

Temperature test report

(1) Temperature Test



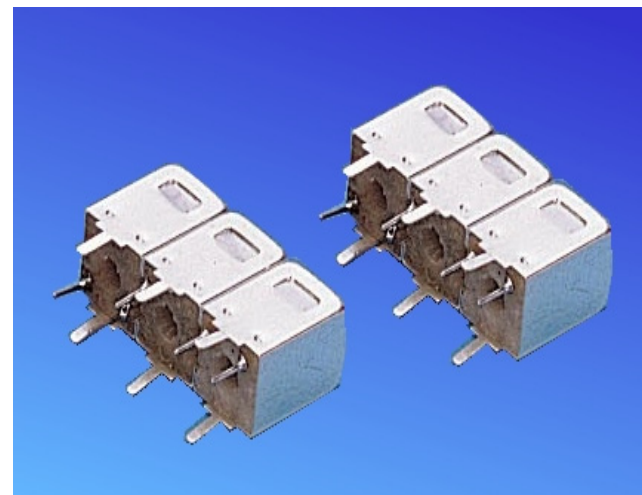
Testing Organization:
Temwell Corporation



Testing Machine:
Temperature & Humidity Tester Chamber
THS-A4C-100 STD

Testing Specification:
Operation Temperature: - 30°C ~ + 70°C
Storage Temperature: - 30°C ~ + 80°C

(2) Test subject:



Item:

Helical Band Pass Filter 7H3 Series

1. TT6774TB-465.39M
2. TT6755D-140.23M
3. TT67101D-468M
4. TT67133A-880.84M

Require:

Operation Temperature: - 30°C ~ + 70°C
Storage Temperature: - 30°C ~ + 80°C

(3) Testing and test result:

Part number 1

TT6774TB-465.39M

Electrical Characteristics Spec. Approval Sheet

Parts Name : TT6774TB-465.39M (Triple Tuning)

Date : MAR.10.2005

(1) For -30~+70°C Temperature ΔF Draft vs. Spec's Approval.

Items	Temp °C	Time Age Hour	Fo MHz	BW(MHz) Fo to ~ -(-3dB)	BW(MHz) Fo to ~ +(-3dB)	Total -3BW (MHz)	IL (dB)	R.L. S11 (dB)	Atten. Fo-100M (dB)	Atten. Fo+100M (dB)	Pass
SPEC	-30~+70°C	--	465.39	> 10.0	> 10.0	> 20.0	< 2.5	> 12.0	>30.0	>40.0	Pass

	Temp °C	Time Age Hour	Fo MHz	BW(MHz) Fo to ~ -(-3dB)	BW(MHz) Fo to ~ +(-3dB)	Total -3BW (MHz)	IL (dB)	R.L. S11 (dB)	Atten. Fo-100M (dB)	Atten. Fo+100M (dB)	Pass
f1	-30°C	1.5H	465.39	13.46	15.34	28.80	0.84	21.39	35.51	46.80	Pass
f2	-20°C	0.5 H	465.39	13.59	15.21	28.80	0.85	21.33	35.57	46.54	Pass
f3	-10°C	0.5 H	465.39	13.79	15.01	28.80	0.90	21.53	35.65	46.41	Pass
f4	+0°C	0.5 H	465.39	13.93	14.81	28.74	0.94	21.69	35.74	46.36	Pass
f5	+10°C	0.5 H	465.39	14.06	14.67	28.73	0.95	21.81	35.81	46.30	Pass
f6	+25°C	0.5 H	465.39	14.33	14.34	28.67	1.02	21.95	35.91	46.09	Pass
f7	+40°C	0.5 H	465.39	14.59	14.01	28.60	1.10	21.50	36.10	45.86	Pass
f8	+50°C	0.5 H	465.39	14.79	13.74	28.53	1.15	21.04	36.23	45.79	Pass
f9	+60°C	0.5 H	465.39	15.39	13.01	28.40	1.24	19.80	36.50	45.28	Pass
f10	+70°C	0.5 H	465.39	15.66	12.74	28.40	1.28	19.59	36.57	45.17	Pass
f11	+80°C	0.5 H	465.39	15.86	12.41	28.27	1.31	19.54	36.66	44.83	Note

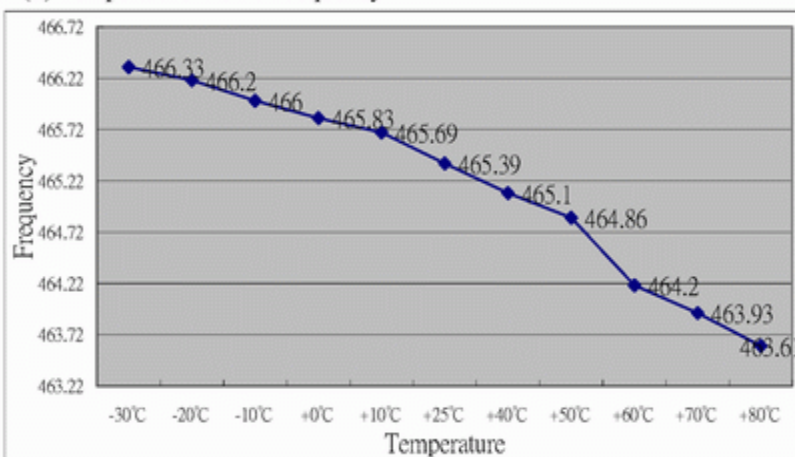
Note : The aging test data at +80°C is just only for your kind reference.

Temperature Aging Test Report

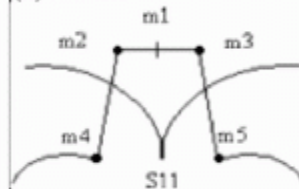
(2) Temperature & Time Process & Fo Frequency

	Temp °C	Time Age Hour	Δf%(MHz)		Fo MHz	At -3dB MHz	At -3dB MHz	-3BW MHz	IL (dB)	S11 (dB)	Atten. Fo-100M (dB)	Atten. Fo+100M (dB)
			Temp. Draft (-30~+70°C)	< Fo×0.5% (Tolerance)								
f1	-30°C	1.5H	0.201%	(0.94M)	466.33	451.93	480.73	28.80	0.85	22.14	35.51	46.80
f2	-20°C	0.5H	0.174%	(0.81M)	466.20	451.80	480.60	28.80	0.88	21.88	35.57	46.54
f3	-10°C	0.5H	0.131%	(0.61M)	466.00	451.60	480.40	28.80	0.89	21.83	35.65	46.41
f4	+0°C	0.5H	0.094%	(0.44M)	465.83	451.46	480.20	28.74	0.94	21.77	35.74	46.36
f5	+10°C	0.5H	0.064%	(0.30M)	465.69	451.33	480.06	28.73	0.96	21.73	35.81	46.30
f6	+25°C	0.5H	0.000%	(0.00M)	465.39	451.06	479.73	28.67	1.03	21.74	35.91	46.09
f7	+40°C	0.5H	0.062%	(0.29M)	465.10	450.80	479.40	28.60	1.11	21.41	36.10	45.86
f8	+50°C	0.5H	0.113%	(0.53M)	464.86	450.60	479.13	28.53	1.15	21.17	36.23	45.79
f9	+60°C	0.5H	0.255%	(1.19M)	464.20	450.00	478.40	28.40	1.24	20.61	36.50	45.28
f10	+70°C	0.5H	0.313%	(1.46M)	463.93	449.73	478.13	28.40	1.31	20.61	36.57	45.17
f11	+80°C	0.5H	0.466%	(2.08M)	463.61	449.53	477.80	28.27	1.32	20.73	36.66	44.83

(3) Temperature VS Fo Frequency



(4) Makers



(5) HP-8714E Temperature Chamber



Result

PASS

Electrical Characteristics Spec. Approval Sheet

Parts Name : TT6755D-140.23M (Triple Tuning)

Date : MAR.17.2005

(1) For -30°C~+70°C Temperature ΔF Draft vs. Spec's Approval.

Items	Temp °C	Time Age Hour	Fo MHz	BW(MHz) Fo to ~ -(-3dB)	BW(MHz) Fo to ~ +(-3dB)	Total -3BW (MHz)	IL (dB)	R.L. S11 (dB)	Atten. Fo-30M (dB)	Atten. Fo+30M (dB)	Pass
SPEC	-30°C~+70°C	--	140.23	>2.25	>2.25	>4.50	<5.00	>12.00	>30.00	>25.00	Pass

	Temp °C	Time Age Hour	Fo MHz	BW(MHz) Fo to ~ -(-3dB)	BW(MHz) Fo to ~ +(-3dB)	Total -3BW (MHz)	IL (dB)	R.L. S11 (dB)	Atten. Fo-30M (dB)	Atten. Fo+30M (dB)	Pass
f1	-30°C	1.5 H	140.23	2.67	3.21	5.88	3.35	28.04	34.68	27.79	Pass
f2	-20°C	0.5 H	140.23	2.69	3.17	5.86	3.47	28.34	34.62	27.93	Pass
f3	-10°C	0.5 H	140.23	2.75	3.11	5.86	3.55	28.73	34.50	28.10	Pass
f4	+0°C	0.5 H	140.23	2.81	3.07	5.88	3.69	29.09	34.33	28.27	Pass
f5	+10°C	0.5 H	140.23	2.85	3.03	5.88	3.75	29.35	34.25	28.43	Pass
f6	+25°C	0.5 H	140.23	2.95	2.95	5.90	3.86	30.24	34.00	28.62	Pass
f7	+40°C	0.5 H	140.23	3.03	2.83	5.86	4.09	31.16	33.77	28.92	Pass
f8	+50°C	0.5 H	140.23	3.09	2.79	5.88	4.22	31.44	33.66	29.11	Pass
f9	+60°C	0.5 H	140.23	3.37	2.49	5.86	4.54	31.69	32.90	29.89	Pass
f10	+70°C	0.5 H	140.23	3.33	2.53	5.86	4.58	32.38	33.01	29.79	Pass
f11	+80°C	0.5 H	140.23	3.43	2.43	5.86	4.72	31.14	32.72	30.08	Note

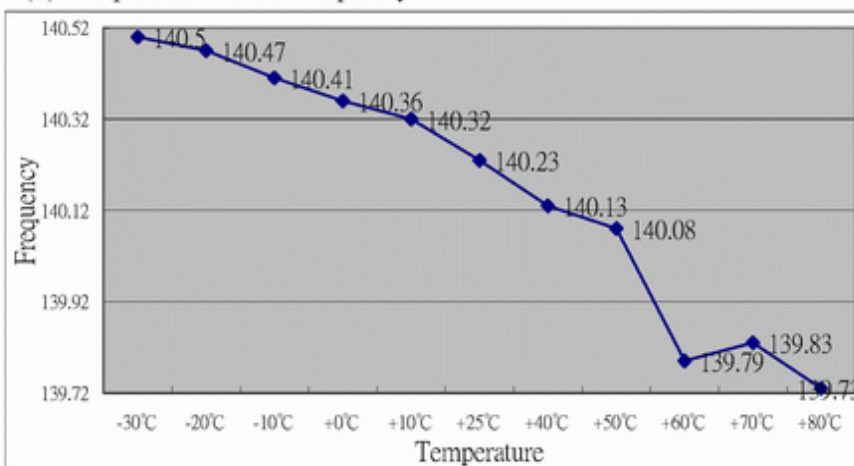
Note : The aging test data at +80°C is just only for your kind reference.

Temperature Aging Test Report

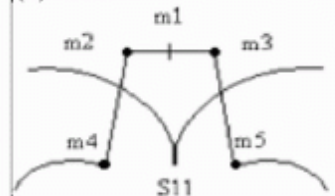
(2) Temperature & Time Process & Fo Frequency

Items	Temp °C	Time Age Hour	Δf(%) (MHz)		Fo MHz	At -3dB MHz	At -3dB MHz	-3BW MHz	IL (dB)	S11 (dB)	Atten. Fo-30M (dB)	Atten. Fo+30M (dB)
			Temp. Draft (-30~+70°C)	< Fo×0.5% (Tolerance)								
f1	-30°C	1.5H	0.192%(0.27M)		140.50	137.56	143.44	5.88	3.35	29.69	34.68	27.79
f2	-20°C	0.5H	0.171%(0.24M)		140.47	137.54	143.40	5.86	3.42	29.77	34.62	27.93
f3	-10°C	0.5H	0.128%(0.18M)		140.41	137.48	143.34	5.86	3.53	29.81	34.50	28.10
f4	+0°C	0.5H	0.092%(0.13M)		140.36	137.42	143.30	5.88	3.66	29.85	34.33	28.27
f5	+10°C	0.5H	0.064%(0.09M)		140.32	137.38	143.26	5.88	3.73	29.94	34.25	28.43
f6	+25°C	0.5H	0.000%(0.00M)		140.23	137.28	143.18	5.90	3.90	30.74	34.00	28.62
f7	+40°C	0.5H	0.071%(0.10M)		140.13	137.20	143.06	5.86	4.09	31.19	33.77	28.92
f8	+50°C	0.5H	0.106%(0.15M)		140.08	137.14	143.02	5.88	4.23	31.43	33.66	29.11
f9	+60°C	0.5H	0.313%(0.44M)		139.79	136.86	142.72	5.86	4.54	32.22	32.90	29.89
f10	+70°C	0.5H	0.285%(0.40M)		139.83	136.90	142.76	5.86	4.59	32.13	33.01	29.79
f11	+80°C	0.5H	0.356%(0.50M)		139.73	136.80	142.66	5.86	4.74	32.42	32.72	30.08

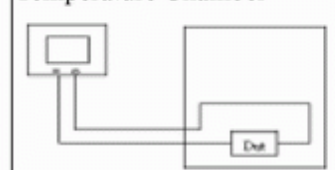
(3) Temperature VS Fo Frequency



(4) Makers



(5) HP-8714E Temperature Chamber



Result

PASS

溫度槽測試報告 (Temperature Aging Test Report)

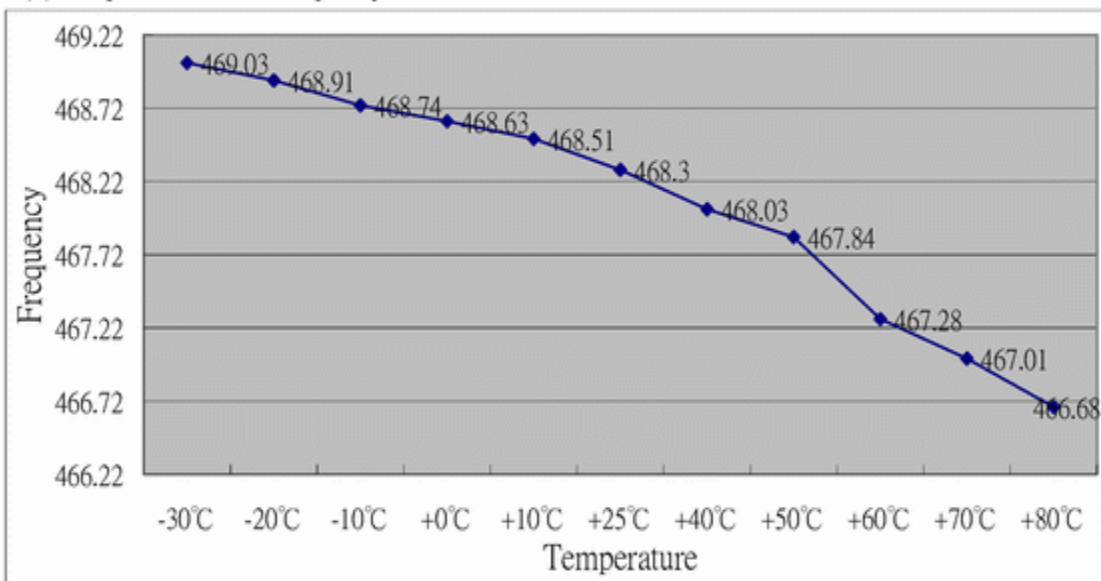
Parts Name : TT67101D-468M (Triple Tuning)

Date : MAR.10.2005

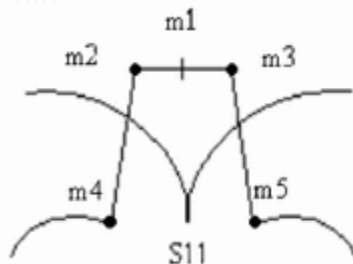
(1) Temperature & Time Process & Fo Frequency

	Temp °C	Time Age Hour	$\Delta f(\%)(\text{MHz})$ Temp. Draft (-30~+70°C) < Fo×0.5% (Tolerance)	Fo MHz	At -3dB MHz	At -3dB MHz	-3BW MHz	IL (dB)	S11 (dB)	Atten. Fo-50M (dB)	Atten. Fo+50M (dB)
f1	-30°C	1.5H	0.155%(0.73M)	469.03	473.46	464.60	8.86	2.89	19.21	72.71	53.33
f2	-20°C	0.5H	0.130%(0.61M)	468.91	473.33	464.50	8.83	2.99	19.89	72.83	53.12
f3	-10°C	0.5H	0.093%(0.44M)	468.74	473.16	464.33	8.83	3.08	20.63	72.43	53.45
f4	+0°C	0.5H	0.070%(0.33M)	468.63	473.03	464.23	8.80	3.18	21.35	70.63	53.58
f5	+10°C	0.5H	0.044%(0.21M)	468.51	472.90	464.13	8.77	3.25	22.00	72.10	53.53
f6	+25°C	0.5H	0.000%(0.00M)	468.30	472.70	463.90	8.80	3.45	22.25	74.45	53.89
f7	+40°C	0.5H	0.057%(0.27M)	468.03	472.40	463.66	8.74	3.67	22.45	72.37	53.89
f8	+50°C	0.5H	0.098%(0.46M)	467.84	472.23	463.46	8.77	3.82	22.37	72.70	53.93
f9	+60°C	0.5H	0.228%(1.07M)	467.28	471.63	462.93	8.70	4.05	22.11	68.25	54.03
f10	+70°C	0.5H	0.275%(1.29M)	467.01	471.36	462.66	8.70	4.17	20.53	70.47	54.06
f11	+80°C	0.5H	0.345%(1.62M)	466.68	471.03	462.33	8.70	4.37	17.97	74.35	53.93

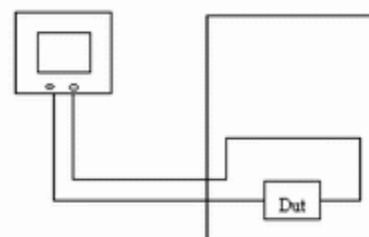
(2) Temperature VS Fo Frequency



(3) Makers



(4) HP-8714E Temperature Chamber



Result

PASS

Electrical Characteristics Spec. Approval Sheet

Parts Name : TT67133A-880.84M (Triple Tuning)

Date : MAR.17.2005

(1) For -30°C~+70°C Temperature ΔF Draft vs. Spec's Approval.

Items	Temp °C	Time Age Hour	Fo MHz	BW(MHz) Fo to ~ -(-3dB)	BW(MHz) Fo to ~ +(-3dB)	Total -3BW (MHz)	IL (dB)	R.L. S11 (dB)	Atten. Fo-50M (dB)	Atten. Fo+50M (dB)	Pass
SPEC	-30°C~+70°C	--	880.84	>8.0	>8.0	>16.0	<4.0	>12.0	>45.0	>35.0	Pass

	Temp °C	Time Age Hour	Fo MHz	BW(MHz) Fo to ~ -(-3dB)	BW(MHz) Fo to ~ +(-3dB)	Total -3BW (MHz)	IL (dB)	R.L. S11 (dB)	Atten. Fo-50M (dB)	Atten. Fo+50M (dB)	Pass
f1	-30°C	1.5 H	880.84	8.21	11.42	19.63	2.58	16.25	50.86	42.13	Pass
f2	-20°C	0.5 H	880.84	8.48	11.12	19.60	2.64	16.91	51.15	42.31	Pass
f3	-10°C	0.5 H	880.84	8.78	10.76	19.54	2.72	17.60	50.81	42.50	Pass
f4	+0°C	0.5 H	880.84	9.01	10.46	19.47	2.81	17.94	50.76	42.61	Pass
f5	+10°C	0.5 H	880.84	9.21	10.19	19.40	2.89	18.34	50.40	42.67	Pass
f6	+25°C	0.5 H	880.84	9.68	9.69	19.37	3.06	19.01	50.29	42.96	Pass
f7	+40°C	0.5 H	880.84	10.18	9.02	19.20	3.21	19.32	50.13	43.19	Pass
f8	+50°C	0.5 H	880.84	10.58	8.56	19.14	3.30	19.44	49.76	43.38	Pass
f9	+60°C	0.5 H	880.84	11.58	7.49	19.07	3.63	19.31	49.33	43.91	Pass
f10	+70°C	0.5 H	880.84	11.78	7.32	19.10	3.66	19.03	49.36	44.11	Pass
f11	+80°C	0.5 H	880.84	12.48	6.56	19.04	3.86	18.27	48.66	44.15	Note

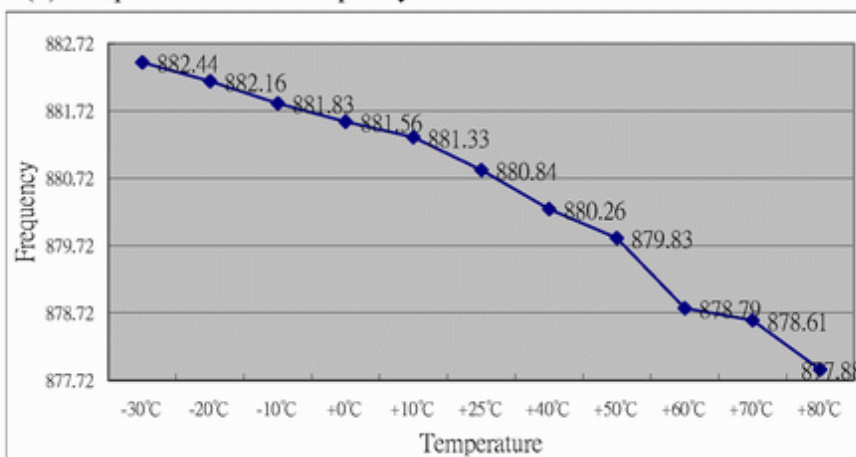
Note : The aging test data at +80°C is just only for your kind reference.

Temperature Aging Test Report

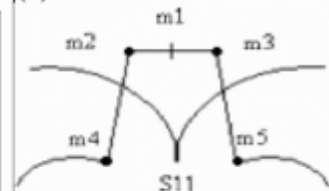
(2) Temperature & Time Process & Fo Frequency

	Temp °C	Time Age Hour	Δf (%)(MHz)		Fo MHz	At -3dB MHz	At -3dB MHz	-3BW MHz	IL (dB)	S11 (dB)	Atten. Fo-50M (dB)	Atten. Fo+50M (dB)
			Temp. Draft (-30~+70°C)	< Fo×0.5% (Tolerance)								
f1	-30°C	1.5H	0.181%	(1.60M)	882.44	872.63	892.26	19.63	2.52	17.31	50.86	42.13
f2	-20°C	0.5H	0.149%	(1.32M)	882.16	872.36	891.96	19.60	2.59	17.38	51.15	42.31
f3	-10°C	0.5H	0.112%	(0.99M)	881.83	872.06	891.60	19.54	2.67	17.83	50.81	42.50
f4	+0°C	0.5H	0.081%	(0.72M)	881.56	871.83	891.30	19.47	2.77	17.89	50.76	42.61
f5	+10°C	0.5H	0.055%	(0.49M)	881.33	871.63	891.03	19.40	2.88	18.15	50.40	42.67
f6	+25°C	0.5H	0.000%	(0.00M)	880.84	871.16	890.53	19.37	3.04	18.50	50.29	42.96
f7	+40°C	0.5H	0.065%	(0.58M)	880.26	870.66	889.86	19.20	3.21	19.19	50.13	43.19
f8	+50°C	0.5H	0.114%	(1.01M)	879.83	870.26	889.40	19.14	3.31	19.35	49.76	43.38
f9	+60°C	0.5H	0.232%	(2.05M)	878.79	869.26	888.33	19.07	3.62	20.15	49.33	43.91
f10	+70°C	0.5H	0.253%	(2.23M)	878.61	869.06	888.16	19.10	3.66	19.59	49.36	44.11
f11	+80°C	0.5H	0.336%	(2.96M)	877.88	868.36	887.40	19.04	3.83	19.58	48.66	44.15

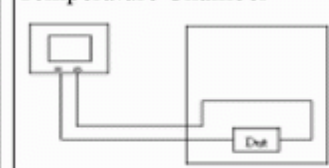
(3) Temperature VS Fo Frequency



(4) Makers



(5) HP-8714E Temperature Chamber



Result

PASS