

Air Capacitor Selection Guide

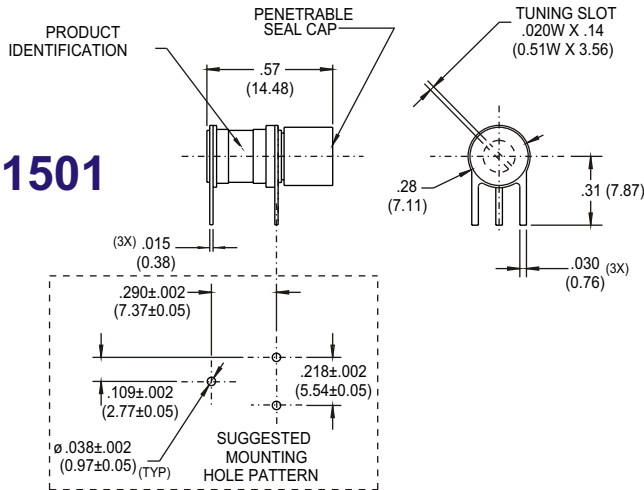
Click on the Part Number for Line Drawing

Johanson P/N	Capacitance Range (pF)	Number Of Turns	Working Voltage (VDC)	Mil-Spec P/N	Temperature Coefficient (PPM/°C)	Tuning Torque (oz in)	Q min @ 250 MHz
5200	.8 to 10	>6	250	PC25J100	0 ± 15	1-5	>5000
5201				PC26T100			
5202				PC31J100			
5300	1 to 10	>10	500	**	0 ± 20	1-6	>2000
5301							
5302							
5400	1 to 14	>6	250	PC25J140	0 ± 25	1-5	>3000
5401				PC26T140			
5402				PC31J140			
5451	1 to 16	>6	250	**	0 ± 50	1-5	>3000
5453	1.5 to 16						
5500	1 to 20	>12	250	PC25J200	0 ± 30	1-5	>1500
5501				PC26T200			
5502				PC31J200			
5600	1 to 30	>20	250	**	0 ± 30	1-5	>800
6601				PC26J300			
5602				**			
5700	.6 to 6	>7	250	PC25J060	0 ± 15	.4-4	>10000
5701				PC26J060			
5702				PC31J060			
5750	.8 to 10	>8	250	**	0 ± 50	.4-4	>7500
5751							
5752				PC29J100			
5753	1 to 10			**			
5800	.35 to 3.5	>9	250	PC27J3R5	0 ± 15	.3-3	>10000
5801				PC28J3R5			
5802				PC29J3R5			
5850	.5 to 5	>12	250	**	0 ± 50	.3-3	>7500
5851				PC28J050			
5852				PC29J050			
5853	.6 to 5			PC30J5R0			
8050	.7 to 6	>7	250	**	0 ± 15	.4-4	>10000
8051	.6 to 3.5	>10		PC30J3R5		.3-3	
8052	1 to 10	>6		**	1-5	>5000	
8053	1.5 to 14	>6		PC32T140		0 ± 25	>3000
8054	1.5 to 20	>12		**		0 ± 30	>1500
8090	1 to 10	>6	250	**	0 ± 20	1-5	>2000
8091							
8092	1.5 to 14						
8093							

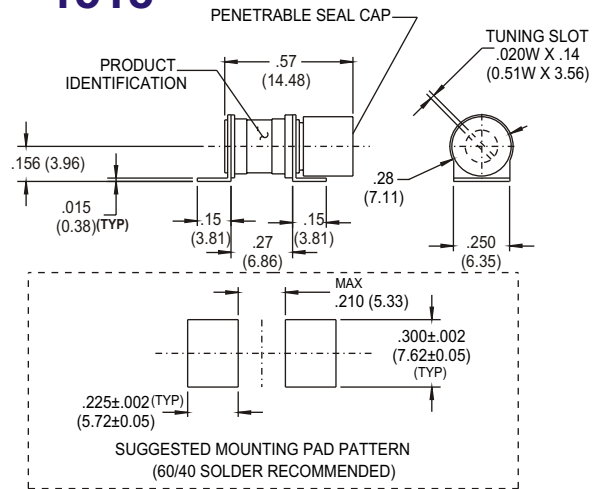
** Not Available in Mil-Spec

1500 Series Air Capacitor 1 to 10pF

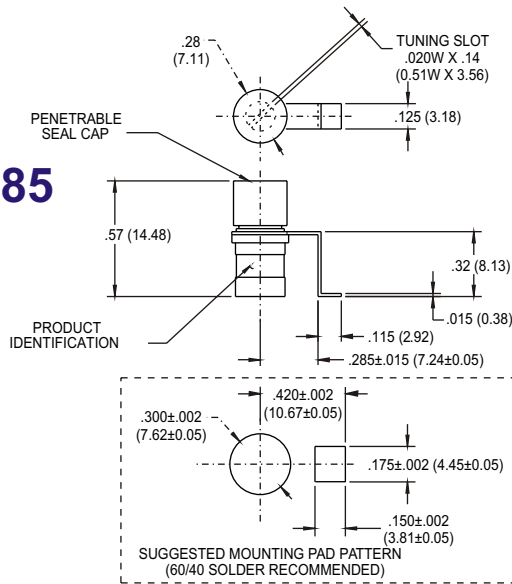
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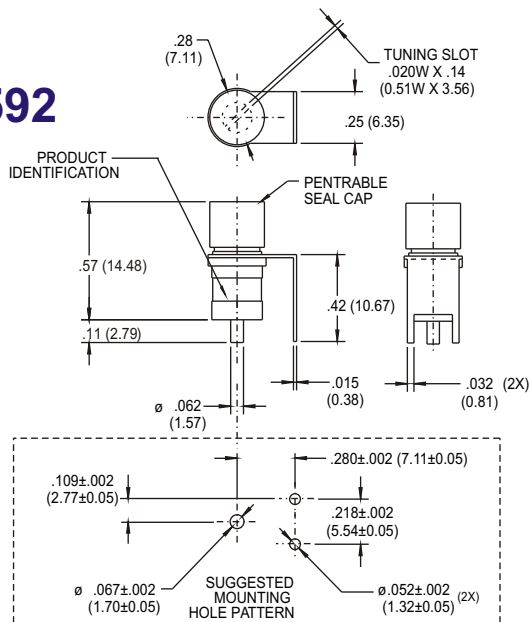
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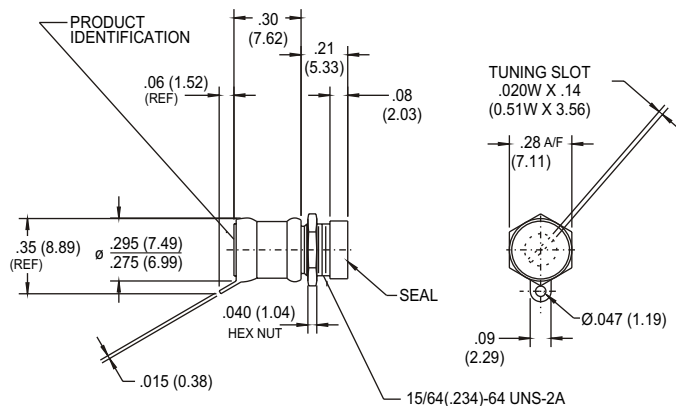
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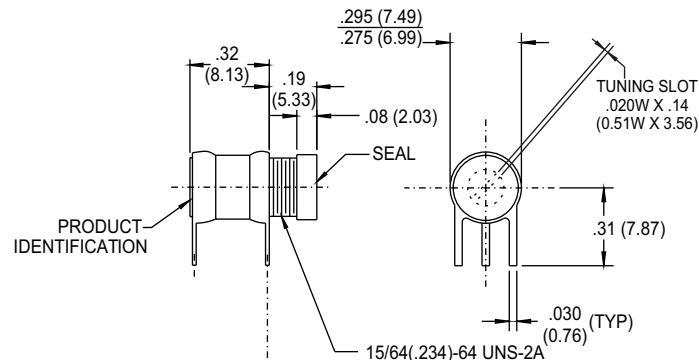
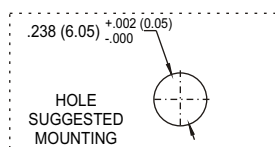
SPECIFICATIONS	
CAPACITY RANGE	1pF TO 10pF (>8 TURNS)
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)
Q @ 195 MHz	> 4000
INSULATION RESISTANCE	>10 ⁶ MEGOHMS
TEMPERATURE COEFFICIENT @ 75% MAX. C	15 ± 30 PPM/°C
TEMPERATURE RANGE	-65°C TO +125°C
TORQUE	1.0 TO 5.0 OZ. IN
COPPER ALLOY & INVAR STRUCTURE	
ALUMINA INSULATION	
GOLD, SILVER, & CHROMATE FINISH	

Recommended tuning tool **JMC 8764 or 8777**

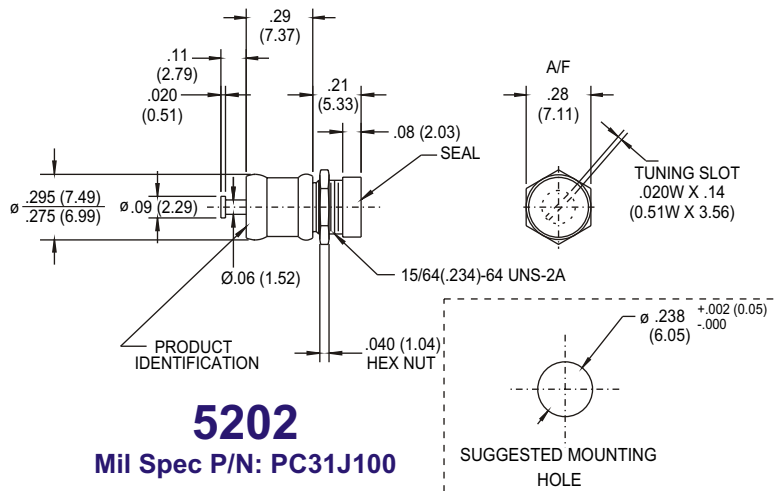
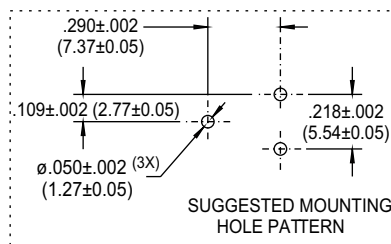
5200 Series Air Capacitor .8 to 10pF



5200
Mil Spec P/N: PC25J100



5201
Mil Spec P/N: PC31J100



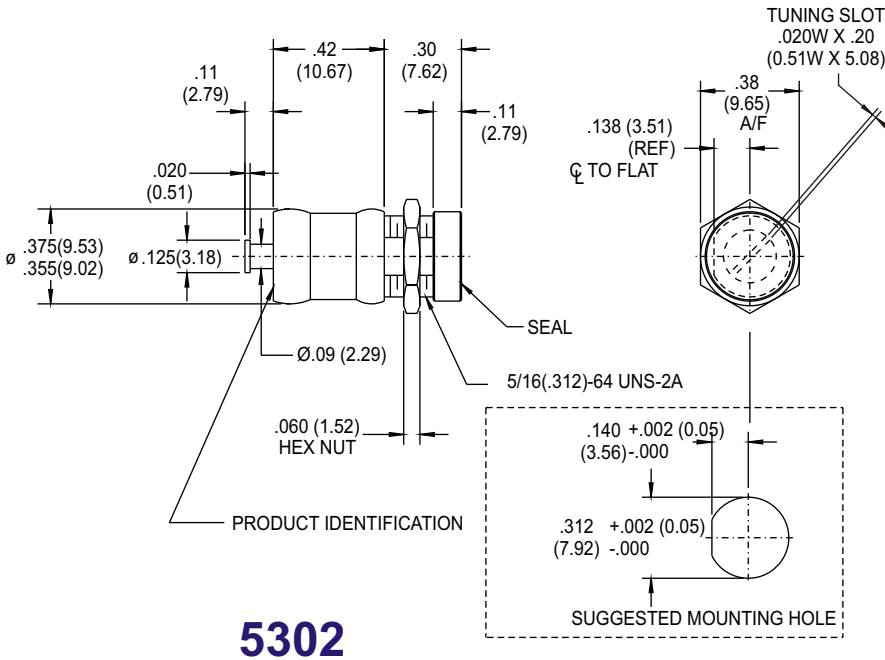
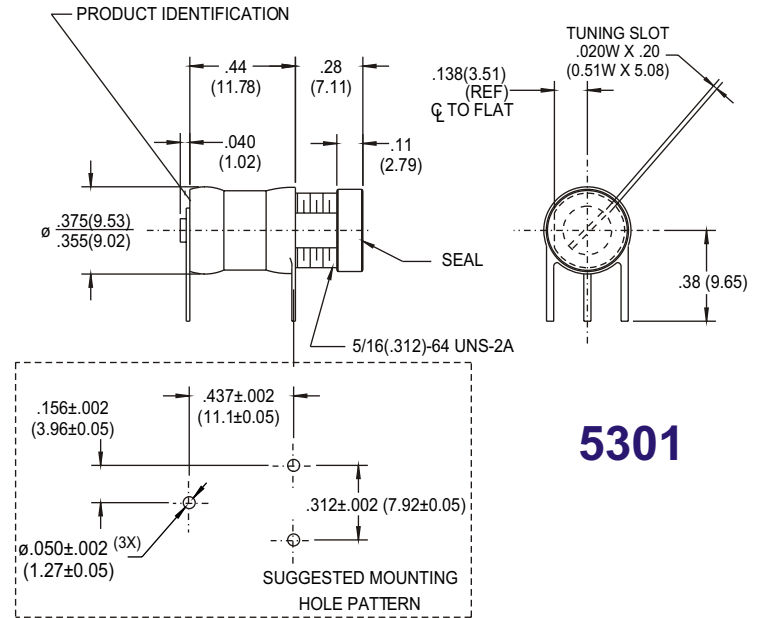
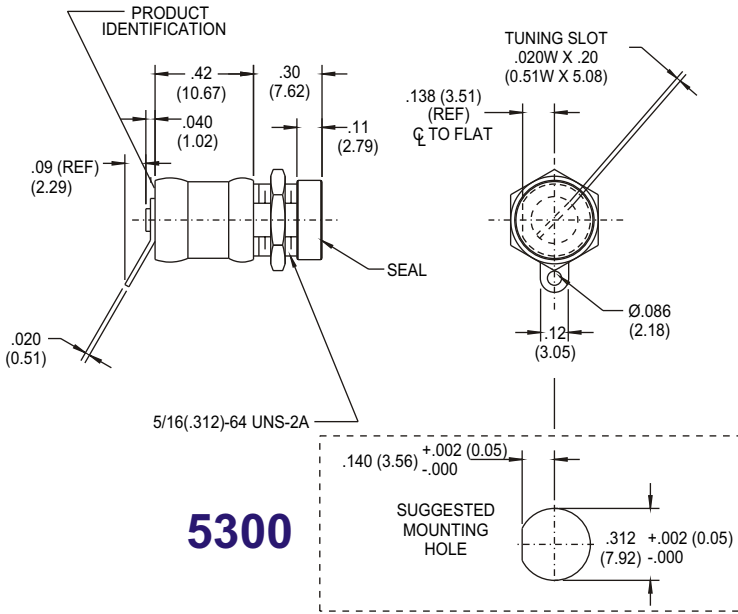
5202
Mil Spec P/N: PC31J100

SPECIFICATIONS		
CAPACITY RANGE	0.8pF TO 10pF (>6 TURNS)	
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)	
Q @ 100 MHz	> 5000	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 15 PPM/ °C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	1.0 TO 5.0 OZ. IN
	NUT MOUNTING	50 OZ. IN. MAX
	SEAL ASSEMBLY	8 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

*Mil-C-14409 qualified unit

Recommended tuning tool **JMC 8764 or 8777**

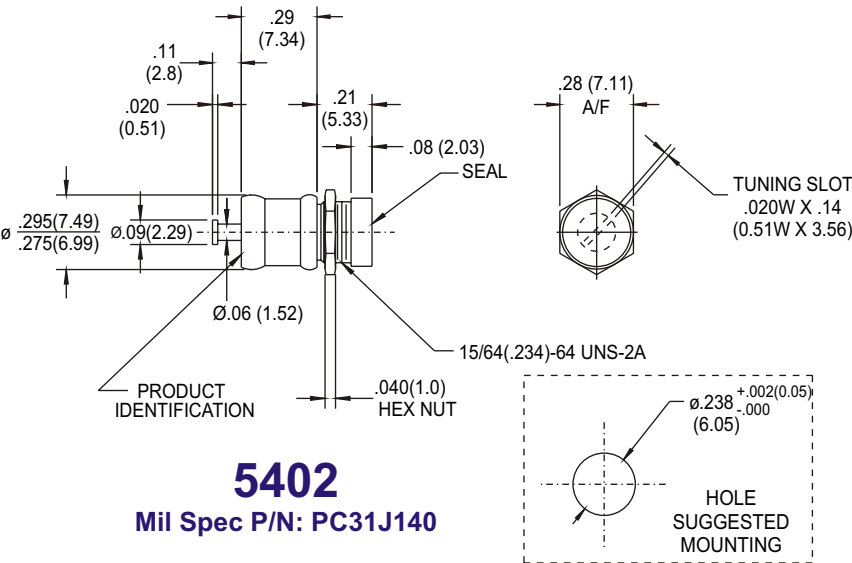
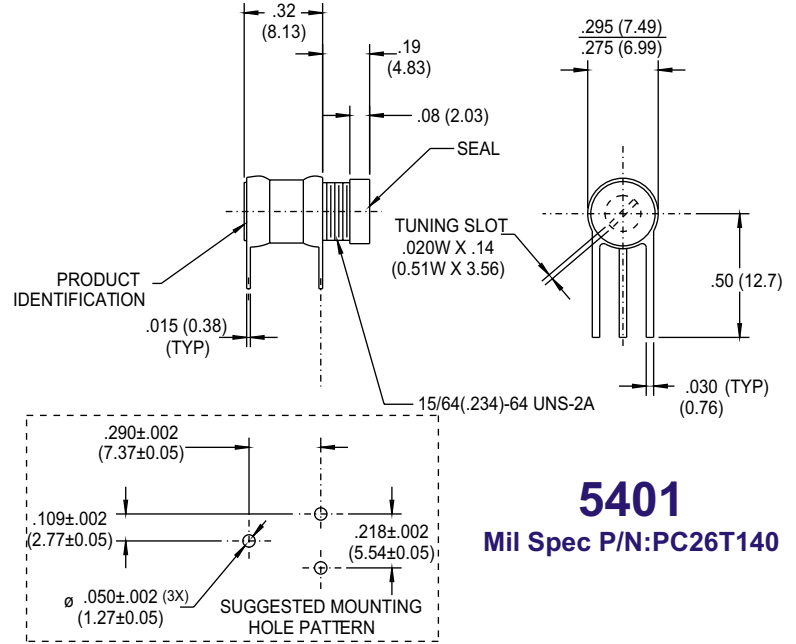
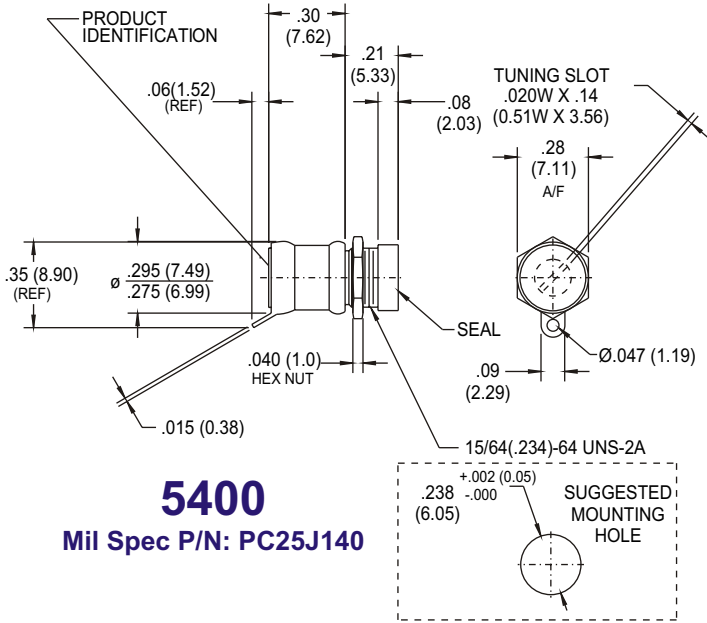
5300 Series Air Capacitor 1 to 10pF (500VDC)



SPECIFICATIONS		
CAPACITY RANGE	1pF TO 10pF (>10 TURNS)	
WORKING VOLTAGE	500 VDC (TEST VOLT. 1000 VDC)	
Q @ 100 MHz	> 2000	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 20 PPM/°C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	1.0 TO 6.0 OZ. IN
	NUT MOUNTING	50 OZ. IN. MAX
	SEAL ASSEMBLY	8 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

Recommended tuning tool **JMC 8764 or 8777**

5400 Series Air Capacitor 1 to 14pF

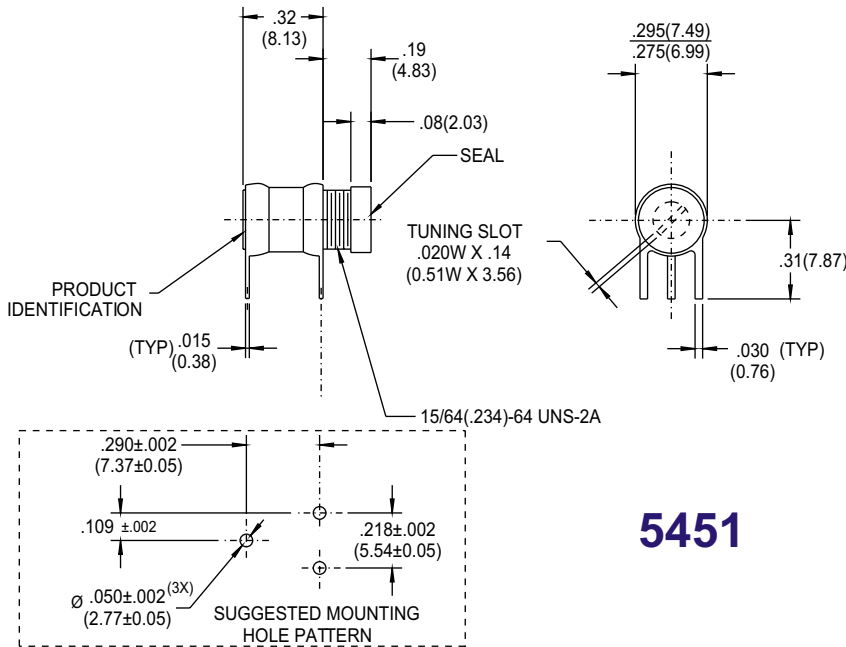


SPECIFICATIONS		
CAPACITY RANGE	1pF TO 14pF (>10 TURNS)	
WORKING VOLTAGE	500 VDC (TEST VOLT. 1000 VDC)	
Q @ 100 MHz	> 2000	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 20 PPM/°C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	1.0 TO 6.0 OZ. IN
	NUT MOUNTING	50 OZ. IN. MAX
	SEAL ASSEMBLY	8 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

*Mil-C-14409 qualified unit

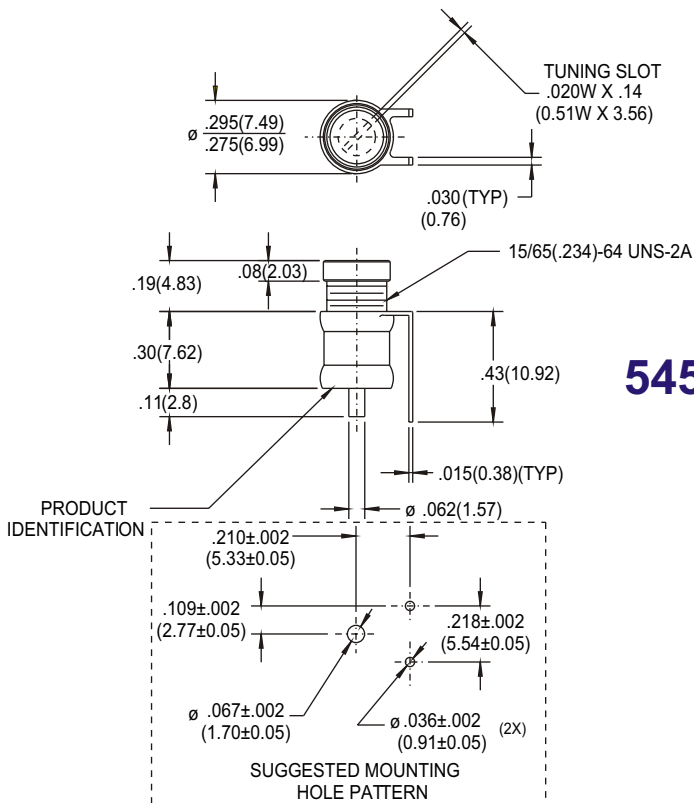
Recommended tuning tool **JMC 8764 or 8777**

5450 Series Air Capacitor 1 to 16pF



5451

SPECIFICATIONS		
CAPACITY RANGE	1pF TO 16pF (>6 TURNS)	
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)	
Q @ 100 MHz	> 3000	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 50 PPM/°C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	1.0 TO 5.0 OZ. IN
	SEAL ASSEMBLY	8 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

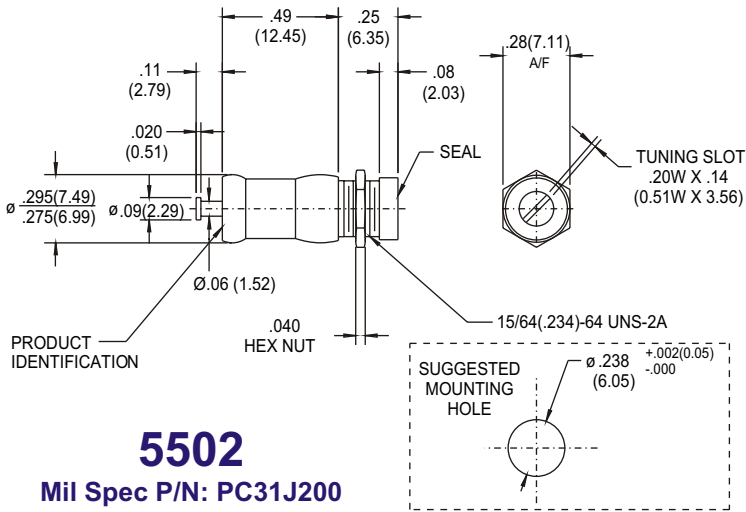
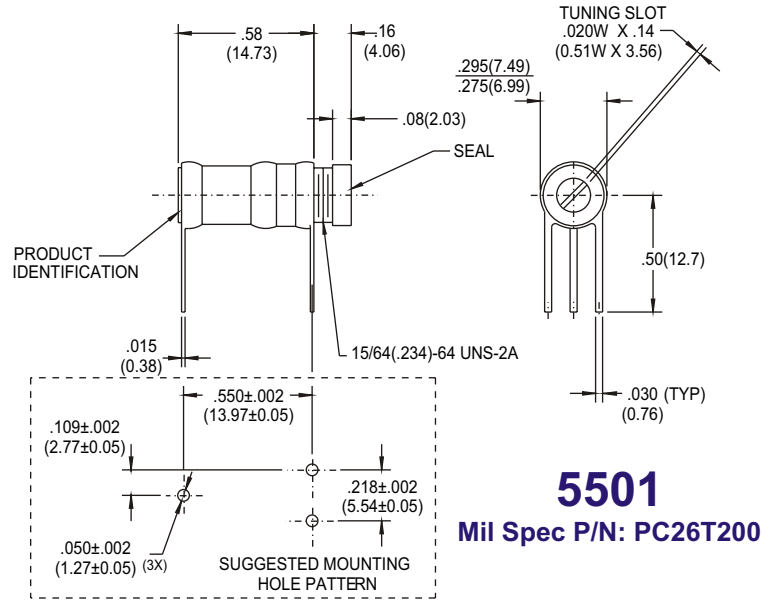
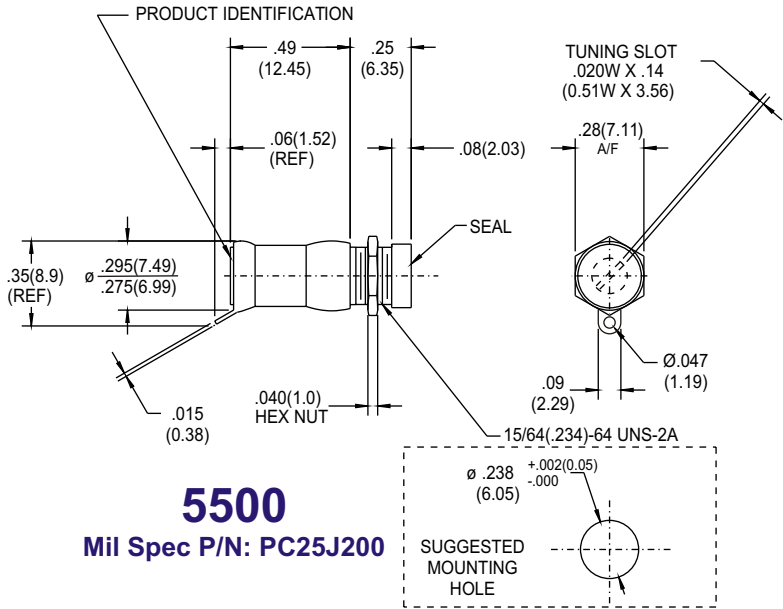


5453

SPECIFICATIONS		
CAPACITY RANGE	1.5pF TO 16pF (>6 TURNS)	
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)	
Q @ 100 MHz	> 3000	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 30 PPM/°C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	1.0 TO 5.0 OZ. IN
	SEAL ASSEMBLY	8 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

Recommended tuning tool **JMC 8764 or 8777**

5500 Series Air Capacitor 1 to 20pF

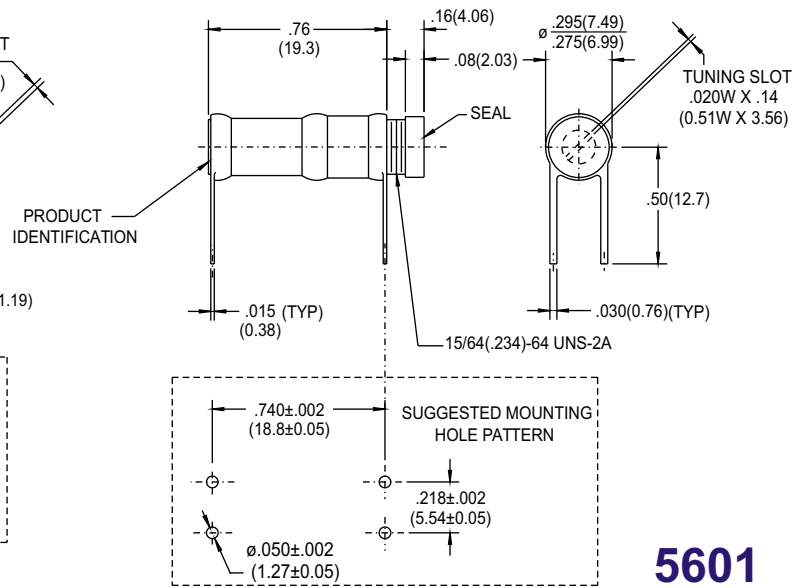
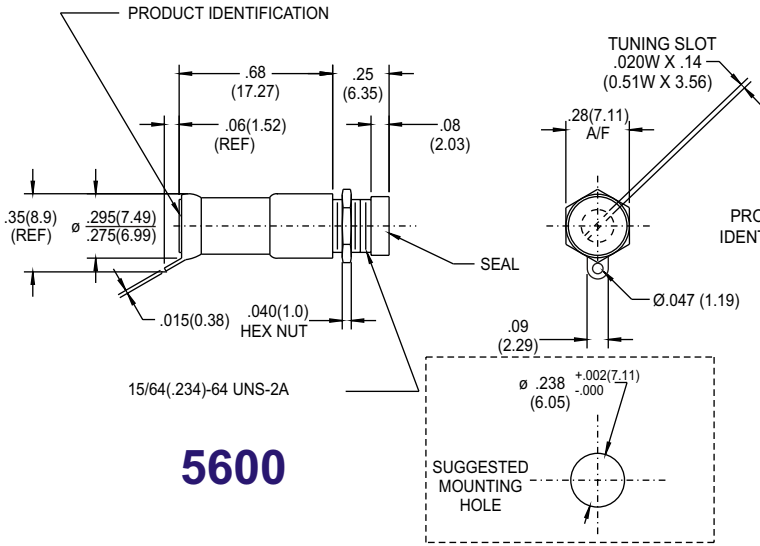


SPECIFICATIONS		
CAPACITY RANGE	1pF TO 20pF (>12 TURNS)	
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)	
Q @ 100 MHz	> 1500	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 30 PPM°C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	1.0 TO 5.0 OZ. IN
	NUT MOUNTING	50 OZ. IN. MAX
	SEAL ASSEMBLY	8 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

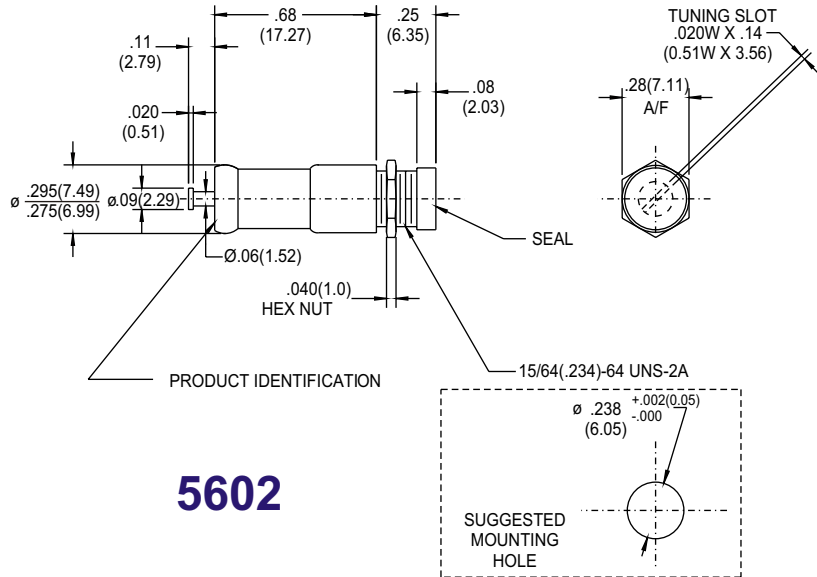
*Mil-C-14409 qualified unit

Recommended tuning tool **JMC 8764 or 8777**

5600 Series Air Capacitor 1 to 30pF



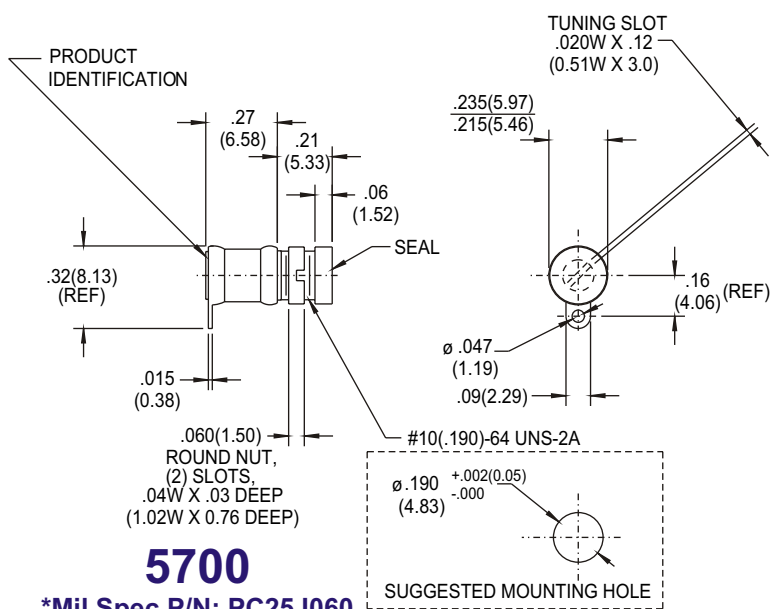
Mil Spec P/N: PC26J300



SPECIFICATIONS		
CAPACITY RANGE	1.0pF TO 30pF (>20 TURNS)	
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)	
Q @ 100 MHz	> 800	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 30 PPM/°C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	1.0 TO 5.0 OZ. IN
	NUT MOUNTING	50 OZ. IN. MAX
	SEAL ASSEMBLY	8 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

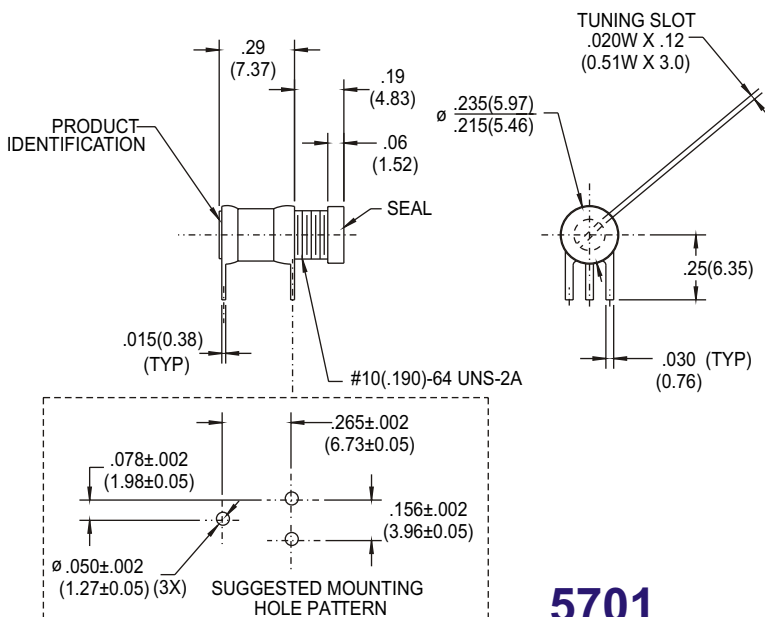
*Mil-C-14409 qualified unit
Recommended tuning tool **JMC 8764 or 8777**

5700 Series Air Capacitor .6 to 6pF



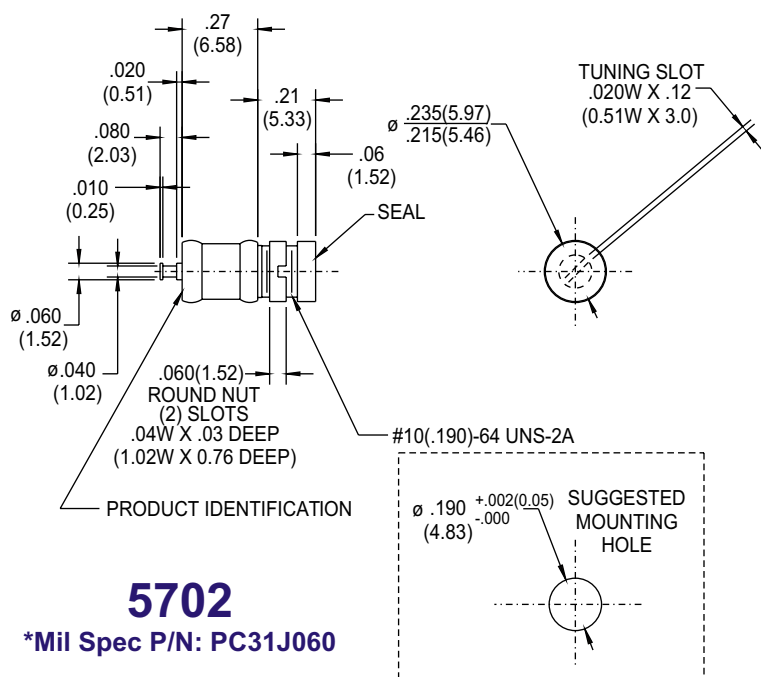
5700

*Mil Spec P/N: PC25J060



5701

*Mil Spec P/N: PC26J060



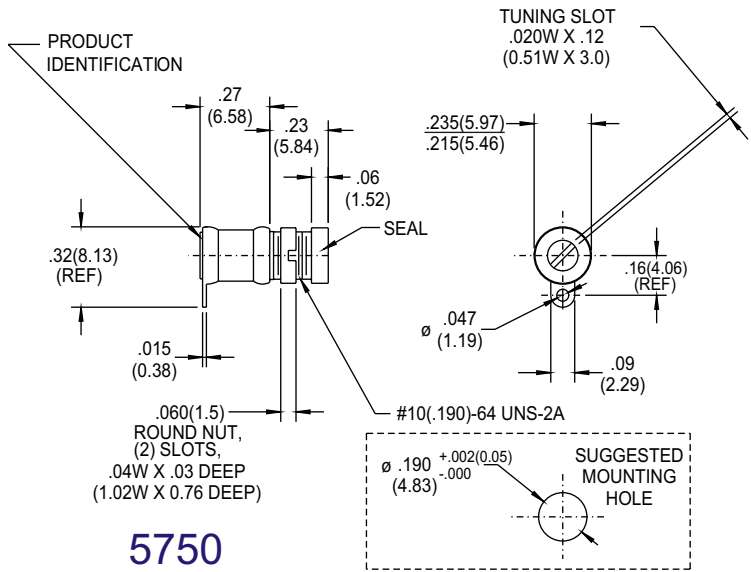
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*Mil Spec P/N: PC31J060

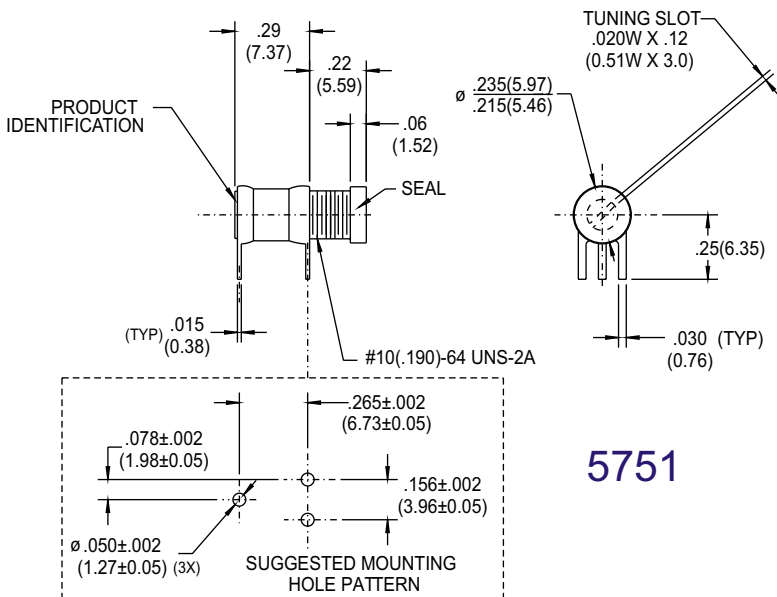
SPECIFICATIONS		
CAPACITY RANGE	0.6pF TO 6pF (>8 TURNS)	
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)	
Q @ 100 MHz	> 10000	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 15 PPM/°C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	0.4 TO 4.0 OZ. IN
	NUT MOUNTING	30 OZ. IN. MAX
	SEAL ASSEMBLY	8 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

*Mil-C-14409 qualified unit
Recommended tuning tool **JMC 8764 or 8777**

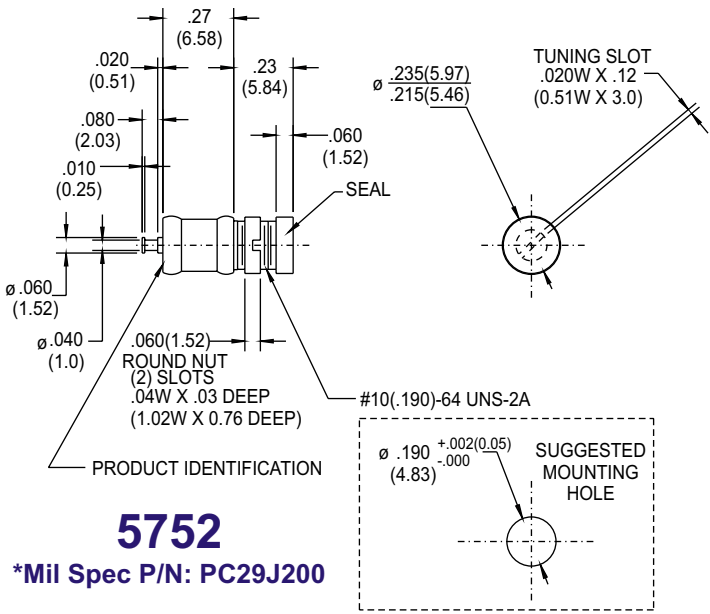
5750 Series Air Capacitor .8 to 10pF



5750

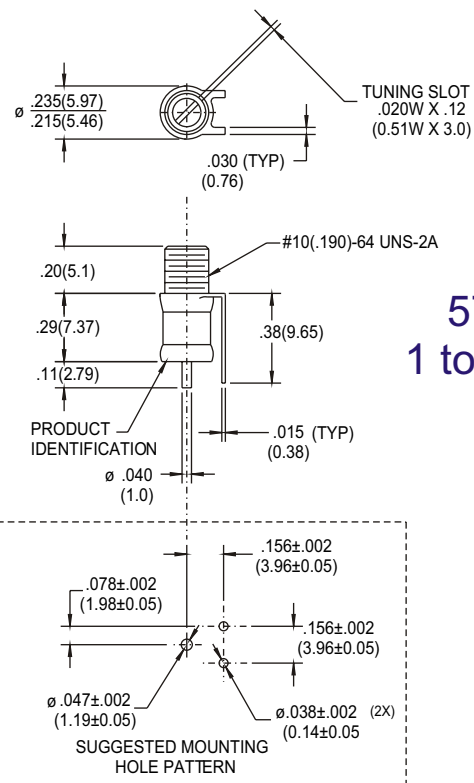


5751



5752

*Mil Spec P/N: PC29J200



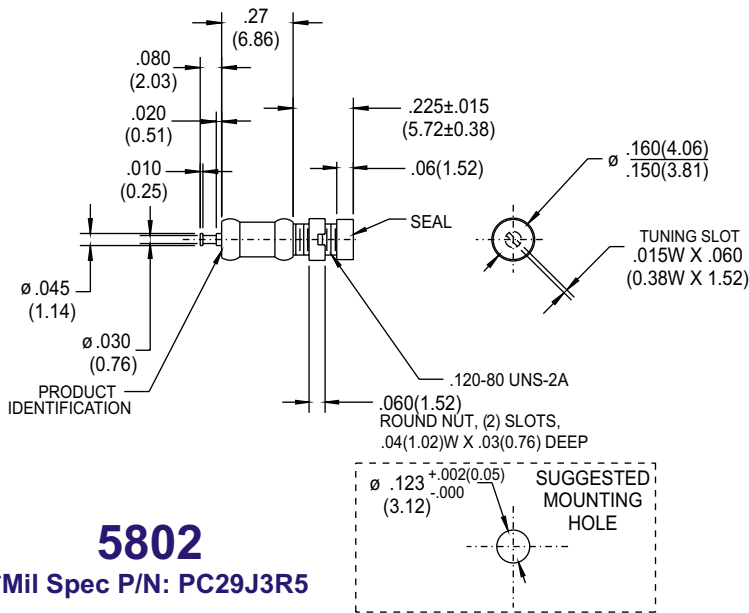
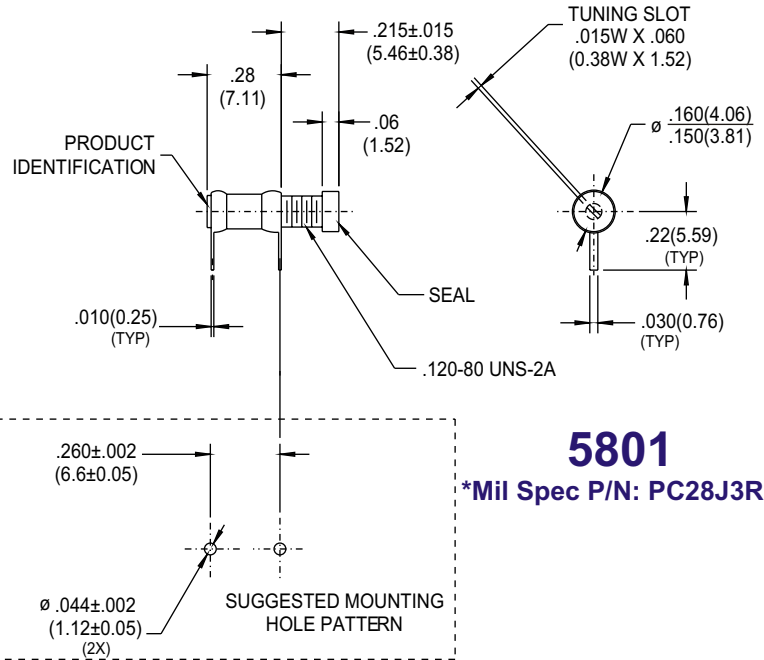
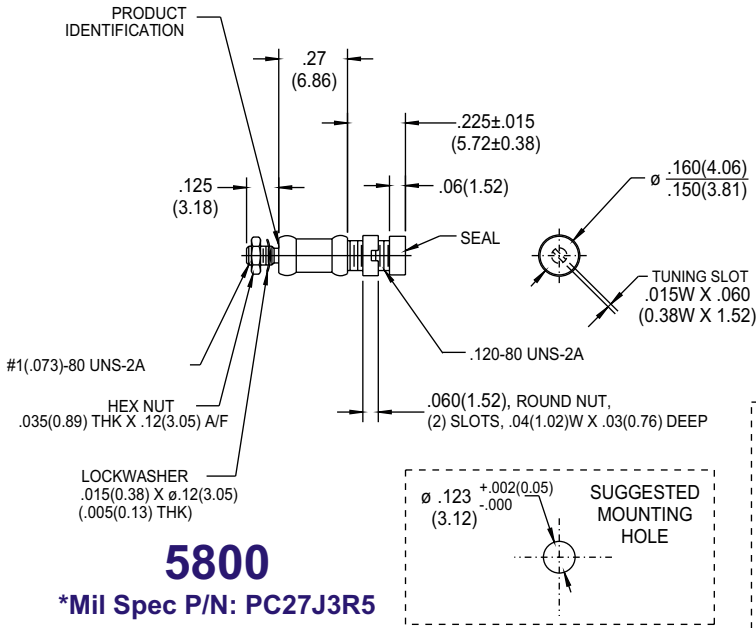
5753
1 to 10pF

SPECIFICATIONS		
CAPACITY RANGE	0.8pF TO 10pF (>8 TURNS)	
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)	
Q @ 100 MHz	>7500	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 50 PPM/°C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	0.4 TO 4.0 OZ. IN
	NUT MOUNTING	30 OZ. IN. MAX
	SEAL ASSEMBLY	8 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

*Mil-C-14409 qualified unit

Recommended tuning tool **JMC 8764 or 8777**

5800 Series Air Capacitor .35 to 3.5pF

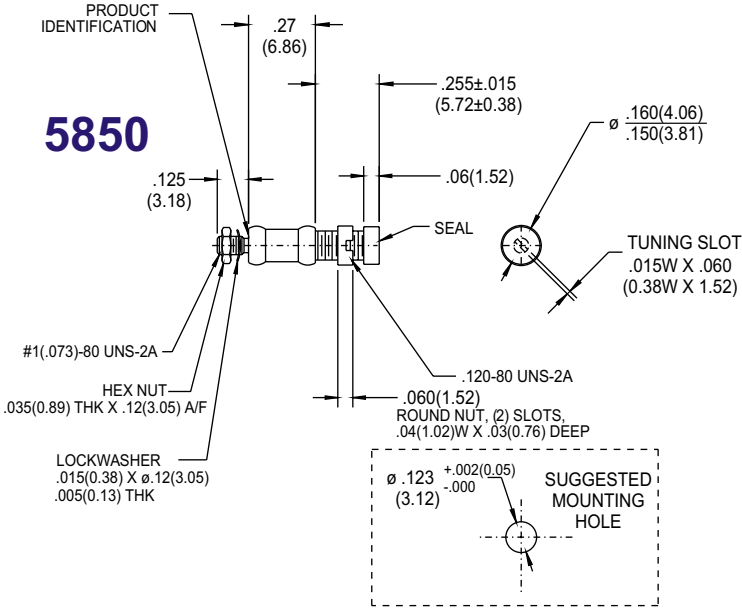


SPECIFICATIONS		
CAPACITY RANGE	0.35pF TO 3.5pF (>9 TURNS)	
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)	
Q @ 100 MHz	> 10000	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 15 PPM/°C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	0.3 TO 3.0 OZ. IN
	NUT MOUNTING	10 OZ. IN. MAX
	SEAL ASSEMBLY	5 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

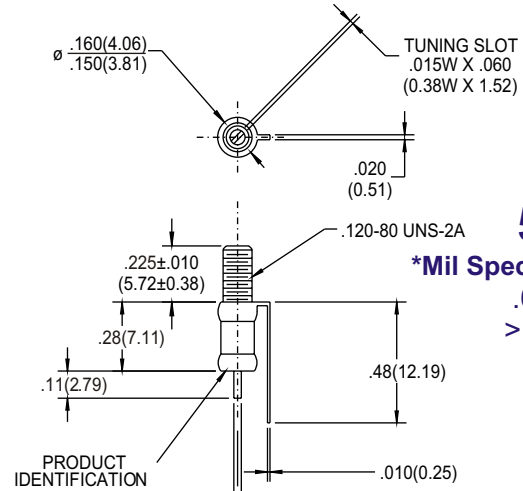
*Mil-C-14409 qualified unit

Recommended tuning tool **JMC 8764 or 8777**

5850 Series Air Capacitor .5 to 5pF

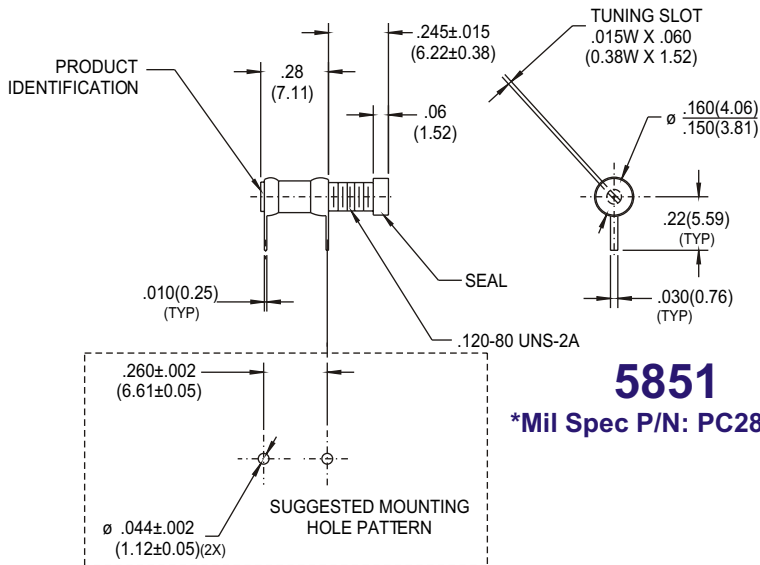


5850



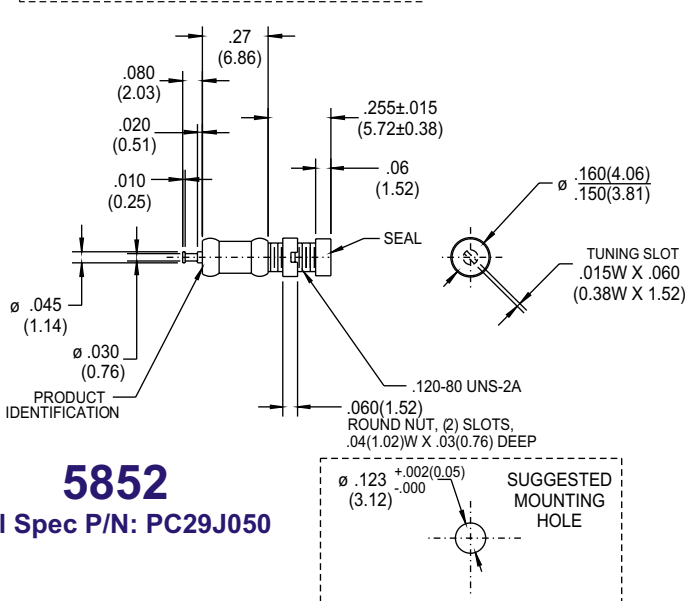
5853

*Mil Spec P/N: PC30J5R0
.6 to 5pF
>12 Turns



5851

*Mil Spec P/N: PC28J050



5852

*Mil Spec P/N: PC29J050

SPECIFICATIONS		
CAPACITY RANGE	0.5pF TO 5.0pF (>9 TURNS)	
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)	
Q @ 100 MHz	>7500	
INSULATION RESISTANCE	>10 ⁶ MEGOHMS	
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 50 PPM/°C	
TEMPERATURE RANGE	-65°C TO +125°C	
T O R Q U E	TUNING	0.3 TO 3.0 OZ. IN.
	NUT MOUNTING	10 OZ. IN. MAX
	SEAL ASSEMBLY	5 OZ. IN. MAX
BRASS & INVAR STRUCTURE		
GLAZED ALUMINA INSULATION		
574°F SOLDER USED IN ASSEMBLY		
SILICONE RUBBER SEAL WASHER		
GOLD, SILVER, & CHROMATE FINISH		

*Mil-C-14409 qualified unit

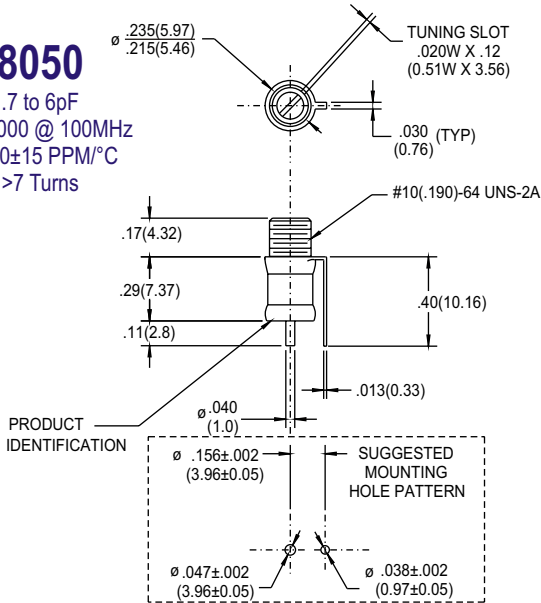
Recommended tuning tool JMC 8764 or 8777

8050 Series Air Capacitor

PRECISION TUNING

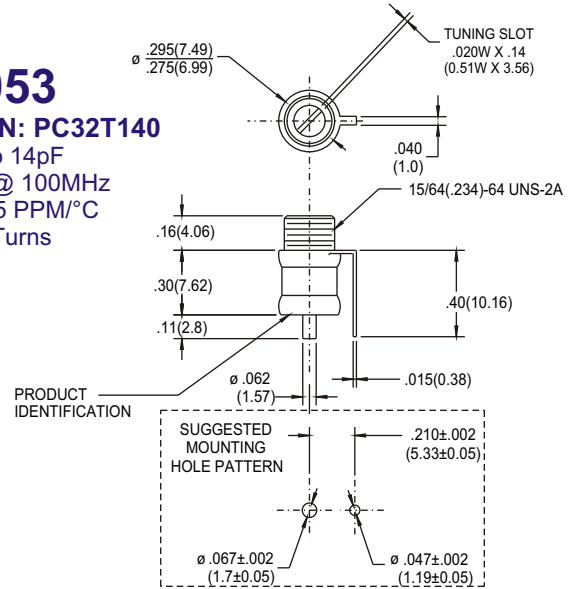
8050

.7 to 6pF
Q>10000 @ 100MHz
TC: 0±15 PPM/°C
>7 Turns



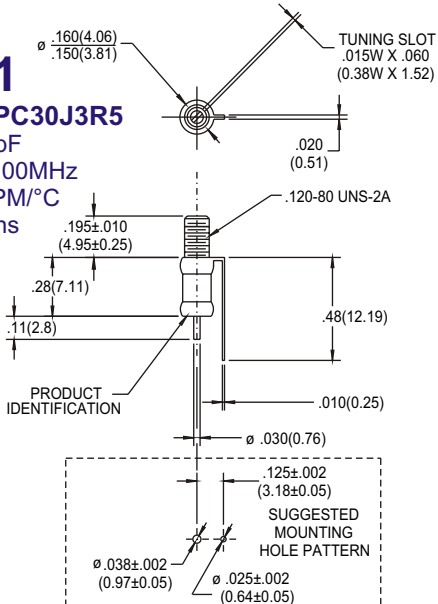
8053

*Mil Spec P/N: PC32T140
1.5 to 14pF
Q>3000 @ 100MHz
TC: 0±25 PPM/°C
>6 Turns



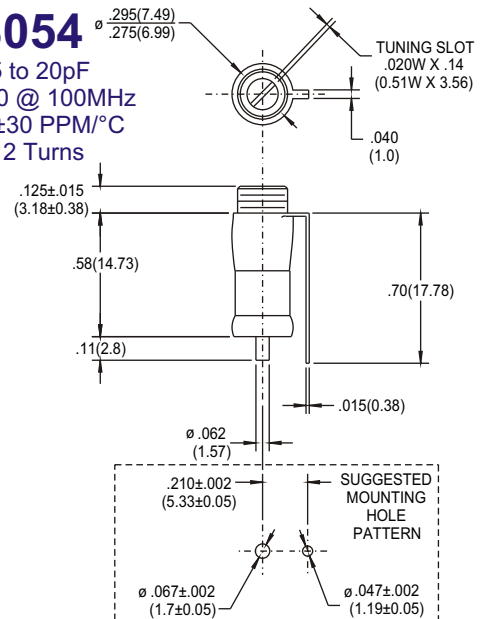
8051

*Mil Spec P/N: PC30J3R5
.6 to 3.5pF
Q>10000 @ 100MHz
TC: 0±15 PPM/°C
>10 Turns



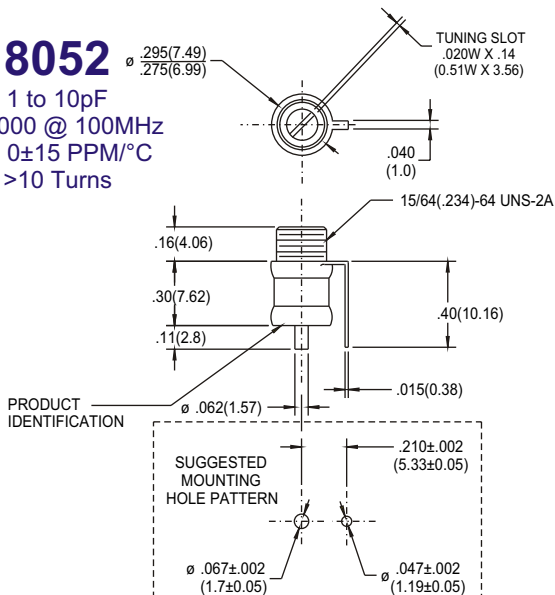
8054

1.5 to 20pF
Q>1500 @ 100MHz
TC: 0±30 PPM/°C
>12 Turns



8052

1 to 10pF
Q>5000 @ 100MHz
TC: 0±15 PPM/°C
>10 Turns



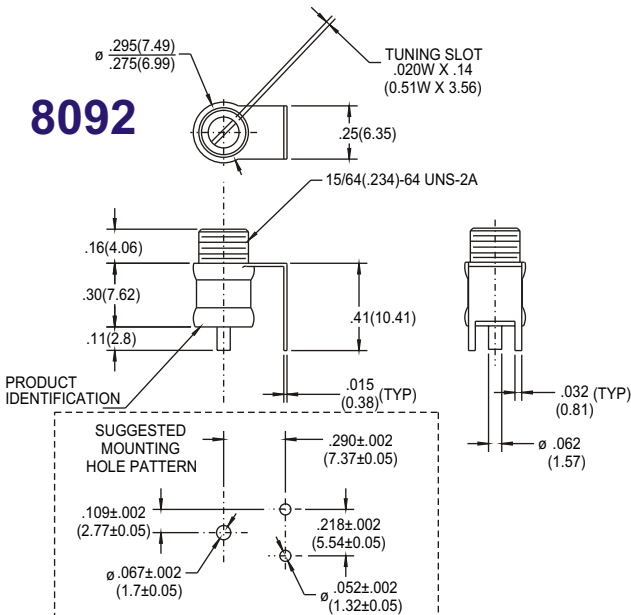
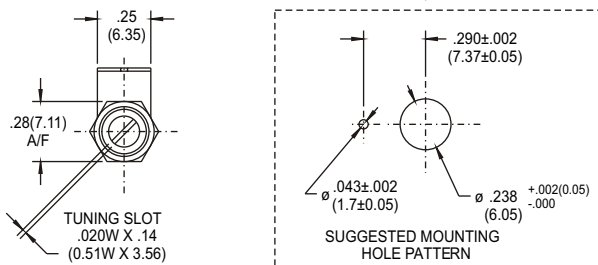
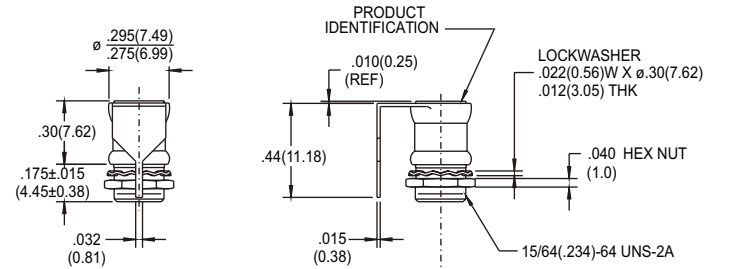
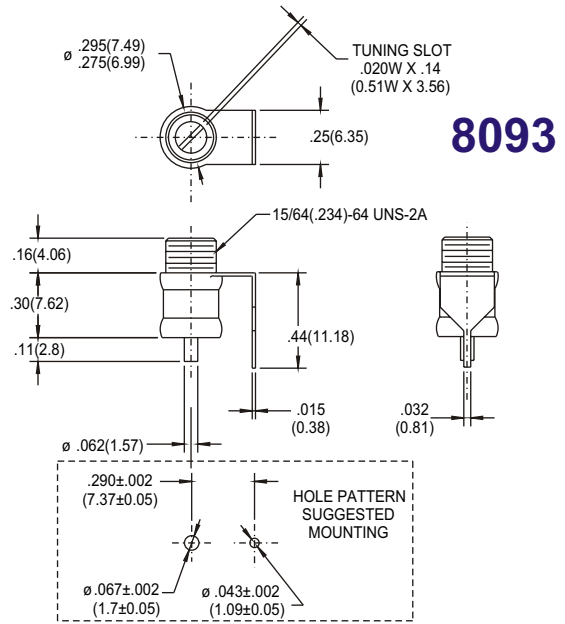
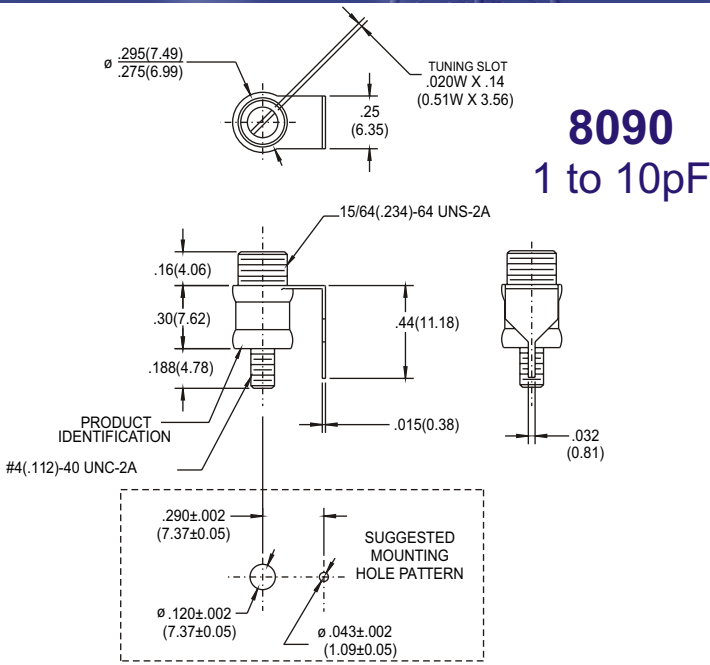
SPECIFICATIONS

WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)
INSULATION RESISTANCE	>10 ⁶ MEGOHMS
TEMPERATURE RANGE	-65°C TO +125°C
TUNING TORQUE	0.4 TO 4.0 OZ. IN
BRASS & INVAR STRUCTURE	
GLAZED ALUMINA INSULATION	
574°F SOLDER USED IN ASSEMBLY	
GOLD, SILVER, & CHROMATE FINISH	

*Mil-C-14409 qualified unit
Recommended tuning tool **JMC 8777**

Dimensions: inches (mm)
Specifications subject to change without notice

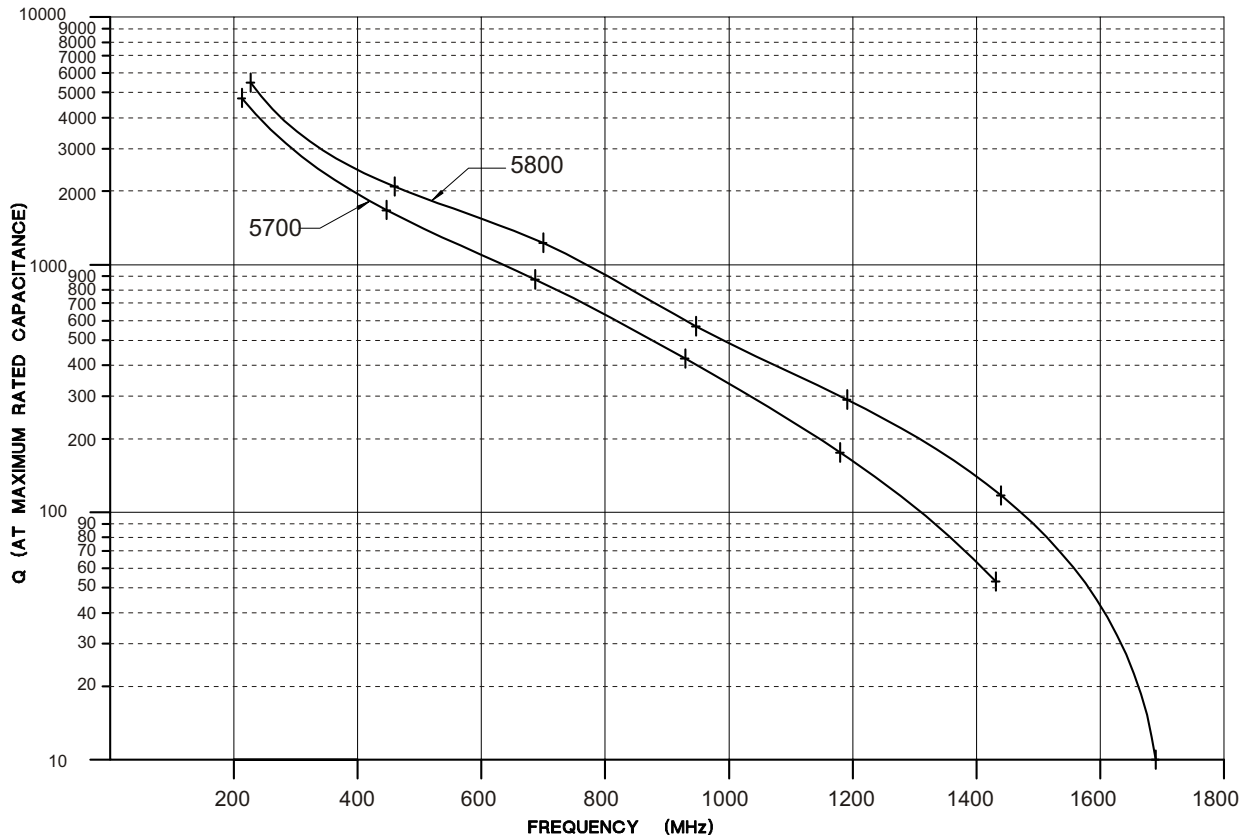
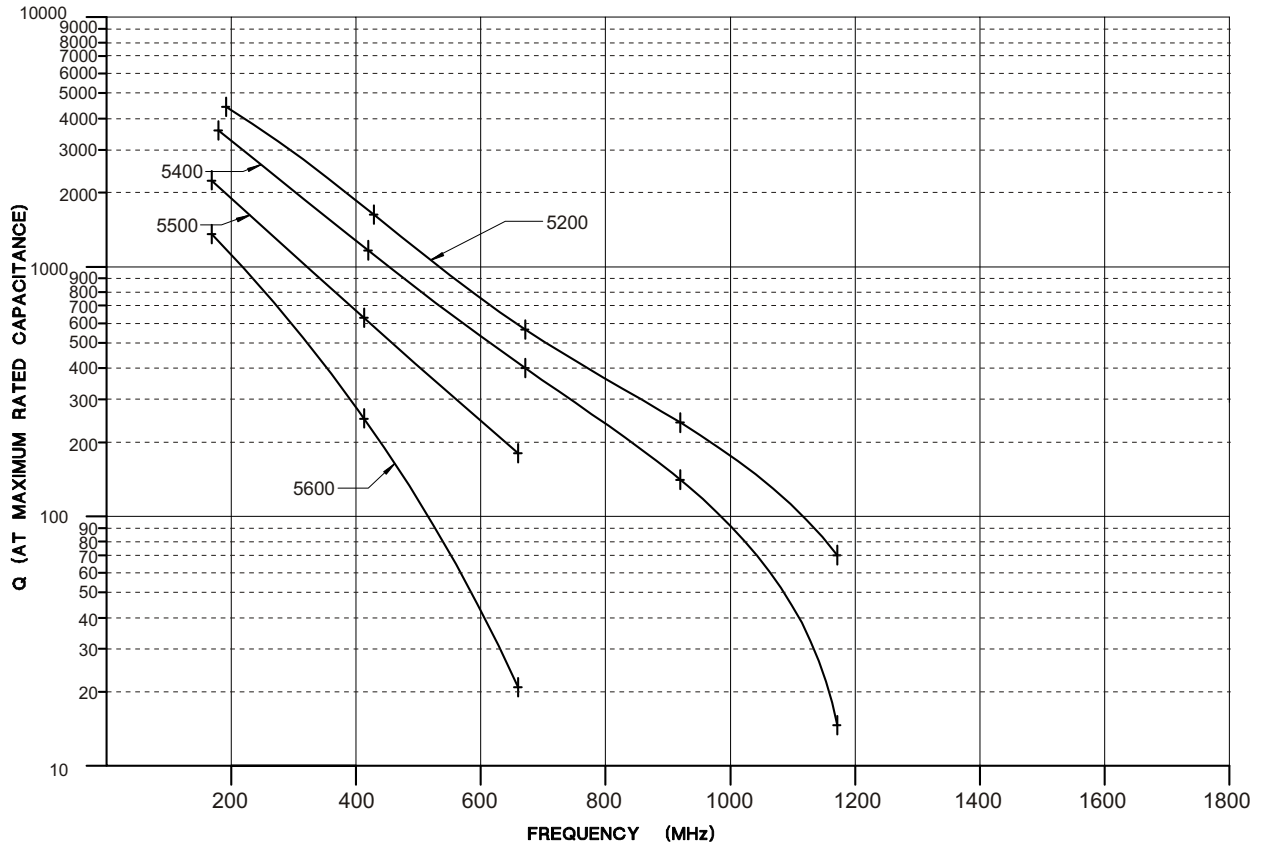
8090 Series Air Capacitor .5 to 14pF



SPECIFICATIONS	
CAPACITY RANGE	1.5pF TO 14pF (>6 TURNS)
WORKING VOLTAGE	250 VDC (TEST VOLT. 500 VDC)
Q @ 100 MHz	>2000
INSULATION RESISTANCE	>10 ⁶ MEGOHMS
TEMPERATURE COEFFICIENT @ 75% MAX. C	0 ± 20 PPM/°C
TEMPERATURE RANGE	-65°C TO +125°C
TORQUE	TUNING: 1.0 TO 5.0 OZ. IN NUT MOUNTING: 50 OZ. IN. MAX
BRASS & INVAR STRUCTURE	
GLAZED ALUMINA INSULATION	
574°F SOLDER USED IN ASSEMBLY	
GOLD, SILVER, & CHROMATE FINISH	

Recommended tuning tool JMC 8764 or 8777

Air Capacitor Q Chart



Mounting

Chassis Mounting Capacitor: Recommended mounting torques are as follows

<u>Bushing Tread</u>	<u>Torque(oz. in)</u>
.120-80	10
.156-64	20
.190-64	30
.234-64	50
.250-64	90
.312-64	120
.375-64	120
.469-32	240

Thru-Hole Capacitor: Air capacitors with leads for PC board mounting may be lightly clinched after assembly to board, to help retain them.

Soldering

The use of 60-40 solder (SN60-63) is recommended. The use of higher temperature solder is not recommended.

Hand Soldering: Use a temperature controlled 40 watt iron set @ 500°F maximum. The solder joint should be made in 3 seconds or less.

Wave Soldering: Recommended preheat is 1 to 2 minutes. Soldering temperature, 220°C for 5 seconds maximum.

Reflow Soldering: Recommended preheat is 1 to 2 minutes. Soldering temperature, 240°C for 20 seconds maximum.

Cleaning

Air capacitors are compatible with a wide variety of cleaning processes including those that utilize aqueous or semi-aqueous cleaning solutions, alcohol solutions, de-ionized water and numerous other cleaners. However, due to the large variety of such processes, the customer through cleaning process evaluation in conjunction with Johanson product purchased must determine actual compatibility. Capacitors without seal caps should be protected from intrusion of cleaning solutions on the internal bushing thread. It is recommended these units be installed after circuit boards have been cleaned. Units with seal caps may be immersed in liquid, vapor, and ultrasonic cleaning systems.

Adjusting

The plastic seal caps available are designed so that, after assembly is complete they may be penetrated by the Johanson tuning tool and left in place or may be removed and discarded before adjustment.

The tuning torque range is specified for each type of capacitor. The maximum specified value should not be exceeded or damage to the capacitor may result.

Always use the recommended tuning tool. Johanson tuning tools are designed specifically for tuning Johanson products; use of other tools, particularly metal screwdrivers, may damage the internal bushing thread causing rotor binding.