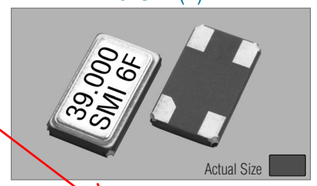
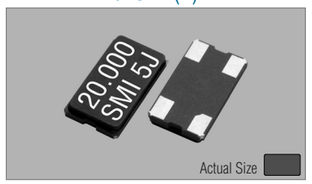
97SMX(A)

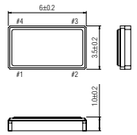


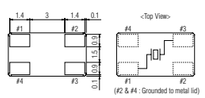
97SMX(B)



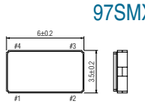
97SMX(C)

97SMX(A)

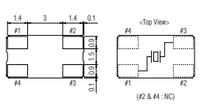




97SMX(B)



Package	Height(H)	Sealing	RoHS
97SMX(1.3B)	1.3mm max.	Glass	Compliant
97SMX(1.0B)	1.0mm max.	Epoxy	Compliant (Pb-free)



STANDARD SPECIFICATIONS

1. Package type ..... 97SMX(A), 97SMX(B) & 97SMX(C)
2. Frequency range ..... 97SMX(A) : 9.0000 MHz to 150.000 MHz
   97SMX(B) : 8.0000 MHz to 50.000 MHz
   97SMX(C) : 8.0000 MHz to 50.000 MHz
3. Frequency tolerance ..... ±50 ppm at +25˚C ±3˚C
4. Temperature stability (referred to +25˚C) ..... ±50 ppm over −20˚C to +70˚C
5. Load capacitance (CL) ..... 16 pF, Typical
6. Shunt capacitance (Co) ..... 5 pF max.
7. Drive level (P) ..... 100 μW max. (10 μW for testing)
8. Aging ..... ± 5 ppm max. at +25˚C ±3˚C per year
9. Cut/Oscillation mode ..... AT−Cut/Fundamental (9.000 MHz to 54.000 MHz)
   AT−Cut/3rd overtone (45.000 MHz to 150.000 MHz)
10. Reflow condition ..... 10 seconds max. at +250˚C±10˚C

PART NUMBERING GUIDE

97 M 240 — 16 (C)

- 97: Package type
- M: Circuit calibration condition
- 240: Frequency designator
- 16: Load capacitance (CL)
- (C): Package type

EXAMPLE

SMI PART NO.	Package	Circuit Calibration Condition	Frequency
97M240−16(C)	97(C) = 97SMX(C)	M = Parallel resonance CL = 16pF	240= 24.000 MHz
97M120−10(A)	97(A) = 97SMX(A)	M = Parallel resonance CL = 10pF	120 = 12.000 MHz
97S250(B)	97(B) = 97SMX(B)	S = Series resonance	250= 25.000 MHz

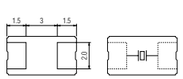
PACKAGE DATA

Item \ Package	97SMX(A)	97SMX(B)	97SMX(C)
Lid	Metal	Ceramic	Ceramic
Base	Ceramic	Ceramic	Ceramic
Sealing	Seam	See drawing	See drawing
Terminal	Tungsten (metalized)	Tungsten (metalized)	Tungsten (metalized)
Terminal plating	Gold / Nickel (surface) / (under)	Gold / Nickel (surface) / (under)	Gold / Nickel (surface) / (under)
RoHS	Compliant(Pb-free)	See drawing	See drawing

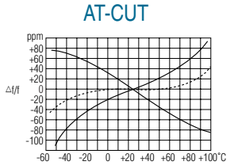
97SMX(C)

DISCONTINUED

Package	Height(H)	Sealing	RoHS
97SMX(1.3C)	1.3mm max.	Glass	Compliant
97SMX(1.0C)	1.0mm max.	Epoxy	Compliant (Pb-free)

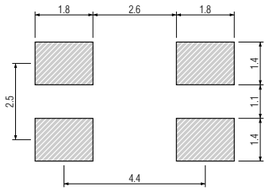


AT-CUT

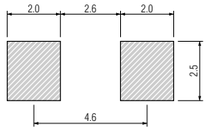


TYPICAL TEMPERATURE CHARACTERISTICS

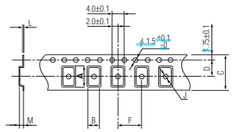
SOLDERING PATTERN
for 97SMX(A) & 97SMX(B)



SOLDERING PATTERN
for 97SMX(C)

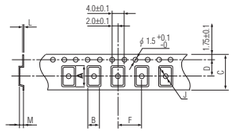


TAPE SPECIFICATIONS
for 97SMX(A)



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
6.5	4.0	16.0 12.0	7.5 5.5	8.0	1.6	0.3	1.5	330 178	2000pcs 1000pcs

TAPE SPECIFICATIONS
for 97SMX(B) & 97SMX(C)



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
6.4	3.9	12.0	5.5	8.0	1.5	0.3	1.4	178	1000pcs

97SMX STANDARD FREQUENCIES

FREQUENCY MHz	FREQUENCY DESIGNATOR	MAX EQUIVALENT SERIES RESISTANCE OHMS(Ω) ESR
9.843750	0984	80
10.000000	100	80
10.368000	103	80
10.752000	107	80
11.059200	1105	80
11.298000	112	80
12.000000	120	60
12.288000	122	60
12.582910	125	60
12.600000	126	60
12.750000	1275	60
12.779520	1277	60
12.800000	128	60
12.989690	129	60
13.000000	130	60
13.248000	132	60
13.400000	134	60
13.454880	1345	60
13.500000	135	60
13.514400	1351	60
13.560000	1356	60
13.567000	13567	60
13.567200	135672	60
13.568750	13568	60
13.700200	137	60
13.824000	138	60
14.318180	143	60
14.400000	144	60
14.725000	14725	60
14.745600	147	60
14.850000	1485	60
14.900000	149	60
15.000000	150	60
15.360000	153	60
15.600000	156	60
16.000000	160	40
16.367000	16367	40
16.368000	1636	40
16.384000	163	40
16.524800	1652	40
16.800000	168	40
17.792000	1779	40
18.000000	180	40
18.080000	1808	40
18.414000	1841	40
18.432000	184	40

FREQUENCY MHz	FREQUENCY DESIGNATOR	MAX EQUIVALENT SERIES RESISTANCE OHMS(Ω) ESR
19.069900	1906	40
19.200000	192	40
19.440000	194	40
19.660800	196	40
19.680000	1968	40
19.800000	198	40
20.000000	200	40
20.400000	204	40
20.600000	206	40
20.657500	2065	40
20.945000	209	40
21.250000	2125	40
21.700000	217	40
22.000000	220	40
22.118400	221	40
23.920000	2392	40
24.000000	240	40
24.545400	2454	40
24.553500	2455	40
24.576000	245	40
25.000000	250	40
25.488330	2548	40
25.808400	258	40
26.000000	260	40
26.195833	2619	40
27.000000	270	40
27.820800	2782	40
28.636363	2863	40
28.800000	288	40
29.498928	29498	40
30.000000	300	40
32.000000	320	40
32.768000	32768	40
33.333300	333333	40
36.000000	360	40
38.880000	388	40
39.000000	390	40
40.000000	400	40
44.000000	440	100
48.000000	480	100
49.152000	491	40
50.000000	500	40
54.000000	540	40
78.587500	7858	100 (3rd OT)
78.737500	7873	100 (3rd OT)
78.780000	7878	100 (3rd OT)