03	10	40	50	70	80	80	80	
3425-9M83-285**	1.180	100	5	2.8	200	.007	-	23	36	60	80	80	80	
3426-9M83-285**	1.180	100	10	2.8	200	.005	20	30	64	40	50	70	80	
3432-9M83-145**	1.180	150	.5	1.4	500	.3	25	57	68	80	80	80	80	
3433-9M83-145**	1.180	150	1	1.4	500	.21	20	54	64	80	80	80	80	
3434-9M83-145**	1.180	150	3	1.4	500	.03	-	29	40	60	80	80	80	
3435-9M83-145**	1.180	150	5	1.4	500	.007	-	-	30	50	80	80	80	
3436-9M83-145**	1.180	150	10	1.4	500	.005	15	25	28	35	45	62	80	
3432-9M83-904**	1.180	200	.5	.9	1000	.3	15	48	57	76	80	80	80	
3433-9M83-904**	1.180	200	1	.9	1000	.21	9	45	54	73	80	80	80	
3434-9M83-904**	1.180	200	3	.9	1000	.03	-	15	28	50	80	80	80	
3435-9M83-904**	1.180	200	5	.9	1000	.007	-	10	20	38	69	80	80	
3436-9M83-904**	1.180	200	10	.9	1000	.005	10	20	24	30	40	58	80	
3462-9M83-504**	1.180	300	.5	.5	1000	.3	6	39	48	67	80	80	80	
3463-9M83-504**	1.180	300	1	.5	1000	.21	-	36	45	64	80	80	80	
3464-9M83-504**	1.180	300	3	.5	1000	.03	-	6	18	41	75	80	80	
3465-9M83-504**	1.180	300	5	.5	1000	.007	-	-	12	30	61	80	80	
3466-9M83-504**	1.180	300	10	.5	1000	.005	4	12	15	22	36	56	76	
3442-9N83-364**	1.205	125VAC	.5	.36	2000	.33	-	32	42	60	80	80	80	
3443-9N83-364**	1.205	125VAC	1	.36	2000	.15	-	24	35	54	80	80	80	
3444-9N83-364**	1.205	125VAC	3	.36	2000	.026	-	-	17	39	70	80	80	
3445-9N83-364**	1.205	125VAC	5	.36	2000	.013	-	-	-	24	57	80	80	
3446-9N83-364**	1.205	125VAC	10	.36	2000	.008	-	-	-	-	48	80	80	
3452-9N83-204**	1.205	240VAC	.5	.2	3000	.33	-	22	32	50	80	80	80	
3453-9N83-204**	1.205	240VAC	1	.2	3000	.15	-	14	25	44	75	80	80	
3454-9N83-204**	1.205	240VAC	3	.2	3000	.026	-	-	-	29	61	80	80	
3455-9N83-204**	1.205	240VAC	5	.2	3000	.013	-	-	-	10	50	80	80	
3456-9N83-204**	1.205	240VAC	10	.2	3000	.008	-	-	-	-	30	80	80	

Details subject to change without notice.

** PART NUMBERS ARE INCOMPLETE. PLEASE SEE PAGE 49 TO COMPLETE THE NUMBERS.



MOUNTING HARDWARE

