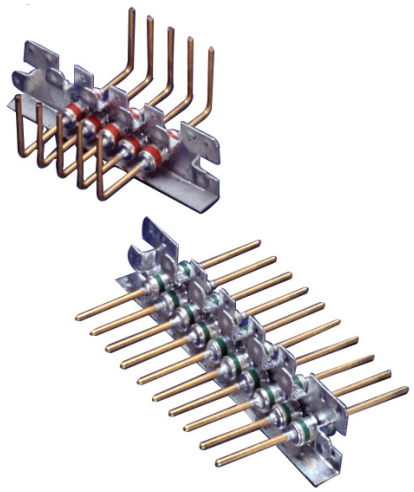
Easy Mate Filter Plates

APITech developed an EMI/RFI filter plate, Easy Mate, which simplifies installation and eliminates the need for mounting hardware. The patented Easy Mate style is designed to "snap" into the chassis of electronic systems, reducing the labor required to complete a plate installation. The drawing on page 4 shows the Easy Mate installation design.

These plates are available in two lengths and in both standard density centers (.100") and high-density centers (2.00mm). Standard density Easy Mate plates offer up to 26 lines per plate in a double row configuration, while high-density plates offer up to 32 lines. Custom sizes for Easy Mate plates are available.



Easy Mate Advantages

- Reduces installation time and overall cost
- Eliminates mounting hardware and prepwork
- Improves overall quality and reliability
- Multiple dimpled finger ground contacts provide excellent long term EMI filtering from 5 MHz to 18 GHz
- Outperforms surface mount devices
- Improved reliability
- Maximize real estate on PCB
- Mixed capacitance values and schematics
- Ideal for isolation of electronics compartments
- RoHS compliant versions available

Ordering Infromation

Example: **52-898-206-BA2**

The part number shown represents an Easy Mate filter plate with 2 rows, 6 filters per row. Filters are C style with a capacitance value of 100pF. The plate length is 1.092", and the leads are bent 90° to the right side.

52 ** — **898** — **2** **06** — **B** **A** **2**

52	898	2	06	B	A	2
Filter Plates	**898** Easy Mate Standard Density **960** Easy Mate High-density*	**No. of Rows** **1** = 1 row **2** = 2 rows	**No. of Lines per Row** If less than 10, use a 0 (zero) first.	**Filter Designation** A - T from selection table on page 9. ***	**Plate Length** **A** - 1.092 (27.74mm) **B** - 1.812 (46.02mm)	**Lead Configuration** **0** - Straight **1** - 90° (left) **2** - 90° (right) **3** - 90° (both)

No. of Filters

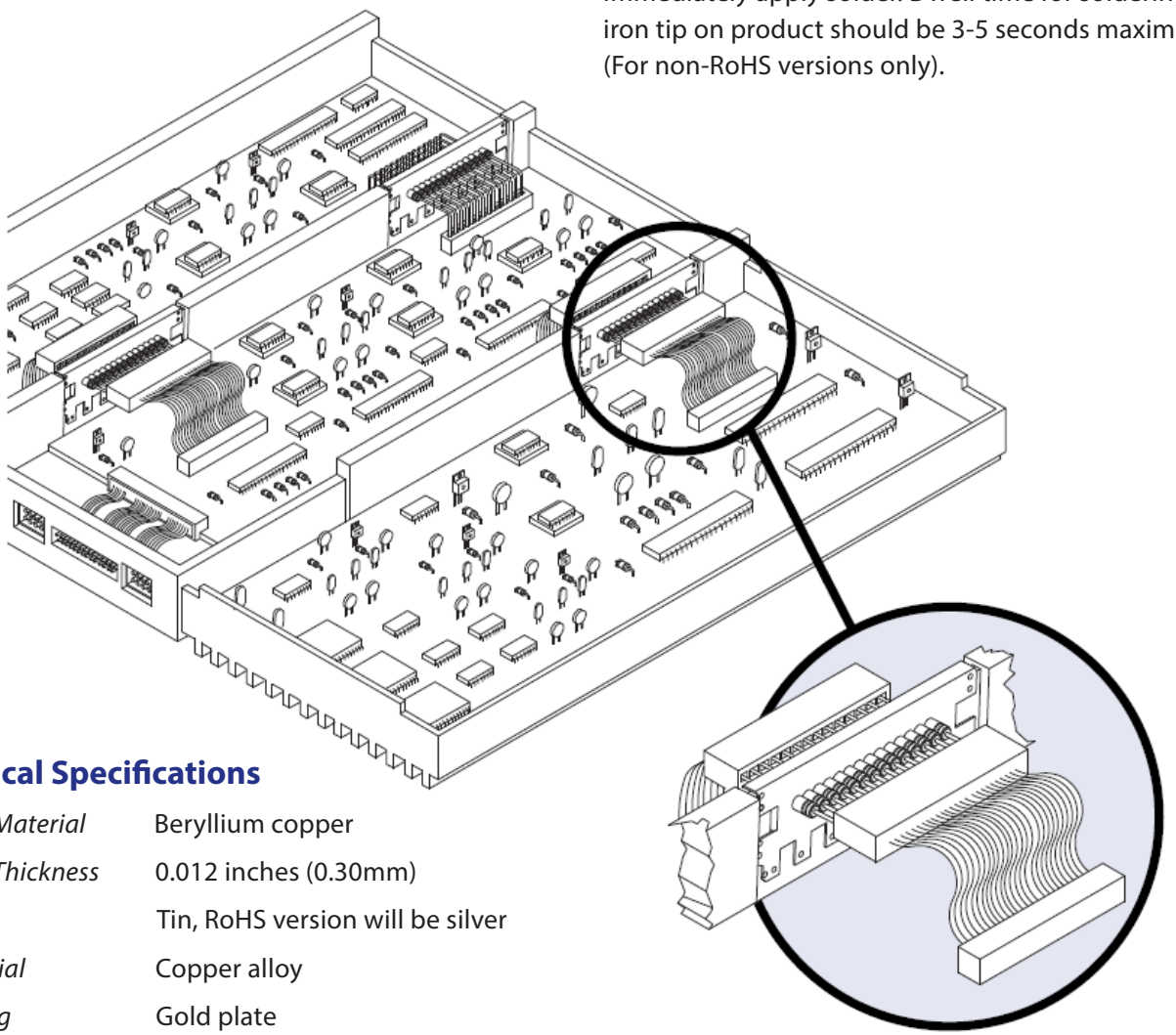
** Maximum capacitance up 400pF C style filter.*
*** Replace "-" with "F" for RoHS compliant version.*

**** To request selective line filtering, a mechanical configuration or material specification not shown in this catalog, please contact APITech. We will review your request and provide you with a part number.*

Easy Mate Filter Plates

Soldering to Filter Terminals

- Use a temperature controlled soldering iron with tip temperature of 525 ± 10° F (275 ± 5° C).
- Use an SN 63 RMA flux core solder.
- Make mechanical wire connection.
- Use heat sink next to filter body where possible.
- Clean soldering iron tip.
- Clip end of solder - remove 0.5" (12.7mm) to expose flux for soldering.
- Apply soldering iron to wire/flag junction at wetted solder tip region of iron (Wetted Bridge Method). Immediately apply solder. Dwell time for soldering iron tip on product should be 3-5 seconds maximum. (For non-RoHS versions only).



APITech's patented Easy Mate design.

Mechanical Specifications

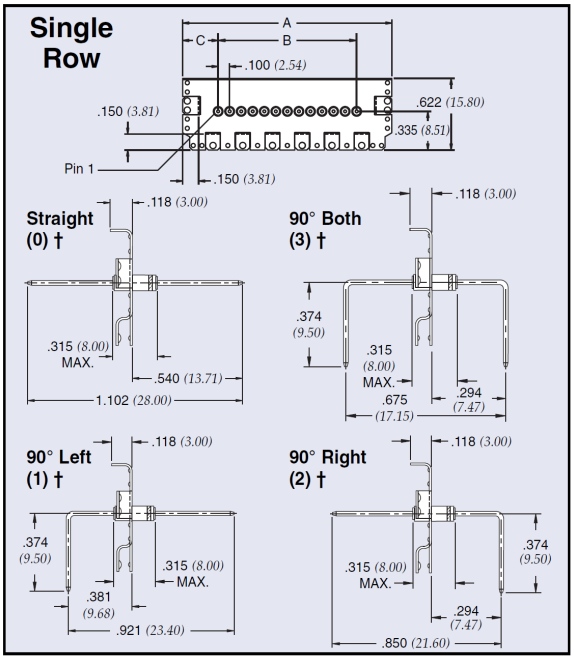
Base Plate Material	Beryllium copper
Base Plate Thickness	0.012 inches (0.30mm)
Plating	Tin, RoHS version will be silver
Lead Material	Copper alloy
Lead Plating	Gold plate
Lead Diameter	ø 0.25" (.64mm) for 0.100" centers (2.54mm) ø 0.20" (.51mm) for 0.079" centers (2.00mm)
Current Rating	5 Amps for 0.25" (.64mm) ø 3 Amps for 0.50" (.51mm) ø

Easy Mate Filter Plates

Standard Density Centers .100"

Dimensions: inches and *(mm)*

Lead Spacing: .100" *(2.54 mm)*



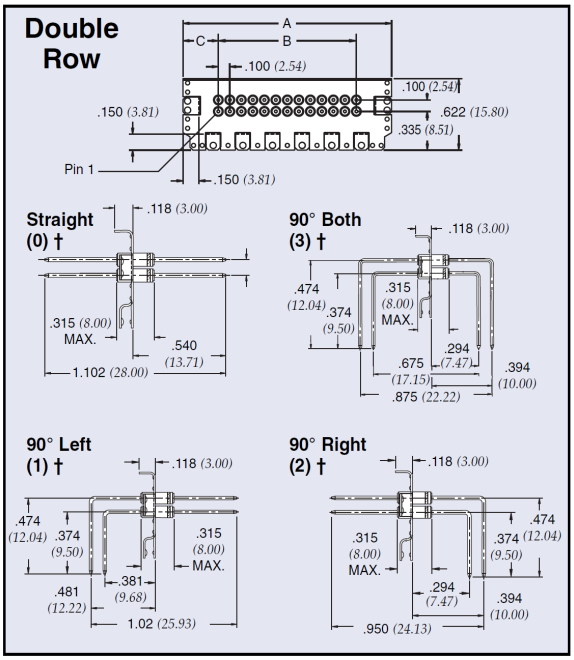
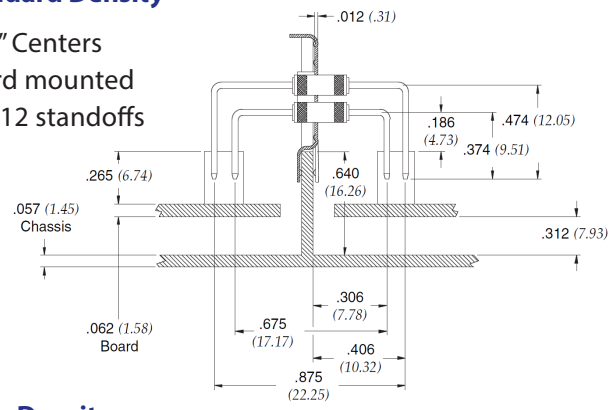


Plate length (A)	No. of filtered lines per row	52-898-XXX-XXX	
		B	C
1.092 *(27.74)*	1	0 *(0.00)*	0.496 *(12.60)*
	2	0.1 *(2.54)*	0.496 *(12.60)*
	3	0.2 *(5.08)*	0.396 *(10.06)*
	4	0.3 *(7.62)*	0.396 *(10.06)*
	5	0.4 *(10.16)*	0.296 *(7.52)*
	6	0.5 *(12.70)*	0.296 *(7.52)*
1.812 *(46.02)*	1	0 *(0.00)*	0.906 *(23.01)*
	2	0.1 *(2.54)*	0.806 *(20.47)*
	3	0.2 *(5.08)*	0.806 *(20.47)*
	4	0.3 *(7.62)*	0.706 *(17.93)*
	5	0.4 *(10.16)*	0.706 *(17.93)*
	6	0.5 *(12.70)*	0.606 *(15.39)*
	7	0.6 *(15.24)*	0.606 *(15.39)*
	8	0.7 *(17.78)*	0.506 *(12.85)*
	9	0.8 *(20.32)*	0.506 *(12.85)*
	10	0.9 *(22.86)*	0.406 *(10.31)*
	11	1.0 *(25.40)*	0.406 *(10.31)*
	12	1.1 *(27.94)*	0.306 *(7.77)*
	13	1.2 *(30.48)*	0.306 *(7.77)*

Typical Mounting Applications

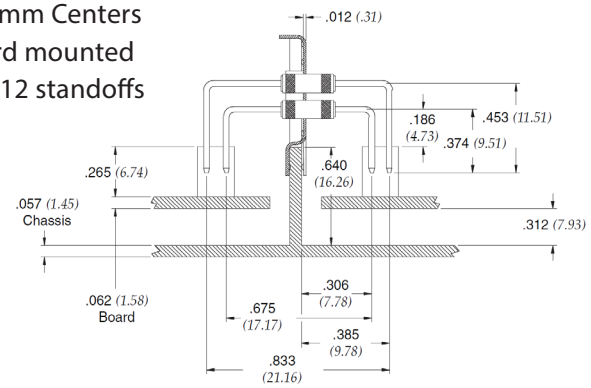
Standard Density

.100" Centers
Board mounted
to .312 standoffs



High-Density

2.00mm Centers
Board mounted
to .312 standoffs



APITech's patented Easy Mate design.

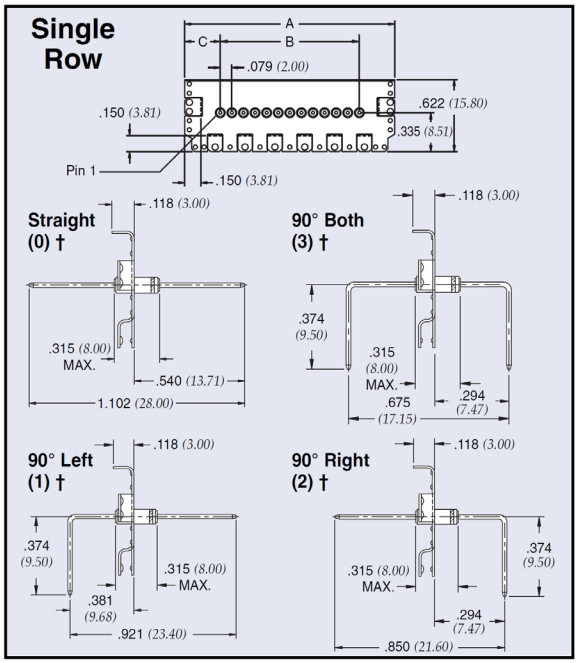
† Refers to lead configuration for part number/ordering information.

Easy Mate Filter Plates

High-Density Centers 2.00mm

Dimensions: inches and *(mm)*

Lead Spacing: .079" *(2.00 mm)*



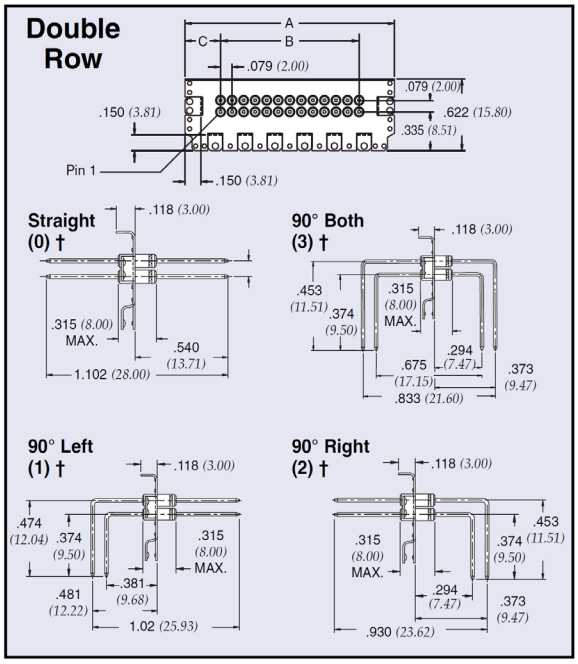
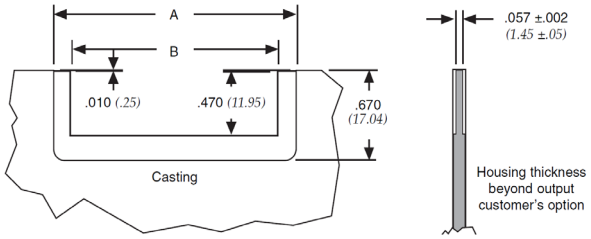


Plate length (A)	No. of filtered lines per row	52-960-XXX-XXX	
		B	C
1.092 *(27.74)*	2	0.079 *(2.00)*	0.463 *(11.77)*
	3	0.157 *(4.00)*	0.463 *(11.77)*
	4	0.236 *(6.00)*	0.385 *(9.77)*
	5	0.315 *(8.0)*	0.385 *(9.77)*
	6	0.394 *(10.00)*	0.306 *(7.77)*
	7	0.472 *(12.00)*	0.306 *(7.77)*
1.812 *(46.02)*	2	0.079 *(2.00)*	0.866 *(22.00)*
	3	0.157 *(4.00)*	0.787 *(20.00)*
	4	0.236 *(6.00)*	0.787 *(20.00)*
	5	0.315 *(8.00)*	0.709 *(18.00)*
	6	0.394 *(10.00)*	0.709 *(18.00)*
	7	0.472 *(12.00)*	0.630 *(16.00)*
	8	0.551 *(14.00)*	0.630 *(16.00)*
	9	0.630 *(16.00)*	0.551 *(14.00)*
	10	0.709 *(18.00)*	0.551 *(14.00)*
	11	0.787 *(20.00)*	0.472 *(12.00)*
	12	0.866 *(22.00)*	0.472 *(12.00)*
	13	0.945 *(24.00)*	0.394 *(10.00)*
	14	1.024 *(26.00)*	0.394 *(10.00)*
	15	1.102 *(28.00)*	0.315 *(8.00)*
	16	1.181 *(30.00)*	0.315 *(8.00)*

Easy Mate Chassis Cut-Out Design



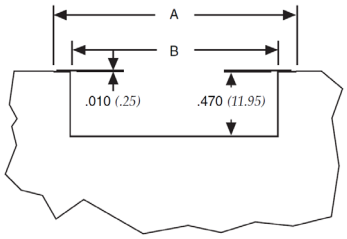


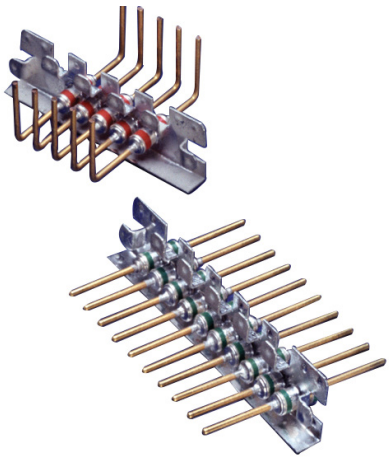
Plate length	A	B
1.092 *(27.74)* 1.812 *(46.02)*	1.117 *(28.41)* 1.837*(46.71)*	0.816 *(20.75)* 1.535*(39.04)*

APITech's patented Easy Mate design.

† Refers to lead configuration for part number/ordering information.

Easy Mate Jr. Filter Plates

APITech expanded its popular Easy Mate family by adding two more package sizes. These new sizes are lower profile and facilitate installation of feedthrough filters into small hardware applications such as PCS linear power amplifiers and RF transmitters. The Easy Mate Jr. is available in two plate lengths, .990" and 1.240", and in standard (.100") and high-density centers (2.00mm).



Easy Mate Jr. Advantages

- Reduces installation time and overall cost
- Increase flexibility with standard density centers (.100") or high-density centers (2.00mm)
- Improves overall quality and reliability
- Multiple finger ground contacts provide excellent EMIL filtering from 5 MHz to 18 GHz
- Outperforms surface mount devices
- Maximize real estate on PCB
- Mixed capacitance values and schematics
- Ideal for isolation of electronic compartments
- RoHS compliant versions available

Mechanical Specifications

Base Plate	Beryllium copper
Base Plate Thickness	.010 inches (.25mm)
Plating	Tin RoHS version will be silver
Lead Material	Copper alloy
Lead Plating	Gold plate
Lead Diameter	ø .025" (.64mm) for 0.100" centers (2.54mm) ø .020" (.51mm) for 0.079" centers (2.00mm)
Current Rating	5 Amps for .025" ø (.64mm) 3 Amps for .020" ø (.51mm)

Ordering Information

Example: **52-978-106-BA2**

The part number shown represents an Easy Mate Jr. filter plate with 6 filters. Filters are C style with a capacitance value of 100pF. The plate length is .990", and the leads are bent 90° to the right side.

52 ** — **978** — **1** **06** — **B** **A** **2**

52	**	978	1	06	B	A	2
Filter Plates		**978** Easy Mate Jr. Standard Density **979** Easy Mate Jr. High-density*	**No. of Rows** **1** = 1 row	**No. of Lines per Row** If less than 10, use a 0 (zero) first.	**Filter Designation** A - T from selection table on page 19. ***	**Plate Length** **A** - .990 (25.15mm) **B** - 1.240 (31.49mm)	**Lead Configuration** **0** - Straight **1** - 90° (left) **2** - 90° (right) **3** - 90° (both)

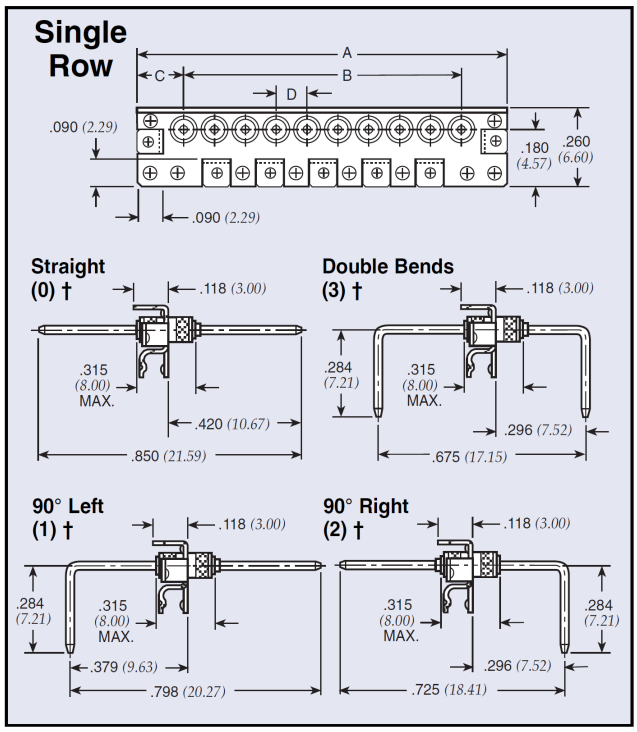
No. of Filters

** Maximum capacitance up 400pF C style filter.*
*** Replace "-" with "F" for RoHS compliant version.*

**** To request selective line filtering, a mechanical configuration or material specification not shown in this catalog, please contact APITech. We will review your request and provide you with a part number.*

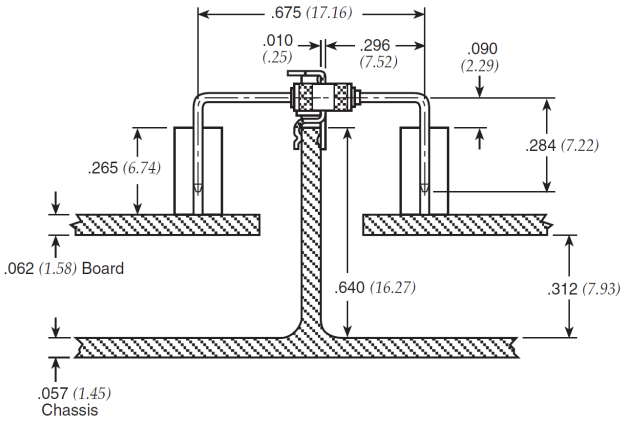
Easy Mate Jr. Filer Plates

Dimensions: inches and *(mm)*



† Refers to lead configuration for part number/ordering information.

Typical Mounting Application



APITech's patented Easy Mate design.

Standard Density Centers .100" (D)

Plate length (A)	No. of filtered lines per row	52-960-XXX-XXX B	52-960-XXX-XXX C
.990 *(25.15)*	2	0.1 *(2.54)*	0.395 *(10.03)*
	3	0.2 *(5.08)*	0.395 *(10.03)*
	4	0.3 *(7.62)*	0.295 *(7.49)*
	5	0.4 *(10.16)*	0.295 *(7.49)*
	6	0.5 *(12.70)*	0.195 *(4.95)*
	7	0.6 *(15.24)*	0.195 *(4.95)*
1.24 *(31.49)*	2	0.1 *(2.54)*	0.570 *(14.48)*
	3	0.2 *(5.08)*	0.470 *(11.94)*
	4	0.3 *(7.62)*	0.470 *(11.94)*
	5	0.4 *(10.16)*	0.370 *(9.40)*
	6	0.5 *(12.70)*	0.370 *(9.40)*
	7	0.6 *(15.24)*	0.270 *(6.86)*
	8	0.7 *(17.78)*	0.270 *(6.86)*
	9	0.8 *(20.32)*	0.170 *(4.32)*
	10	0.9 *(22.86)*	0.170 *(4.32)*

High-Density Centers 2.00mm (D)

Plate length (A)	No. of filtered lines per row	52-960-XXX-XXX B	52-960-XXX-XXX C
.990 *(25.15)*	2	0.079 *(2.54)*	0.395 *(10.03)*
	3	0.157 *(5.08)*	0.395 *(10.03)*
	4	0.236 *(7.62)*	0.295 *(7.49)*
	5	0.315 *(10.16)*	0.295 *(7.49)*
	6	0.394 *(12.70)*	0.195 *(4.95)*
	7	0.472 *(15.24)*	0.195 *(4.95)*
1.24 *(31.49)*	2	0.079 *(2.00)*	0.580 *(14.75)*
	3	0.157 *(4.00)*	0.502 *(12.75)*
	4	0.236 *(6.00)*	0.502 *(12.75)*
	5	0.315 *(8.00)*	0.423 *(10.75)*
	6	0.394 *(10.00)*	0.423 *(10.75)*
	7	0.472 *(12.00)*	0.344 *(8.75)*
	8	0.551 *(14.00)*	0.344 *(8.75)*
	9	0.630 *(16.00)*	0.266 *(6.75)*
	10	0.709 *(18.00)*	0.266 *(6.75)*

Easy Mate Jr. Chassis Cut-Out Design

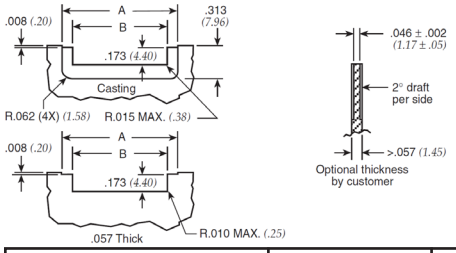


Plate length	A	B
.990 *(25.15)*	1.0.15 *(25.78)*	0.834 *(21.18)*
1.24 *(31.49)*	1.265*(32.13)*	1.084 *(27.53)*

Filter Plate Filter Selection

EMI Filter Performance

The electrical characteristics table and insertion loss graphs indicate the performance of feedthrough capacitors and Pi type filters. Utilize this information to specify the EMI filtering components included in your filter plate.

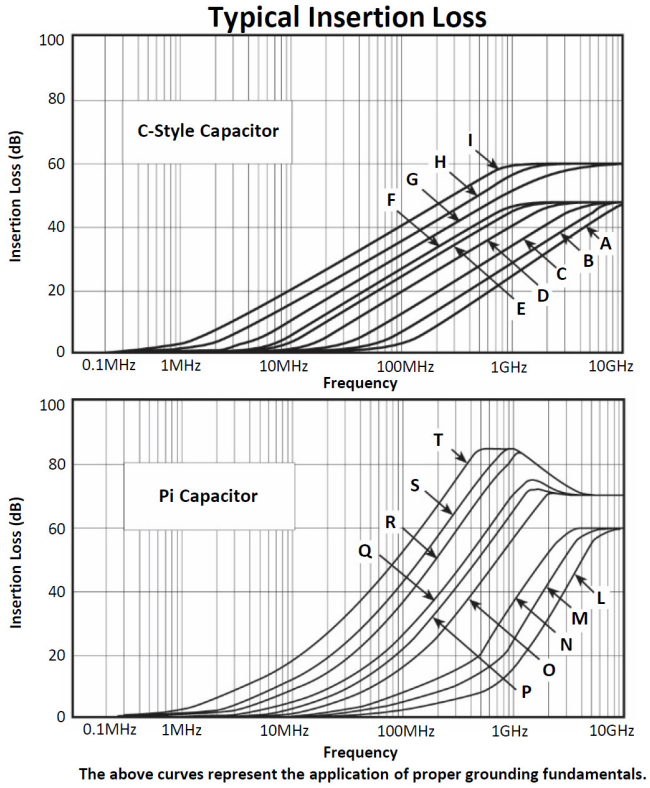
Custom Filtering

APITech filter plates are engineered to accommodate selective line filtering. Several different types of filters may be specified in a single, easy to install filter plate, allowing you to facilitate a wide range of filtering requirements.

For select line filtering, provide a sketch indicating the filters and positions required. The example below represents a 10-pin, 2-row plate with six 1000 pF feedthrough capacitors and four 1700 pF Pi type filters.

Part Number Based on front view of plate

10 F	F	F	R	R 6
1 F	F	F	R	R 5



The above curves represent the application of proper grounding fundamentals.

Filter Designation	Filter** Circuits	Capacitance		3 dB Max Cut-off Frequency (MHz)	Working Voltage DC -55°C to +125°C	Minimum Insertion Loss - Decibles (dB) 50 ohm system per MIL-STD-220 (no load)							
		Value	Tolerance			5 MHZ	10 MHZ	20 MHZ	50 MHZ	100 MHZ	200 MHZ	500 MHZ	1 GHZ
A	C	68pF	+/-25%	73.9	100V	-	-	-	-	-	3	10	16
B	C	100pF	+/-25%	50.3	100V	-	-	-	-	1	6	13	19
C	C	135pF	+100/-0%	23.3	100V	-	-	-	1	5	10	16	20
D	C	470pF	+/-25%	10.7	100V	-	-	2	7	13	18	25	27
E	C	820pF	+/-25%	6.2	100V	-	1	5	12	18	23	30	33
F	C	1000pF	+/-25%	5.1	100V	-	2	7	14	20	25	32	35
G	C	1500pF	+/-25%	3.4	100V	1	4	10	16	22	29	36	37
H	C	2500pF	+100/-0%	1.26	100V	5	11	17	23	29	35	38	40
I	C	4000pF	+100/-0%	0.8	100V	9	15	21	27	34	38	42	46
J	Insulated	10pF	Max.	635	100V	-	-	-	-	-	-	-	-
K	Grounded					-	-	-	-	-	-	-	-
L	Pi	68	+/-25%	65.3	100V	-	-	-	-	1	3	8	19
M	Pi	100	+/-25%	45.1	100V	-	-	-	-	2	6	11	27
N	Pi	135	+100/-0%	22.0	100V	-	-	-	1	6	10	20	34
O	Pi	470	+/-25%	10.6	100V	-	-	-	8	14	21	36	43
P	Pi	820	+/-25%	6.2	100V	-	-	4	13	22	31	45	52
Q	Pi	1000	+/-25%	5.1	100V	-	2	6	14	22	33	51	59
R	Pi	1700	+100/-0%	1.9	100V	1	6	12	23	35	48	64	69
S	Pi	2500	+100/-0%	1.3	50V	4	9	15	28	41	54	70	70
T	Pi	5000	+100/-0%	0.65	100V	9	15	23	41	53	66	70	70

** 3dB cut-off frequency calculated at the maximum capacitance.*
*** For high-density centers (2mm) only C style filters are available, to maximum of 4000pF.*