

# Air Trimmer Capacitors



## THE ONLY INTERNALLY-SEALED AIR TRIMMER

Voltronics' concentric ring air trimmer capacitors are designed for use at frequencies up to 1.5 GHz. They are ideal for applications such as mobile radios, aerospace communication, crystal oscillators and filters, radar, cable TV, and innumerable other commercial and military programs. The unique internal O-ring seal makes save soldering and vapor degreasing possible without the need to attach a separate cap.

Other features include:

- Ten full linear turns
- Internal stops
- Extreme stability under shock & vibration
- Screw head does not move in and out
- Extended shaft option of metal or plastic
- Long life with no dynamic tuning noise

NOTE:

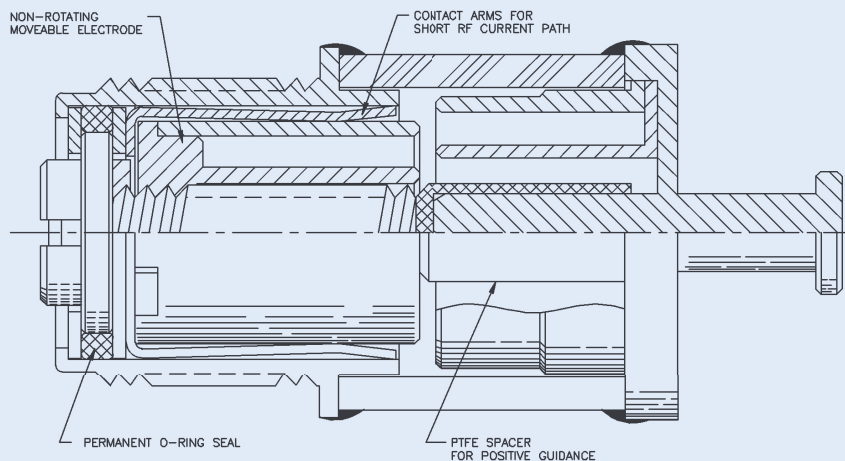
All parts shown here can be ordered as non-magnetic:  
Add "NM" to Part Number, i.e., NMAP10

### Available in two styles:

"A" Series - Solder sealed and qualified to MIL-C-14409D.

"K" Series - Solder sealed.

"E" and "KE" Series - Epoxy sealed for economical commercial applications.

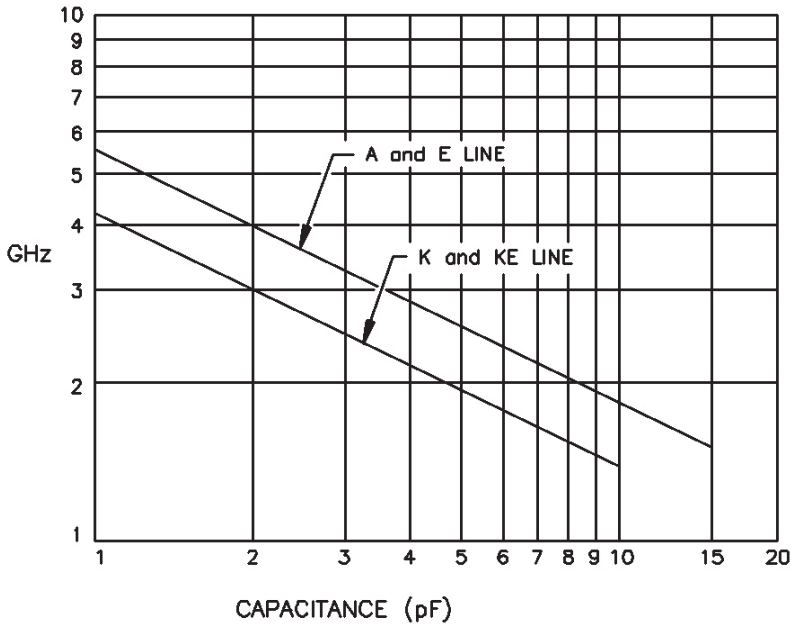


# GENERAL SPECIFICATIONS

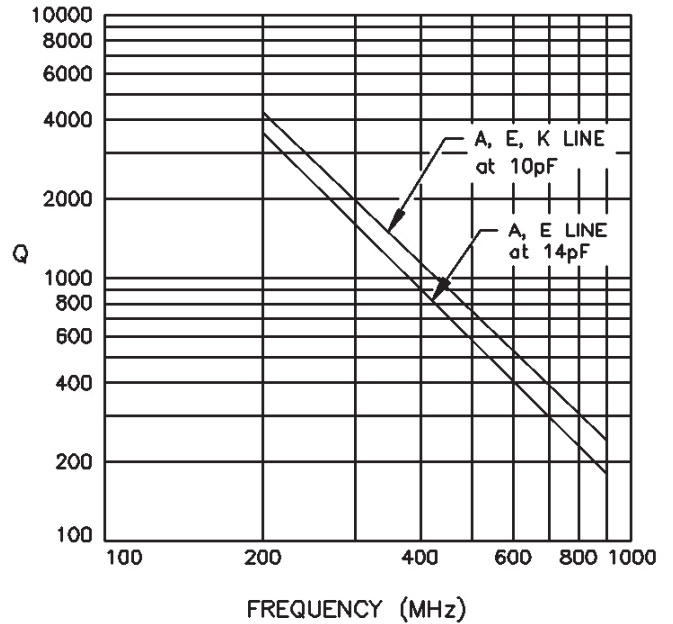
	"A" SERIES	"E" SERIES	"K" SERIES	"KE" SERIES
Temperature Coefficient	50 ± 50 ppm/°C	-50 ± 50 ppm/°C	50 ± 50 ppm/°C	-50 ± 50 ppm/°C
Insulation Resistance	10 <sup>6</sup> megohms	10 <sup>6</sup> megohms	10 <sup>6</sup> megohms	10 <sup>6</sup> megohms
Seal	40 pounds/in <sup>2</sup>	40 pounds/in <sup>2</sup>	40 pounds/in <sup>2</sup>	40 pounds/in <sup>2</sup>
MIL-C-14409 Qualified	YES	NO	NO	NO
DC Working Voltage	125 (14pF) 250 (5 & 10pF)	125 (14pF) 250 (5 & 10pF)	125 (10pF) 250 (8pF)	125 (10pF) 250 (8pF)
DC Withstanding Voltage	250 (14pF) 500 (5 & 10pF)	250 (14pF) 500 (5 & 10pF)	250 (140F) 500 (8pF)	250 (10pF) 500 (8pF)
Q at 100 MHz at Maximum rated C*	3000 (14pF) 5000 (5 & 10pF)	3000 (14pF) 5000 (5 & 10pF)	5000	5000
Operating Temperature	-65°C to + 125°C	-65 °C to + 125 °C	-65°C to + 125°C	-65°C to + 125°C
Rotational Life	10,000 turns	10,000 turns	10,000 turns	10,000 turns
Torque	0.5-5.0 in-oz	0.5-5.0 in-oz	0.5-5.0 in-oz	0.5-5.0 in-oz
Vibration	50g, 10-2000 Hz	50g, 10-2000 Hz	50g, 10-2000 Hz	50g, 10-2000 Hz
Shock	1500 g, 0.5 milliseconds.	1500 g, 0.5 milliseconds.	1500 g, 0.5 milliseconds.	1500 g, 0.5 milliseconds.
Drawing tolerances where not specified	XXX ± .005 XX ± .016	XXX ± .005 XX ± .016	XXX ± .005 XX ± .016	XXX ± .005 XX ± .016

\*Self-resonant frequency and Q are measured with no terminals on parts

SELF-RESONANT FREQUENCY



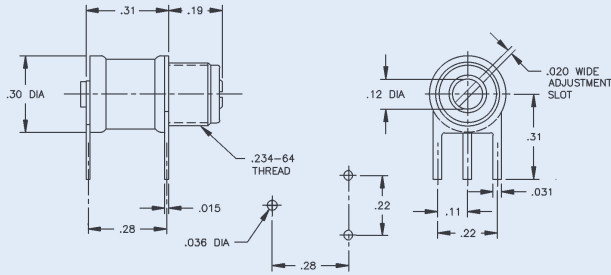
QUALITY FACTOR (Q)



Recommended Tuning Tool: TT-100 or TT-500

# "A" & "E" SERIES - Air Trimmer Capacitors

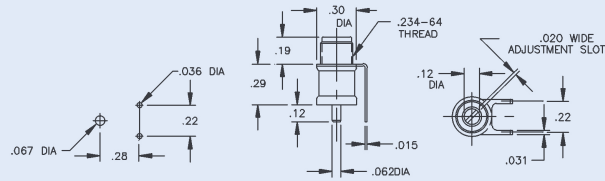
**FIG. 1**



**FIG. 1**

Part Number	MIL Designation	Capacitance (pF)	
		From Below	To Above
AP5		1.0	5.0
AP10	PC18L100	1.0	10.0
AP14	PC18L140	1.0	14.0
EP5		0.8	5.0
EP10		0.8	10.0
EP14		0.8	14.0

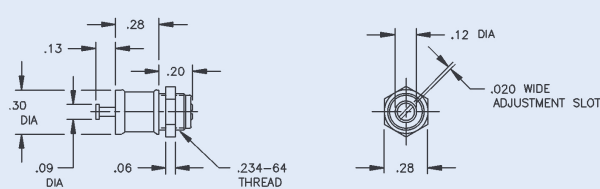
**FIG. 2**



**FIG. 2**

AF5		1.0	5.0
AF10	PC19L100	1.0	10.0
AF14	PC19L140	1.0	14.0
EF5		0.8	5.0
EF10		0.8	10.0
EF14		0.8	14.0

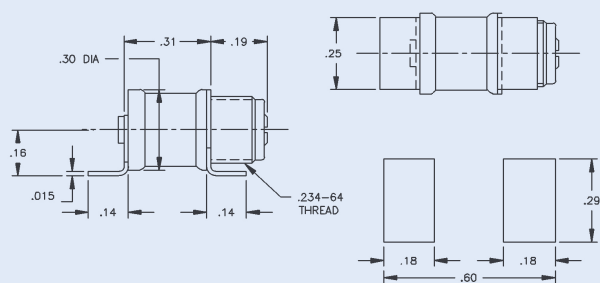
**FIG. 3**



**FIG. 3**

AT5		1.0	5.0
AT10	PC47L100	1.0	10.0
AT14	PC47L140	1.0	14.0
ET5		0.8	5.0
ET10		0.8	10.0
ET14		0.8	14.0

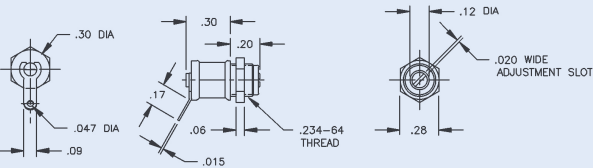
**FIG. 4**



**FIG. 4**

AJ5		1.0	5.0
AJ10	PC46L100	1.0	10.0
AJ14	PC46L140	1.0	14.0
EJ5		0.8	5.0
EJ10		0.8	10.0
EJ14		0.8	14.0

**FIG. 5**

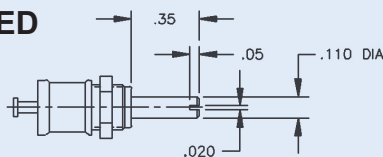


**FIG. 5**

AT5L		1.0	5.0
AT10L		1.0	10.0
AT14L		1.0	14.0
ET5L		0.8	5.0
ET10L		0.8	10.0
ET14L		0.8	14.0

NOTE: All bushing threads are .234"-64

## EXTENDED METAL SHAFT

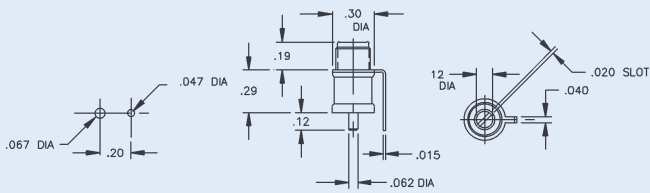


## EXTENDED SHAFT OPTIONS

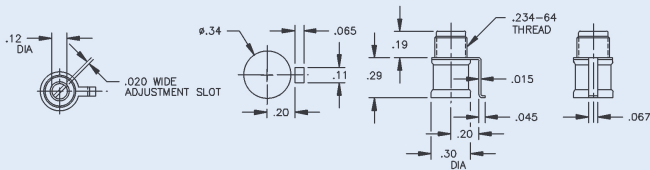
Extended Metal Shaft: Add "E" to Part Number, i.e., AT10E.

Extended Plastic Shaft: Add "EI" to Part Number, e.i., EF10EI. (Same as metal shaft except .44" by .16" dia.)

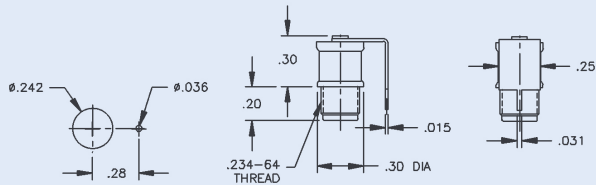
**FIG. 6**



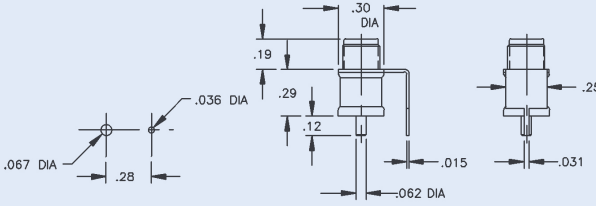
**FIG. 7**



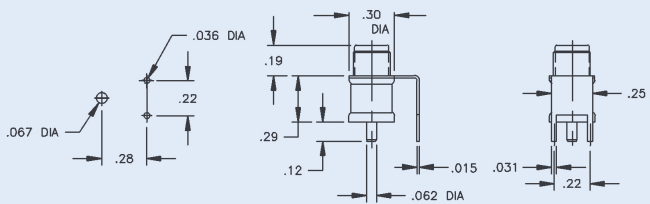
**FIG. 8**



**FIG. 9**

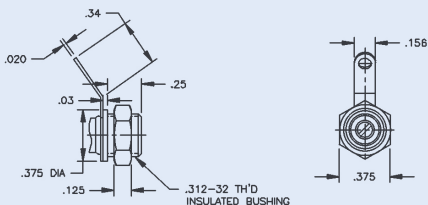


**FIG. 10**



**INSULATED BUSHING**

Insert "I" in Part Number, i.e., AIT10L



Part Number	Old Part Number	Capacitance (pF)	
		From Below	To Above

**FIG. 6**

AB5		1.0	5.0
AB10	V3116	1.0	10.0
AB14	V3117	1.0	14.0
EB5		0.8	5.0
EB10	V5051	0.8	10.0
EB14	V5105	0.8	14.0

**FIG. 7**

AM5		1.0	5.0
AM10		1.0	10.0
AM14		1.0	14.0
EM5		0.8	5.0
EM10		0.8	10.0
EM14		0.8	14.0

**FIG. 8**

AC5		1.0	5.0
AC10	V3067	1.0	10.0
AC14	V3066	1.0	14.0
EC5		0.8	5.0
EC10	V5086	0.8	10.0
EC14	V5139	0.8	14.0

**FIG. 9**

AD5		1.0	5.0
AD10	V3168	1.0	10.0
AD14	V3228	1.0	14.0
ED5		0.8	5.0
ED10	V5087	0.8	10.0
ED14	V5143	0.8	14.0

**FIG. 10**

AE5		1.0	5.0
AE10	V3239	1.0	10.0
AE14	V3193	1.0	14.0
EE5		0.8	5.0
EE10	V5146	0.8	10.0
EE14	V5147	0.8	14.0

<u>IN</u>	0.015	0.020	0.03	0.031	0.036	0.40	0.047	0.05	0.06	0.062	0.067	0.09
<u>MM</u>	0.38	0.51	0.76	0.79	0.91	1.02	1.19	1.27	1.52	1.57	1.70	2.29
<u>IN</u>	0.11	0.12	0.125	0.13	0.14	0.16	0.17	0.19	0.20	0.22	0.242	0.25
<u>MM</u>	2.79	3.05	3.18	3.30	3.56	4.06	4.32	4.83	5.08	5.59	6.15	6.35
<u>IN</u>	0.28	0.29	0.30	0.31	0.34	0.48						
<u>MM</u>	7.11	7.37	7.62	7.87	8.64	12.19						

# "K" & "KE" SERIES - Air Trimmer Capacitors

FIG. 1

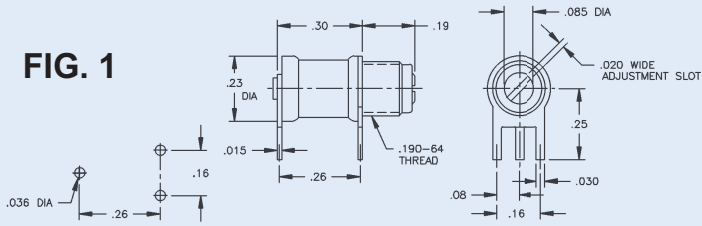


FIG. 2

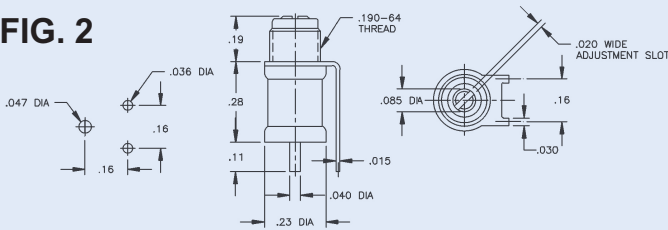


FIG. 3

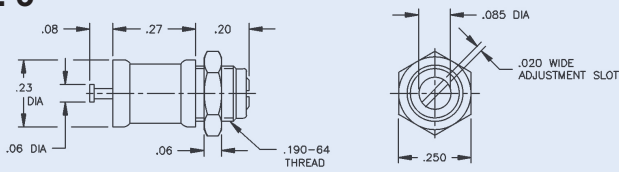


FIG. 4

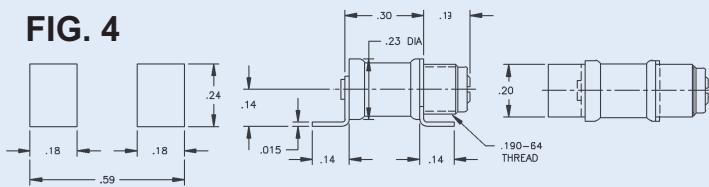


FIG. 5

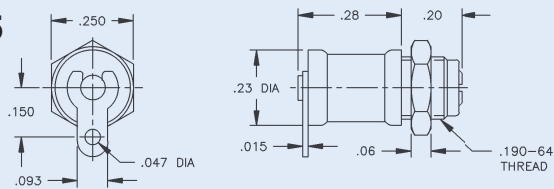


FIG. 6

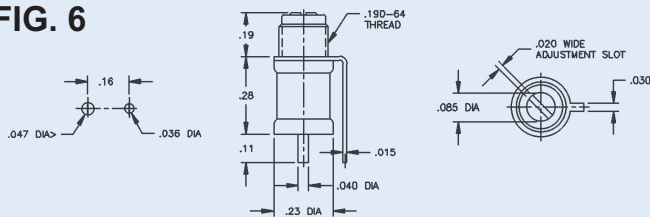
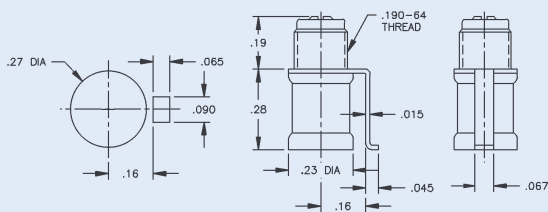


FIG. 7



Part Number		Capacitance (pF)	
"K" Series	"KE" Series	From Below	To Above

FIG. 1

KP8	KEP8	0.6	8.0
KP10	KEP10	0.6	10.0

FIG. 2

KF8	KEF8	0.6	8.0
KF10	KEF10	0.6	10.0

FIG. 3

KT8	KET8	0.6	8.0
KT10	KET10	0.6	10.0

FIG. 4

KJ8	KEJ8	0.6	8.0
KJ10	KEJ10	0.6	10.0

FIG. 5

KT8L	KET8L	0.6	8.0
KT10L	KET10L	0.6	10.0

FIG. 6

KG8	KEG8	0.6	8.0
KG10	KEG10	0.6	10.0

FIG. 7

KM8	KEM8	0.6	8.0
KM10	KEM10	0.6	10.0

IN	MM	IN	MM	IN	MM
0.015	0.38	0.080	2.03	0.230	5.84
0.030	0.76	0.093	2.36	0.240	6.10
0.036	0.91	0.110	2.79	0.250	6.35
0.040	1.02	0.140	3.56	0.260	6.60
0.045	1.14	0.150	3.81	0.270	6.86
0.060	1.52	0.160	4.06	0.280	7.11
0.065	1.65	0.180	4.57	0.300	7.62
0.067	1.70	0.190	4.83	0.590	14.99
0.070	1.78	0.200	5.08		

Recommended Tuning tool: TT-100 or TT-500

NOTE: All bushing threads are .190"-64

# Small Size - High Voltage with Options for Split Stator and Differential Tuning

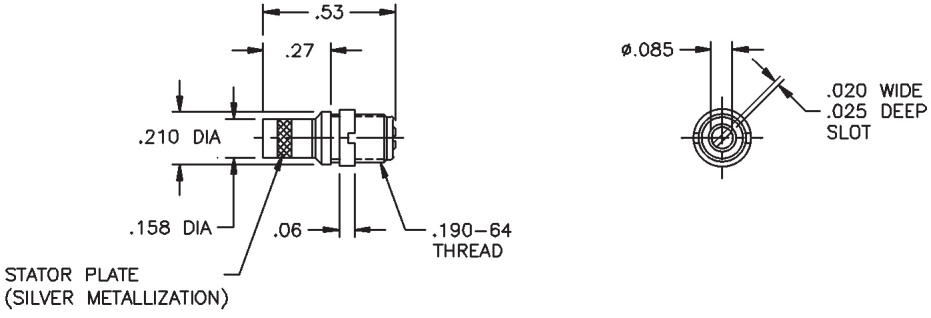
## GENERAL SPECIFICATIONS

Q at 100 MHz at maximum rated C	2000
Temperature Coefficient	50±50ppm/°C
Insulation Resistance	10 <sup>6</sup> megohms
Operating Temperature	-65 °C to +125 °C
Rotational Life	10,000 turns
Torque	0.5-5.0 in-oz
Vibration	50g, 10-2000Hz
Shock	1500g, 0.5 milliseconds
Drawing tolerances where not specified	xxx±.005 xx±.016

## STANDARD SAPPHIRE TRIMMERS

Part Number	KZ3	KZ7
Capacitance	0.3 to 3pF	0.6 to 7pF
DC Working Voltage	1500	1000
DC Withstanding Voltage	3000	2000

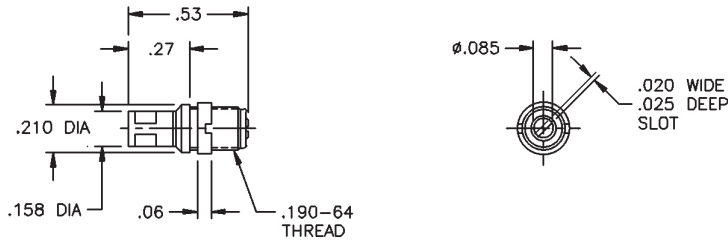
KZ3  
KZ7



## SPLIT STATOR SAPPHIRE TRIMMERS

Capacitance pF						
	Plate/Plate		Plate/Bushing		DC Working Voltage	DC Withstanding Voltage
	Min.	Max.	Min.	Max.		
<b>KZ2S</b>	0.3	1.0	0.3	2.0	2000	4000
<b>KZ3S</b>	0.3	1.5	0.3	3.0	2000	4000

**KZ2S  
KZ3S**



## DIFFERENTIAL SAPPHIRE TRIMMERS

Capacitance pF						
	C1		C2		DC Working Voltage	DC Withstanding Voltage
	Min.	Max.	Min.	Max.		
<b>KS3D</b>	1.0	3.0	1.0	3.0	1000	2000

**KS3D**

