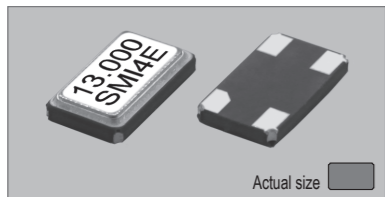
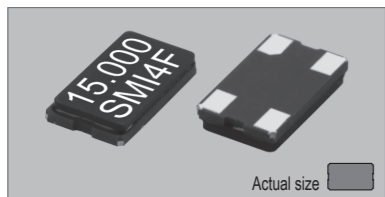


XTAL

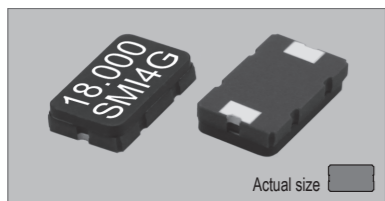
97SMX(A)



97SMX(B)



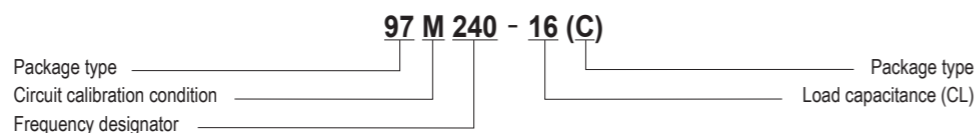
97SMX(C)



STANDARD SPECIFICATIONS

Item	Specifications		
	97SMX(A)	97SMX(B)	97SMX(C)
Package type	97SMX(A)	97SMX(B)	97SMX(C)
Frequency range	9.0 MHz to 150.0 MHz	12.0 MHz to 50.0 MHz	10.0 MHz to 67.0 MHz
Frequency tolerance	±50 ppm at +25°C ±3°C		
Temperature stability (referred to +25°C)	±50 ppm over -20°C to +70°C		
Load capacitance (CL)	16 pF, Typical		
Shunt capacitance (C0)	5 pF max.		
Drive level (P)	100 µW max. (10 µW for testing)		
Aging	±5 ppm max. at +25°C ±3°C per year		
Cut / Oscillation mode	AT-Cut / Fundamental / 9.000 MHz to 54.000 MHz		
	AT-Cut / 3rd overtone / 44.000 MHz to 150.000 MHz		
Reflow condition	10 seconds max. at +250°C ±10°C		

PART NUMBERING GUIDE



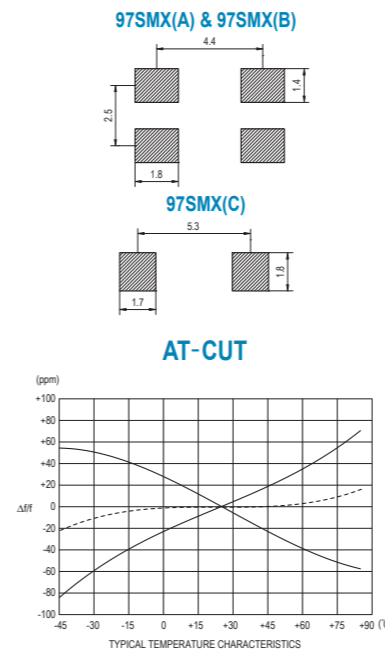
Example

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

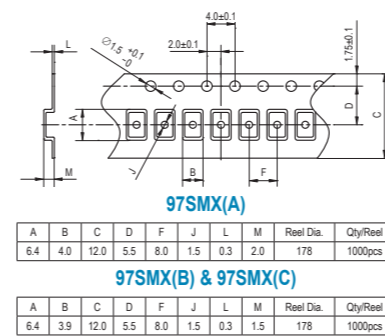
PACKAGE DATA

Item	Package	97SMX(A)	97SMX(B)	97SMX(C)
Lid		Metal	Ceramic	Ceramic
Base		Ceramic	Ceramic	Ceramic
Sealing		Seam	Epoxy	Epoxy
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)	Compliant (Pb-free)	Compliant (Pb-free)

SOLDERING PATTERN



TAPE SPECIFICATIONS



97SMX STANDARD FREQUENCIES

Frequency MHz	Frequency Designator	Max. Equivalent Series Resistance Ohms(Ω) ESR	Frequency MHz	Frequency Designator	Max. Equivalent Series Resistance Ohms(Ω) ESR
9.84375000	0984	60	19.800000	198	40
10.000000	100	60	20.000000	200	40
10.368000	103	60	20.400000	204	40
10.752000	1075	60	20.480000	2048	40
11.059200	1105	50	20.600000	206	40
11.289600	1128	50	20.657500	2065	40
11.298000	11298	50	20.945000	20945	40
12.000000	120	40	21.250000	2125	40
12.288000	122	40	21.700000	217	40
12.504000	12504	40	22.000000	220	40
12.582910	125	40	22.118400	221	40
12.600000	126	40	23.920000	2392	40
12.750000	1275	40	24.000000	240	40
12.779520	1277	40	24.545400	2454	40
12.800000	128	40	24.553500	2455	40
12.989690	129	40	24.576000	245	40
13.000000	130	40	25.000000	250	40
13.248000	132	40	25.488330	2548	40
13.400000	134	40	25.808400	258	40
13.454880	1345	40	26.000000	260	40
13.500000	135	40	26.195833	2619	40
13.514400	1351	40	27.000000	270	40
13.560000	1356	40	27.820800	2782	40
13.567000	13567	40	28.636363	2863	40
13.567200	135672	40	28.800000	288	40
13.568750	13568	40	29.498928	2949892	40
13.700200	137	40	30.000000	300	40
13.824000	138	40	32.000000	320	40
14.318180	143	40	32.768000	32768	40
14.400000	144	40	33.333300	333333	40
14.725000	14725	40	36.000000	360	40
14.745600	147	40	38.880000	388	40
14.850000	1485	40	39.000000	390	40
14.900000	149	40	40.000000	400	40
15.000000	150	40	44.000000	440	100 (3rd OT)
15.360000	153	40	44.545000	445	100 (3rd OT)
15.600000	156	40	48.000000	480	100 (3rd OT)
16.000000	160	40	49.152000	491	40
16.367000	16367	40	50.000000	500	40
16.368000	16368	40	52.074000	5207	100 (3rd OT)
16.384000	163	40	54.000000	540	40
16.524800	1652	40	70.933300	7093	100 (3rd OT)
16.800000	168	40	78.587500	7858	100 (3rd OT)
17.792000	1779	40	78.737500	7873	100 (3rd OT)
18.000000	180	40	78.780000	7878	100 (3rd OT)
18.080000	1808	40	87.395000	8739	100 (3rd OT)
18.414000	1841	40	106.250000	106.25	100 (3rd OT)
18.432000	184	40	125.000000	125	100 (3rd OT)
19.069900	1906	40			
19.200000	192	40			
19.440000	194	40			
19.660800	196	40			
19.680000	1968	40			

CLK OSC

VCXO

TCXO

OCXO

MCF

XTAL

CLK OSC

VCXO

TCXO

OCXO

MCF