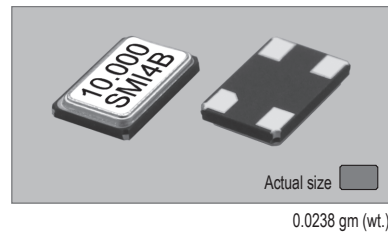


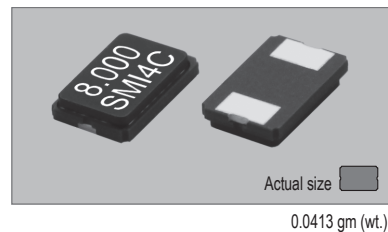
53SMX FAMILY

STANDARD SMD CRYSTALS

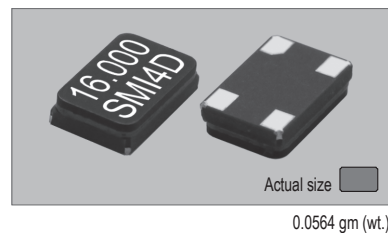
53SMX(B)



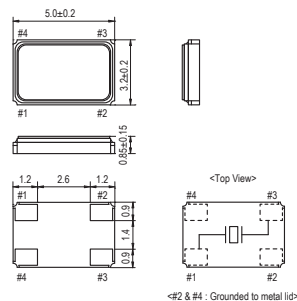
53SMX(C)



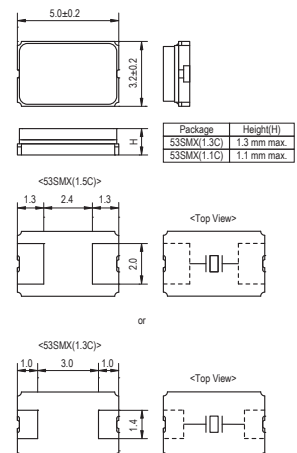
53SMX(D)



53SMX(B)



53SMX(C)



STANDARD SPECIFICATIONS

Item	Specifications		
Package type	53SMX(B)	53SMX(C)	53SMX(D)
Frequency range	10.0 MHz to 300.0 MHz	8.0 MHz to 60.0 MHz	8.0 MHz to 50.0 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)	14 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 / 8.000 MHz to 70.000 MHz		
	AT -Cut / 3rd overtone / 70.000 MHz to 170.000 MHz		
	AT -Cut / 5th overtone / 170.000 MHz to 300.000 MHz		
Reflow condition	10 seconds max. at +250°C ±10°C		

PART NUMBERING GUIDE

53 M 143 - 14 (C)

Package type _____ Package type _____
Circuit calibration condition _____ Load capacitance (CL) _____
Frequency designator _____

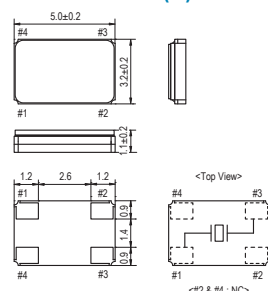
Example

SMI Part No.	Package	Circuit Calibration Condition	Frequency
53M320-16(B)	53(B) = 53SMX(B)	M = Parallel resonance CL = 16 pF	320 = 32.000 MHz
53M143-14(C)	53(C) = 53SMX(C)	M = Parallel resonance CL = 14 pF	143 = 14.31818 MHz
53S184(D)	53(D) = 53SMX(D)	S = Series resonance	184 = 18.432 MHz

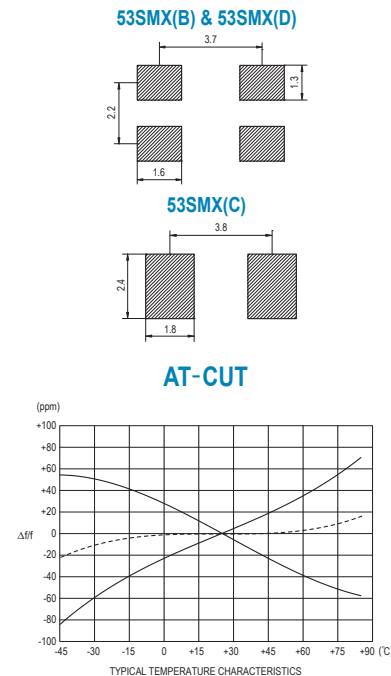
PACKAGE DATA

Item \ Package	53SMX(B)	53SMX(C)	53SMX(D)
Lid	Metal	Ceramic	Ceramic
Base	Ceramic	Ceramic	Ceramic
Sealing	Seam	Glass	Glass
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	Compliant

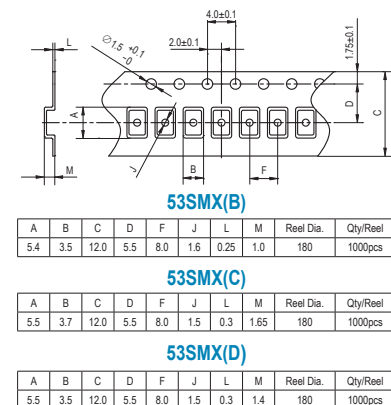
53SMX(D)



SOLDERING PATTERN



TAPE SPECIFICATIONS



53SMX STANDARD FREQUENCIES

Frequency MHz	Frequency Designator	Max. Equivalent Series Resistance Ohms (Ω) ESR	Frequency MHz	Frequency Designator	Max. Equivalent Series Resistance Ohms (Ω) ESR	Frequency MHz	Frequency Designator	Max. Equivalent Series Resistance Ohms (Ω) ES	
8.000000	080	300	19.312500	193125	50	40.000000	400	50	
9.000000	090	300	19.440000	194	50		40.500000	405	50
9.519200	09519	100	19.500000	195	50		41.600000	416	50
9.600000	096	100	19.660800	196	50		41.850000	418	50
9.830400	098	100	19.680000	1968	50		42.000000	420	50
9.843750	0984	100	19.800000	198	50		44.000000	440	50
10.000000	100	100	20.000000	200	50		45.000000	450	50
10.178125	1017	100	20.250000	2025	50		45.158400	451	50
11.059200	1105	100	20.480000	2048	50		48.000000	480	50
11.289600	1128	100	20.500000	205	50		49.152000	491	50
12.000000	120	100	20.945000	20945	50		50.000000	500	50
12.272700	1227	100	21.250000	2125	50		52.902500	529	50
12.288000	122	100	22.000000	220	50		54.000000	540	50
12.500000	125	100	22.118400	221	50				
12.504000	12504	100	22.168000	2216	50				
12.600000	126	100	22.579200	225	50				
12.731930	1273	100	22.579600	225796	50				
12.800000	128	100	23.104000	23104	50				
13.000000	130	100	24.000000	240	50				
13.081480	1308	100	24.288000	242	50				
13.225625	1322562	100	24.504200	24504	50				
13.440000	1344	100	24.545450	2454545	50				
13.500000	135	100	24.553500	2455	50				
13.560000	1356	100	24.576000	245	50				
14.187500	1418	100	25.000000	250	50				
14.296875	1429	100	25.140000	2514	50				
14.300000	143	100	25.400000	254	50				
14.318180	1431	100	26.000000	260	50				
14.400000	144	100	26.973100	2697	50				
14.745600	147	100	27.000000	270	50				
15.000000	150	50	27.120000	271	50				
15.360000	153	50	27.648000	276	50				
15.600000	156	50	27.820800	2782	50				
15.968000	159	50	28.224000	282	50				
15.974400	1597	50	28.322000	2832	50				
15.978000	15978	50	28.375000	283	50				
16.000000	160	50	28.500000	285	50				
16.050000	1605	50	28.636360	2863636	50				
16.367000	16367	50	28.636363	2863	50				
16.368000	16368	50	29.491200	294	50				
16.369000	16369	50	29.498900	294989	50				
16.370000	1637	50	30.000000	300	50				
16.384000	163	50	30.080000	3008	50				
16.500000	165	50	32.000000	320	50				
16.670000	1667	50	32.110000	321	50				
16.800000	168	50	32.720000	327	50				
16.900000	169	50	32.768000	32768	50				
16.920000	1692	50	33.000000	330	50				
16.934400	1693	50	33.231000	332	50				
17.328000	173	50	33.330000	3333	50				
17.581400	175	50	33.333000	33333	50				
17.734475	1773	50	33.750000	3375	50				
18.000000	180	50	33.868800	338	50				
18.414000	1841	50	34.368000	343	50				
18.432000	184	50	35.280000	3528	50				
19.069928	19069928	50	35.328000	353	50				
19.069929	1906	50	35.468950	354	50				
19.200000	192	50	36.000000	360	50				
19.312000	193	50	36.864000	368	50				