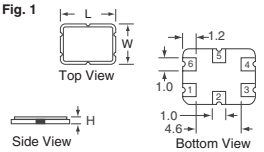
ECS INC. INTERNATIONAL Monolithic Crystal Filters

Fig.	Center Freq. (MHz)	Pass-band (kHz)	No. of Poles	Digi-Key Part No.	Cut Tape Price Each 1	10	100	Tape and Reel† Qty.	Pricing	ECS Part No.
				SMD						
1	21.4	7.5	2	X715CT-ND	8.10	7.29	6.08	500	2025.00	ECS-96SMF21A7.5
	21.4	15	2	X713CT-ND	7.31	6.08	4.84	1,000	3375.00	ECS-96SMF21A15
	21.4	20	2	X716CT-ND	8.10	7.29	6.08	500	2025.00	ECS-96SMF21A20
	21.4	30	2	X717CT-ND	8.31	7.48	6.24	500	2077.50	ECS-96SMF21A30
	45	30	2	X714CT-ND	10.56	8.78	6.99	1,000	4875.00	ECS-96SMF45A30
2	45	7.5	4	X718CT-ND	27.99	25.20	21.00	500	6997.50	ECS-75SMF45A7.5B
	45	30	4	X719CT-ND	27.99	25.20	21.00	500	6997.50	ECS-75SMF45A30B
	45	15	2	X720CT-ND	21.00	18.90	15.75	500	5250.00	ECS-38SMF45A15
	45	30	2	X721CT-ND	21.00	18.90	15.75	500	5250.00	ECS-38SMF45A30
				Through-Hole						
3	10.7	7.5	2	X701-ND‡	5.20	4.32	3.44	—	—	ECS-10.7-7.5A
	10.7	7.5	4	X702-ND‡§	12.03	9.99	7.96	—	—	ECS-10.7-7.5B
	10.7	15	2	X703-ND‡	3.09	2.57	2.05	—	—	ECS-10.7-15A
	10.7	15	4	X704-ND‡§	6.34	5.27	4.20	—	—	ECS-10.7-15B
	10.7	30	2	X705-ND‡	4.23	3.51	2.80	—	—	ECS-10.7-30A
	10.7	30	4	X706-ND‡§	8.78	7.29	5.81	—	—	ECS-10.7-30B
4	21.4	7.5	2	X707-ND‡	4.39	3.65	2.91	—	—	ECS-21K-7.5A
	21.4	7.5	4	X708-ND‡§	10.24	8.51	6.78	—	—	ECS-21K-7.5B
	21.4	15	2	X709-ND‡	4.39	3.65	2.91	—	—	ECS-21K-15A
	21.4	15	4	X710-ND‡§	10.24	8.51	6.78	—	—	ECS-21K-15B
	21.4	30	2	X711-ND‡	4.39	3.65	2.91	—	—	ECS-21K-30A
	21.4	30	4	X712-ND‡§	10.24	8.51	6.78	—	—	ECS-21K-30B

† For Tape and Reel part number, change CT-ND to TR-ND. ‡ Bulk
§ Through hole 4 pole filters are packaged in matched pairs.

Fig. 1

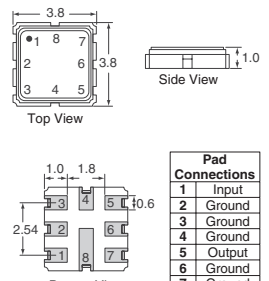


Dimensions	L	W	H
ECS-96SMF	7.0	5.0	1.5
ECS-75SMF	7.0	5.0	0.8

2-Pole Pad Connections	
1	In/Out
2	Ground
3	Ground
4	Out/In
5	Ground
6	Ground

4-Pole Pad Connections	
1	Ground
2	Zc
3	Out/In
4	Ground
5	Zc
6	In/Out

Fig. 2 Dimensions in mm



Pad Connections	
1	Input
2	Ground
3	Ground
4	Ground
5	Output
6	Ground
7	Ground
8	Ground

Fig. 3

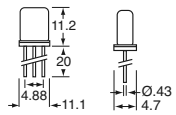
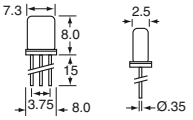


Fig. 4



D

Ceramic Resonators — Surface Mount

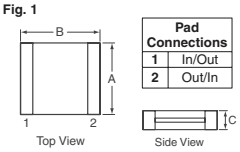
CR-2 Series: • Frequency Accuracy: ±0.5% • Stability in Temperature: -20°C ~ 80°C, ±0.3% • Aging for Ten Years: ±0.5% • Built-In Capacitance CR-2B: 10.0 ~ 12.0MHz 30pF, 16.0 ~ 20.0MHz 15pF ±20%
HFR Series: • Frequency Accuracy: ±0.5% • Stability in Temperature: -20° ~ 80°C; 20.0 ~ 30.0MHz ±0.4%; 40.0 ~ 50.0MHz ±0.3% • Aging for Ten Years: ±0.3% • Built-In Capacitance HFR-B: 8pF ±20%
SR1 Series: • Frequency Accuracy: ±0.5% • Stability in Temperature: -20°C ~ 80°C, ±0.3% • Aging for Ten Years: ±0.3% • Built-In Capacitance SR1-B: 30pF ±20%

Fig.	Series	Frequency (MHz)	Digi-Key Part No.	Cut Tape Price Each 1	10	100	Tape and Reel† Qty.	Pricing	ECS Part No.
1	ECS-CR2-A	10.00	XC1102CT-ND	.51	.46	.39	1,000	255.00	ECS-CR2-10.00-A-TR
		16.00	XC1104CT-ND	.51	.46	.39	1,000	255.00	ECS-CR2-16.00-A-TR
		20.00	XC1105CT-ND	.51	.46	.39	1,000	255.00	ECS-CR2-20.00-A-TR
2	ECS-CR2-B	10.00	XC1106CT-ND	.57	.52	.43	1,000	285.00	ECS-CR2-10.00-B-TR
		16.00	XC1108CT-ND	.57	.52	.43	—	—	ECS-CR2-16.00-B-TR
		20.00	XC1109CT-ND	.57	.52	.43	1,000	285.00	ECS-CR2-20.00-B-TR
	ECS-HFR-B	30.00	XC1098CT-ND	.57	.52	.43	1,000	285.00	ECS-HFR-30.00-B-TR
		40.00	XC1099CT-ND	.57	.52	.43	1,000	285.00	ECS-HFR-40.00-B-TR
3	ECS-SR1-A	3.58	X932CT-ND	.70	.60	.47	2,500	280.00/M	ECS-SR1-3.58-A-TR
		4.00	X933CT-ND	.70	.60	.47	2,500	280.00/M	ECS-SR1-4.00-A-TR
		4.19	X934CT-ND	.70	.60	.47	2,500	280.00/M	ECS-SR1-4.19-A-TR
		6.00	X935CT-ND	.70	.60	.47	2,500	280.00/M	ECS-SR1-6.00-A-TR
		8.00	X936CT-ND	.70	.60	.47	2,500	280.00/M	ECS-SR1-8.00-A-TR
4	ECS-SR1-B	3.58	X927CT-ND	.77	.66	.52	2,500	308.00/M	ECS-SR1-3.58-B-TR
		4.00	X928CT-ND	.77	.66	.52	2,500	308.00/M	ECS-SR1-4.00-B-TR
		4.19	X929CT-ND	.77	.66	.52	2,500	308.00/M	ECS-SR1-4.19-B-TR
		6.00	X930CT-ND	.77	.66	.52	2,500	308.00/M	ECS-SR1-6.00-B-TR
		8.00	X931CT-ND	.77	.66	.52	2,500	308.00/M	ECS-SR1-8.00-B-TR

† For Tape and Reel part number, change CT-ND to TR-ND.

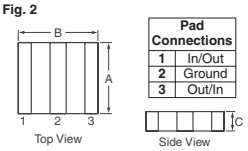
Dimensions - mm			
Series	A	B	C
CR-2	3.1	3.7	1.2
HFR	2.0	2.5	1.0
SR1 A	4.0	7.5	1.8
SR1 B	4.0	7.5	2.2

Fig. 1



Pad Connections	
1	In/Out
2	Out/In

Fig. 2



Pad Connections	
1	In/Out
2	Ground
3	Out/In

Fig. 3

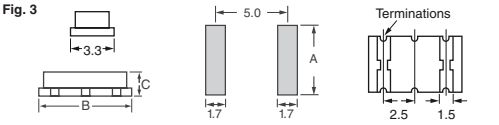
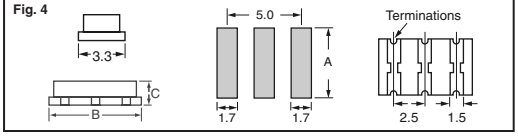


Fig. 4

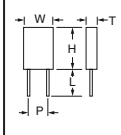


Ceramic Resonators — Through Hole

Fig.	Model/Series	Frequency	Digi-Key Part No.	Price Each 1	10	100	ECS Part No.
1	ZTB	200kHz	X919-ND	.84	.70	.56	ZTB200
		400kHz	X920-ND	.68	.57	.45	ZTB400P
		455kHz	X921-ND	.68	.57	.45	ZTB455E
		500kHz	X922-ND	.68	.57	.45	ZTB500E
		540kHz	X923-ND	.68	.57	.45	ZTB540P
		640kHz	X924-ND	.68	.57	.45	ZTB640P
		800kHz	X925-ND	.68	.57	.45	ZTB800J
		1,000kHz	X926-ND	.68	.57	.45	ZTB1000J
2	ZTT	3.58MHz	X901-ND	.54	.45	.36	ZTT-3.58MG
		3.68MHz	XC1017-ND	.50	.45	.36	ZTT-3.68MG
		4MHz	X902-ND	.54	.45	.36	ZTT-4.00MG
		4.19MHz	X903-ND	.54	.45	.36	ZTT-4.19MG
		6MHz	X904-ND	.54	.45	.36	ZTT-6.00MT
		8MHz	X905-ND	.54	.45	.36	ZTT-8.00MT
		10MHz	X906-ND	.54	.45	.36	ZTT-10.00MT
		12MHz	X907-ND	.54	.45	.36	ZTT-12.00MT
		16MHz	X908-ND	.54	.45	.36	ZTT-16.00MX
		20MHz	X909-ND	.54	.45	.36	ZTT-20.00MX
3	ZTA	6MHz	X913-ND	.49	.41	.33	ZTA-6.00MT
		8MHz	X914-ND	.49	.41	.33	ZTA-8.00MT
		10MHz	X915-ND	.49	.41	.33	ZTA-10.00MT
		12MHz	X916-ND	.49	.41	.33	ZTA-12.00MT
		16MHz	X917-ND	.49	.41	.33	ZTA-16.00MX
		20MHz	X918-ND	.49	.41	.33	ZTA-20.00MX
4	ZTA	3.58MHz	X910-ND	.49	.41	.33	ZTA-3.58MG
		4MHz	X911-ND	.49	.41	.33	ZTA-4.00MG
		4.19MHz	X912-ND	.49	.41	.33	ZTA-4.19MG

ZTT Series with Built-In Load Capacitance: • Frequency Accuracy: ±0.5% • Stability in Temperature: -20°C ~ 80°C, ±0.3% • Aging for Ten Years: ±0.3% • Built-in Capacitance: 30pf ±20%
ZTA and ZTB Series: • Frequency Accuracy: ±0.5% • Stability in Temperature: -20°C ~ 80°C, ±0.3% • Aging for Ten Years: ±0.5% • Operating Temperature: -20°C ~ 80°C

Fig. 1



Freq. Range	Dimensions - mm W	T	H	P	L
200	13.5	3.8	14.7	10	8.0
400	7.9	3.6	9.3	5.0	5.0
455~640	7.0	3.5	9.0	5.0	5.0
800~1,000	5.2	2.8	6.0	2.5	3.5

Fig. 2

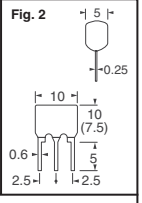


Fig. 3

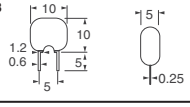
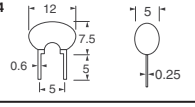


Fig. 4



Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.