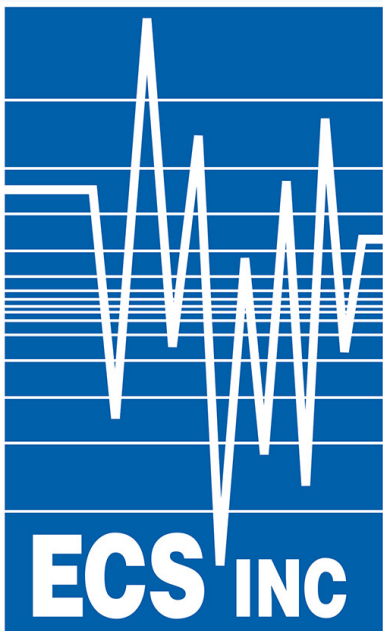


NON-Tariffed Products



INTERNATIONAL

Crystals

Series	Package Size LWH (mm)	Minimum Frequency	Maximum Frequency	Maximum Operating Temperature
ECX-1048 (48)	1.2 x 1.0 x 0.33	24 MHz	54 MHz	-40 ~ +85°C
ECX-1048B (48B)	1.2 x 1.0 x 0.33	32 MHz	80 MHz	-40 ~ +85°C
ECX-1247 (47)	1.6 x 1.2 x 0.30	24 MHz	80 MHz	-40 ~ +125°C
ECX-1637 (37)	2.0 x 1.6 x 0.45	16 MHz	80 MHz	-55 ~ +125°C
ECX-1637B (37B)	2.0 x 1.6 x 0.45	16 MHz	50 MHz	-30 ~ +85°C
ECX-2236 (36)	2.5 x 2.0 x 0.55	12 MHz	80 MHz	-55 ~ +125°C
ECX-2236B (36B)	2.5 x 2.0 x 0.55	12 MHz	50 MHz	-55 ~ +125°C
ECX-32 (33)	3.2 x 2.5 x 0.80	10 MHz	60 MHz	-55 ~ +125°C
ECS-33B (33B)	3.2 x 2.5 x 0.80	10 MHz	54 MHz	-40 ~ +125°C
ECX-42 (42)	4.0 x 2.5 x 0.80	12 MHz	50 MHz	-55 ~ +125°C
ECX-53B (30B) 4 Pad	5.0 x 3.2 x 0.85	8 MHz	50 MHz	-55 ~ +125°C
ECX-53 (30) 2 Pad	5.0 x 3.2 x 1.20	8 MHz	50 MHz	-55 ~ +125°C
ECX-64 (23B) 4 Pad	6.0 x 3.5 x 1.10	8 MHz	50 MHz	-55 ~ +125°C
ECX-64A (23A) 2 Pad	6.0 x 3.5 x 1.10	8 MHz	50 MHz	-55 ~ +125°C
ECX-23G (23G) 2 Pad	6.0 x 3.5 x 1.10	8 MHz	50 MHz	-40 ~ +85°C
CSM-8M (20BM) 4 Pad	7.0 x 5.0 x 1.30	6 MHz	42 MHz	-55 ~ +125°C
CSM-8A (20A) 2 Pad	7.0 x 5.0 x 1.70	8 MHz	100 MHz	-40 ~ +105°C
CSM-3X (3X)	7.6 x 4.1 x 2.30	12 MHz	40 MHz	-55 ~ +125°C
ECX-19A (19A)	11.0 x 5.0 x 2.0	3.57 MHz	40 MHz	-40 ~ +85°C
CSM-7SSX (5PVX)	11.4 x 4.7 x 2.6	3.57 MHz	50 MHz	-55 ~ +125°C
CSM-7X (5PLX)	11.4 x 4.8 x 3.2	3.57 MHz	70 MHz	-55 ~ +125°C
CSM-7X-3L (5G3X)	11.4 x 5.2 x 4.2	3.57 MHz	70 MHz	-55 ~ +125°C
CSM-12 (18)	11.8 x 5.5 x 2.5	3.57 MHz	30 MHz	-40 ~ +85°C
CSM-4AX (28AX)	12.5 x 4.85 x 5.0	3.57 MHz	30 MHz	-40 ~ +125°C

Tuning Fork Crystals

Series	Package Size (mm)	ESR	Tolerance
ECX-1210 (1210)	1.2 x 1.0 x 0.5	90K Ω	\pm 20 ppm
ECX-1210B (1210B)	1.2 x 1.0 x 0.35	80K Ω	\pm 20 ppm
ECX-16 (16)	1.6 x 1.0 x 0.5	90K Ω	\pm 20 ppm
ECX-12L (12L)	2.0 x 1.2 x 0.38	100K Ω	\pm 20 ppm
ECX-12 (12)	2.0 x 1.2 x 0.6	90K Ω	\pm 20 ppm
ECX-12R (12R)	2.0 x 1.2 x 0.6	70K Ω	\pm 20 ppm
ECS-327-CDX-1082 (12)	2.0 x 1.2 x 0.6	80K Ω	\pm 20 ppm
ECX-31B (34B)	3.2 x 1.5 x 0.9	70K Ω	\pm 10 ppm and \pm 20 ppm
ECS-327-CDX-1128 (34B)	3.2 x 1.5 x 0.9	60K Ω	\pm 20 ppm
ECX-34RR (34RR)	3.2 x 1.5 x 0.9	40K Ω	\pm 20 ppm, Lowest ESR
ECX-34S (34S)	3.2 x 1.5 x 0.9	70K Ω	\pm 20 ppm, Extended Temperature Ranges
ECX-71 (38)	7.0 x 1.5 x 1.4	65K Ω	\pm 20 ppm
ECS-3X8X (8X)	8.2 x 3.1 x 3.1	30K Ω	\pm 20 ppm

AEC-Q200 Automotive Grade Crystals

Series	Minimum Frequency	Maximum Frequency	Package Size LWH (mm)	Maximum Operating Temperature
ECX-1247Q (47Q)	26 MHz	40 MHz	1.6 x 1.2 x 0.30	-40 ~ +125°C
ECX-12Q (12Q)	32.768 KHz	32.768 KHz	2.0 x 1.2 x 0.55	-40 ~ +125°C
ECX-1637Q (37Q)	16 MHz	48 MHz	2.0 x 1.6 x 0.45	-55 ~ +125°C
ECX-2236Q (36Q)	12 MHz	40 MHz	2.5 x 2.0 x 0.55	-55 ~ +125°C
ECX-34Q (34Q)	32.768 KHz	32.768 KHz	3.2 x 1.5 x 0.90	-40 ~ +125°C
ECX-33Q (33Q)	12 MHz	40 MHz	3.2 x 2.5 x 0.80	-55 ~ +125°C
ECX-33QZ (33QZ)	13 MHz	26 MHz	3.2 x 2.5 x 0.80	-40 ~ +125°C
ECX-53BQ (30BQ)	10 MHz	40 MHz	5.0 x 3.2 x 0.85	-55 ~ +125°C
ECX-53BQZ (30BQZ)	10 MHz	40 MHz	5.0 x 3.2 x 0.90	-55 ~ +125°C
CSM-8Q (20BQ)	8 MHz	36 MHz	7.0 x 5.0 x 1.30	-55 ~ +125°C

Thru-Hole Crystals

Series	Package Size LWH (mm)	Minimum Frequency	Maximum Frequency	Maximum Operating Temperature
HC-46X (46X)	6.8 x 4.0 x 1.8	12 MHz	40 MHz	-55 ~ +125°C
HC-49USX (4X)	11.35 x 4.65 x 3.50	3.57 MHz	70 MHz	-55 ~ +125°C
HC-49USSX (4VX)	11.35 x 5.0 x 2.1	3.57 MHz	50 MHz	-55 ~ +125°C

Oscillators

Series	Package Size LWH (mm)	Minimum Frequency	Maximum Frequency	Maximum Operating Temperature
ECS-327MV	1.6 x 1.2 x 0.70	32.768 MHz	32.768 MHz	-40 ~ +85°C
ECS-1612MV	1.6 x 1.2 x 0.70	3.000 MHz	80 MHz	-40 ~ +85°C
ECS-2016MV	2.0 x 1.6 x 0.85	1.50 MHz	54 MHz	-40 ~ +85°C
ECS-1618	2.0 x 1.6 x 0.90	1.50 MHz	80 MHz	-40 ~ +85°C
ECS-1633	2.0 x 1.6 x 0.90	1.50 MHz	80 MHz	-40 ~ +85°C
ECS-2033	2.5 x 2.0 x 0.82	0.75 MHz	75 MHz	-40 ~ +85°C
ECS-2520Q	2.5 x 2.0 x 0.80	0.75 MHz	60 MHz	-40 ~ +125°C
ECS-2520MV	2.5 x 2.0 x 0.80	0.75 MHz	60 MHz	-40 ~ +85°C
ECS-2520S	2.5 x 2.0 x 0.90	3.2 MHz	55 MHz	-40 ~ +85°C
ECS-3225S	3.2 x 2.5 x 0.90	2.5 MHz	55 MHz	-40 ~ +85°C
ECS-3225Q	3.2 x 2.5 x 0.90	0.75 MHz	60 MHz	-40 ~ +125°C
ECS-327KE	3.2 x 2.5 x 1.00	32.768 KHz	32.768 KHz	-40 ~ +85°C
ECS-2318	3.2 x 2.5 x 1.00	1 MHz	50 MHz	-40 ~ +85°C
ECS-327ATQMV	3.2 x 2.5 x 0.90	32.768 KHz	32.768 KHz	-40 ~ +125°C
ECS-3225MV	3.2 x 2.5 x 1.20	6.00 MHz	50.00 MHz	-40 ~ +85°C
ECS-3518	5.0 x 3.2 x 1.30	1.544 MHz	125 MHz	-40 ~ +85°C
ECS-3525	5.0 x 3.2 x 1.30	1.544 MHz	125 MHz	-40 ~ +85°C
ECS-3955M	7.5 x 5.0 x 1.60	1.8 MHz	70 MHz	-55 ~ +125°C
ECS-5718	7.5 x 5.0 x 1.60	1.0 MHz	125 MHz	-40 ~ +85°C
ECS-5725	7.5 x 5.0 x 1.60	1.0 MHz	125 MHz	-40 ~ +85°C
ECS-LVDS25	7.5 x 5.0 x 1.70	80 MHz	300 MHz	-40 ~ +85°C
ECS-LVDS33	7.5 x 5.0 x 1.70	80 MHz	300 MHz	-40 ~ +85°C
ECS-2532HS High Stability HCMOS	3.2 x 2.5 x 0.90	1 MHz	55 MHz	-40 ~ +85°C
ECS-3250SS Spread Spectrum	5.0 x 3.2 x 1.05	10 MHz	168 MHz	-40 ~ +85°C
ECS-327SMO (3.3V)	6.5 x 4.0 x 2.00	32.768 KHz	32.768 KHz	-40 ~ +85°C
ECS-3951C (5.0V)	7.0 x 5.0 x 1.60	1.8 MHz	125 MHz	-40 ~ +85°C
ECS-3953C (3.3V)	7.0 x 5.0 x 1.60	1.8 MHz	125 MHz	-40 ~ +85°C

Series	Output	Minimum Frequency	Maximum Frequency	Voltage
ECX-H	HCMOS	10 MHz	250 MHz	+2.5 or 3.3V
ECX-P	LVPECL	10 MHz	1500 MHz	+2.5 or 3.3V
ECX-L	LVDS	10 MHz	1500 MHz	+2.5 or 3.3V
ECXV-H	HCMOS	10 MHz	250 MHz	+2.5 or 3.3V
ECXV-P	LVPECL	10 MHz	1500 MHz	+2.5 or 3.3V
ECXV-L	LVDS	10 MHz	1500 MHz	+2.5 or 3.3V
ETXO-H	HCMOS	10 MHz	250 MHz	+2.5 or 3.3V
ETXO-P	LVPECL	10 MHz	1500 MHz	+2.5 or 3.3V
ETXO-L	LVDS	10 MHz	1500 MHz	+2.5 or 3.3V

Thru Hole Oscillators

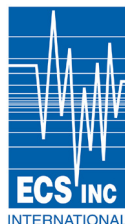
Series	Package Size LWH (mm)	Minimum Frequency	Maximum Frequency	Maximum Operating Temperature
ECS-100X	20.86 x 13.2 x 5.08	1 MHz	150 MHz	0 ~ +70°C
ECS-200X	20.86 x 13.08 x 5.08	1 MHz	150 MHz	0 ~ +70°C
ECS-400X	20.8 x 13.08 x 5.08	250 KHz	150 MHz	0 ~ +70°C
ECS-1000X	20.7 x 12.9 x 5.0	1 MHz	150 MHz	0 ~ +70°C
ECS-2100X	13.2 x 13.2 x 5.4	1 MHz	150 MHz	0 ~ +70°C
ECS-2200X	13.2 x 13.2 x 5.4	1 MHz	150 MHz	0 ~ +70°C

VCXO, TCXO, VC-TCXO

Series	VCXO/VC-TCXO/TCXO	Package Size (mm)	Minimum Frequency	Maximum Frequency	Maximum Operating Temperature
ECS-TXO-2520	TCXO	2.5 x 2.0 x 0.9	3.2 MHz	55 MHz	-40 ~ +85°C
ECS-TXO-3225	TCXO	3.2 x 2.5 x 1.0	8.192 MHz	40 MHz	-40 ~ +85°C
VC-TXO-23SM	VC-TCXO	3.2 x 2.5 x 0.9	10 MHz	40 MHz	-30 ~ +85°C
ECS-TXO-5032	TCXO	5.0 x 3.2 x 1.5	6.4 MHz	38.4 MHz	-40 ~ +85°C
VC-TXO-35SM	VC-TCXO	5.0 x 3.2 x 1.5	12 MHz	26 MHz	-30 ~ +80°C
VC-TXO-30SM	VC-TCXO	7.0 x 5.0 x 2.0	12.6 MHz	19.8 MHz	-30 ~ +80°C
VC-TXO-39SMX	VC-TCXO	11.4 x 9.6 x 2.3	10 MHz	19.44 MHz	-30 ~ +75°C
ECS-2532VXO	VCXO	3.2 x 2.5 x 0.9	2 MHz	54 MHz	-10 ~ +70°C
ECS-VXO-73	VCXO	7.0 x 5.0 x 1.6	3 MHz	77.76 MHz	-10 ~ +70°C
ECS-VXO-75	VCXO	7.0 x 5.0 x 1.6	3 MHz	77.76 MHz	-10 ~ +70°C
ECS-VXO-97	VCXO	7.0 x 5.0 x 1.8	8 MHz	40 MHz	-10 ~ +60°C
ECS-500X	TCXO	20.5 x 12.8 x 7.2	8 MHz	80 MHz	-20 ~ +70°C

Power Inductors

Series	Package Size (LWH) mm	Inductance Range	Maximum Operating Temperature
ECS-MPI2520R0	2.5 x 2.0 x 1.0	0.47 - 4.7 uH ±20%	-40 ~ +105°C
ECS-MPI2520RI	2.5 x 2.0 x 1.2	0.47 - 10 uH ±20%	-40 ~ +105°C
ECS-MPI4040R1	4.7 x 4.31 x 1.2	0.09 - 10 uH ±20%	-55 ~ +125°C
ECS-MPI4040R2	4.7 x 4.31 x 1.5	0.47 - 10 uH ±20%	-55 ~ +125°C
ECS-MPI4040R3	4.7 x 4.31 x 1.85	0.22 - 22 uH ±20%	-55 ~ +125°C
ECS-MPI4040R4	4.7 x 4.31 x 2.0	0.22 - 22 uH ±20%	-55 ~ +125°C
ECS-MPIL0530	5.49 x 5.18 x 3.0	0.68 - 22 uH ±20%	-55 ~ +165°C
ECS-MPIL0630	7.4 x 6.6 x 3.0	0.1 - 22 uH ±20%	-55 ~ +165°C



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