



SAW Filters & SAW Duplexers

Product Name	Part Number	Package Type	Minimum Quantity* (Pieces)	
			Bulk	Tape
SAW Filter	CQSF_SS-33(8) / CQSF_SS-33(6)	SMD Type	-	1,000
SAW Filter	CQSF_SS-38(8) / CQSF_SS-38(6)	SMD Type	-	1,000
SAW Filter	CQSF_SS-55	SMD Type	-	1,000
SAW Filter	CQSF_F-11SS	SMD Type	-	500
SAW Filter	CQX_D / CQK_D / CQM_D	Lead Type	500	-
SAW Filter	CQSF_F-11	Lead Type	500	-
SAW Filter	CQSF_TO-39 / CQSF_TO-39-2	Lead Type	500	-
SAW Filter	CQSF_TO-39-3 / CQSF_TO-39-4	Lead Type	500	-

* The quantity of each delivery / order must be an integral multiple of the "Minimum Quantity"

● Dimension

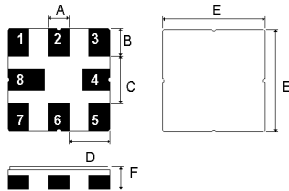
SS-33(8)

Pin No.	Function*
1	Input
2	Input ground
5	Output
6	Output ground
3,7	To be grounded
4,8	Case ground

* Pin function may vary

SS-33(8)	
A	0.6
B	0.75
C	1.5
D	1.2
E	3.0
F	1.1

Unit: mm
Tolerance: ±0.3mm



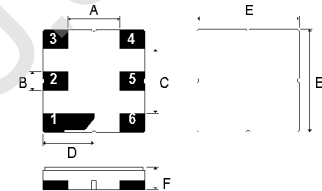
SS-33(6)

Pin No.	Function*
2	Input / output
5	Output / input
1,3,4,6	Ground

* Pin function may vary

SS-33(6)	
A	1.5
B	0.6
C	1.8
D	1.5
E	3.0
F	1.1

Unit: mm
Tolerance: ±0.3mm



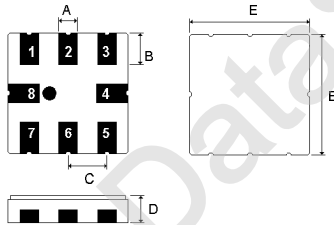
SS-38(8)

Pin No.	Function*
1	Input
2	Input ground
5	Output
6	Output ground
3,7	To be grounded
4,8	Case ground

* Pin function may vary

SS-38(8)	
A	0.6
B	1.0
C	1.27
D	1.5
E	3.8

Unit: mm
Tolerance: ±0.3mm



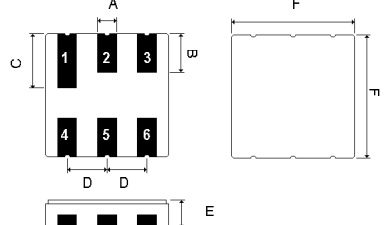
SS-38(6)

Pin No.	Function*
2	Input / output
5	Output / input
1,3,4,6	Ground

* Pin function may vary

SS-38(6)	
A	0.6
B	1.0
C	1.6
D	1.27
E	1.2
F	3.8

Unit: mm
Tolerance: ±0.3mm



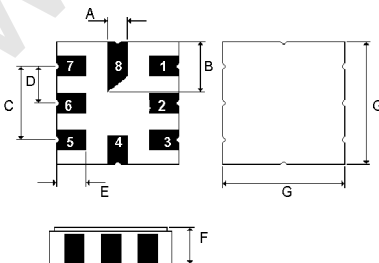
SS-55

Pin No.	Function*
1	Input
5	Output
2,7	Input ground
3,6	Output ground
4,8	Case ground

* Pin function may vary

SS-55	
A	0.6
B	2.08
C	2.54
D	1.27
E	1.2
F	1.35
G	5.0

Unit: mm
Tolerance: ±0.3mm



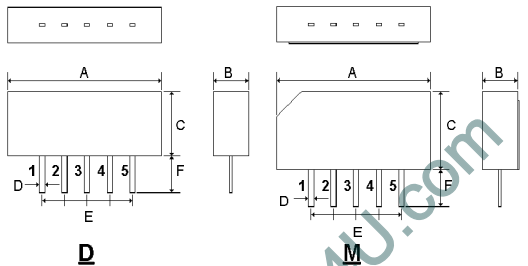
D / M

Pin No.	Function*
1	Input
2	Input ground
3	Ground
4	Output
5	Output

* Pin function may vary

	X D	X M
A	14.5	17.3
B	3.8	3.9
C	5.8	8.7
D	0.54	0.64
E	4x2.54	4x2.54
F	3.5	3.5

Unit: mm
Tolerance: ±0.3mm





TO-39-2 / TO-39-3 / TO-39 / TO-39-4

Pin No.	Function*
1	Input / output
2	Output / input
3	Ground

* Pin function may vary

	TO-39-2
A	∅5.08
B	∅9.15
C	3.5 max.
D	2.0 min.
E	∅0.5 x 3

Unit: mm
Tolerance: ±0.3mm

Pin No.	Function*
1	Input / output
2	Output2 / input2
3	Output1 / input1
4	Ground

* Pin function may vary

	TO-39-3
A	∅5.08
B	∅9.15
C	3.5 max.
D	2.0 min.
E	∅0.5 x 3

Unit: mm
Tolerance: ±0.3mm

Pin No.	Function*
1	Input
2	Output
3	Ground

* Pin function may vary

	TO-39
A	∅5.08
B	∅9.15
C	3.5 max.
D	2.0 min.
E	∅0.5 x 3

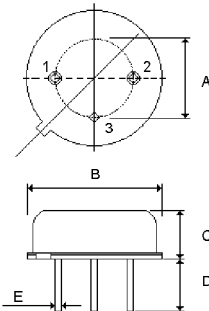
Unit: mm
Tolerance: ±0.3mm

Pin No.	Function*
1	Ground
2	Ground
3	Input / output
4	Output / input
5	Ground

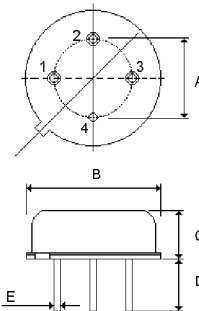
* Pin function may vary

	TO-39-4
A	∅9.16
B	∅15.3
C	4.5 max.
D	3.5 min.
E	∅0.65 x 5
F	2.54

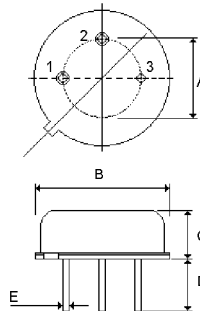
Unit: mm
Tolerance: ±0.3mm



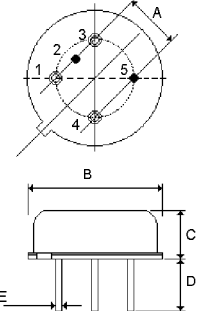
TO-39-2



TO-39-3



TO-39



TO-39-4

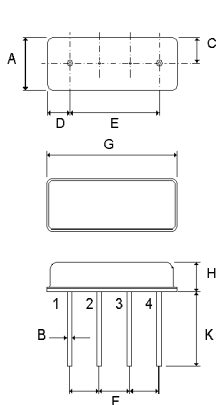
F-11 / F-11SS

Pin No.	Function*
1	Input / output
2,3	Ground
4	Output / input

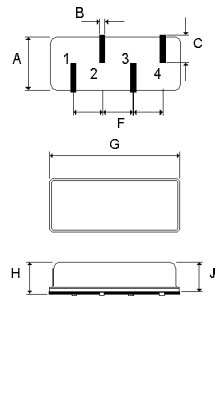
* Pin function may vary

	F-11	F-11SS
A	4.5±0.5	4.5±0.5
B	0.45±0.2	0.6±0.05
C	2.25±0.2	2.45±0.2
D	1.7±0.2	-
E	7.6±0.2	-
F	2.54±0.2	2.54±0.2
G	11.0±0.5	11.0±0.5
H	3.2±0.3	4.1±0.3
J	-	3.4±0.3
K	6.3±0.5	-

Unit: mm
Tolerance: ±0.3mm



F-11



F-11SS



● Front-end SAW Filters For Automotive Electronics & Remote Controls

Center Frequency (MHz)	Insertion Loss (dB max.)	3dB Bandwidth (MHz)	Package	Application(s)
295	3.0	0.6	TO-39	Automotive Electronics & Remote Controls
303.825	3.0	0.6	TO-39	
303.825	3.0	0.6	SS-55	
303.875	3.0	0.6	TO-39	
303.875	3.0	0.6	SS-55	
310	3.0	0.8	SS-55	
315	3.0	0.6	TO-39	
315	3.0	0.6	F-11	
315	3.0	0.6	SS-55	
315.5	3.0	0.6	TO-39	
318	3.0	0.6	TO-39	
319.5	2.5	0.7	TO-39	
345	2.5	4.5	SS-38(8)	
345	3.0	0.9	SS-55	
372.5	3.0	0.6	TO-39	
390	3.0	1.0	SS-55	
395	3.0	1.0	SS-55	
401.65	3.0	0.6	SS-55	
401.9	3.0	0.6	TO-39	
418	3.0	0.6	TO-39	
418	3.0	0.6	SS-55	
419.2	3.0	1.2	SS-55	
430.5	3.0	0.6	TO-39	
430.5	3.0	0.6	F-11	
433.42	3.5	0.6	SS-55	
433.42	3.0	0.9	SS-38(6)	
433.92	3.0	0.6	TO-39	
433.92	3.0	0.6	F-11	
433.92	3.0	0.6	SS-55	
433.92	2.0	0.73	TO-39	
433.92	2.0	0.73	SS-55	
433.92	2.5	0.6	SS-55	
433.92	2.5	0.95	SS-55	
433.92	2.2	0.7	SS-55	
433.92	2.8	6.0	SS-38(8)	
433.92	2.3	0.56	SS-38(8)	
434.42	3.0	0.6	SS-55	
463.912	2.5	1.2	SS-55	
499.25	3.0	0.54	TO-39	
859.15	4.0	1.0	F-11	
868	3.5	1.2	SS-55	
868.3	4.0	1.2	SS-55	
868.35	4.0	1.2	F-11	
868.35	4.0	1.2	SS-55	
868.35	3.5	1.8	SS-38(8)	
902.3	3.5	1.2	SS-55	
914.5	3.8	1.2	F-11	
915	3.5	1.2	TO-39	
915	4.0	1.2	SS-55	
916.5	4.0	1.2	TO-39	
916.5	3.5	1.2	F-11	
916.5	4.0	1.2	SS-55	
916.5	4.0	1.2	SS-55	

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.



● SAW Filters For Satellite Receiver

Center Frequency (MHz)	Insertion Loss (dB max.)	3dB Bandwidth (MHz)	Package	Application(s)
480.0	21	18	TO-39-2	One-Channel Satellite Filters
	21	18	SS-55	
	22.5	27	TO-39-2	
	22.5	27	SS-55	
	20	27	TO-39-2	
	21	36	TO-39-2	
	15	16	TO-39	
	4	22	TO-39-2	
479.5	24	54	TO-39-3	
	21.5	8	TO-39-2	
	21.5	8	SS-55	
	18	6.5	TO-39-2	
	22	16 (5.5dB)	TO-39-3	
	22	16 (5.5dB)	F-11	
	22	16 (5.5dB)	SS-55	
	23.3	18 (5.5dB)	TO-39-3	
	21 / 21	27 / 18	TO-39-3	
	21.8 / 22	15 / 27	TO-39-3	
480.0	22 / 25	27 / 36	TO-39-3	
	21.5 / 23.5	8 / 54	TO-39-3	
402.78	20.5 / 20.0	15.5 / 28.0	TO-39-3	
	20.5 / 20.0	15.5 / 28.0	SS-55	

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● SAW Filters For CATV Channel (PAL Systems)

Center Frequency (MHz)	Insertion Loss (dB max.)	1dB Bandwidth (MHz)	Passband Ripple (dB max.)	Package
52.5	23.0 (typical)	6.75MHz (Ch1~Ch5) 6.50MHz	±0.6	TO-39-4
68.5				
88.0				
179.0				
195.0				
211.0				
115.0				
131.0				
147.0				
163.0				
60.5				
80.0				
171.0				
187.0				
203.0				
219.0				
123.0				
139.0				
155.0				
227.0				
610.0	6.5 (typical)	6.75MHz (Ch1~Ch5) 6.50MHz	±1.0	TO-39

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● RF Filters For Cellular Phone

System	Center Frequency (MHz)	Bandwidth (MHz)	Insertion Loss (dB max.)	Package	
AMPS	Tx	836.5	25	2.7	SS-33(6)
	Rx	881.5	25	2.7	
CDMA	Tx	902.5	25	2.7	SS-33(6)
	Rx	947.5	25	2.7	
GSM	Tx	897.5	26	3.0	SS-38(6)
			35	2.7	
EGSM	Rx	945.0	35	2.7	SS-38(6)
			35	2.7	
PCN / DCS	Rx	1842.5	75	3.5	SS-33(6)
K-PCS	Rx	1855.0	30	3.0	SS-33(6)

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.



● SAW Duplexers For Cordless Phone

Lower Center Frequency (MHz)	Upper Center Frequency (MHz)	Insertion Loss (dB max.)	System	Package
26.40	41.40	6.0 / 4.0	CT1	W2
45.24	48.24	4.5 / 4.5		
46.79	49.83	3.5 / 3.5		
903	927	3.5 / 3.5	ISM band	SS-38(8)
903.45	926.45	3.5 / 3.5		
		3.5 / 3.5		
903.75	926.25	3.5 / 3.5	ISM band	TO-39
		3.5 / 3.5		TO-39
		3.5 / 3.5		SS-55
		3.5 / 3.5		SS-55
		3.5 / 3.5		SS-38(8)
914.5	959.5	3.5 / 3.5	CT1	TO-39
		3.5 / 3.5		TO-39
		3.5 / 3.5		SS-55
		3.5 / 3.5		SS-55
		3.5 / 3.5		SS-38(8)

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● SAW Filters For FRS & PMA

Center Frequency (MHz)	Bandwidth (MHz)	Insertion Loss (dB max.)	Rejection (dB min.)	I/O Impedance (Ω)	Package
295	±2.0 (Typical)	4.5	50	50	TO-39
311				150	F-11
311				150	SS-55
315				50	SS-55
318				50	TO-39
350				50	F-11
350				50	SS-55
380				50	SS-55
395				50	SS-55
400				50	F-11
403				50	F-11
406				50	F-11
410				50	F-11
410				150	F-11
410				50	F-11SS
410				50	SS-55
410				50	SS-38(6)
418				150	F-11
425				50	SS-38(6)
426				50	F-11
426				50	SS-55
426				50	SS-38(6)
429				50	SS-38(6)
430				50	F-11
430				50	SS-38(6)
434				50	SS-38(6)
446				50	F-11
446				150	F-11
446				50	SS-55
446				150	SS-55
448				50	SS-38(6)
450				50	F-11
450	50	SS-38(6)			
455	50	SS-38(6)			
458	50	F-11			
460	50 // 10nH	SS-55			
465	50	F-11			
465	150	F-11			
465	50	F-11SS			
465	150	F-11SS			
465	50	SS-55			
465	50	SS-38(6)			
470	50	F-11			
475	50	F-11			

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.



● IF Filters For Wireless LAN

Center Frequency (MHz)	3dB Bandwidth (MHz)	Insertion Loss (dB max.)	Package
280	20	11	SS-55
374	22	9	TO-39
374	22	8.5	TO-39
374	22	9	SS-55
374	22	8.5	SS-55
374	19	9	SS-55
374	20.5	9	SS-55
374	23	9	SS-38(8)

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● RF Filters For GPS

Center Frequency (MHz)	Bandwidth (MHz)	Insertion Loss (dB max.)	Package
1542.50	34	3.3	SS-33(6)
1575.42	2.4	1.6	SS-33(6)

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● IF Filters For Base Station

Center Frequency (MHz)	3dB Bandwidth (MHz)	Insertion Loss (dB max.)	System	Package
70	6.0	21.8	CDMA	DIP3512*
70	19.2	34.3		DIP3512*
233.15	0.52	14.2	PHS	F-16*

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

* For package information, please contact our sales representative for more information

● IF Filters For Wireless Local Loop / Broadband Access

Center Frequency (MHz)	3dB Bandwidth (MHz)	Insertion Loss (dB max.)	System	Package
110.592	±0.576 min.	3.5	DECT	SR-75*
112.32	1.05	13.5		DOC14C*
204	1.15	9	SCDMA	SR-75*

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

* For package information, please contact our sales representative for more information

● IF Filters For Pager Application

Center Frequency (MHz)	3dB Bandwidth (MHz)	Insertion Loss (dB max.)	Package
139	±4.0	6.5 max.	F-11
147	±4.0	6.5 max.	F-11
147	±4.0	6.5 max.	SS-55
155	±4.0	6.5 max.	F-11
155	±4.0	6.5 max.	SS-55
163	±4.0	6.5 max.	F-11
163	±4.0	6.5 max.	SS-55
171	±4.0	6.5 max.	F-11
281	±3.0	4.5 max.	F-11
281	±4.0	4.5 max.	SS-55
930.5	±2.0	4.5 max.	F-11

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.



● Bandpass Filters for Digital Cable Applications

Center Frequency (MHz)	Part No.	Package	3dB Bandwidth (MHz)	Application(s)
36.125	CQX3134D	D	6.0	DVB-C (Europe), Euro DOCSIS
36.125	CQX3033D	D	8.0	DVB-C (Europe), Euro DOCSIS
43.75	CQX3035D	M	6.0	DVB-C (US), OpenCable DOCSIS
44.00	CQX3034D	D	6.0	DVB-C (US), OpenCable

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● Bandpass Filter for Digital Terrestrial TV Applications

Center Frequency (MHz)	Part No.	Package	3dB Bandwidth (MHz)	Application(s)
36.00	CQX3142D	D	8.1	DVB-T (Europe)
36.125	CQX3125D	D	8.0	DVB-T (Europe)
36.17	CQX2748D	D	7.0 / 8.0	DVB-T (Europe), Switchable IF Filter
44.00	CQX3058D	D	5.6	ATSC (US), HDTV

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● Bandpass Filters for Digital Audio Applications

Center Frequency (MHz)	Part No.	Package	3dB Bandwidth (MHz)	Application(s)
36.00	CQX3142D	D	8.1	DAB
38.912	CQX3077D	D	1.5	

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● IF Filters for Intercarrier Applications

Picture Carrier (MHz)	Part No.	Package	TV System	PC-SC Distance (MHz)	Sound Carrier (dB)	Color Carrier (dB)
38.90	CQK7044D	M	B/G, D/K	5.5 – 6.5	21, 20	3.8
38.90	CQK7033D	D	B/G, D/K	5.5 – 6.5	19, 20	3.1
45.75	CQM8032D	D	M/N	4.5	19	1.0

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● IF Filters for Video Applications

Picture Carrier (MHz)	Part No.	Package	TV System	PC-SC Distance (MHz)	Sound Carrier (dB)	Color Carrier (dB)
33.90	CQK6046D	M	L	-6.5	53	-
38.90			B/G, D/K, L, I	5.5 – 6.5	24, 52	1.0
33.90	CQK2742D	M	L	-6.5	53	-
38.90			B/G, D/K, L,	5.5 – 6.5	43, 60	0.5
38.90			M/N	4.5	39	2.6
38.00	CQK2737D	D	B/G, D/K	5.5 – 6.5	53, 44	1.8
38.00			M/N	4.5	47	1.9
38.00	CQK6042D	M	B/G, D/K	5.5 – 6.5	48, 55	1.0

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● IF Filters for Audio Applications

Sound Carrier (MHz)	Part No.	Package	TV System	PC-SC Distance (MHz)	Picture Carrier (dB)
31.50 – 32.50	CQK0544D (38.00)	M	Channel 1: D/K, I, B/G	5.5 – 6.5	-56
33.50			Channel 2: M/N	4.5	-56
39.75 (L' NICAM) 40.40 (L')	CQK0543D	D	Channel 1: L' NICAM (PC: 38.90MHz)	-6.5	-49
32.40 – 33.40			Channel 2: B/G, D/K, L, I (PC: 38.90MHz)	5.5 – 6.5	-50
39.75 (L' NICAM) 40.40 (L')	CQK0343D	M	Channel 1: L' NICAM (PC: 38.90MHz)	-6.5	-51
32.40 – 33.40			Channel 2: B/G, D/K, L, I (PC: 38.90MHz)	5.5 – 6.5	-41
32.40 – 33.40	CQK0346D (38.90)	D	Channel 1: B/G, I, D/K	5.5 – 6.5	-50
34.40			Channel 2: M/N	4.5	-54

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.

● Bandpass Filters for Dual Conversion Turners

Center Frequency (MHz)	Bandwidth (MHz)	Insertion Loss (dB max.)	Package
1090	12	4.0	SS-38(8)
1120	32	3.5	SS-38(8)
1120	32	3.5	SS-33(8)
1216	8	3.2	SS-33(8)
1220	8	4.7	SS-38(8)

- Other frequencies and specifications are also available upon request, please consult with our sales representatives.