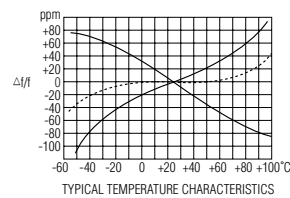
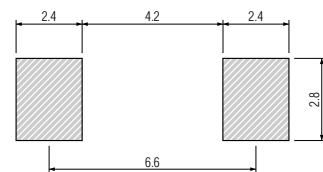


AT-CUT



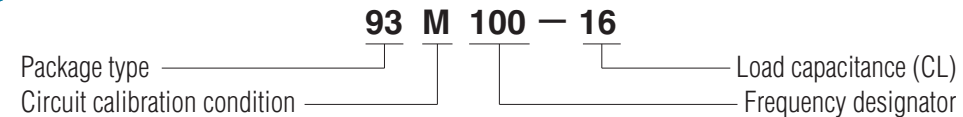
SOLDERING PATTERN



STANDARD SPECIFICATIONS

1. Package type 93SMX
2. Frequency range 4.000 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
10. Reflow condition 10 seconds max. at +250°C ±10°C

PART NUMBERING GUIDE



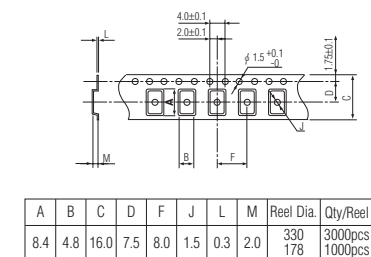
EXAMPLE

SMI PART NO.	Package	Circuit Calibration Condition	Frequency
93M100-16	93 = 93SMX	M = Parallel resonance CL = 16 pF	100 = 10.000 MHz
93S360	93 = 93SMX	S = Series resonance	360 = 36.000 MHz

PACKAGE DATA

Item	Package	93SMX
Lid		Ceramic
Base		Ceramic
Sealing		Glass
Terminal		Tungsten (metalized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant

TAPE SPECIFICATIONS



93SMX 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)	ESR
4.00000	040	300		15.96800	1596	50		23.04000	2304	50	
5.00000	050	300		15.97440	1597	50		24.00000	2400	50	
7.20000	072	300		15.99200	1599	50		24.00010	240001	50	
8.00000	080	200		16.00000	1600	50		24.54540	2454	50	
9.51000	0951	200		16.06990	1606	50		24.55720	2455	50	
9.84375	0984	200		16.11000	1611	50		24.57600	245	50	
9.84531	09845	200		16.12800	1612	50		24.85890	248	50	
9.85938	0985	200		16.38400	163	50		25.00000	250	50	
9.86182	09861	200		16.50000	165	50		25.80480	258	50	
9.86438	09864	200		16.64730	1664	50		26.80000	268	50	
9.87438	0987	200		16.65600	1665	50		26.97310	2697	50	
10.00000	100	100		16.66700	166	50		26.98000	2698	50	
10.00050	100005	100		16.67000	1667	50		27.00000	270	50	
10.17800	1017	100		16.77720	167	50		27.12000	271	50	
10.25000	1025	100		16.90000	169	50		27.50000	275	50	
10.26000	1026	100		16.92000	1692	50		27.70000	277	50	
11.00000	110	100		16.93440	1693	50		27.87000	2787	50	
11.05920	1105	100		17.17760	171	50		28.00000	280	50	
11.15000	1115	100		17.26270	172	50		28.12500	281	50	
11.25000	1125	100		17.66400	176	50		28.22400	282	50	
11.28960	1128	100		17.73475	1773	50		28.24400	2824	50	
11.29800	1129	100		18.00000	180	50		28.35000	2835	50	
11.89440	11894	100		18.10560	181	50		28.37500	283	50	
11.89510	11895	100		18.30000	183	50		28.49610	284	50	
11.98080	1198	100		18.35500	1835	50		28.50000	285	50	
11.99520	1199	100		18.42520	1842	50		28.60490	28604	50	
12.00000	120	80		18.43200	184	50		28.62500	2862	50	
12.28800	122	80		18.43750	18437	50		28.63636	2863	50	
12.50000	125	80		18.54400	185	50		28.72400	287	50	
12.58000	1258	80		19.00000	190	50		28.90000	289	50	
13.00000	130	50		19.06992	1906	50		29.00000	290	50	
13.08360	1308	50		19.13860	1913	50		29.49120	294	50	
13.12500	1312	50		19.17000	1917	50		29.49890	294989	50	
13.22500	13225	50		19.17600	19176	50		29.70000	297	50	
13.22560	132256	50		19.20000	192	50		30.00000	300	50	
13.33300	13333	50		19.24700	1924	50		30.72000	307	50	
13.40000	134	50		19.26000	1926	50		31.00000	310	50	
13.50000	135	50		19.39000	193	50		31.10400	31104	50	
13.56000	1356	50		19.50000	195	50		31.40000	314	50	
13.56720	13567	50		19.66080	196	50		31.94880	31948	50	
13.56880	13568	50		19.67000	1967	50		31.98750	3198	50	
13.57030	1357	50		19.68750	19687	50		32.00000	320	50	
13.57400	13574	50		19.80000	198	50		32.22320	3222	50	
13.57560	13575	50		19.96800	199	50		32.72000	327	50	
13.57700	13577	50		19.99000	1999	50		32.76800	32768	50	
13.57740	135774	50		19.99370	19993	50		33.00000	330	50	
13.57750	135775	50		20.00000	200	50		33.14530	331	50	
13.58000	1358	50		20.25000	2025	50		33.33333	3333	50	
13.58060	135806	50		20.48000	204	50		33.52800	3352	50	
13.58550	13585	50		20.49980	2049	50		33.86880	338	50	
13.75000	1375	50		20.50000	205	50		34.56000	345	50	
13.82400	138	50		20.73600	2073	50		35.46880	354688	50	
13.91280	139	50		20.94500	209	50		35.63750	356	50	
14.00000	140	50		21.00000	210	50		35.79550	357	50	
14.18750	1418	50		21.04720	2104	50		36.00000	360	50	
14.23750	1423	50		21.12000	211	50		36.81820	3681	50	
14.25000	142	50		21.21300	2121	50		36.86400	368	50	
14.28480	1428	50		21.25000	2125	50		38.00000	380	50	
14.31818	143	50		21.54440	215	50		40.00000	400	50	
14.72100	1472	50		21.66700	216	50		40.19000	401	50	
14.74560	147	50		22.11840	221	50		40.32000	403	50	
14.75000	1475	50		22.45000	224	50		40.50000	405	50	
15.00000	150	50		22.57920	2257	50		40.73760	407	50	
15.95450	1595	50		23.00000	230	50					