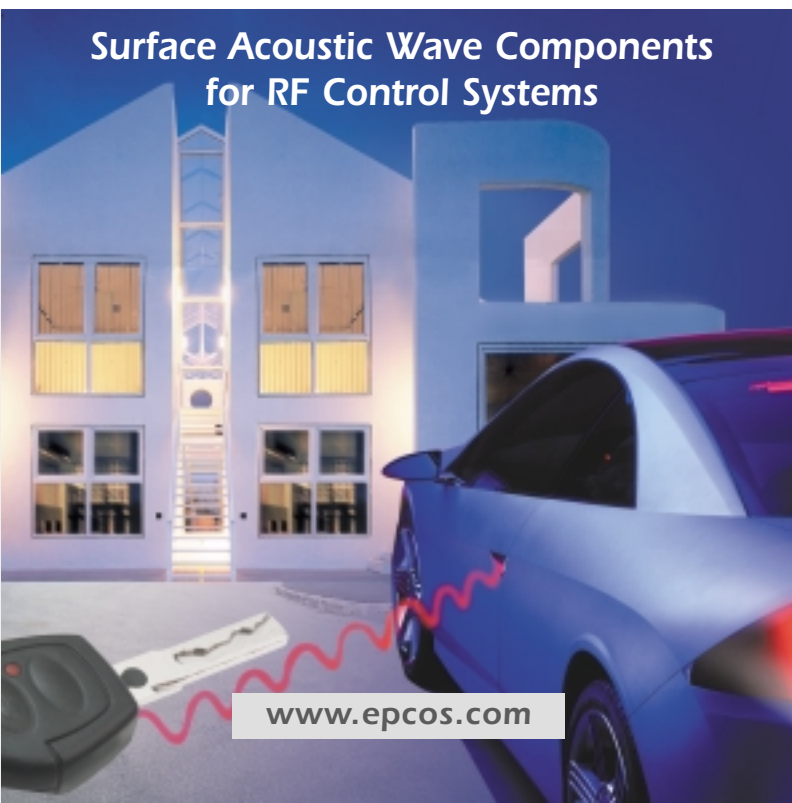




SAW

Surface Acoustic Wave Components
for RF Control Systems



www.epcos.com



Applications

Automotive

■ Remote keyless entry



■ Tire-pressure monitoring



■ Automotive telematics



Security and Access

■ Fire alarm, burglar alarm



■ Access control and tagging



Home Convenience

■ Wireless switches



■ Meter reading



■ Garage-door openers



■ Wireless audio





Introduction

What are SAW components used for?

In remote control applications, **SAW resonators** provide stable frequencies for the RF carrier signal to **transmit** data over a range of 10 to 300 m or for the local oscillators of superhet receivers.

The **front-end filter** in the **receiver** eliminates interference from the incoming RF signal, thus increasing selectivity and sensitivity in short-range devices.

Benefits

- SAW resonators with tight frequency tolerances:
±100/±75/±50 kHz
- Identical pinning for all standard frequencies in each package size
- Hermetically sealed SMD packages allow the SAW components to operate even in extremely hostile environments:
 - Extended operating temperature range from –40 °C up to +125 °C
 - Improved shock and vibration strength thanks to stress-free cold seam-welding of the metal lid
- Enhanced reliability (particle protection) and reduced aging by patented PROTEC® and ELPAS® technologies
- 100% final examination
- All EPCOS factories are certified to automotive standard ISO/TS 16949
- Component qualification to automotive test procedure AEC-Q200
- Full level 3 PPAP available
- Unique production know-how and volume benefits from the world market leader in SAW components:
“No less than three million SAW components leave our factories every day”



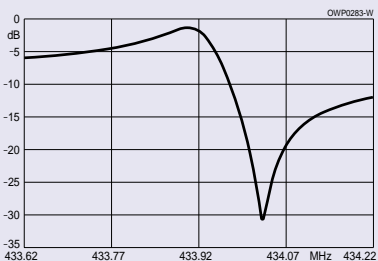
Resonators

General characteristics

■ Center frequency tolerance	± 50 kHz; ± 75 kHz; ± 100 kHz
■ Insertion loss	< 1.5 dB (typ.)
■ Substrate	Quartz
■ Passivation	PROTEC [®] , ELPAS [®]
■ Package	DCC6C, QCC4A, QCC8C

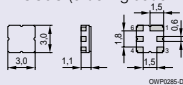
Example for R900

Transfer function

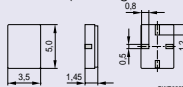


Outline drawings

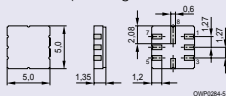
DCC6C (ordering code: "-U410"):



QCC4A (ordering code: "-H210"):



QCC8C (ordering code: "-U310"):



Main representatives

f_c [MHz]	f_c tolerance [kHz]	Ordering code	Market
1-port configuration			
315.02	± 50	B39321 R851 H210	USA
315.00	± 75	B39321 R901 U410	USA
315.00	± 100	B39321 R981 U410	USA
315.50	± 75	B39321 R903 U410	China
433.94	± 50	B39431 R850 H210	Europe
433.92	± 75	B39431 R900 U410	Europe
433.92	± 100	B39431 R980 U410	Europe
868.30	± 75	B39871 R858 H210	Europe
2-port configuration			
433.92	± 75	B39431 R2701 U310	Europe
868.30	± 100	B39871 R2711 U310	Europe
915.00	± 350	B39921 R2706 U310	USA



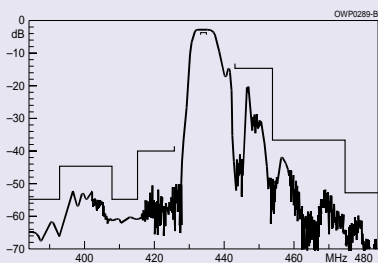
Wideband Filters

General characteristics

■ Usable bandwidth	Typically 1 to 3 MHz
■ Substrate	Lithium tantalate
■ Passivation	ELPAS®
■ Input/output impedance	50 Ω matched
■ Selectivity	Suitable for systems with IF=10.7 MHz
■ Remarks	Excellent for fixed frequency and channelized systems
■ Package	DCC6C, QCC8B

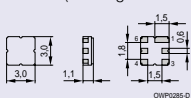
Example for B3710

Transfer function

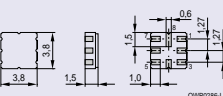


Outline drawings

DCC6C (ordering code: "-U410"):



QCC8B (ordering code: "-Z810"):



Main representatives

f_c [MHz]	Usable band- width [MHz]	Ordering code	Market
312.20	2.0	B39311 B3712 U410	Japan
315.00	1.0	B39321 B3711 U410	USA
433.92	1.7	B39431 B3710 U410	Europe
864.00	3.0	B39861 B3563 U410	Europe (wireless audio)
869.00	2.0	B39871 B3715 U410	Europe
915.00	26.0	B39921 B3588 U410	USA
1575.00	2.4	B39162 B3521 U410	GPS worldwide
2450.00	97.0	B39252 B4041 U410	worldwide



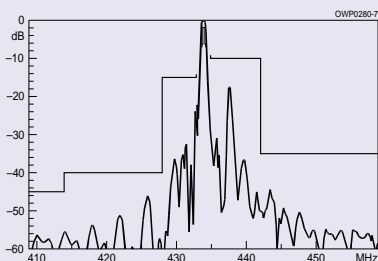
Narrowband Filters

General characteristics

<ul style="list-style-type: none"> ■ Usable bandwidth ■ Substrate ■ Passivation ■ Input/output impedance ■ Selectivity ■ Remarks ■ Package 	<p>Approximately 0.3 to 0.6 MHz Quartz PROTEC®, ELPAS® $> 50 \Omega$ Excellent, especially close to the carrier frequency Well suited for Europe – avoids interference caused by the Tetra system QCC8B, QCC8C</p>
---	--

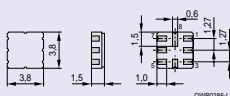
Example for B3760

Transfer function

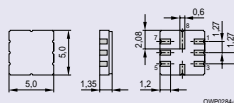


Outline drawings

QCC8B (ordering code: "-Z810"):



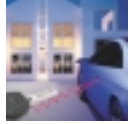
QCC8C (ordering code: "-U310"):



Main representatives

f_c [MHz]	Usable band- width [MHz]	Ordering code	Market
312.20	0.36	B39311 B3766 Z810	Japan
315.00	0.36	B39321 B3761 Z810	USA
315.15	0.36	B39321 B3763 Z810	China
315.50	0.36	B39321 B3765 Z810	China
433.92	0.36	B39431 B3760 Z810	Europe
447.73	0.36	B39451 B3767 Z810	Korea
868.30	0.60	B39871 B3762 Z810	Europe

Ultra-Narrowband Filters

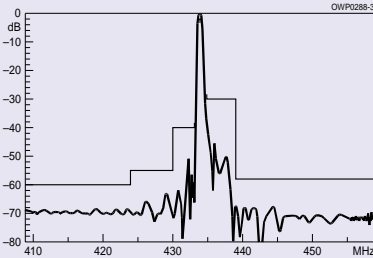


General characteristics

<ul style="list-style-type: none"> ■ Usable bandwidth ■ Substrate ■ Passivation ■ Input/output impedance ■ Selectivity ■ Remarks ■ Package 	<p>Approximately 0.1 to 0.3 MHz Quartz PROTEC®, ELPAS® > 50 Ω</p> <p>Very steep skirts close to the carrier frequency Excellent image-frequency rejection; needs external coupling coil</p> <p>QCC8B, QCC8C</p>
---	--

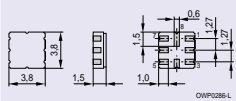
Example for B3575

Transfer function

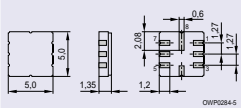


Outline drawings

QCC8B (ordering code: "-Z810"):



QCC8C (ordering code: "-U310"):



Main representatives

f_c [MHz]	Usable band- width [MHz]	Ordering code	Market
315.00	0.20	B39321 B3576 U310	USA
433.42	0.22	B39431 B3567 U310	Europe
433.92	0.12	B39431 B3790 Z810	Europe
433.92	0.22	B39431 B3575 U310	Europe
868.30	0.28	B39971 B3574 U310	Europe

Contacts



Your sales partners worldwide

Internet: www.epcos.com – See Sales Offices & Distributors

Further product information

- Automotive SAW Application (Toolkit)
CD ROM, English: EPC:20002-7600
- Data sheets for complete product range:
www.epcos.com/rke

EPCOS at a Glance

EPCOS is the successor to Siemens Matsushita Components and manufactures some 40,000 electronic components, such as capacitors, ceramic components, surface acoustic wave (SAW) components and ferrites. The company serves the fastest growing and technologically most demanding markets: information + communications, automotive, industrial and consumer electronics. EPCOS, with headquarters in Munich, Germany, is the market leader in Europe and no.2 worldwide and has R&D locations, production plants and sales centers in over 100 countries.

Herausgegeben von EPCOS AG

**Unternehmenskommunikation, Postfach 80 17 09,
81617 München, DEUTSCHLAND**

 **++49 89 636 09, FAX (0 89) 636-2 26 89**

©EPCOS AG 2004. Vervielfältigung, Veröffentlichung, Verbreitung und Verwertung dieser Broschüre und ihres Inhalts ohne ausdrückliche Genehmigung der EPCOS AG nicht gestattet.

Bestellungen unterliegen den vom ZVEI empfohlenen Allgemeinen Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie, soweit nichts anderes vereinbart wird.

Diese Broschüre ersetzt die vorige Ausgabe.

Fragen über Technik, Preise und Liefermöglichkeiten richten Sie bitte an den Ihnen nächstgelegenen Vertrieb der EPCOS AG oder an unsere Vertriebsgesellschaften im Ausland. Bauelemente können aufgrund technischer Erfordernisse Gefahrstoffe enthalten.

Auskünfte darüber bitten wir unter Angabe des betreffenden Typs ebenfalls über die zuständige Vertriebsgesellschaft einzuholen.

Published by EPCOS AG

**Corporate Communications, P.O. Box 80 17 09,
81617 Munich, GERMANY**

 **++49 89 636 09, FAX (0 89) 636-2 26 89**

©EPCOS AG 2004. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.