

## 77, 78, and 79 Series

The CTS line 77, 78, and 79 Series Filtered Assembly Plates provide ease of installation and line customization of standard size plates. Filter plates are an efficient and cost-effective solution for filtering multiple lines in to or between different system compartments.

For higher frequency applications (<50 MHz), filter plates can be more effective than typical surface mount solutions. The inherent shielding characteristics of these plates creates an effective RF barrier offering excellent insertion loss and isolation for frequencies greater than 5 MHz. The preassembled plates, which are 100% tested for critical parameters, greatly reduces the time and resources required to individually install solder mount filters.

The 77 Series Quick Connect and 78 Series Miniature Quick Connect filter plates (pages 2 & 3) feature a base plate with built-in installation clips. These clips allow for cost effective mounting into the system bulkhead without the expense or the time associated with traditional hardware. The Quick Connect filter plate offers one or two rows of totaling up to 26 lines.

The Miniature Quick Connect filter plate provides a lower profile and works with up to 10 lines. Up to 40 lines are available on the standard bolt-in filter plate in the two row configuration.



### 77, 78 and 79 Series Filter Plate Mechanical Specifications:

Base Plate Material .....	Copper Alloy or Nickel-Silver
Base Plate Thickness	
77 and 78 Series .....	0.012" [0.3mm]
79 Series .....	0.028" [0.7mm]
Plating .....	Matte Tin
Lead Material .....	Copper Alloy
Lead Plating .....	Gold Plate
Lead Diameter .....	Ø 0.025" [0.64mm]
Current Rating .....	5 Amps

## Index

Quick Connect Filter Plates	pg. 2
Miniature Quick Connect Filter Plates	pg. 3
Standard Filter Plates	pg. 4
Ordering Information	pg. 5
Testing Information	pg. 6

## 77, 78, and 79 Series

### Mounting Configuration

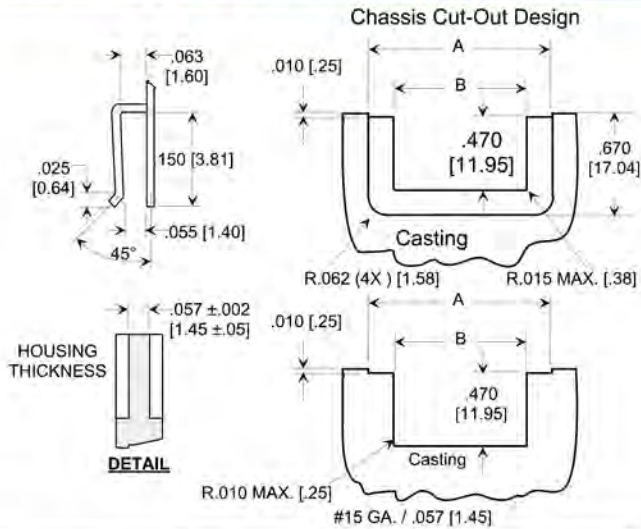
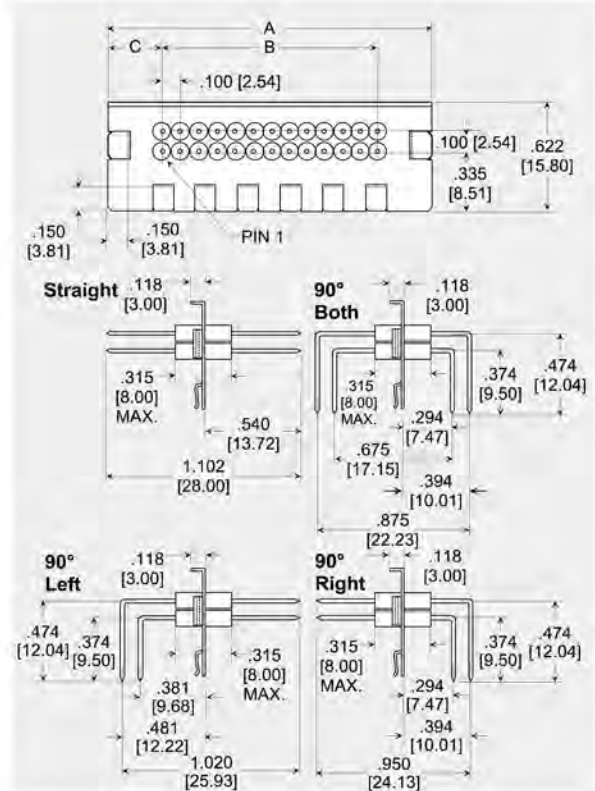
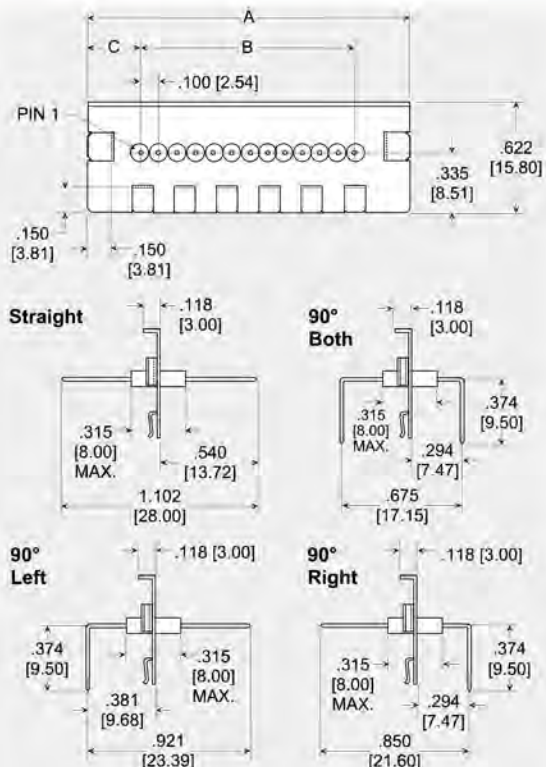


Plate Length	A	B
1.092 [27.74]	1.117 [28.37]	0.816 [20.73]
1.812 [46.02]	1.837 [46.66]	1.535 [38.99]

Plate length (A)	No. of filtered lines per row	B	C
No. 0	1	0.000 [0.00]	0.496 [12.60]
	2	0.100 [2.54]	0.496 [12.60]
	3	0.200 [5.08]	0.396 [10.06]
	4	0.300 [7.62]	0.396 [10.06]
	5	0.400 [10.16]	0.296 [7.52]
	6	0.500 [12.70]	0.296 [7.52]
No. 1	1	0.000 [0.00]	0.906 [23.01]
	2	0.100 [2.54]	0.806 [20.47]
	3	0.200 [5.08]	0.806 [20.47]
	4	0.300 [7.62]	0.706 [17.93]
	5	0.400 [10.16]	0.706 [17.93]
	6	0.500 [12.70]	0.606 [15.39]
	7	0.600 [15.24]	0.606 [15.39]
	8	0.700 [17.78]	0.506 [12.85]
	9	0.800 [20.32]	0.506 [12.85]
	10	0.900 [22.86]	0.406 [10.31]
	11	1.000 [25.40]	0.406 [10.31]
	12	1.100 [27.94]	0.306 [7.77]
	13	1.200 [30.48]	0.306 [7.77]



**Plate Style 77**



## 77, 78, and 79 Series

CTS' Miniature Quick Connect Filter Plates offer the same ease of installation as the larger Quick Connect Filter Plates, while offering a low profile for limited area applications.

These Quick Connect Filter Plates are available in two lengths offering up to 10 lines with the longer plate option. Each line can be customized using the electrical characteristics in the table on page 5. If other special requirements are needed, contact Customer Engineering at 520-572-5056

### Mounting Configuration

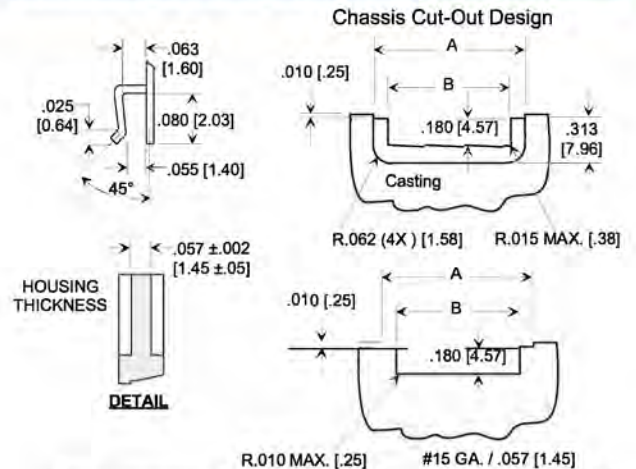
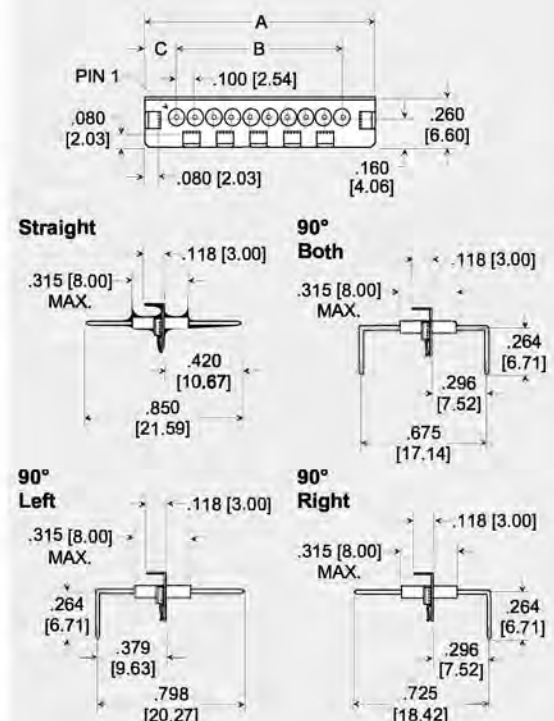


Plate Length	A	B
.990 [25.15]	1.015 [25.78]	0.846 [21.48]
1.24 [31.49]	1.265 [32.13]	1.096 [27.84]

### Plate Style 78

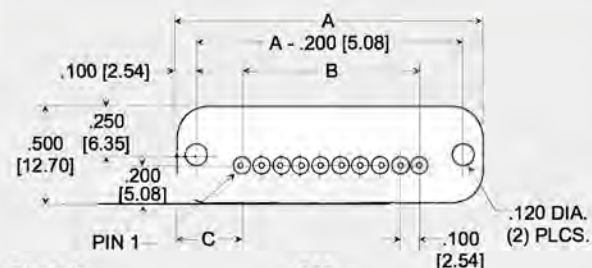
Plate length (A)	No. of filtered lines per row	B	C
No. 0 [25.15]	2	0.100 [2.54]	0.395 [10.03]
	3	0.200 [5.08]	0.395 [10.03]
	4	0.300 [7.62]	0.295 [7.49]
	5	0.400 [10.16]	0.295 [7.49]
	6	0.500 [12.70]	0.195 [4.95]
No. 1 [31.49]	7	0.600 [15.24]	0.195 [4.95]
	2	0.100 [2.54]	0.570 [14.48]
	3	0.200 [5.08]	0.470 [11.94]
	4	0.300 [7.62]	0.470 [11.94]
	5	0.400 [10.16]	0.370 [9.40]
	6	0.500 [12.70]	0.370 [9.40]
	7	0.600 [15.24]	0.270 [6.86]
	8	0.700 [17.78]	0.270 [6.86]
	9	0.800 [20.32]	0.170 [4.32]
	10	0.900 [22.86]	0.170 [4.32]



## 77, 78, and 79 Series

Plate length (A)	No. of filtered lines per row	B		C	
No. 0 1.060 [26.92]	1	0.000	[0.00]	0.530	[13.46]
	2	0.100	[2.54]	0.430	[10.92]
	3	0.200	[5.08]	0.430	[10.92]
	4	0.300	[7.62]	0.330	[8.38]
	5	0.400	[10.16]	0.330	[8.38]
No. 1 1.560 [39.62]	1	0.000	[0.00]	0.730	[18.54]
	2	0.100	[2.54]	0.730	[18.54]
	3	0.200	[5.08]	0.630	[16.00]
	4	0.300	[7.62]	0.630	[16.00]
	5	0.400	[10.16]	0.530	[13.46]
	6	0.500	[12.70]	0.530	[13.46]
	7	0.600	[15.24]	0.430	[10.92]
	8	0.700	[17.78]	0.430	[10.92]
	9	0.800	[20.32]	0.330	[8.38]
	10	0.900	[22.86]	0.330	[8.38]

Plate length (A)	No. of filtered lines per row	B		C	
No. 2 2.560 [65.02]	5	0.400	[10.16]	1.030	[26.16]
	6	0.500	[12.70]	1.030	[26.16]
	7	0.600	[15.24]	0.930	[23.62]
	8	0.700	[17.78]	0.930	[23.62]
	9	0.800	[20.32]	0.830	[21.08]
	10	0.900	[22.86]	0.830	[21.08]
	11	1.000	[25.40]	0.730	[18.54]
	12	1.100	[27.94]	0.730	[18.54]
	13	1.200	[30.48]	0.630	[16.00]
	14	1.300	[33.02]	0.630	[16.00]
	15	1.400	[35.56]	0.530	[13.46]
	16	1.500	[38.10]	0.530	[13.46]
	17	1.600	[40.64]	0.430	[10.92]
	18	1.700	[43.18]	0.430	[10.92]
	19	1.800	[45.72]	0.330	[8.38]
	20	1.900	[48.26]	0.330	[8.38]

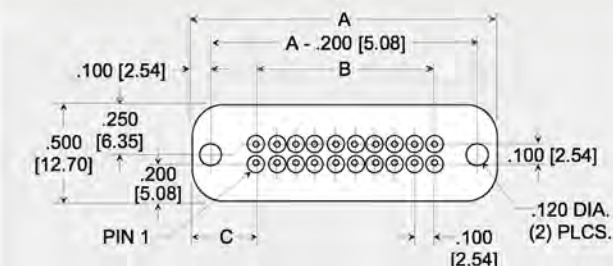
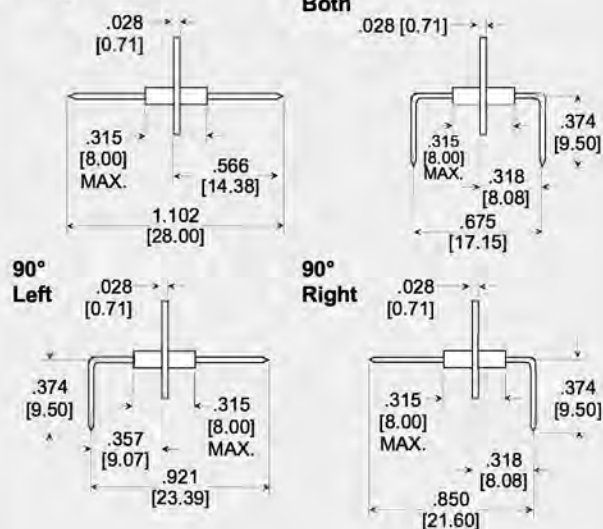


**Straight**

**90° Both**

**90° Left**

**90° Right**

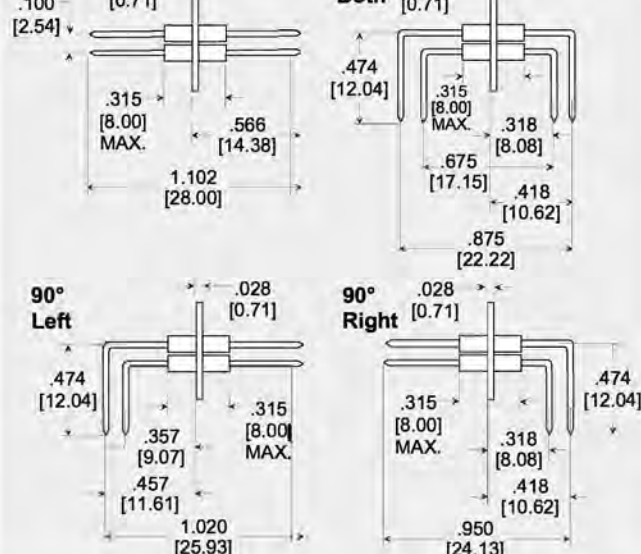


**Straight**

**90° Both**

**90° Left**

**90° Right**



**Plate Style 79**



## Ordering Information

In order for CTS to establish the exact configuration required, please provide the following encoded description number as outlined below. A CTS part number will then be assigned to meet your specific needs.

The part number shown below represents the Quick Connect 1.812 length with two rows of seven lines per row. The filters are pi circuits with a capacitance value of 1000pF and straight leads. **7712-0707-SA**

77	1	2	-	07	07	-	S	A
Plate Style	Plate Length	Filter Type		Bottom Row*	Top Row		Capacitance Value**	Lead Configuration
77= Quick Connect 78= Miniature QC 79= Standard	See tables pages 2,3,4	C=1 π=2		Number of Filters	Number of Filteres		See table above	A= Sraight B= 90° Right C= 90° Left D= 90° Both

To request custom filtering, mechanical or material requirements not shown in this catalog, please contact Customer Engineering at 520-744-0400.

\*When ordering a Miniature Quick Connect or another plate with a single row of filters use the designation for the bottom row in the part number and enter a value of 00 in the top row of the part number.

\*\*To select different filter values please use filter letter X in description and provide CTS with a table showing where each Filter will mount.

**Table Example:**

A	A	S	S	S
A	A	S	S	S

Filter	Filter Circuits	Capacitance		Working Voltage -55°C/+125°C Vdc	Typical No Load Insertion Loss (dB) at +25°C per MIL STD 220							
		Value	Tolerance		5 MHz	10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz	1 GHz
A	C	68pF	+80/-20%	100V	--	--	--	--	--	3	10	16
B	C	100pF	+80/-20%	100V	--	--	--	--	1	6	14	19
C	C	135pF	+100/-0%	100V	--	--	--	1	5	10	16	20
D	C	470pF	+80/-20%	100V	--	--	2	7	12	17	23	27
E	C	820pF	+80/-20%	100V	--	2	6	12	18	23	29	33
F	C	1000pF	+80/-20%	100V	--	3	7	14	20	25	31	35
G	C	1500pF	+80/-20%	100V	1	5	10	16	22	27	33	37
H	C	2500pF	+100/-0%	100V	5	10	15	21	25	32	36	40
K	C	4000pF	+100/-0%	100V	9	15	20	25	30	34	41	45
N	Pi	68pF	+80/-20%	100V	--	--	--	--	1	5	15	20
O	Pi	100pF	+80/-20%	100V	--	--	--	--	2	9	22	28
P	Pi	135pF	+100/-0%	100V	--	--	--	1	5	16	24	32
Q	Pi	470pF	+80/-20%	100V	--	--	--	9	18	22	36	43
R	Pi	820pF	+80/-20%	100V	--	--	3	13	22	30	42	50
S	Pi	1000pF	+80/-20%	100V	--	2	7	16	24	36	48	55
T	Pi	1700pF	+100/-0%	100V	1	6	14	28	35	48	60	70
U	Pi	2500pF	+100/-0%	100V	3	9	16	28	41	52	62	70
V	Pi	5000pF	+100/-0%	100V	7	14	27	41	53	66	70	70
X	Filter Characteristics provided by customer				--	--	--	--	--	--	--	--
Y	insulated	10pF	Max.	100V	--	--	--	--	--	--	--	--
Z	ground contact	--	--	--	--	--	--	--	--	--	--	--

## 77, 78, and 79 Series

The assemblies shown in this catalog have been designed and subjected to the following test plan as is applicable for the individual components. The information shown can be used as a basis for assembly specifications. For additional information or special requirements, please consult Customer Engineering at 520-572-5056

### LOT ACCEPTANCE INSPECTION:

INSPECTION OR TEST	TEST METHOD PER MIL-STD-202 EXCEPT AS NOTED	POST TEST REQUIREMENTS
Visual and Mechanical	<b>N/A</b>	In accordance with applicable requirements.
Materials, Designs, Construction and Workmanship	<b>N/A</b>	
Physical Dimensions and Marking	<b>N/A</b>	
Capacitance	Method 305, 1KHz, $1 \pm 0.2$ VRMS max. +25°C	Within specified tolerance.
Dissipation Factor	Method 305, 1KHz, $1 \pm 0.2$ VRMS max. +25°C	4.0% max.
Dielectric Withstanding Voltage	Method 301, 2 seconds, 50mA max. charging current, 2.5 times WVDC.	No evidence of damage or breakdown.
Insulation Resistance	Method 302, 50mA max. charging current, 100 VDC, 2 minutes or as specified by individual variation.	Greater than 10,000 Megohms or 100 Ohm-Farads, Whichever is less.
Insertion Loss	MIL-STD-220, 50 Ohms, +25° C, no load	Per applicable requirements.
Solderability	Method 208	Per applicable requirements.

### PERIODIC QUALITY CONFORMANCE INSPECTION:

A periodic component quality conformance inspection program consisting of environmental and reliability testing is in place to ensure that product integrity is consistently maintained.

CTS Online: [www.ctscorp.com](http://www.ctscorp.com)

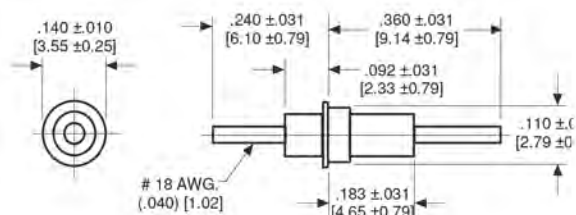
The CTS Website provides visitors with a wide range of product and ordering information. The site is updated regularly and new features are continually being added. At [www.ctscorp.com](http://www.ctscorp.com) customers can view product information, download catalogs in .pdf format and view or link to Sales Offices, International Agents and Distributors.

An on-line request form allows customers to immediately specify product requirements and request information. CTS continually strives to improve and enhance its Web site with the needs of its customers in mind.

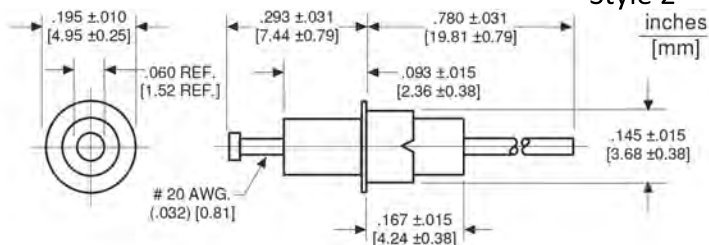


## Solder Mount Pi Filters

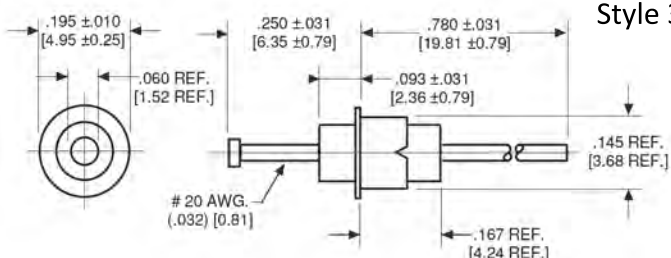
Style 1



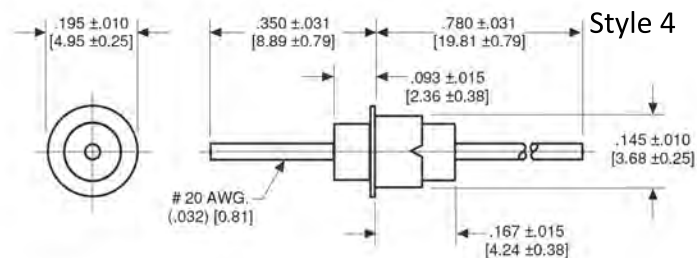
Style 2



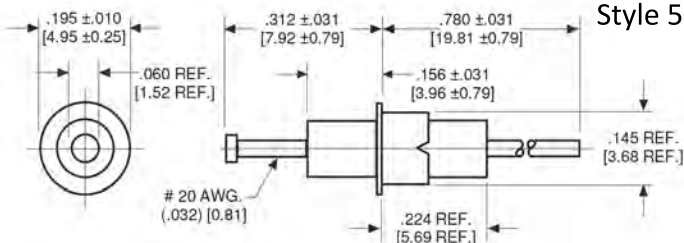
Style 3



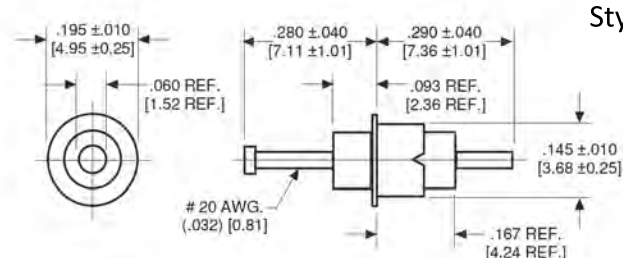
Style 4



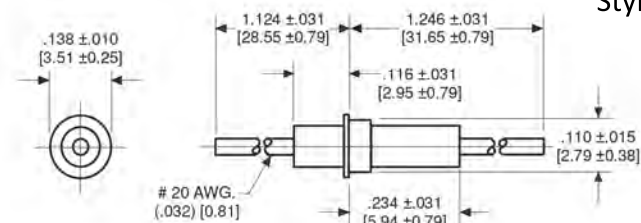
Style 5



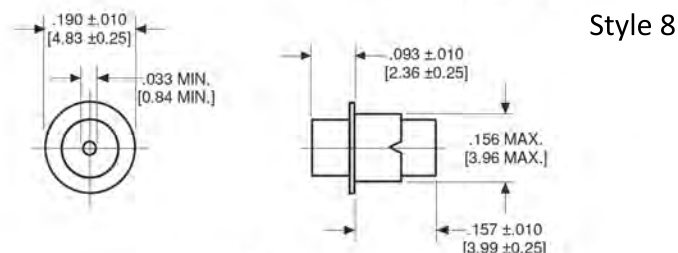
Style 6



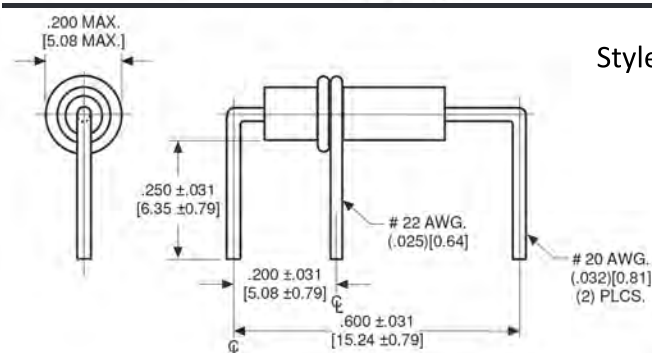
Style 7



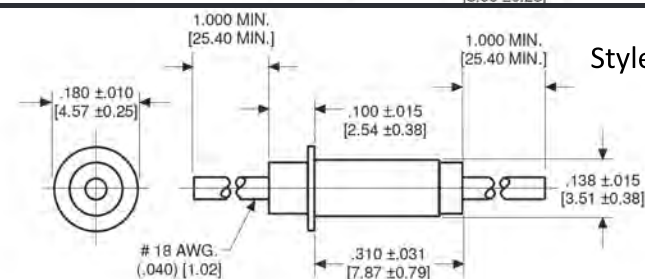
Style 8



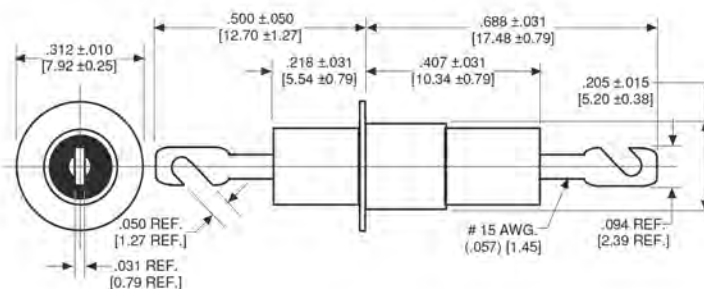
Style 9



Style 10



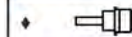
Style 11



## Solder Mount Pi Filters

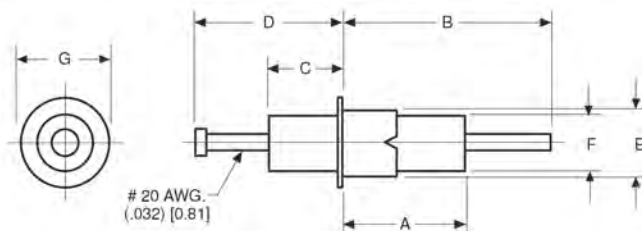
DIMENSIONS FOR STYLES 13 THROUGH 19								
Style Number	MIL-PRF-15733	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E	DIM. F	DIM. G
13	/62-0003	.272 ± .025 [6.91 ± 0.64]	.438 ± .062 [11.13 ± 1.57]	.156 ± .015 [3.96 ± 0.38]	.312 ± .031 [7.92 ± 0.79]	.145 ± .015 [3.68 ± 0.38]	----	.190 ± .015 [4.83 ± 0.38]
14	/62-0004	.151 ± .031 [3.84 ± 0.79]	.780 ± .031 [19.81 ± 0.79]	.093 ± .031 [2.36 ± 0.79]	.273 ± .031 [6.93 ± 0.79]	.145 ± .015 [3.68 ± 0.38]	----	.196 ± .007 [4.98 ± 0.18]
15	/51-0002	.226 ± .022 [5.74 ± 0.56]	.780 ± .031 [19.81 ± 0.79]	.164 ± .022 [4.16 ± 0.56]	.312 ± .031 [7.92 ± 0.79]	.145 ± .015 [3.68 ± 0.38]	----	.203 ± .015 [5.16 ± 0.38]
16	/33-0001	.170 ± .027 [4.32 ± 0.69]	.780 ± .031 [19.81 ± 0.79]	.093 ± .015 [2.36 ± 0.38]	.288 ± .015 [7.32 ± 0.38]	----	.125 MAX [3.18 MAX]	.190 ± .015 [4.83 ± 0.38]
17	/62-0001	.250 ± .031 [6.35 ± 0.79]	.406 ± .031 [10.31 ± 0.79]	.156 ± .031 [3.96 ± 0.79]	.312 ± .031 [7.92 ± 0.79]	.145 ± .015 [3.68 ± 0.38]	.125 ± .015 [3.18 ± 0.38]	.190 ± .015 [4.83 ± 0.38]
18	/62-0002	.231 ± .046 [5.87 ± 1.17]	1.231 ± .077 [31.27 ± 1.96]	.109 ± .031 [2.77 ± 0.79]	1.109 ± .062 [28.17 ± 1.57]	.110 ± .015 [2.79 ± 0.38]	----	.143 ± .010 [3.63 ± 0.25]
19	/51-0001	.250 ± .031 [6.35 ± 0.79]	.406 ± .031 [10.31 ± 0.79]	.156 ± .031 [3.96 ± 0.79]	.312 ± .031 [7.92 ± 0.79]	.142 ± .007 [3.61 ± 0.18]	.122 ± .017 [3.10 ± 0.43]	.195 ± .010 [4.95 ± 0.25]

### Notes:

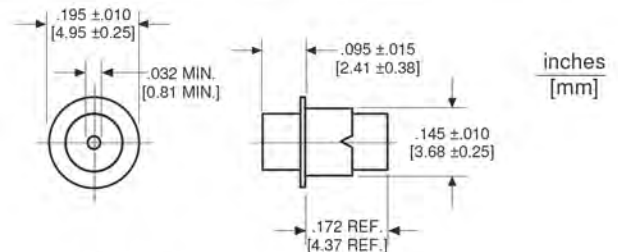


Straight Lead

Part Number	MIL-PRF-15733 Number	Style	Notes	Circuit	Working Voltage (dc)		Capacitance (pF)	Capacitance Tolerance	Current (A)	Minimum No-Load Insertion Loss (dB) at 25 °C per MIL-Std-220				
					85 °C	125 °C				1MHz	10MHz	100MHz	1GHz	10GHz
Pi Configuration														
4100-003	--	1	--	Pi	125	50	3000	GMV	15	--	7	50	65	60
4101-505	/62-0003	13	--	Pi	--	70	1500	GMV	10	--	--	50	65	65
4100-000	--	7	--	Pi	250	125	1500	GMV	10	--	6	45	60	60
4101-000	--	20	--	Pi	250	125	1750	GMV	10	--	5	35	50	50
4101-002	--	2	--	Pi	250	125	1750	GMV	10	--	5	50	60	60
4101-003	--	4	--	Pi	250	125	1750	GMV	10	--	5	50	60	60
4101-004	--	6	--	Pi	250	125	1750	GMV	10	--	5	50	60	60
4101-502	/33-0001	16	--	Pi	--	125dc 90ac	1750	GMV	10	--	--	50	60	60
4101-503	/33-0002	16	◆	Pi	--	125dc 90ac	1750	GMV	10	--	--	50	60	60
4101-500	/66-0001	8	--	Pi	--	125	1750	GMV	10	--	5	35	50	50
4100-056	--	9	--	Pi	250ac	200dc	1000	±20%	10	--	3	20	55	--
4100-002	--	1	--	Pi	350	200	1500	GMV	15	--	5	25	60	60
4101-001	--	17	--	Pi	350	200	1500	GMV	10	--	3	45	70	70
4101-501	/62-0001	17	--	Pi	--	200dc 140ac	1500	GMV	10	--	3	45	70	70
4100-500	/62-0002	18	◆	Pi	--	200	1500	GMV	10	--	5	45	70	--
4100-057	--	9	--	Pi	250ac	200dc	1500	GMV	10	--	5	45	70	--
4102-000	--	10	--	Pi	350	200	3000	GMV	10	--	8	55	65	65
4100-053	--	9	--	Pi	250ac	200dc	5000	GMV	10	--	18	60	70	--
4101-504	/51-0001	19	--	Pi	200dc 200ac	--	5500	GMV	10	--	15	55	70	70
4106-000	--	11	--	Pi	500dc 350ac	500dc 350ac	3000	GMV	25	--	--	50	50	50
4106-001	--	11	--	Pi	1000	500	4500	GMV	25	--	8	50	70	70



STYLE 13 THROUGH 19

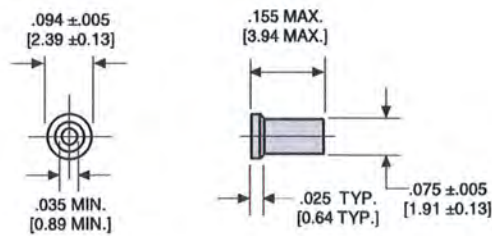


STYLE 20

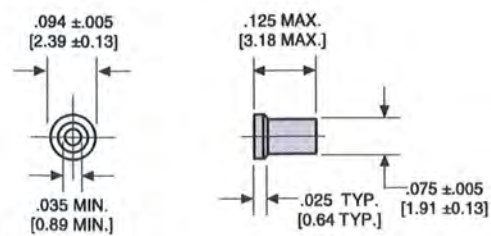


## Solder Mount Feed - Thru Capacitors

Style 1

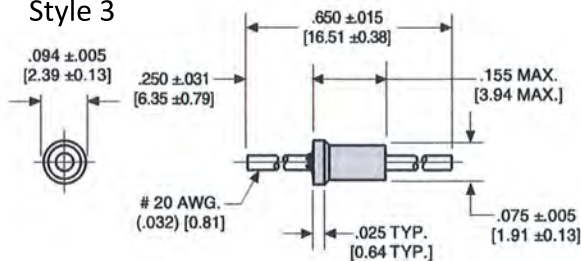


Style 2

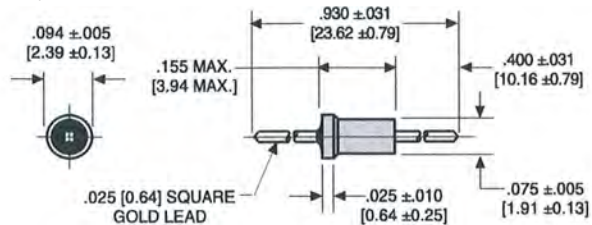


inches  
[mm]

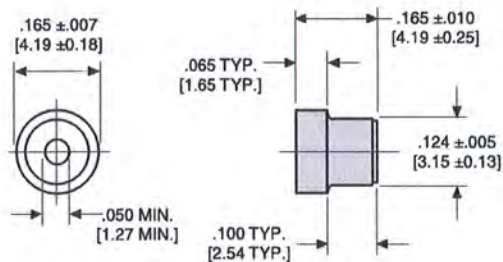
Style 3



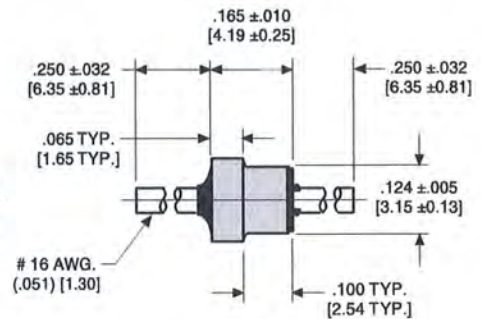
Style 4



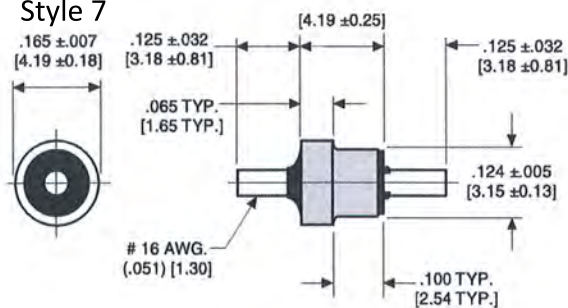
Style 5



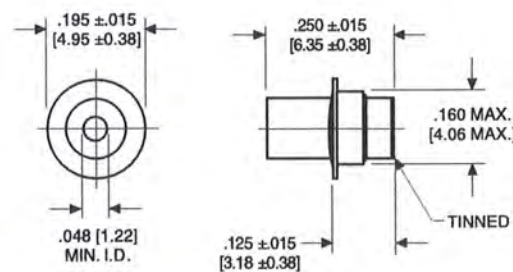
Style 6



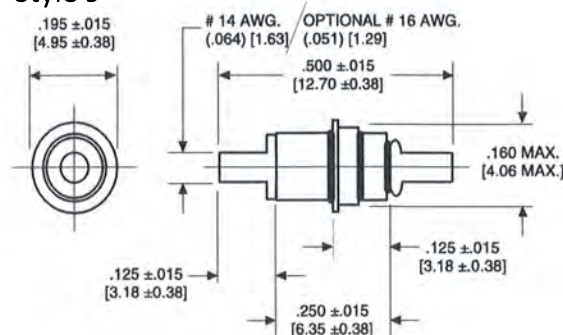
Style 7



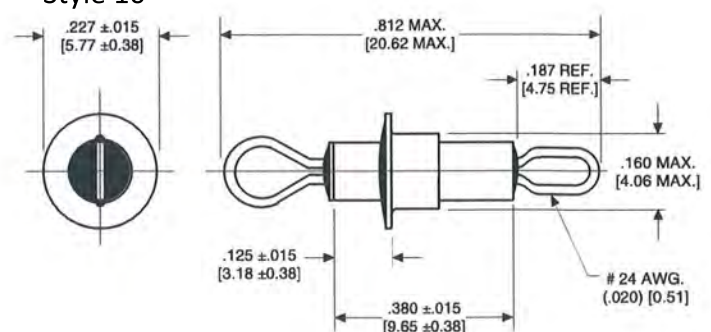
Style 8



Style 9



Style 10



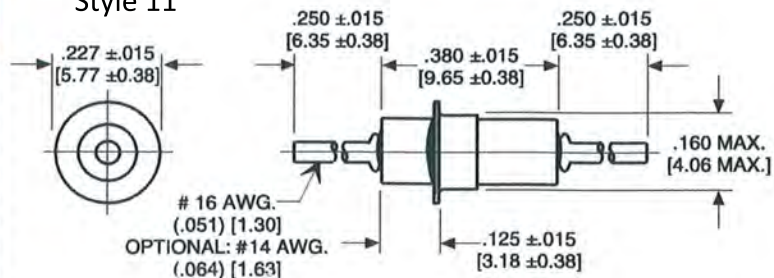
## Solder Mount Feed - Thru Capacitors

●UL Recognized to UL standard 1283; UL File No. E201344

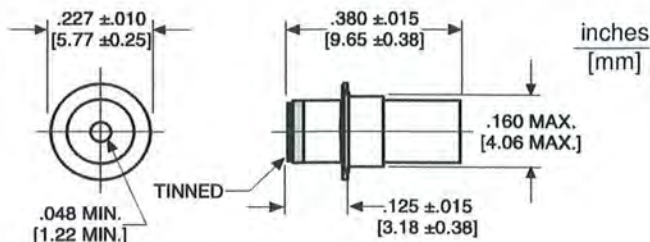
TUSONIX Part Number	Style	Notes	Circuit	Working Voltage (dc)		Capacitance (pF)	Capacitance Tolerance	Current (A)	Typical No-Load Insertion Loss (dB) at 25 °C per MIL-Std-220				
				85 °C	125 °C				1MHz	10MHz	100MHz	1GHz	10GHz
				C Configuration									
2463-001-X5S0-471M	2	--	C	200	--	470	±20%	--	--	--	12	27	27
2463-002-X5S0-471M	3	--	C	200	--	470	±20%	10	--	--	12	27	27
2463-003-X5U0-471P	4	--	C	200	--	470	+100-0%	10	--	--	12	27	27
2461-000-X7V0-102P	5	--	C	--	100	1000	+100-0%	--	--	3	20	35	40
2461-001-X7V0-102AA	6	--	C	--	100	1000	GMV	20	--	3	20	35	40
2461-002-X7V0-102M	7	--	C	--	100	1000	±20%	20	--	3	20	35	40
2463-000-X7U0-152P	1	--	C	--	100	1500	+100-0%	--	--	5	22	35	40
2463-002-X5U0-152P	3	--	C	200	--	1500	+100-0%	10	--	5	22	35	40
2463-003-X5U0-152P	4	--	C	200	--	1500	+100-0%	10	--	5	22	35	40
2482-001-X5U0-471M	9	--	C	300	--	470	±20%	20	--	--	12	27	27
2482-012-X5U0-102M	8	--	C	300	--	1000	±20%	--	--	3	20	35	40
2482-001-X5U0-102M	9	--	C	300	--	1000	±20%	20	--	3	20	35	40
2450-001-X5R0-101K	13	--	C	500	--	100	±10%	20	--	--	3	20	28
2450-001-X5R0-471M	13	--	C	500	--	470	±20%	20	--	--	12	27	27
2404-000-X7R0-471M	11	--	C	--	250	470	±20%	20	--	--	12	27	27
2450-001-X5U0-102P	13	--	C	500	--	1000	+100-0%	20	--	3	20	35	40
2404-000-X5U0-102P	11	--	C	500	--	1000	+100-0%	20	--	3	20	35	40
2404-014-X5U0-102P	12	--	C	500	--	1000	+100-0%	--	--	3	20	35	40
2404-014-X5W0-502M	12	--	C	500	--	5000	±20%	--	--	15	30	45	50
2404-000-X5W0-502Z	11	--	C	500	--	5000	+80-20%	20	--	15	30	45	50
2404-007-X5W0-502Z	10	--	C	500	--	5000	+80-20%	15	--	15	30	45	50
2470-501●	14	--	C	250AC	--	1000	+100-0%	10	--	3	20	35	40
2470-501●	15	--	C	250AC	--	1000	+100-0%	10	--	3	20	35	40

Series Number	Temperature Range	WVDC	MAX. CAP. Nominal (pF)
2404	Z5, Y5, X5	500	7000
	X7	250	7000
2482	Z5, Y5, X5	300	4000
	X7	150	4000
2450	Z5, Y5, X5	500	1800
	X7	250	1800
2461	Z5, Y5, X5	200	1000
	X7	100	1000
2463	Z5, Y5, X5	200	2000
	X7	100	2000
2470	Z5, Y5, X5	250AC	2000
	--	--	--

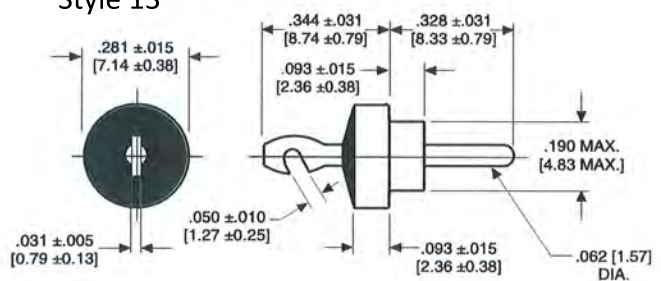
Style 11



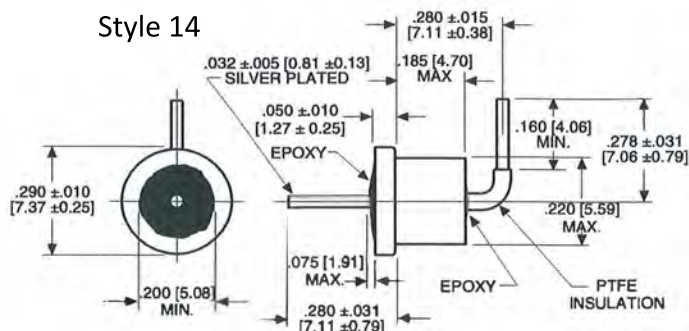
Style 12



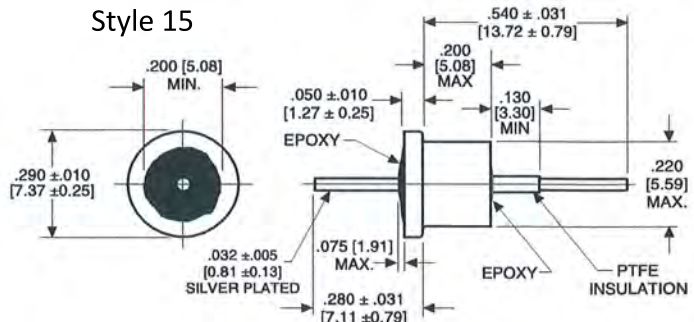
Style 13



Style 14



Style 15



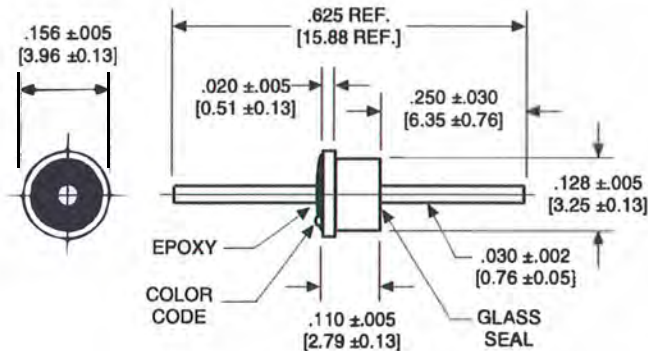


## Solder Mount Feed - Thru Capacitors

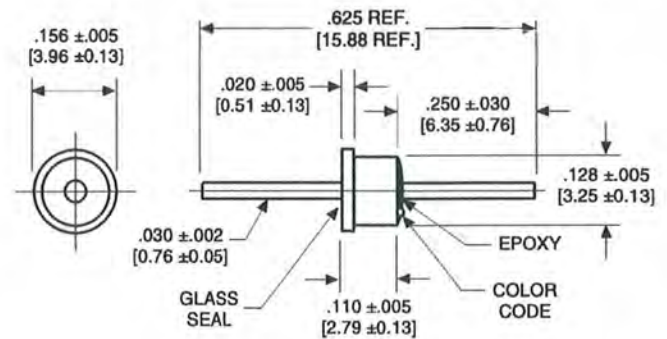
### 4300 Series Miniature EMI Filter MICROWAVE APPLICATIONS:

Part Number	Style	Circuit	Working Voltage (dc)		Capacitance (pF)	Capacitance Tolerance	Current (A)	Minimum No-Load Insertion Loss (dB) at 25°C per MIL-Std-220					Color Code
			85°C	125°C				1MHz	10MHz	100MHz	1GHz	10GHz	
Epoxy Sealed Top (flange)/ Glass Sealed Bottom													
4300-005	1	C	70	50	10,000	GMV	5	4	21	35	50	60	BLACK
4300-055	1	C	70	50	10,000	±20%	5	4	21	35	50	60	BLK-GOLD
4300-006	1	C	70	50	15,000	GMV	5	7	20	35	55	60	ORANGE
4300-013	1	C	70	50	27,000	GMV	5	10	28	42	65	65	RED-RED
4300-014	1	C	50	50	50,000	GMV	5	15	35	45	70	--	BLU-BLU
4300-003	1	C	150	100	2700	GMV	5	--	10	25	40	50	RED
4300-053	1	C	150	100	2700	±20%	5	--	10	25	40	50	RED-GOLD
4300-004	1	C	150	100	5000	GMV	5	--	15	30	45	55	YELLOW
4300-054	1	C	150	100	5000	±20%	5	--	15	30	45	55	YEL-GOLD
4300-680	1	C	300	200	5	MAX	5	--	--	--	--	--	BLK-BLK
4300-008	1	C	300	200	10	GMV	5	--	--	--	5	20	VIOLET
4300-009	1	C	300	200	25	GMV	5	--	--	--	10	25	BLUE
4300-000	1	C	300	200	100	GMV	5	--	--	3	20	28	GREEN
4300-050	1	C	300	200	100	±20%	5	--	--	3	20	28	GRN-GOLD
4300-001	1	C	300	200	500	GMV	5	--	--	15	35	40	BROWN
4300-051	1	C	300	200	500	±20%	5	--	--	15	35	40	BRWN-GOLD
4300-007	1	C	300	200	1000	GMV	5	--	5	20	35	45	GRAY
4300-002	1	C	300	200	1200	GMV	5	--	5	20	35	45	WHITE
4300-052	1	C	300	200	1200	±20%	5	--	5	20	35	45	WHT-GOLD

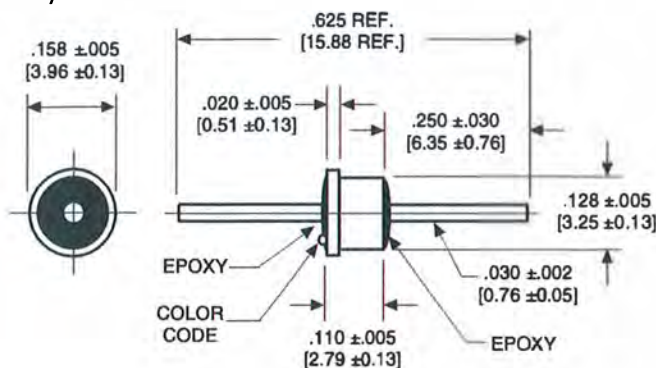
Style 1



Style 2



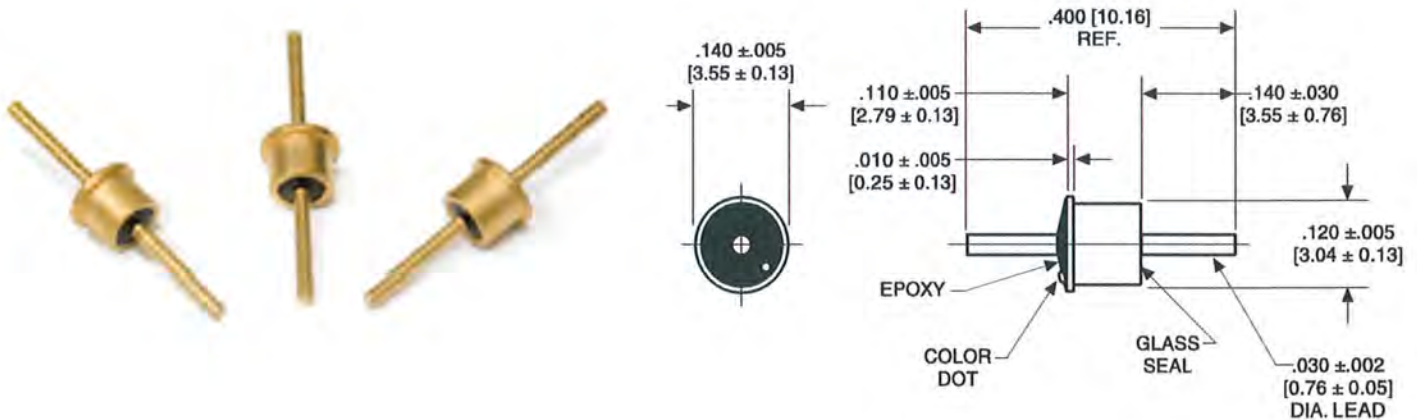
Style 3



- Oscillators
- Attenuators
- Low Noise Amplifiers
- Microwave Filters

## Solder Mount Feed - Thru Capacitors

Part Number	Circuit	Working Voltage (dc)		Capacitance (pF)	Capacitance Tolerance	Current (A)	Minimum No-Load Insertion Loss (dB) at 25°C per MIL-Std-220					Color Code
		85 °C	125 °C				1MHz	10MHz	100MHz	1GHz	10GHz	
		Epoxy Sealed Top (flange)/ Glass Sealed Bottom										
4305-000	C	300	200	50	+100-0%	5	--	--	--	10	25	BRWN-BROWN
4305-001	C	300	200	100	+100-0%	5	--	--	3	20	28	GREEN
4305-002	C	300	200	500	+100-0%	5	--	--	15	35	40	BROWN
4305-003	C	150	100	2700	+100-0%	5	--	10	25	40	50	RED
4305-004	C	150	100	5000	+100-0%	5	--	15	30	45	55	YELLOW
4305-005	C	300	200	10	+100-0%	5	--	--	--	5	20	VIOLET
4305-006	C	300	200	25	+100-0%	5	--	--	--	10	25	BLUE
4305-007	C	300	200	250	+100-0%	5	--	--	5	22	30	YEL-YELLOW
4305-008	C	300	200	1000	+100-0%	5	--	5	20	35	45	GRAY
4305-009	C	300	200	1500	+100-0%	5	--	5	22	35	45	GREEN-GREEN
4305-010	C	50	50	10,000	+100-0%	5	4	21	35	50	60	BLACK
4305-011	C	70	50	27,000	+100-0%	5	10	28	42	65	65	RED-RED
4305-012	C	300	200	5	+100-0%	5	--	--	--	--	5	BLUE-BLUE
4305-680	C	300	200	5	MAX	5	--	--	--	--	--	BLACK-BLACK





## Solder Mount Feed - Thru Capacitors

### 4300 Series Miniature EMI Filters

These filters are ideal for applications where small size and high performance are critical. These C configured filters can be glass sealed on either one of the ends for optimal sealing between system compartments or components.

The gold plating on the leads offers excellent conductivity and connective ability using common gold bonding methods. The small package and large range of electrical characteristics of the 4300 Series make it an effective solution for a variety of microwave applications.



Part Number	Style	Circuit	Working Voltage (dc)		Capacitance (pF)	Capacitance Tolerance	Current (A)	Minimum No-Load Insertion Loss (dB) at 25°C per MIL-Std-220					Color Code
			85 °C	125 °C				1MHz	10MHz	100MHz	1GHz	10GHz	
Glass Sealed Top (flange)/ Epoxy Sealed Bottom													
4300-025	2	C	70	50	10,000	GMV	5	4	21	35	50	60	BLACK
4300-065	2	C	70	50	10,000	±20%	5	4	21	35	50	60	BLK-GOLD
4300-026	2	C	70	50	15,000	GMV	5	7	20	35	55	60	ORANGE
4300-031	2	C	70	50	27,000	GMV	5	10	28	42	65	65	RED-RED
4300-034	2	C	50	50	50,000	GMV	5	15	35	45	70	--	BLU-BLU
4300-023	2	C	150	100	2700	GMV	5	--	10	25	40	50	RED
4300-063	2	C	150	100	2700	±20%	5	--	10	25	40	50	RED-GOLD
4300-024	2	C	150	100	5000	GMV	5	--	15	30	45	55	YELLOW
4300-064	2	C	150	100	5000	±20%	5	--	15	30	45	55	YEL-GOLD
4300-681	2	C	300	200	5	MAX	5	--	--	--	--	--	BLK-BLK
4300-028	2	C	300	200	10	GMV	5	--	--	--	5	20	VIOLET
4300-029	2	C	300	200	25	GMV	5	--	--	--	10	25	BLUE
4300-020	2	C	300	200	100	GMV	5	--	--	3	20	28	GREEN
4300-060	2	C	300	200	100	±20%	5	--	--	3	20	28	GRN-GOLD
4300-021	2	C	300	200	500	GMV	5	--	--	15	35	40	BROWN
4300-061	2	C	300	200	500	±20%	5	--	--	15	35	40	BRWN-GOLD
4300-027	2	C	300	200	1000	GMV	5	--	5	20	35	45	GRAY
4300-022	2	C	300	200	1200	GMV	5	--	5	20	35	45	WHITE
4300-062	2	C	300	200	1200	±20%	5	--	5	20	35	45	WHT-GOLD
Epoxy Sealed Top (flange)/ Epoxy Sealed Bottom													
4302-005	3	C	70	50	10,000	GMV	10	4	21	35	50	60	BLACK
4302-006	3	C	70	50	15,000	GMV	10	7	20	35	55	60	ORANGE
4302-013	3	C	70	50	27,000	GMV	10	10	28	42	65	65	RED-RED
4302-014	3	C	50	50	50,000	GMV	10	15	35	45	70	--	BLU-BLU
4302-003	3	C	150	100	2700	GMV	10	--	10	25	40	50	RED
4302-004	3	C	150	100	5000	GMV	10	--	15	30	45	55	YELLOW
4302-680	3	C	300	200	5	MAX	10	--	--	--	--	--	BLK-BLK
4302-008	3	C	300	200	10	GMV	10	--	--	--	5	20	VIOLET
4302-009	3	C	300	200	25	GMV	10	--	--	--	10	25	BLUE
4302-000	3	C	300	200	100	GMV	10	--	--	3	20	28	GREEN
4302-001	3	C	300	200	500	GMV	10	--	--	15	35	40	BROWN
4302-007	3	C	300	200	1000	GMV	10	--	5	20	35	45	GRAY
4302-002	3	C	300	200	1200	GMV	10	--	5	20	35	45	WHITE



## No Solder/Press-In C Filters

Press-In Ceramic EMI filters suppress unwanted EMI and allow a fast, mechanical bonding that is free from soldering. And, by offering an excellent alternative to the traditional soldering installation, these finely designed, knurled filters significantly reduce assembly costs.

These EMI filters cover a variety of voltage, attenuation and capacitance ranges in a press-in mounting style.

Product installation recommendations (X-2656/9) are provided with parts to prevent damage to the component during installation.

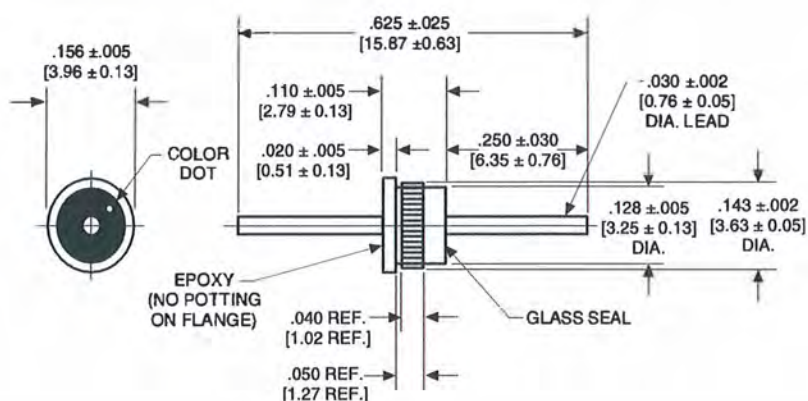


Installation tool

Tool Part No.	Item No.	Filter Type
4300-314	1	4304

(Ordering Example for 4304 filter tool: 4300-314-1)

Part Number	Circuit	Working Voltage (dc)		Capacitance (pF)	Capacitance Tolerance	Current (A)	Minimum No-Load Insertion Loss (dB) at 25°C per MIL-Std-220					Color Code
		85 °C	125°C				1MHz	10MHz	100MHz	1GHz	10GHz	
		Epoxy Sealed Top (flange)/ Glass Sealed Bottom										
4304-000	C	300	200	10	+100-0%	5	--	--	--	5	20	VIOLET
4304-001	C	300	200	25	+100-0%	5	--	--	--	10	25	BLUE
4304-002	C	300	200	500	+100-0%	5	--	--	15	35	40	BROWN
4304-003	C	300	200	100	+100-0%	5	--	--	3	20	28	GREEN
4304-004	C	300	200	1000	+100-0%	5	--	5	20	35	45	GRAY
4304-005	C	300	200	1200	+100-0%	5	--	5	20	35	45	WHITE
4304-006	C	150	100	2700	+100-0%	5	--	10	25	40	50	RED
4304-007	C	150	100	5000	+100-0%	5	--	15	30	45	55	YELLOW
4304-008	C	50	50	10000	+100-0%	5	4	21	35	50	60	BLACK
4304-009	C	70	50	15000	+100-0%	5	7	20	35	55	60	ORANGE
4304-010	C	70	50	27000	+100-0%	5	10	28	42	65	65	RED-RED
4304-011	C	50	50	50000	+100-0%	5	15	35	45	70	--	BLUE-BLUE
4304-681	C	300	200	5	MAX	5	--	--	--	--	--	BLACK-BLACK



Installation Tool: Ordering Information to right.



## No Solder/Press-In C Filters

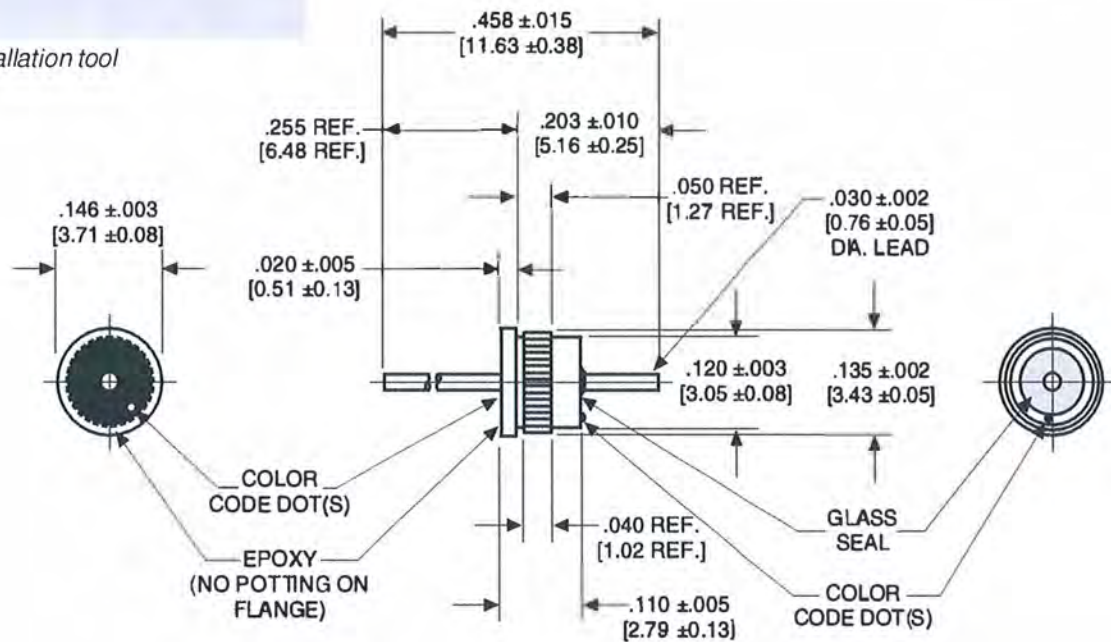


Installation tool

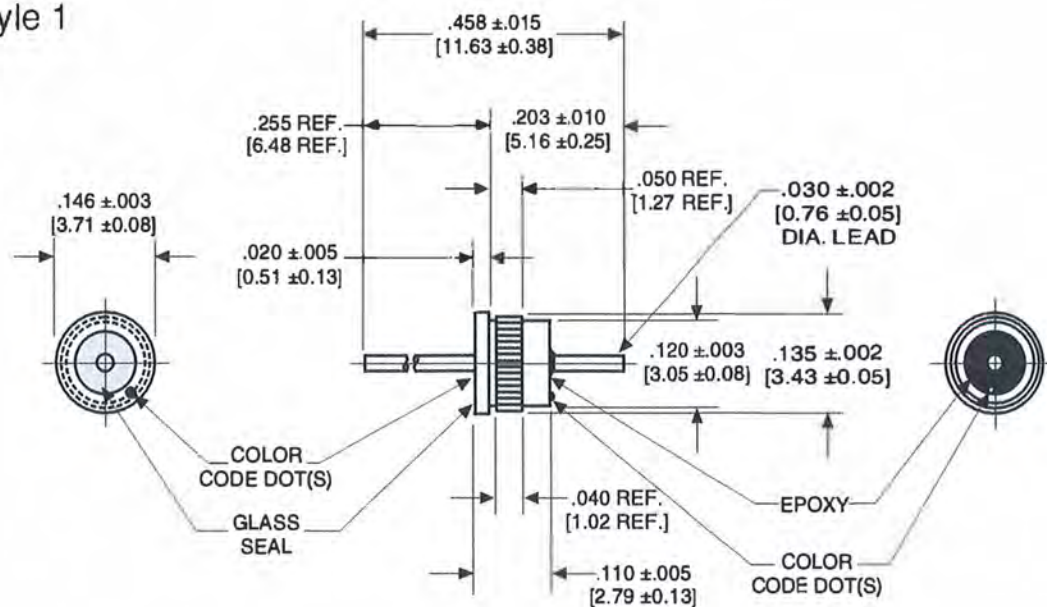
Installation tool

Tool Part No.	Item No.	Filter Type
4300-314	2	4306

(Ordering Example for 4306 filter tool: 4300-314-2)



Style 1



Style 2

## No Solder/Press-In C Filters

Press-In EMI filters are excellent for a variety of microwave and RF applications that include:

- attenuators
- oscillators
- synthesizers
- combiners



Part Number	Style	Circuit	Working Voltage (dc)		Capacitance (pF)	Capacitance Tolerance	Current (A)	Minimum No-Load Insertion Loss (dB) at 25°C per MIL-Std-220					Color Code
			85°C	125°C				1MHz	10MHz	100MHz	1GHz	10GHz	
Epoxy Sealed Top (flange)/ Glass Sealed Bottom													
4306-010	1	C	50	50	10000	+100-0%	5	4	21	35	50	60	BLACK
4306-011	1	C	70	50	27000	+100-0%	5	10	28	42	65	65	RED-RED
4306-030	1	C	150	100	2700	+100-0%	5	--	10	25	40	50	RED
4306-004	1	C	150	100	5000	+100-0%	5	--	15	30	45	55	YELLOW
4306-012	1	C	300	200	5	+100-0%	5	--	--	--	--	5	BLUE-BLUE
4306-680	1	C	300	200	5	MAX	5	--	--	--	--	--	BLACK-BLACK
4306-028	1	C	300	200	10	+100-0%	5	--	--	--	5	20	VIOLET
4306-006	1	C	300	200	25	+100-0%	5	--	--	--	10	25	BLUE
4306-005	1	C	300	200	50	+100-0%	5	--	--	--	10	25	BROWN-BROWN
4306-029	1	C	300	200	100	+100-0%	5	--	--	3	20	28	GREEN
4306-007	1	C	300	200	250	+100-0%	5	--	--	5	22	30	YELLOW-YELLOW
4306-003	1	C	300	200	500	+100-0%	5	--	--	15	35	40	BROWN
4306-008	1	C	300	200	1000	+100-0%	5	--	5	20	35	45	GRAY
4306-009	1	C	300	200	1500	+100-0%	5	--	5	22	35	45	GREEN-GREEN
Glass Sealed Top (flange)/ Epoxy Sealed Bottom													
4306-023	2	C	50	50	10000	+100-0%	5	4	21	35	50	60	BLACK
4306-024	2	C	70	50	27000	+100-0%	5	10	28	42	65	65	RED-RED
4306-015	2	C	150	100	2700	+100-0%	5	--	10	25	40	50	RED
4306-017	2	C	150	100	5000	+100-0%	5	--	15	30	45	55	YELLOW
4306-025	2	C	300	200	5	+100-0%	5	--	--	--	--	5	BLUE-BLUE
4306-681	2	C	300	200	5	MAX	5	--	--	--	--	--	BLACK-BLACK
4306-013	2	C	300	200	10	+100-0%	5	--	--	--	5	20	VIOLET
4306-019	2	C	300	200	25	+100-0%	5	--	--	--	10	25	BLUE
4306-018	2	C	300	200	50	+100-0%	5	--	--	--	10	25	BROWN-BROWN
4306-014	2	C	300	200	100	+100-0%	5	--	--	3	20	28	GREEN
4306-020	2	C	300	200	250	+100-0%	5	--	--	5	22	30	YELLOW-YELLOW
4306-016	2	C	300	200	500	+100-0%	5	--	--	15	35	40	BROWN
4306-021	2	C	300	200	1000	+100-0%	5	--	5	20	35	45	GRAY
4306-022	2	C	300	200	1500	+100-0%	5	--	5	22	35	45	GREEN-GREEN



## UL Recognized Filter Terminal Blocks

### Application

Recognized by UL, Filtered Terminal Blocks are specifically designed to save time and money for EMI filtering applications. Combining a filtering component with an industry standard terminal block has created an effective barrier to EMI noise.

Filtered Terminal Blocks allow the engineer to eliminate EMI noise using an existing mechanical design concept. Our commitment to excellence and service allows for customization of the filtered terminal blocks to meet customer-specific EMC qualifications. Backed by decades of ceramic component production experience, CTS's Filtered Terminal Blocks will meet or exceed your application requirements.

### Benefits

- Saves Labor and Space
- Consistent Panel Layout
- Solves EMI Problems
- Meets Specific Requirements

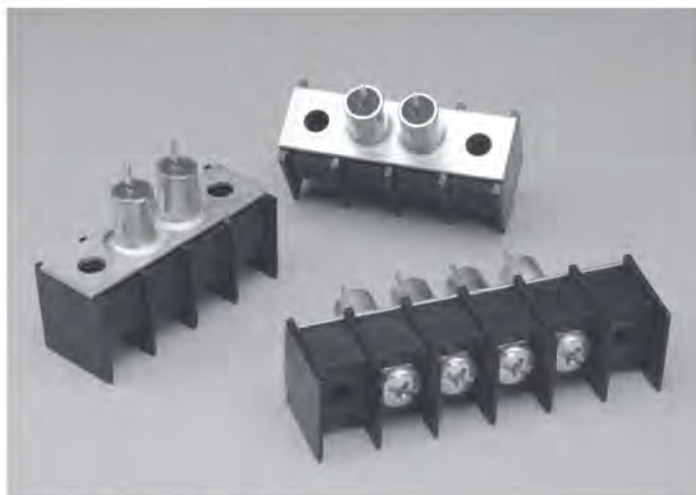
### Features

- Filter Integral to Block
- Industry Standard Block
- Wide Range of Performance
- Customization

*The CTS Terminal Blocks listed in this Catalog are Recognized to UL Standard 1283 for the EMI Filter and UL Standard 1059 for the Terminal Block.*

### Catalog Index

Specifications .....	Pg. 2
Pi-Circuit Filtered Terminal Blocks .....	Pg. 3
Back Plane Terminal Blocks.....	Pg. 4
C-Circuit Filtered Terminal Blocks .....	Pg. 5
Installation Recommendations .....	Pg. 6



*Filtered Terminal Blocks*

### Practical Applications

- Telecommunications
- Computer and Peripheral Equipment
- Industrial Process Control Equipment
- Power Supplies
- Office and Lab Equipment

## Filtered Terminal Blocks Specifications

### 1.0 Scope

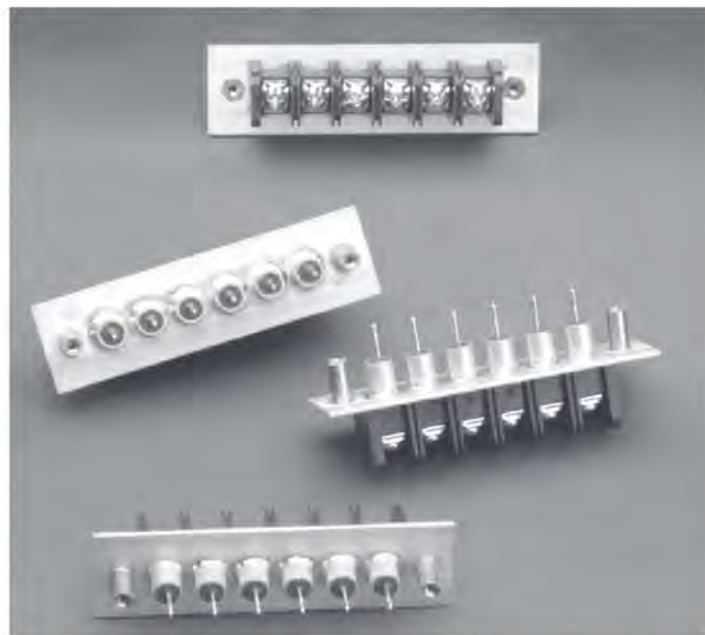
This specification describes the basic performance requirements of CTS Filtered Terminal Blocks.

### 2.0 Capacitance

Measurement Conditions: Capacitance measured at  $25^{\circ}\pm 2^{\circ}\text{C}$ , 50% max R.H. and Frequency of 1 KHz @  $1\pm 0.2\text{VRMS}$ .

### 3.0 Insertion Loss

- 3.1 Measurement Conditions: Insertion Loss values listed are measured in a 50W system at  $25^{\circ}\text{C}\pm 2^{\circ}\text{C}$  under no-load conditions.
- 3.2 Insertion Loss: The Insertion Loss values listed are typical values for both 500 and 600 styles under indicated conditions.
- 3.3 Listed Insertion Loss data is a measurement of filter performance in a matched 50W system. It is highly recommended that filter performance be verified under actual circuit operation conditions.



### 4.0 Operating Conditions

Filters are designed to operate continuously at the voltage and current that is stated for each CTS corporation part number. If the operating ambient temperature is significantly higher than  $25^{\circ}\text{C}$ , the terminal blocks should be installed in equipment and tested under actual conditions to ensure that maximum temperatures are not exceeded.

### 5.0 Dielectric Withstanding Voltage

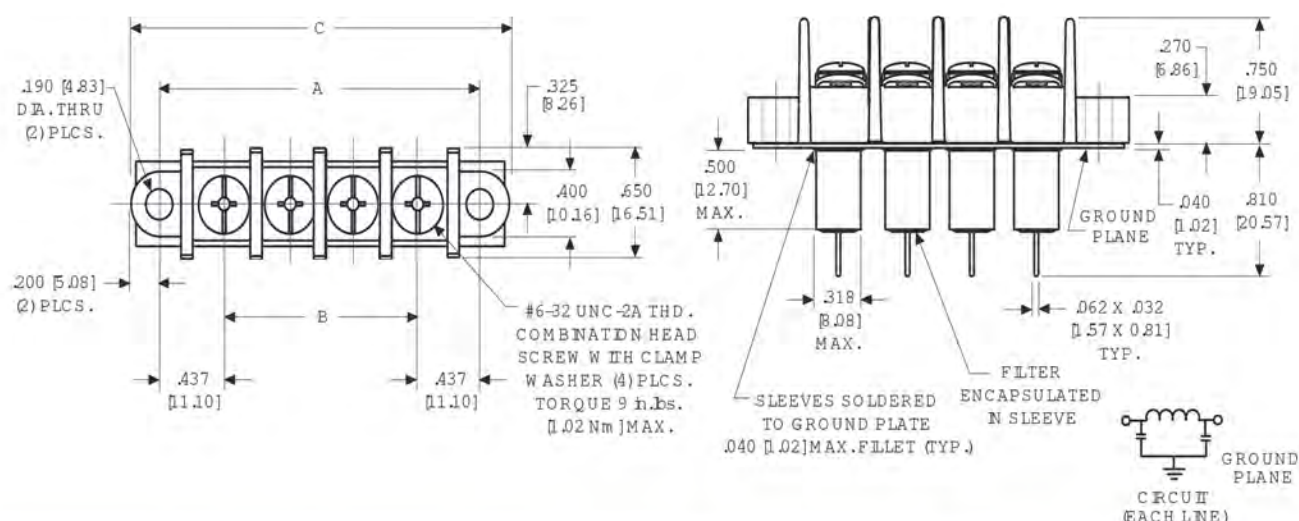
Filters shall withstand the specified voltage applied between the screw terminal and ground plane for one minute. Surge current shall be limited to a maximum of 50mA.

### 6.0 Insulation Resistance

Measured at  $25^{\circ}\text{C}\pm 2^{\circ}\text{C}$  with 100VDC and charging current limited to 50mA max. The IR, after two minutes maximum application of the test voltage, shall be a minimum of 10 GΩ.



## UL Recognized "Pi" Filter Terminal Blocks



CTS Part Number	Number of Terminals	Screw Size	A		B		C	
7602-501LF	2	#6-32	1.313	[33.35]	.437	[11.10]	1.710	[43.43]
7603-501LF	3	#6-32	1.750	[44.45]	.875	[22.23]	2.150	[54.61]
7604-501LF	4	#6-32	2.188	[55.58]	1.311	[33.30]	2.590	[65.79]
7605-501LF	5	#6-32	2.625	[66.68]	1.750	[44.45]	3.020	[76.71]
7606-501LF	6	#6-32	3.063	[77.80]	2.185	[55.50]	3.460	[87.88]
7607-501LF	7	#6-32	3.500	[88.90]	2.625	[66.68]	3.900	[99.06]
7608-501LF	8	#6-32	3.938	[100.03]	3.063	[77.80]	4.340	[110.24]
7609-501LF	9	#6-32	4.375	[111.13]	3.500	[88.90]	4.770	[121.16]
7610-501LF	10	#6-32	4.813	[122.25]	3.938	[100.03]	5.210	[132.33]

### Mechanical Specifications

- Center Spacing: .437 [11.10]
- Wire Size: up to 12AWG, Ø.081[2.06]
- Molded Material: High Temp Thermoplastic (PBT), UL rated 94 V-0
- Block Mounting: Recommended mounting screw (#8 Pan Head) Torque 5in.lbs. [0.56 Nm] Max.
- Terminal: Brass, Tin-plated

### UL Recognition



- EMI Filters recognized to UL Standard 1283
- Terminal Block recognized to UL Standard 1059
- Reference UL File Number E201344

### Electrical Specifications

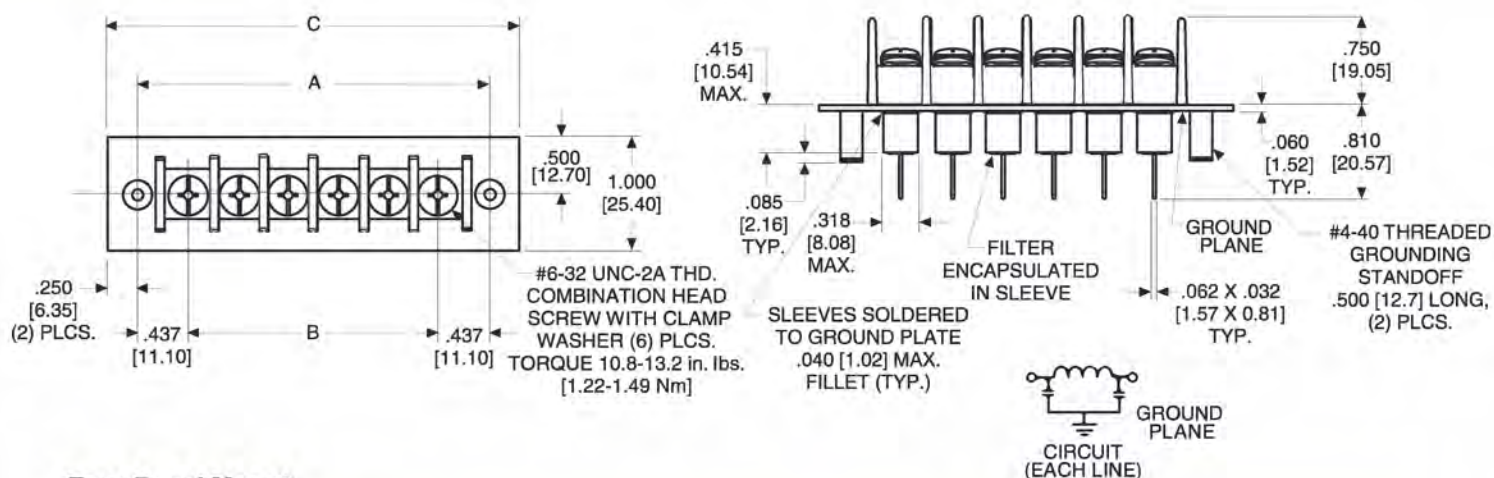
- Operating Temperature: -40°C to 105°C
- Working Voltages: ≤ 250 VAC \*
- Capacitance: ≥ 2000pF
- Dielectric Withstanding Voltage: 1500VAC \*
- Insulation Resistance: ≥ 10 GΩ
- Current Rating: 20A
- DC Resistance: ≤ 10 mΩ
- Typical Insertion Loss[dB], in 50 Ω Circuit

10 MHz	100 MHz	1 GHz	10 GHz
5dB	50dB	60dB	65dB

(For additional insertion loss values, please contact the factory directly.)

\* AC Frequency 50/60Hz

## "Pi" Back Plane Filtered Terminal Blocks



### Rear Panel Mount

CTS Part Number	Number of Terminals	Screw Size	A		B		C	
7602-551LF	2	#6-32	1.313	[33.35]	.437	[11.10]	1.813	[46.05]
7603-551LF	3	#6-32	1.750	[44.45]	.874	[22.20]	2.250	[57.15]
7604-551LF	4	#6-32	2.188	[55.58]	1.311	[33.30]	2.688	[68.28]
7605-551LF	5	#6-32	2.625	[66.68]	1.748	[44.40]	3.125	[72.38]
7606-551LF	6	#6-32	3.063	[77.80]	2.185	[55.50]	3.563	[90.50]
7607-551LF	7	#6-32	3.500	[88.90]	2.622	[66.60]	4.000	[101.60]
7608-551LF	8	#6-32	3.958	[100.03]	3.059	[77.70]	4.438	[112.73]
7609-551LF	9	#6-32	4.375	[111.13]	3.496	[88.80]	4.875	[123.83]
7610-551LF	10	#6-32	4.813	[122.25]	3.933	[99.90]	5.313	[134.95]

## Mechanical Specifications

- Center Spacing: .437 [11.10]
- Wire Size: up to 12AWG, Ø.081[2.06]
- Molded Material: High Temp Thermo-plastic (PBT), UL rated 94 V-0
- Terminal: Brass, Tin-plated

# UL Recognition



- EMI Filters recognized to UL Standard 1283
- Terminal Block recognized to UL Standard 1059
- Reference UL File Number E201344

## Electrical Specifications

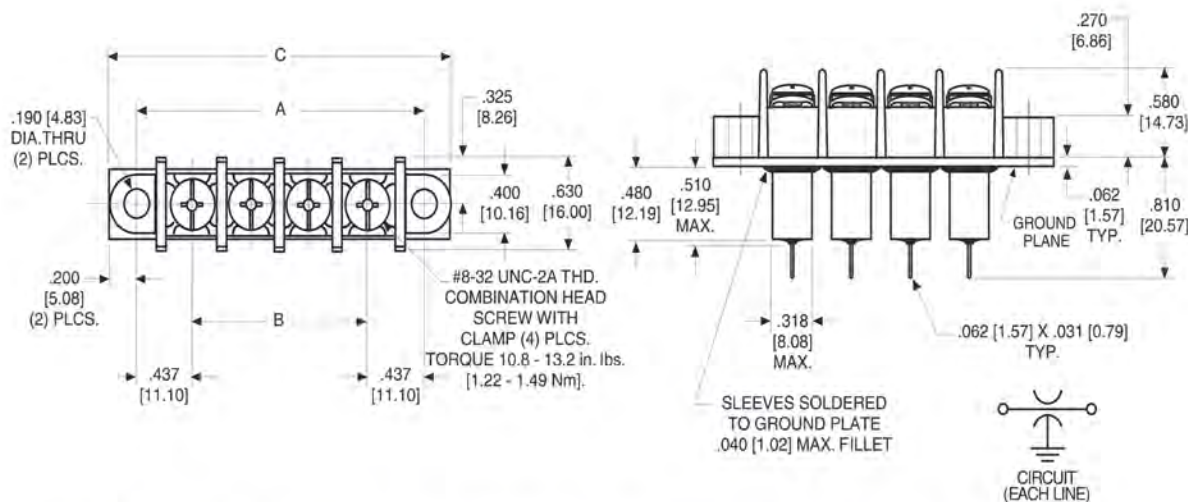
- Operating Temperature:  $-40^{\circ}\text{C}$  to  $105^{\circ}\text{C}$
- Working Voltages:  $\leq 100$  VDC
- Capacitance: 2500/5000pF
- Dielectric Withstand Voltage: 2121 VDC
- Insulation Resistance:  $\geq 10$  G $\Omega$
- Current Rating: 20A
- DC Resistance:  $\leq 10$  m $\Omega$
- Typical Insertion Loss [dB], in 50  $\Omega$  Circuit

10 MHz	100 MHz	1 GHz	10 GHz
5dB	50dB	60dB	65dB

(For additional insertion loss values, please contact the factory directly.)



## UL Recognized 30 AMP "C" Filtered Terminal



Please Note - Two screw sizes are available: The #6-32 (601) screw with combination head screw & clamp washer and the #8-32 (602) screw without clamp washer.

CTS Part Number	Number of Terminals	Screw Size	A		B		C	
		602						
7602-602LF	2	#8-32	1.313	[33.35]	.437	[11.10]	1.710	[43.43]
7603-602LF	3	#8-32	1.750	[44.45]	.874	[22.20]	2.150	[54.61]
7604-602LF	4	#8-32	2.188	[55.58]	1.311	[33.30]	2.590	[65.79]
7605-602LF	5	#8-32	2.625	[66.68]	1.748	[44.40]	3.020	[76.71]
7606-602LF	6	#8-32	3.063	[77.80]	2.185	[55.50]	3.460	[87.88]
7607-602LF	7	#8-32	3.500	[88.90]	2.622	[66.60]	3.900	[99.06]
7608-602LF	8	#8-32	3.938	[100.03]	3.059	[77.70]	4.340	[110.24]
7609-602LF	9	#8-32	4.375	[111.13]	3.496	[88.80]	4.770	[121.16]
7610-602LF	10	#8-32	4.813	[122.25]	3.933	[99.90]	5.210	[132.33]

### Mechanical Specifications

- Center Spacing: .437 [11.10]
- Wire Size: up to 10AWG, Ø.102 [2.59]
- Molded Material: High Temp Thermoplastic (PBT), UL rated 94 V-0.
- Block Mounting: Recommended mounting screw (#8 Pan Head) Torque 5in.lbs. [0.56 Nm] Max
- Terminal: Brass, Tin-plated

### UL Recognition

- EMI Filters recognized to UL Standard 1283
- Terminal Block recognized to UL Standard 1059
- Reference UL File Number E201344



### Electrical Specifications

- Operating Temperature: -40°C to 105°C
- Working Voltages: ≤ 150 VDC
- Capacitance: ≥15,000pF Minimum
- Dielectric Withstand Voltage: 2121VDC
- Insulation Resistance: ≥ 10,000 MΩ
- Current Rating: 30A, (30A rating requires 10 AWG wire and lugs)
- DC Resistance: ≤ 10 mΩ
- Typical Insertion Loss, in 50 Ω Circuit (dB):

10 MHz	100 MHz	1 GHz	10 GHz
28dB	45dB	70dB	70dB

(For additional Insertion loss values, contact the factory.)

## Product Installation Recommendations

The components in this catalog are manufactured with ceramic dielectrics. To minimize possible damage to the components during installation, contact us at: <https://www.ctscorp.com/contact/request-technical-info/> for more help and information.

To learn more visit: [www.ctscorp.com](http://www.ctscorp.com)

