



AT QUARTZ CRYSTALS - 1 TO 150MHz FOR FUNDAMENTAL & OVERTONE MODES

BREL has been producing hundreds of thousands of crystals for filter and oscillator applications a month. These have covered virtually the complete spectrum of quartz resonators and can be supplied in small lots as well as production quantities.

BREL's well developed technique of mass production enables you to use these AT crystals at lower cost.

CITIZEN BAND CRYSTALS
 MARINE BAND CRYSTALS(VHF/FM)
 MONITOR BAND CRYSTALS(VHF, UHF)
 AMATEUR 2-METER CRYSTALS
 MICROPROCESSOR CRYSTALS
 MILITARY CRYSTALS

FREQUENCY TOLERANCE: $\pm 0.005\%$ @25°C
 STABILITY TOLERANCE: $\pm 0.01\%$ (-20°C to +70°C)
 Co: 7pF MAX

MICROPROCESSOR CRYSTALS

This table lists the standard crystal units commonly used for microprocessor application. Other types are available upon request and our experienced engineering team is also available for consultation on your specific design characteristics.

Frequency (MHz)	Part No.	Holder Type	Calibrated at Series or Parallel (PF)	Maximum Effective Series Resistance (Ohms)	Osc. Mode	Application
1.000	IS100	HC-33/U	13	800	Fund	M6800, S6800, SC/MP, Z80, 1800, 1802, 146805, CDP402, 3870, 6500, 6860
1.8432	IS184	HC-33/U	13	400	Fund	1802, 3850, 3870, 8048, 8748, 8035, 8085, MC14411, BAUD RATE GENERATOR, 6801, 6802, 6803, 6805, 6809, 1800, 1801
1.8432	IS184-A	HC-18/U	13	800	Fund	"
2.000	IS200	HC-33/U	20	350	Fund	3852, 3853, 3856, 3870, 6102, 6500, 6800, 6801, 6802, 6809, 6846, 6875, F-8, 6502, COSMAC, MC14411, 2650A, 650X, 1610, 2650, 3850, 3851, INS8060, INS8900
2.000	IS200-A	HC-18/U	20	800	Fund	"
2.097152	IS209	HC-33/U	20	300	Fund	MM 5378, MM 5379, 6802, NSC800, 6801, 6803, 6805, 6809, 8048, 8085, 8748, Auto clocks
2.097152	IS209-A	HC-18/U	20	500	Fund	"
2.4576	IS245	HC-33/U	32	250	Fund	TMS9980, 9981, 6801, 6802, 6803, 6805, 6809, 8048, 8085, 34702, BIT RATE GENERATOR, IM 6100.C 2920, IM4702, 4712, 6100
2.4576	IS245-A	HC-18/U	32	300	Fund	"
3.000	IS300	HC-18/U	32	200	Fund	6501, 6502, 6503, 6504, 6506, 6505, 6507, 6801, 6802, 6803, 6805, 6809, MCS48, IMS9900, SBP0400 A, 8000 Series, 8048, 8748, 8085, 8741
3.2768	IS327	HC-18/U	18	150	Fund	ICM7205, IM6100C, CP1600, NSC800, 6801, 6802, 6803, 6805, 6809, 8048, 8085, 8748
3.579545	IS357	HC-18/U	18	120	Fund	6802, 6808, 6809, 68701, 8748, 6102, PPS-4, PPS-8, MM5369, ICM7206, TV Color BURST, 6801, 6803, 1372, 3870
3.6864	IS368	HC-18/U	Series	120	Fund	8748, 8035-8
3.93216	IS393	HC-18/U	12	120	Fund	clocks
4.000	IS400	HC-18/U	Series	120	Fund	6805, 6808, 6809, 6800, 68701, 68705, 146805, HM 6100, IM6100, EA9002, PACE, Z80A, Z8000, 6801, 6802, 6803



BREL INTERNATIONAL COMPONENTS

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Frequency (MHz)	Part No.	Holder Type	Calibrated at Series or Parallel (PF)	Maximum Effective Series Resistance (Ohms)	Osc. Mode	Application
4.000	IS400-A	HC-18/U	20	120	Fund	4004, 4040, 4048, 4201, 6800, 3870, Z80
4.032	IS403	HC-18/U	22	120	Fund	T199532
4.096	IS409	HC-18/U	16	100	Fund	Several MPU's
4.194304	IS419	HC-18/U	12	100	Fund	ICM7038A, 7040, 7213, 1802
4.433619	IS443	HC-18/U	20	80	Fund	SIG2650, EUROPEAN Color BURST
4.500	IS450	HC-18/U	12	80	Fund	μPD 1700 Series
4.9152	IS491	HC-18/U	Series	80	Fund	Z80A, Z80, COM5026, NSC800, 5046, 8080, 8224, Z8, 4004, 4040, 8048, 8748, 8085
4.9562	IS495	HC-18/U	Series	80	Fund	4004, 4040, 4045, 4048, 4021
5.000	IS500	HC-18/U	20	80	Fund	4040, 8048, 8748, 8085, CP1600, Z80, Z80A, COM5026, NSC80, 5046, 8080, 8224, Z8, 4004
5.0688	IS506	HC-18/U	Series	75	Fund	COM5026, NSC800, 5046, 8080, 8224, Z8, 4004, 4040, 8048, 8748, 8085, COM5016, COM5016T, DUAL BAUD RATE GENERATOR, Z80, Z80A
5.120	IS512	HC-18/U	Series	75	Fund	4040, 4004, 4201
5.185	IS518	HC-18/U	Series	75	Fund	4040, 4004, 4045, 4048, 4201
5.5585	IS555	HC-18/U	Series	75	Fund	∞
5.587	IS558	HC-18/U	Series	75	Fund	∞
5.7143	IS571	HC-18/U	16	75	Fund	PACE, 6100, 1802
5.760	IS576	HC-18/U	16	75	Fund	μPD 2819 C
6.000	IS600	HC-18/U	Series	50	Fund	6808, 6809, 6800, TMS9995, 6803, CP1600, 8035, 8048, 8049, 8749, MCS48, 8047, 6801, 6802
6.144	IS614	HC-18/U	30	50	Fund	8085A, 8748, CP1600, 8089, MSC-85
6.400	IS640	HC-18/U	20	50	Fund	CDP1802, 1803
6.55360	IS655	HC-18/U	20	50	Fund	ICM7034, 7045, 7207, 7208, 8080, 8224, 8051, 8031
7.000	IS700	HC-18/U	16	50	Fund	Several MPU's
7.200	IS720	HC-18/U	20	50	Fund	Several MPU's
7.3728	IS737	HC-18/U	Series	40	Fund	6875, 8051, 8031, 2920
8.000	IS800	HC-18/U	Series	40	Fund	6808, 6809, 68000, 68701, 1804, 1805, Z8, Z8000, 8086, 8088, 8008, CP1600, IM6100C, TMS9980, 8X300, MC6875, 6801, 6802, 6803
8.867238	IS886	HC-18/U	16	40	Fund	Several MPU's
9.000	IS900	HC-18/U	16	30	Fund	Several MPU's
10.000	IS1000	HC-18/U	Series	25	Fund	8008, TTL MICROLOGIC, CP1600A, AM2901, AM29116, 8086, 8088
10.240	IS1024	HC-18/U	32	25	Fund	Several MPU's
10.738635	IS1073	HC-18/U	Series	25	Fund	TMC9918
11.000	IS1100	HC-18/U	Series	25	Fund	MCS48, 8039, 8049, 8050, 6804, 8040
11.0592	IS1105	HC-18/U	Series	25	Fund	8051
12.000	IS1200	HC-18/U	Series	25	Fund	8031, 8051, 8751, 2920, MSC86, 8284, 9940-12, 8086
12.288	IS1228	HC-18/U	32	25	Fund	Several MPU's
13.5168	IS1351	HC-18/U	Series	25	Fund	8080, 8008, 8224
14.000	IS1400	HC-18/U	32	25	Fund	Several MPU's
14.31818	IS1431	HC-18/U	Series	25	Fund	8080, 8008, 8224, 8350, 8284, 12061
14.7456	IS1474	HC-18/U	32	25	Fund	Several MPU's
15.000	IS1500	HC-18/U	Series	25	Fund	8080, 8008, 8224, 8284, 12061
16.000	IS1600	HC-18/U	Series	25	Fund	8080, 8008, 8224, 8284, 8086, 8202, 12061
17.734475	IS1773	HC-18/U	32	25	Fund	Several MPU's
18.000	IS1800	HC-18/U	Series	25	Fund	8080, 8008, 8224, MSC80, 8350, 12061, 12561
18.432	IS1843	HC-18/U	Series	25	Fund	8080, 8008, 8224, AM9080, μPD8080A, MSC80, 8350, 12061, 12561
19.6608	IS1966	HC-18/U	Series	25	Fund	8080, 8008, 8224, 8350, 12561
20.000	IS2000	HC-18/U	Series	25	Fund	8080, 8008, 8224, MSC80, F9445, AM2900, 8350, 12061, 12561
22.1184	IS2211	HC-18/U	Series	25	Fund	AM9080, 8080A, TMS8080, μCOM80, 8224, MSC80, 8086, 12061, 12561
24.000	IS2400	HC-18/U	Series	25	Fund	MCS86, 8086, 8224, 8284
24.000	IS2400-A	HC-18/U	Series	40	3'rd	∞
27.648	IS2764	HC-18/U	32	40	3'rd	8080A, 8008, 8224
32.000	IS3200	HC-18/U	Series	40	3'rd	8080, 8008, 8224, AM9080, TMS8080, μCOM80
36.000	IS3600	HC-18/U	Series	40	3'rd	8080, 8008, 8224, 8080A, 9070A
48.000	IS4800	HC-18/U	Series	40	3'rd	TMS9900, 9904, SML362