

Glass and Quartz Trimmer Capacitors

General Specifications

DESIGN FEATURES

The unique Voltronics non-rotating precision trimmer capacitor design offers the following advantages over conventional rotating types:

- Linear tuning with no reversals
- A true high frequency device with high Q's, low RF losses, low constant inductance and high self-resonant frequencies
- A superior seal because the screw head and O-ring do not move in and out
- Greater life - 10,000 cycles minimum
- Much smaller sealed MIL sizes
- Ability to provide extended metal or plastic shafts

GENERAL SPECIFICATIONS (where not specified on detail pages)

PISTON ACTION

Non-rotating

BLIND HOLE TUNING

Screw head does not move in and out

LINEARITY

±1% with no capacitance reversals

RESOLUTION

#2-72 tuning screw or fine tuning - approximate picofarads per turn in active tuning range:

- | | |
|--------------------------------|------------|
| 1. Annular band glass | .6 to .8 |
| 2. Embedded band glass | 2.3 to 3.0 |
| 3. Quartz | .3 to .36 |
| 4. "H" Series high range glass | 3.9 to 4.2 |

INSULATION RESISTANCE

Annular band glass and quartz:

10⁶ Megohms at 25° C to 125° C

Embedded band glass: 10⁶ Megohms at 25° C

10⁵ Megohms at 125° C

TUNING TORQUE

1 to 8 inch ounces

LIFE

over 10,000 cycles

TEMPERATURE COEFFICIENT

Annular Band Glass: ±50 ppm/°C

Embedded Band Glass: ±150 ppm/°C

Quartz: 0 to +50 ppm/°C

DIELECTRIC WITHSTANDING VOLTAGE

Twice DC working voltage (listed with each part)

DIELECTRIC

The dielectric is a tube which has been precision drawn in a vacuum so that its inner diameter is held within +0.0002". The choices are:

1. **Annular Band Glass:** A solid tube of a specially selected formulation of glass which is metallized on the outside.
2. **Embedded Band Glass:** Two tubes of glass fired together with a metallized silver band embedded between them. The inner tube is only 0.005" thick to provide much higher capacitance values.
3. **Quartz:** A pure-grade silicon oxide offering higher Q and voltage ratings in each size with the trade-off of lower capacitance and higher cost.

CAPACITANCE TUNING RANGE

From below minimum to above maximum value listed for each part. Capacitance measured at 1 MHz on Boonton Electronics 7600 bridge using Voltronics V1265 guarded test jig. **All measurements taken with leads perpendicular to unit regardless of final configuration.**

TEMPERATURE RANGE

All glass dielectrics: -55 C to 125° C

Quartz dielectric: -55 C to 150° C

OTHER SPECIFICATIONS

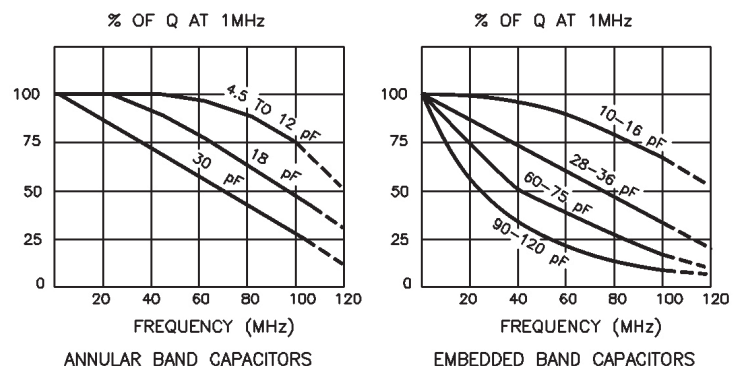
All other specifications including vibration, shock, moisture and seal (where applicable) per MIL-C-14409D

DRAWING TOLERANCES (WHERE NOT SPECIFIED)

Decimal: XXX ± .016"

XX ± .03"

QUALITY FACTOR



Recommended Tuning Tool: TT-100 or TT-600

"H" SERIES - Extended Range Glass Trimmer Capacitors

FIG. 1

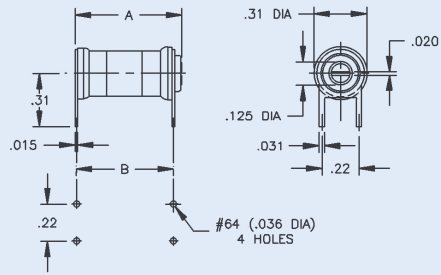


FIG. 2

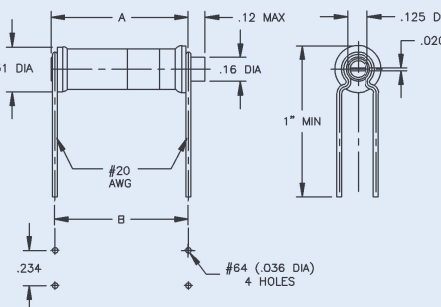


FIG. 3

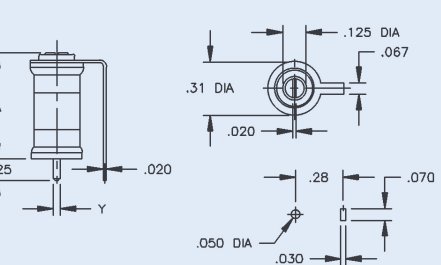


FIG. 4

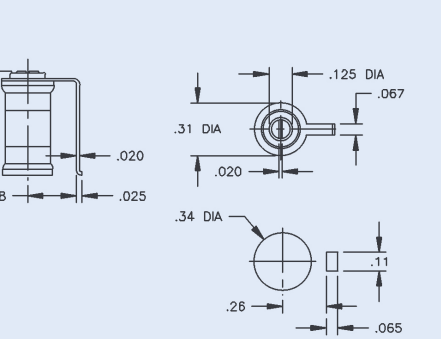
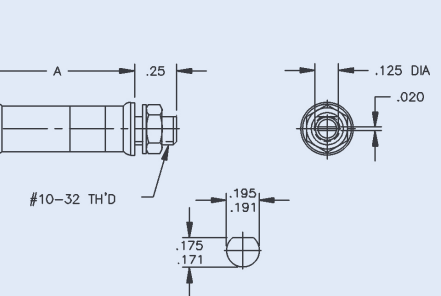


FIG. 5



The "H" Series increases the standard maximum capacitance values of Voltronics' glass trimmer capacitors by almost 100%. This is achieved by a new and unique technique which makes the wall of the inner glass tube thinner than was previously possible.

General specifications for the "H" Series are the same as those of standard embedded band glass trimmers (see Glass & Quartz General Specifications page) with the following exceptions:

- DC Working Voltage: 125
- Temperature Coefficient: $-150 \pm 150 \text{ ppm}/^\circ\text{C}$

**HORIZONTAL
PRINTED
CIRCUIT**

Type	Capacitance Range (pF)		Q (Min.) 1 MHz	Fig.	A \pm .06	B \pm .03
	From Below	To Above				
HSP19	2	19	1000	1	.37	.30
HSP34	2	34	900		.44	.37
HSP46	2	46	800		.52	.45
HSP64	2	64	700		.63	.56
HTP96C	2	96	600	2	.91	.88
HTP130C	2	130	500		1.16	1.13
HTP210C	2	210	350		1.75	1.73
HTP250C	2	250	250		1.98	1.95
					A \pm .03	

**VERTICAL
PRINTED
CIRCUIT**

HSF19	2	19	1000	3	.34	
HSF34	2	34	900		.41	
HSF46	2	46	800		.49	
HSF64	2	64	700		.60	

**SURFACE
MOUNT**

HSM19	2	19	1000	4	.34	
HSM34	2	34	900		.41	
HSM46	2	46	800		.49	
HSM64	2	64	700		.60	

**PANEL
MOUNT**

HTM19C	2	19	1000	5	.37	
HTM34C	2	34	900		.45	
HTM46C	2	46	800		.52	
HTM64C	2	64	700		.63	
HTM96C	2	96	600	5	.92	
HTM130C	2	130	500		1.17	
HTM210C	2	210	350		1.77	
HTM250C	2	250	250		2.00	

IN	0.005	0.015	0.020	0.030	0.031	0.036	0.040	0.050	0.06	0.067	0.070	0.12	0.125	0.16	0.171	0.175
MM	0.13	0.38	0.51	0.76	0.79	0.91	1.02	1.27	1.52	1.70	1.78	3.05	3.18	4.06	4.34	4.44
IN	0.191	0.195	0.22	0.234	0.25	0.28	0.30	0.31	0.34	0.37	0.41	0.44	0.45	0.49	0.52	0.56
MM	4.85	4.95	5.59	5.94	6.35	7.11	7.62	7.87	8.64	9.40	10.41	11.18	11.43	12.45	13.21	14.22
IN	0.60	0.63	0.88	0.91	0.92	1.00	1.13	1.16	1.17	1.73	1.75	1.77	1.95	1.98	2.00	
MM	15.24	16.00	22.35	23.11	23.37	25.40	28.70	29.46	29.72	43.94	44.45	44.96	49.53	50.29	50.80	

"S" SERIES - Smallest Sealed Glass MIL Trimmer Capacitors

Voltronics "S" Series are up to 40 % shorter with 25% more range than any other sealed standard glass P.C. trimmers. The use of Voltronics' unique non-rotating piston design provides linear tuning, high "Q", long life, and high self-resonant frequencies. The O-ring seal assures protection up to 40 p.s.i. against dust, moisture, flux, solder, and cleaning solvents.

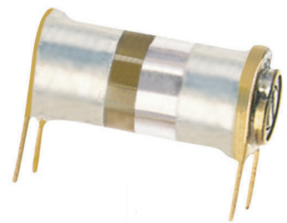


FIGURE 1

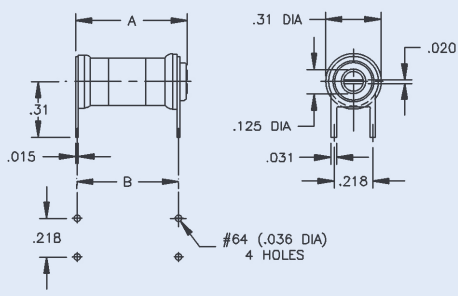


FIGURE 2

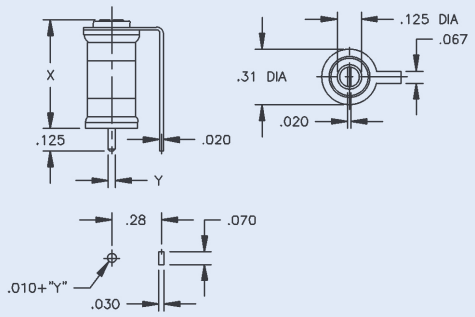
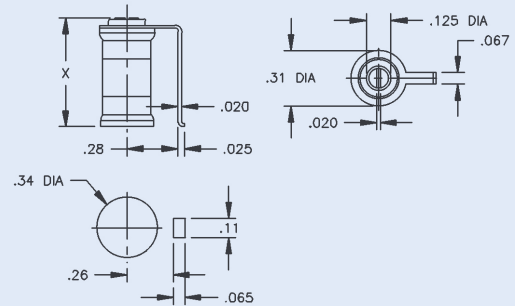


FIGURE 3



Dielectric	Capacitance Range (pF)		Q (Min.) at 1 MHz	Horizontal Mount Figure 1		Vertical Mount* Figure 2		Surface Mount Figure 3		
	From Below	To Above		Type	A ± .06	B ± .03	Type	X ± .03	Type	X ± .03
ANNULAR BAND GLASS	1.0	5.5	1000	SP6	.420	.350	SF6A	.390	SM6	.390
	1.0	8.5	650	SP8	.575	.505	SF8A	.535	SM8	.535
EMBEDDED BAND GLASS	1.5	10	800	SP10	.370	.300	SF10A	.34	SM10	.340
	1.5	20	800	SP20	.440	.370	SF20A	.410	SM20	.410
	1.5	30	800	SP30	.520	.450	SF30A	.490	SM30	.490
	1.5	40	800	SP40	.630	.560	SF40A	.600	SM40	.600

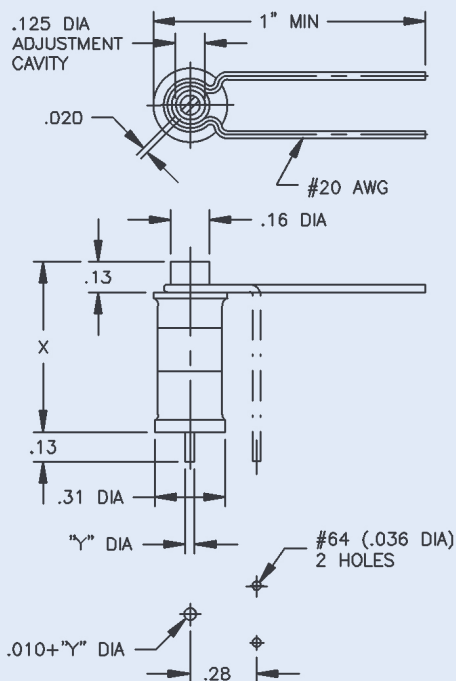
"Y" dimension-standard - .040". For non-standard, change "A" in type number to "B" for .063" or "C" for .093".
 *SF styles available with dual leads from top similar to AF styles on A & E Series page.

General specifications on "Glass & Quartz General Specifications" page apply except:

1. DC Working Voltage: 250
2. Tuning torque: 0.5 to 5 inch ounces
3. Tolerance: XXX ± .005

IN	MM	IN	MM
0.005	0.13	0.340	8.64
0.010	0.25	0.350	8.89
0.015	0.38	0.370	9.40
0.020	0.51	0.390	9.91
0.030	0.76	0.410	10.41
0.031	0.79	0.420	10.67
0.036	0.91	0.440	11.18
0.040	1.02	0.450	11.43
0.063	1.60	0.490	12.45
0.067	1.70	0.505	12.83
0.070	1.78	0.520	13.21
0.093	2.36	0.535	13.59
0.125	3.18	0.560	14.22
0.218	5.54	0.575	14.61
0.28	7.11	0.600	15.24
0.30	7.62	0.630	16.00
0.31	7.87		

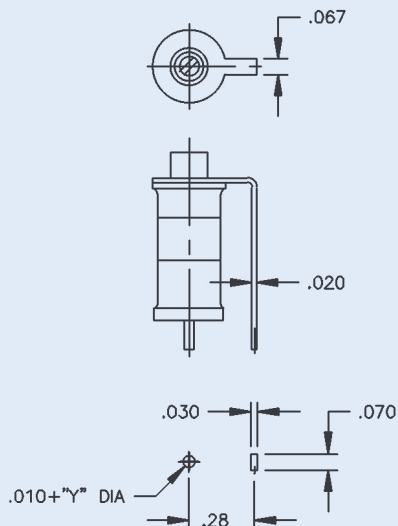
"TF" SERIES - Vertical P.C. Mount Glass Trimmer Capacitors



*1.25 in. on TF12, 17, 28, and 36 styles.

"Y" DIA: Standard units are .040. For different diameter pins substitute "B" - .063 or "C" - .093 for "A" in type number.

ALTERNATE DESIGN WITH RIBBON LEAD (add R to Type No.)



ANNULAR BAND

Type	Capacitance Range (pF)		X ± .03	Q (Min.) 1 MHz	DC Working Voltage
	From Below	To Above			
TF5A	0.8	4.5	.47	650	750
TF6A	0.8	5.5	.47	700	750
TF8A	1.0	8.5	.62	700	750
TF9A	0.8	8.5	.70	650	750
TF11A	1.0	11.0	.70	700	750
TF12A	0.8	12.0	.90	650	750
TF17A	0.8	16.0	.90	700	750

EMBEDDED BAND

Type	Capacitance Range (pF)		X ± .03	Q (Min.) 1 MHz	DC Working Voltage
	From Below	To Above			
TF10A	1.2	10.0	.43	800	500
TF14A	1.5	14.0	.53	700	1000
TF15A	1.2	16.0	.48	800	500
TF16A	1.0	16.0	.53	800	1000
TF22A	2.0	22.0	.58	800	500
TF25A	2.0	25.0	.58	800	500
TF28A	1.0	28.0	.77	700	1000
TF36A	1.0	36.0	.77	800	1000

For General Specifications, please see
"Glass & Quartz General Specifications" page.

<u>IN</u>	0.005	0.010	0.020	0.03	0.036	0.040	0.063	0.067	0.070	0.093	0.125	0.13	0.16	0.24
<u>MM</u>	0.13	0.25	0.51	0.76	0.91	1.02	1.60	1.70	1.78	2.36	3.18	3.30	4.06	6.10

<u>IN</u>	0.28	0.31	0.43	0.47	0.48	0.53	0.58	0.62	0.70	0.77	0.90	1.00	1.25
<u>MM</u>	7.11	7.87	10.92	11.94	12.19	13.46	14.73	15.75	17.78	19.56	22.86	25.40	31.75

"TM" & "QM" SERIES - Panel Mount Glass and Quartz Trimmer Capacitors

FIG. 1

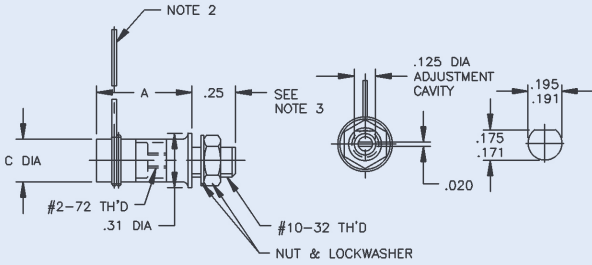


FIG. 2

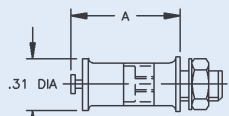


FIG. 3

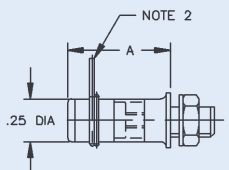
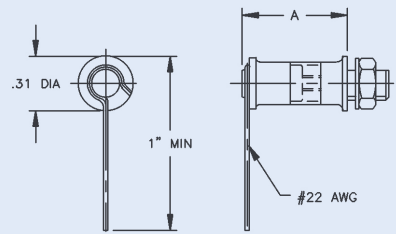


FIG. 4



NOTES:

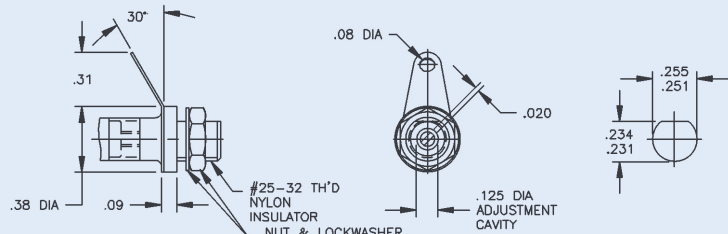
1. Fig. 2, 3 and 4 parts have same end view as Fig. 1.
2. All leads #22 AWG and 2" Min. long except for all TM5-, TM6-, TM10- and QM2- parts which are #24 AWG.
3. Mounting brushing #10-32 x .25 long except for all TM10- and TM15- parts which are #10-32 x .16 long.
4. C diameter of Fig. 1 parts .27 on embedded band units and .25 on all other parts.

Detailed General Specifications on "Glass & Quartz General Specifications" page

IN	MM
0.005	0.13
0.016	0.41
0.020	0.51
0.03	0.76
0.045	1.14
0.08	2.03
0.09	2.29
0.12	3.05
0.125	3.18
0.160	4.06
0.171	4.34
0.175	4.44
0.191	4.85
0.195	4.95
0.230	5.84
0.234	5.94
0.25	6.35
0.251	6.38
0.255	6.48
0.27	6.86
0.28	7.11
0.30	7.62
0.31	7.87
0.33	8.38
0.35	8.89
0.36	9.14
0.37	9.40
0.38	9.65
0.40	10.16
0.41	10.41
0.42	10.67
0.45	11.43
0.47	11.94
0.50	12.70
0.52	13.21
0.55	13.97
0.59	14.99
0.61	15.49
0.63	16.00
0.69	17.53
0.70	17.78
0.75	19.05
0.81	20.57
0.83	21.08
0.91	23.11
0.92	23.37
0.98	24.89
1.00	25.40
1.06	26.92
1.08	27.43
1.09	27.69
1.13	28.70
1.16	29.46
1.17	29.72
1.22	30.99
1.59	40.39
1.66	42.16
1.67	42.42
1.69	42.93
1.75	44.45
1.77	44.96
1.91	48.51
1.98	50.29
2.00	50.80

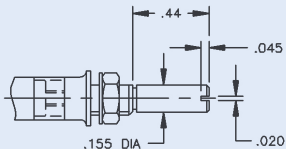
Optional Configurations

INSULATED BUSHING



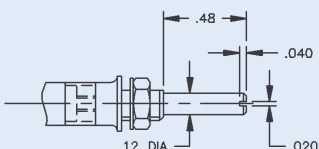
Insert "I" Between "T" and "M" in Type Number (i.e. TIM9C)

EXTENDED PLASTIC SHAFT



Add "EI" to End of Type Number (i.e. TM9EI)

EXTENDED METAL SHAFT



Add "E" to End of Type Number (i.e. TM9CE)

"TM" & "QM" SERIES - Panel Mount Glass and Quartz Trimmer Capacitors

GLASS ANNULAR BAND

Capacitance Range (pF)		Q (Min.) 1 MHz	UNSEALED 750 DC Working Voltage (Fig. 1)			SEALED, METAL CAP, TURRET TERMINAL 750 DC Working Voltage (Fig. 2)		SEALED, GLASS END, 1,250 DC Working Voltage (Fig. 3)		
From Below	To Above		A ± .03	Type	MIL Designation	A ± .03	Type	A ± .03	Type	MIL Designation
0.8	4.5	650	.31	TM5	PC40J4R5**	.41	TM5C	.36	TM5G	PC38J4R5**
0.8	5.5	700	.31	TM6	PC50J5R5	.41	TM6C	.36	TM6G	PC48J5R5
0.8	8.5	650	.55	TM9	PC40JIR5**	.63	TM9C	.59	TM9G	PC38J8R5**
1.0	11.0	700	.55	TM11	PC50J110	.63	TM11C	.59	TM11G	PC48J110
0.8	12.0	650	.75	TM12	PC40H120**	.83	TM12C	.81	TM12G	PC38H120**
0.8	16.0	700	.75	TM17	PC50H160	.83	TM17C	.81	TM17G	PC48H160
0.8	18.0	650	1.00	TM18	PC40H180**	1.09	TM18C	1.06	TM18G	PC38H180**
0.8	21.0	700	1.13	TM21	--	1.22	TM21C	--	--	--
0.8	23.0	700	1.00	TM23	PC50H230	1.09	TM23C	1.06	TM23G	PC48H230
0.8	30.0	650	1.59	TM30	PC40H300**	1.69	TM30C	1.66	TM30G	PC38H300**
0.8	38.0	700	1.59	TM38	PC50H380	1.69	TM38C	1.66	TM38G	PC48H380

GLASS EMBEDDED BAND

Capacitance Range (pF)		Q (Min.) 1 MHz	UNSEALED 1,000 DC Working Voltage (Fig. 1)		SEALED, METAL CAP, TURRET TERMINAL 1,000 DC Working Voltage (Fig. 2)			SEALED, METAL CAP 1,000 DC Working Voltage (Fig. 4)	
From Below	To Above		A ± .03	Type	A ± .03	Type	MIL Designation	A ± .03	Type
2.0	10.0	800	.28	TM10*	.37	TM10C*	--	.35	TM10M*
1.5	14.0	700	.38	TM14	.47	TM14C	--	.45	TM14M
1.2	16.0	800	.33	TM15*	.42	TM15C*	--	.40	TM15M*
1.0	16.0	800	.38	TM16	.47	TM16C	PC39G160	.45	TM16M
2.0	25.0	800	.42	TM25	.52	TM25C	--	.50	TM25M
1.0	28.0	700	.61	TM28	.70	TM28C	--	.69	TM28M
1.0	36.0	800	.61	TM36	.70	TM36C	PC39G360	.69	TM36M
1.0	42.0	700	.83	TM42	.92	TM42C	--	.91	TM42M
1.0	52.0	800	.83	TM52	.92	TM52C	PC39G520	.91	TM52M
1.0	60.0	650	1.08	TM60	1.17	TM60C	--	1.16	TM60M
3.0	75.0	700	1.08	TM75	1.17	TM75C	PC39G750	1.16	TM75M
1.0	90.0	600	1.67	TM90	1.77	TM90C	--	1.75	TM90M
1.0	120.0	600	1.67	TM120	1.77	TM120C	PC39G121	1.75	TM120M
2.0	180.0	500	1.91	TN180*	2.00	TM180C*	--	1.98	TM180M*

QUARTZ

Capacitance Range (pF)		Q (Min.) 1 MHz	UNSEALED 750 DC Working Voltage (Fig. 1)			SEALED, QUARTZ END, 1,250 DC Working Voltage (Fig. 3)		
From Below	To Above		A ± .03	Type	MIL Designation	A ± .03	Type	MIL Designation
0.6	1.8	2000	.30	QM2	PC40Q1R8	.36	QM2G	PC38Q1R5
0.8	5.5	2000	.55	QM6	PC40Q5R5	.63	QM6G	PC38Q5R5
0.6	9.5	2000	.98	QM10	PC40Q9R5	1.06	QM10G	PC38Q9R5
0.8	16.0	2000	1.59	QM16	PC40Q160	1.66	QM16G	PC38Q160

*Parts Rated 500 DC Working Voltage

**MIL-C-14409B parts not listed in MIL-C-14409D

"TP" & "QP" SERIES - Horizontal P.C. Mount Glass and Quartz Trimmer Capacitors

FIG. 1

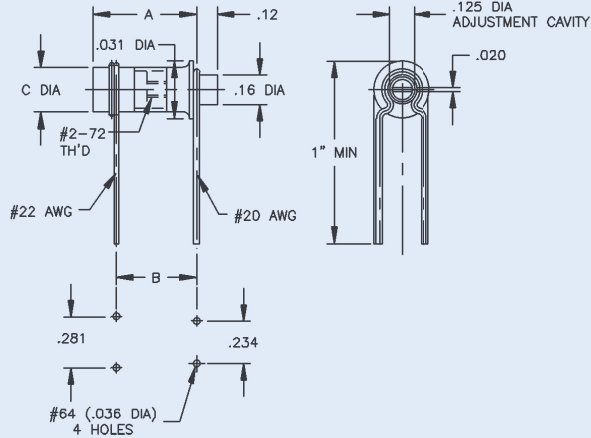


FIG. 2

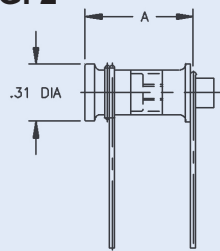


FIG. 3

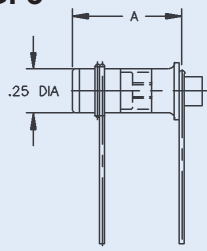
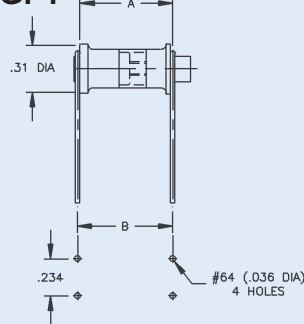


FIG. 4



NOTES:

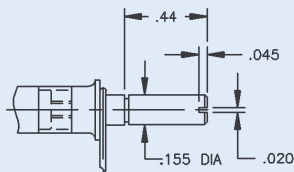
1. All Fig. 2 thru Fig. 4 parts have same end view as Fig. 1. Fig's 2 and 3 have mounting dimensions of Fig. 1.
2. C diameter of Fig. 1 parts .27 for embedded band and .25 on all other parts.

Detailed General Specifications on "Glass & Quartz General Specifications" page

IN	MM	IN	MM
0.005	0.13	0.92	23.37
0.020	0.51	0.97	24.64
0.03	0.76	1.00	25.40
0.036	0.91	1.02	25.91
0.040	1.02	1.03	26.16
0.045	1.14	1.05	26.67
0.06	1.52	1.08	27.43
0.08	2.08	1.09	27.69
0.12	3.05	1.13	28.70
0.125	3.18	1.14	28.96
0.14	3.56	1.16	29.46
0.16	4.06	1.17	29.73
0.17	4.32	1.19	30.23
0.234	5.94	1.33	33.78
0.25	6.35	1.38	35.05
0.27	6.86	1.42	36.07
0.28	7.11	1.47	37.34
0.281	7.14	1.52	38.61
0.31	7.87	1.61	40.89
0.33	8.38	1.64	41.66
0.35	8.89	1.67	42.42
0.36	9.14	1.69	42.93
0.38	9.65	1.73	43.94
0.39	9.91	1.75	44.45
0.41	10.41	1.92	48.77
0.42	10.67	1.95	49.53
0.44	11.18	1.98	50.29
0.45	11.43	2.03	51.56
0.47	11.94		
0.50	12.70		
0.56	14.22		
0.58	14.73		
0.60	15.24		
0.61	15.49		
0.63	16.00		
0.64	16.26		
0.67	17.02		
0.69	17.53		
0.70	17.78		
0.73	18.54		
0.77	19.56		
0.78	19.81		
0.83	21.08		
0.84	21.34		
0.88	22.35		
0.89	22.61		
0.91	23.11		

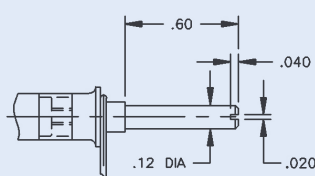
Optional Configurations

EXTENDED PLASTIC SHAFT



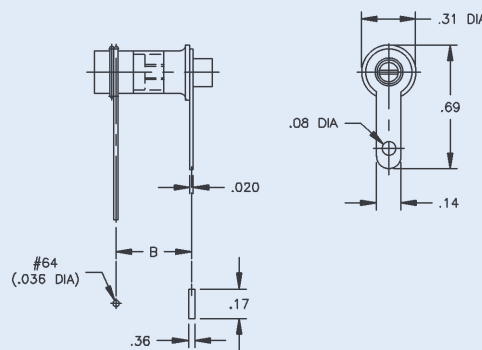
Add "EI" to Type Number
(i.e. TP9CEI)

EXTENDED METAL SHAFT



Add "E" to Type Number
(i.e. TP9E)

PRINTED CIRCUIT LUG



Add "L" to Type Number
(i.e. TP28L)

"TP" & "QP" SERIES - Horizontal P.C. Mount Glass and Quartz Trimmer Capacitors

GLASS ANNULAR BAND

Capacitance Range (pF)		Q (Min.) 1 MHz	UNSEALED 750 DC Working Voltage (Fig. 1)				SEALED, METAL CAP, 750 DC Working Voltage (Fig. 2)			SEALED, GLASS END, 1,250 DC Working Voltage						
From Below	To Above		A±.03	B±.03	Type	MIL Designation	A±.03	B±.03	Type	SMALLER (Fig. 3)			LARGER MILL SIZE (Fig. 3)			
									A±.03	B±.03	Type	A±.06	B±.03	Type	MIL Designation	
0.8	4.5	650	.31	.25	TP5	PC41J4R5**	--	--	--	.39	.25	TP5G	.63	.50	TP5GA	PC42J4R5**
0.8	5.5	700	.31	.25	TP6	PC51J5R5	--	--	--	.39	.25	TP6G	.59	.50	TP6GA	PC52J5R5
0.8	8.5	650	.55	.44	TP9	PC41JIR5**	.58	.44	TP9C	.61	.44	TP9G	.88	.70	TP9GA	PC42J8R5**
1.0	11.0	700	.55	.44	TP11	PC51J110	.58	.44	TP11C	.61	.44	TP11G	.84	.70	TP11GA	PC52J110
0.8	12.0	650	.75	.63	TP12	PC41H120**	.78	.63	TP12C	.83	.63	TP12G	1.08	.84	TP12GA	PC42H120**
0.8	16.0	700	.75	.63	TP17	PC51H160	.78	.63	TP17C	.83	.63	TP17G	1.05	.84	TP17GA	PC52H160
0.8	18.0	650	1.00	.88	TP18	PC41H180**	1.05	.88	TP18C	1.08	.88	TP18G	1.33	1.02	TP18GA	PC42H180**
0.8	21.0	700	1.13	1.00	TP21	--	1.17	1.00	TP21C	--	--	TP21G	--	--	--	--
0.8	23.0	700	1.00	.88	TP23	PC51H230	1.05	.88	TP23C	1.08	.88	TP23G	1.30	1.02	TP23GA	PC52H230
0.8	30.0	650	1.59	1.38	TP30	PC41H300**	1.64	1.38	TP30C	1.67	1.38	TP30G	1.92	1.47	TP30GA	PC42H300**
0.8	38.0	700	1.59	1.38	TP38	PC51H380	1.64	1.38	TP38C	1.67	1.38	TP38G	1.89	1.47	TP38GA	PC52H380

GLASS EMBEDDED BAND

Capacitance Range (pF)		Q (Min.) 1 MHz	UNSEALED 1,000 DC Working Voltage (Fig. 1)			SEALED, METAL CAP, 1,000 DC Working Voltage SMALLER (Fig. 4)			SEALED, METAL CAP 1,000 DC Working Voltage LARGER MILL SIZE (Fig. 4)			
From Below	To Above		A±.03	B±.06	Type	A±.03	B±.06	Type	A±.03	B±.06	Type	MIL Designation
2.0	10.0	800	.28	.25	TP10*	.35	.33	TP10C*	--	--	--	--
1.5	14.0	700	.39	.33	TP14	.45	.42	TP14C	.73	.69	TP14CA	--
1.2	16.0	800	.33	.28	TP15*	.41	.39	TP15C*	--	--	--	--
1.0	16.0	800	.39	.33	TP16	.45	.42	TP16C	.72	.69	TP16CA	PC43G160
2.0	25.0	800	.44	.36	TP25	.50	.47	TP25C	--	--	--	--
1.0	28.0	700	.63	.50	TP28	.70	.67	TP28C	.97	.92	TP28CA	--
1.0	36.0	800	.63	.50	TP36	.70	.67	TP36C	.97	.92	TP36CA	PC43G360
1.0	42.0	700	.84	.73	TP42	.91	.88	TP42C	1.19	1.14	TP42CA	--
1.0	52.0	800	.84	.73	TP52	.91	.88	TP52C	1.19	1.14	TP52CA	PC43G520
1.0	60.0	650	1.09	.91	TP60	1.16	1.13	TP60C	1.42	1.38	TP60CA	--
3.0	75.0	700	1.09	.91	TP75	1.16	1.13	TP75C	1.42	1.38	TP75CA	PC43G750
1.0	90.0	600	1.69	1.52	TP90	1.75	1.73	TP90C	2.03	1.98	TP90CA	--
1.0	120.0	600	1.69	1.52	TP120	1.75	1.73	TP120C	2.03	1.98	TP120CA	PC43G121
2.0	180.0	500	1.92	1.73	TP180*	1.98	1.95	TP180C*	--	--	--	--

QUARTZ

Capacitance Range (pF)		Q (Min.) 1 MHz	UNSEALED, 750 DC Working Voltage (Fig. 1)				SEALED, QUARTZ END, 1,250 DC Working Voltage						
From Below	To Above		A±.03	B±.03	Type	MIL Designation	SMALLER (Fig. 3)			LARGER MILL SIZE (Fig. 3)			
						A±.03	B±.03	Type	A±.03	B±.06	Type	MIL Designation	
0.8	1.8	2000	.31	.25	QP2	PC41Q1R8	.38	.25	QP2G	.63	.50	QP2GA	PC42Q1R5
0.6	5.5	2000	.56	.44	QP6	PC41Q5R5	.64	.44	QP6G	.89	.70	QP6GA	PC42Q5R5
0.6	9.5	2000	1.00	.88	QP10	PC41Q9R5	1.09	.88	QP10G	1.33	1.02	QP10GA	PC42Q9R5
0.8	16.0	2000	1.61	1.38	QP16	PC41Q160	1.69	1.38	QP16G	1.92	1.47	QP16GA	PC42Q160

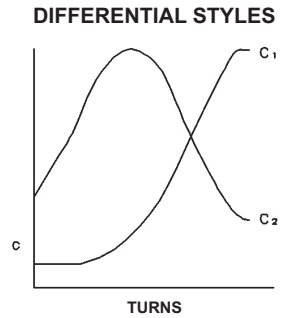
*Parts Rated 500 DC Working Voltage

**MIL-C-14409B parts not listed in MIL-C-14409D

Differential Glass Trimmers

	Fig.	Capacitance (pF)				A	B	C
		Min. (1)	Min. (2)	Max. (1) (2)	Typical Crossover			
TM3D	1	1.5	2.0	3	2.4	.31	-	.09
TM8D	1	1.5	2.5	8	5.5	.55	-	.22
TM12D	1	1.5	3.0	12	7.7	.75	-	.31
TM16D	1	1.5	3.5	16	10.1	.94	-	.41
TM28D	1	1.5	5.0	26	16.0	1.44	-	.66
TP3D	2	1.5	2.0	3	2.4	.31	.28	.09
TP8D	2	1.5	2.5	8	5.5	.55	.45	.22
TP12D	2	1.5	3.0	12	7.7	.75	.61	.31
TP16D	2	1.5	3.5	16	10.1	.94	.75	.41
TP28D	2	1.5	5.0	28	16.0	1.44	1.13	.66

For a differential trimmer capacitor, the capacitance of one element increases while the other element decreases, with the sum remaining approximately constant.



NOTE: For sealed versions, add "G" to part number, i.e., TM8DG. The "A" dimension will be 0.11" longer.

FIG 1.

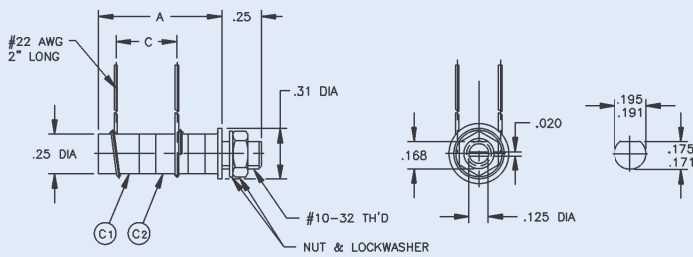
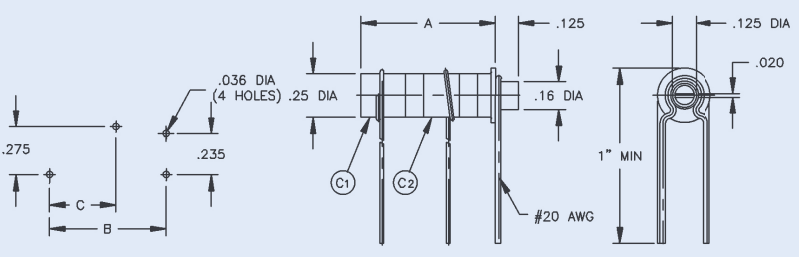


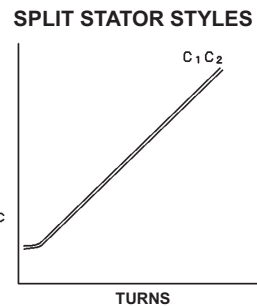
FIG 2.



Split Stator Glass Trimmers

	Fig.	Capacitance (pF)				A	B
		Plate/Plate		Plate/Bushing			
		Min.	Max.	Min.	Max.		
TM4S	1	0.8	2.0	0.8	4.2	.55	-
TM9S	1	1.5	4.5	0.8	9.0	1.02	-
TM14S	1	2.0	7.0	1.0	14.0	1.61	-
TP4S	2	0.8	2.0	0.8	4.2	.55	.47
TP9S	2	1.5	4.5	0.8	9.0	1.02	.91
TP14S	2	2.0	7.0	1.0	14.0	1.67	1.53

Both elements of a split stator trimmer tune at approximately the same rate.



NOTE: For sealed versions, add "G" to part number, i.e., TM4SG. The "A" dimension will be 0.11" longer.

FIG 1.

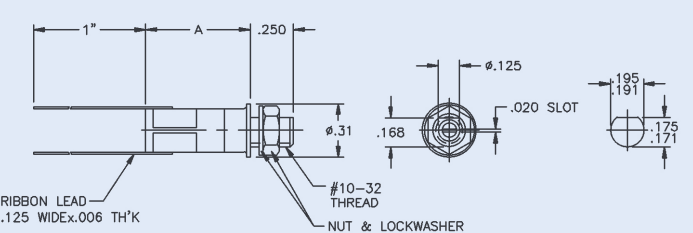
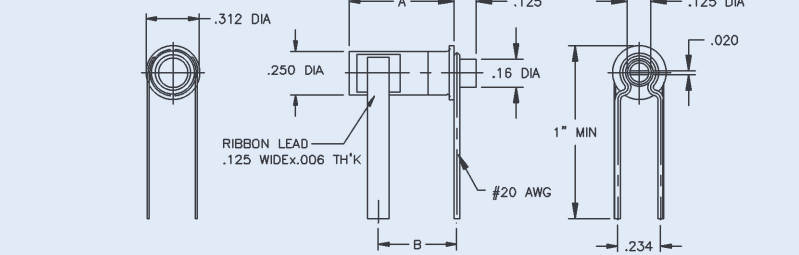


FIG 2.



IN	0.006	0.020	0.090	0.125	0.160	0.167	0.171	0.175	0.191	0.195	0.220	0.234	0.235	0.250	0.275	0.280	0.310
MM	0.15	0.51	2.29	3.18	4.06	4.24	4.34	4.45	4.85	4.95	5.59	5.94	5.97	6.35	6.99	7.11	7.87
IN	0.312	0.410	0.450	0.470	0.550	0.610	0.660	0.750	0.910	0.940	1.000	1.020	1.130	1.440	1.530	1.610	2.000
MM	7.92	10.41	11.43	11.93	13.97	15.49	16.76	19.05	23.11	23.88	25.40	25.91	28.70	36.58	38.86	40.89	50.80

General specifications on "Glass and Quartz General Specifications" page apply except:

1. DC Working Voltage: 500
2. Temperature coefficient: 0±100 ppm/°C