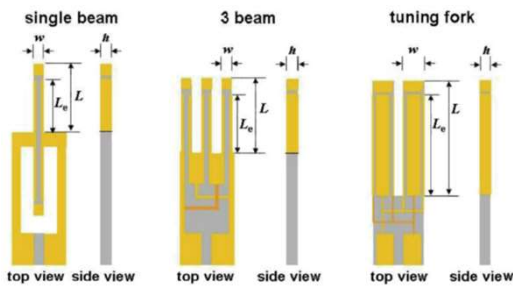
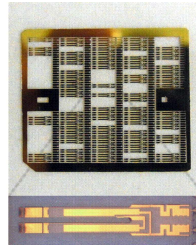


# SPMプローブ：クォーツチューニングフォーク

製品コード：QTF



## Tuning Fork TFW1165

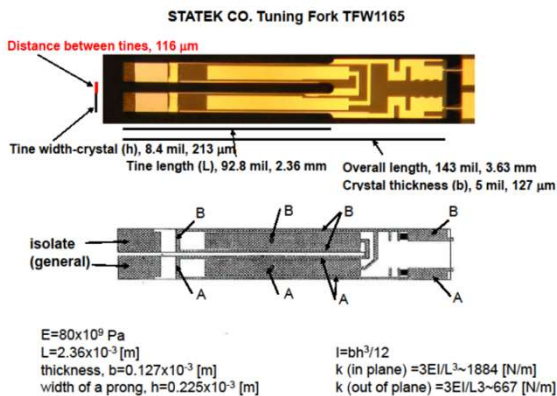


Wafer (最少注文数：2枚)  
※Tuning fork：約35-50個@Wafer

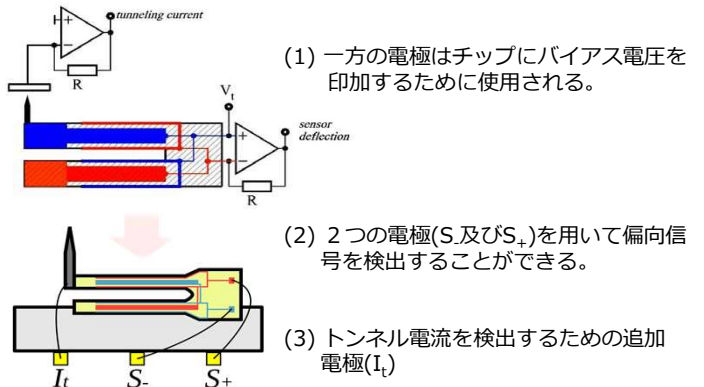
## Tuning fork TFW1165

【名称】(詳細は添付QTF表参照)	周波数
(1) Tuning fork (TFW1165)	32.7kHz
(2) Tuning fork	100kHz
(3) Tuning fork	307.2kHz
(4) Tuning fork	600kHz
(5) Single beam Extensional	640kHz
(6) Single beam Extensional	1MHz
(7) 3-beam Extensional	310kHz
(8) 3-beam Extensional	500kHz
(9) 3-beam Extensional	1MHz

## Tuning Fork TFW1165：バネ定数計算式



## Tuning Fork TFW1165：配線図



Courtesy of Assoc. prof. T. Eguchi, Tohoku University

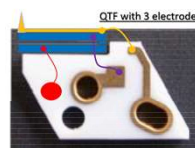
## クォーツチューニングフォーク取付基板

製品コード：QTF基板



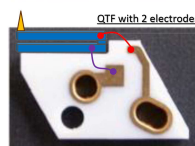
### Tuning Fork取付基板

1. 材料：アルミナ
2. 電極：両面金メッキ
3. 板厚：0.5mm
4. 寸法：6.2x3.5mm
5. 最少注文数：100個  
※特注品対応可



### Tuning Fork取付配線図

3電極配線図(ノイズ対策)  
※3電極目は自前で加工要



2電極配線図(通常)

Courtesy of Prof. Giessibl, Regensburg University, Germany

Frequency, kHz	32.768	32.768	32.768	32.768	32.768	48	50	75	80	100	163.84	163.84	200	200	307.2	643	921.6	1000
P/N	TFW-1171	3TFW-0001 TFW-1169	TFW1165	TFW-1659	TFW-1705	TFW-1701	3TFW-1696 TFW-1718	3TFW-1720	TFW-1323	TFW-1383	3TFW-1454	3TFW-1697	TFW-1482	3TFW-1480 TFW-1480	3TFW-1533 TFW1533	3EXW-1011 3EXW-1168	3EXW-0002 EXW-1057	3EXW-1073 EXW-1073
Tine width-crystal, mil	15.8	10.8	8.4	6.6	4.8	6.6	8.4	6.6	8.4	8.4	15.8	8.4	8.4	15.8	15.8	3.5	3.5	3.5
Tine length, mil	120.4	103.6	92.8	84.3	70	68.8	74.6	54.7	58	51.7	48.2	39.2	92.9	123	94.8	171.5	120.7	110.2
Overall length, mil	195	170	143	118	95	103	125	89	108	101	128	89	143	185	195	227	175	180.3
Overall Length, mm	4.953	4.318	3.6322	2.9972					2.7432	2.5654			3.62966		4.953			
Crystal thickness, mil	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	8	8	7
Rm @ air, kohm	297	313	380	481		368			200	160			40		40	2.5	4	4
C1, fF	2.28	2.6	2.3	2.22		1.58			1.2	1.06			2.2		2.2	3.5	2.2	2.2
Q, k	7.2	5.9	5.6	4.6		5.7			8.3	9.4			9.0		5.9	28.3	19.6	18.1
E, N/m^2	80000000000																	
Tine wide, mm	0.40132	0.27432	0.21336	0.16764	0.12192	0.16764	0.21336	0.16764	0.21336	0.21336	0.40132	0.21336	0.21336	0.40132	0.40132	0.0889	0.0889	0.0889
Tine length mm	3.05816	2.63144	2.35712	2.14122	1.778	1.74752	1.89484	1.38938	1.4732	1.31318	1.22428	0.99568	2.35966	3.1242	2.40792	2.17805	1.53289	1.39954
Thickness, mm	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.1016	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.2032	0.2032	0.2
Stiffness, k, N/m out-plane	575	617	667	700	889	1287	1285	1311	2734	4140	9610	9498	714	578	1263	378	1084	1425.0
Stiffness, k, N/m in-plane	5740	2878	1884	1219	819	2242	3626	3569	7716	10894	89467	24993	1878	5384	11759	276	793	911.4