



SAW Components

SAW Duplexer

LTE Band 17

Series/type:	B7924
Ordering code:	B39741B7924P810
Date:	March 23, 2011
Version:	1.5



SAW Components

B7924

SAW Duplexer

710.0 / 740.0 MHz

Preliminary data



Revision History

Changes compared to previously issued iteration

Issue	Originator	Detailed specification changes	Date
0.3	X. Perois	Design Goal LU34A	Nov. 19th, 2009
LU34B 1.3	P.Nicolay	Ordering code B7924	Dec. 12th, 2010
0.4	F.HAON	Design Goal (LU34C)	Feb. 09th, 2011
1.5	F.HAON	Sample data after first sample run LU34C	March 23th, 2011



Preliminary data



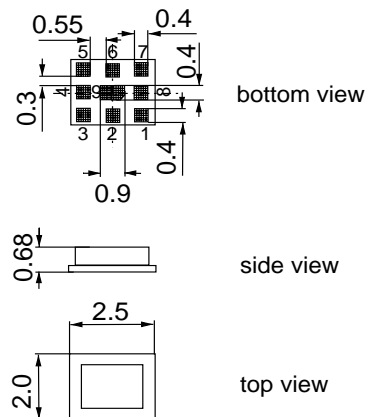
Application

- Low-loss SAW duplexer for mobile telephone LTE Band 17 systems
- High attenuation
- High Isolation
- Low amplitude ripple
- Usable passband 12 MHz
- Single-ended to balanced transformation in Antenna-Rx path
- Impedance transformation 50 Ω to 100 Ω in Antenna-Rx path
- Very small size and low height



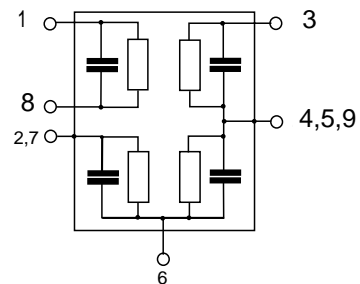
Features

- Package size 2.5 * 2.0 * 0.68 mm³
- RoHS compatible
- Package for **Surface Mount Technology (SMT)**
- Ni, Au-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitivity Level 3**



Pin configuration

- 3 Tx input
- 1, 8 Rx output (balanced)
- 6 Antenna
- 2, 4, 5, 7, 9 To be grounded





SAW Components	B7924
SAW Duplexer	710.0 / 740.0 MHz

Preliminary data **SMD**

Characteristics

Temperature range for specification: $T = -20\text{ °C to }+85\text{ °C}$
 TX terminating impedance: $Z_{Tx} = 50\ \Omega$
 ANT terminating impedance: $Z_{Ant} = 50\ \Omega \parallel 10\text{ nH}$
 RX terminating impedance: $Z_{Rx} = 100\ \Omega\text{ (balanced)} \parallel 82\text{ nH}$

Characteristics Tx-Antenna	Development status ¹⁾			DGL ²⁾	
	min.	typ. @ 25 °C	max.		
Center frequency f_c				710.0	MHz
Maximum insertion attenuation α					
704.0 ... 716.0 MHz	-	1.5	2.5		dB
Amplitude ripple (p-p) $\Delta\alpha$					
704.0 ... 716.0 MHz	-	0.5	1.8		dB
Error Vector Magnitude					
@ $f_{Carrier}$ 706.4 ... 712.0 MHz EVM ³⁾	-	1.4	3		%
@ $f_{Carrier}$ 712.0 ... 713.6 MHz EVM ⁴⁾	-	1.3	4.5		%
Input VSWR (Tx port)					
704.0 ... 716.0 MHz	-	1.5	2.0		
Output VSWR (Ant Port)					
704.0 ... 716.0 MHz	-	1.6	2.0		

1) Values in columns min., typ. and max. indicate the development status of the current version.
 2) Values in column DesignGoal (DGL) indicate the target performance.
 3) Error Vector Magnitude (EVM) based on definition in 3GPP TS 25.141
 4) Error Vector Magnitude (EVM) based on definition in 3GPP TS 25.141



SAW Components

B7924

SAW Duplexer

710.0 / 740.0 MHz

Preliminary data



Characteristics

Temperature range for specification: T = -20 °C to +85 °C
 TX terminating impedance: Z_{Tx} = 50 Ω
 ANT terminating impedance: Z_{Ant} = 50 Ω || 10 nH
 RX terminating impedance: Z_{Rx} = 100 Ω (balanced) || 82nH

Characteristics Tx-Antenna	Development status ¹⁾			DGL ²⁾	
	min.	typ. @ 25 °C	max.	min./ max.	
Absolute attenuation α					
10.0 ... 692.0 MHz	30	46	-		dB
692.0 ... 698.0 MHz	3	12	-	4	dB
722.0 ... 728.0 MHz	5	12	-	6	dB
728.0 ... 734.0 MHz	27	32	-		dB
734.0 ... 746.0 MHz	50	60	-		dB
746.0 ... 768.0 MHz	30	49	-		dB
768.0 ... 805.0 MHz	25	45	-		dB
869.0 ... 894.0 MHz	30	45	-		dB
1408.0 ... 1432.0 MHz	30	51	-		dB
1565.0 ... 1607.0 MHz	42	46	-	45	dB
1930.0 ... 1990.0 MHz	35	40	-		dB
2110.0 ... 2130.0 MHz	27	40	-		dB
2130.0 ... 2170.0 MHz	35	40	-		dB
2300.0 ... 2400.0 MHz	30	38	-		dB
2400.0 ... 2497.0 MHz	32	37	-		dB
2497.0 ... 2690.0 MHz	20	36	-		dB
2816.0 ... 2864.0 MHz	20	35	-		dB
3300.0 ... 3800.0 MHz	20	34	-		dB
4224.0 ... 4296.0 MHz	20	32	-		dB
4928.0 ... 5012.0 MHz	12	17	-		dB
5150.0 ... 5632.0 MHz	12	17	-		dB
5632.0 ... 5728.0 MHz	14	19	-		dB
5728.0 ... 5850.0 MHz	14	20	-		dB
5850.0 ... 6000.0 MHz	14	20	-		dB

1) Values in columns min., typ. and max. indicate the development status of the current version.

2) Values in column DesignGoal (DGL) indicate the target performance.



SAW Components

B7924

SAW Duplexer

710.0 / 740.0 MHz

Preliminary data



Characteristics

Temperature range for specification: T = -20 °C to +85 °C
 TX terminating impedance: Z_{Tx} = 50 Ω
 ANT terminating impedance: Z_{Ant} = 50 Ω || 10nH
 RX terminating impedance: Z_{Rx} = 100 Ω (balanced) || 82nH

				Development status ¹⁾			DGL ²⁾	
Characteristics Antenna-Rx				min.	typ. @ 25 °C	max.	min./ max.	
Center frequency	f _c			-	740	-		MHz
Maximum insertion attenuation	α							
		734.0 ... 734.5 MHz		-	2.4	2.7 ³⁾		dB
		734.5 ... 746.0 MHz		-	2.4	2.7		dB
Amplitude ripple (p-p)	Δα							
		734.0 ... 746.0 MHz		-	0.6	1.6		dB
Input VSWR (Ant port)								
		734.0 ... 746.0 MHz		-	1.5	2.0		
Output VSWR (Rx Port)								
		734.0 ... 746.0 MHz		-	1.7	2.0		
Common mode rejection ratio								
		734.0 ... 746.0 MHz		23	30	-		dB
Absolute attenuation	α							
		10.0 ... 674.0 MHz		35	72	-		dB
		674.0 ... 686.0 MHz		53	72	-		dB
		686.0 ... 704.0 MHz		35	70	-		dB
		704.0 ... 716.0 MHz		50	61	-	55	dB
		716.0 ... 722.0 MHz		40	58	-		dB
		722.0 ... 724.0 MHz		30	58	-		dB
		724.0 ... 727.0 MHz		15	35	-	17	dB
		727.0 ... 728.0 MHz		10	29	-		dB
		776.0 ... 805.0 MHz		35	49	-		dB
		1000.0 ... 2300.0 MHz		40	62	-		dB
		2300.0 ... 2690.0 MHz		50	60	-		dB
		2690.0 ... 3300.0 MHz		40	58	-		dB
		3300.0 ... 3800.0 MHz		48	56	-		dB
		3800.0 ... 5150.0 MHz		40	52	-		dB
		5150.0 ... 5850.0 MHz		41	52	-		dB
		5850.0 ... 6000.0 MHz		40	51	-		dB

1) Values in columns min., typ. and max. indicate the development status of the current version.
 2) Values in column DesignGoal (DGL) indicate the target performance.
 3) Value in temperature range 0 °C to +85 °C. In temperature range -20 °C to +85 °C maximum is 3.2dB



SAW Components	B7924
SAW Duplexer	710.0 / 740.0 MHz

Preliminary data **SMD**

Characteristics

Temperature range for specification: $T = -15\text{ °C to }+85\text{ °C}$
 TX terminating impedance: $Z_{Tx} = 50\ \Omega$
 ANT terminating impedance: $Z_{Ant} = 50\ \Omega \parallel 10\text{nH}$
 RX terminating impedance: $Z_{Rx} = 100\ \Omega \text{ (balanced)} \parallel 82\text{nH}$

Characteristics Tx-Rx	Development status ¹⁾			DGL ²⁾	
	min.	typ. @ 25 °C	max.	min./ max.	
Differential mode isolation α					
704.0 ... 716.0 MHz	60	66	-	60	dB
734.0 ... 738.0 MHz	58	62	-		dB
738.0 ... 742.0 MHz	55	63	-		dB
742.0 ... 748.0 MHz	55	61	-		dB
1408.0 ... 1432.0 MHz	30	74	-		dB
2112.0 ... 2148.0 MHz	30	64	-		dB
2816.0 ... 2864.0 MHz	30	62	-		dB
Common mode isolation α					
704.0 ... 716.0 MHz	48	52	-	55	dB

1) Values in columns min., typ. and max. indicate the development status of the current version.
 2) Values in column DesignGoal (DGL) indicate the target performance.

Maximum Ratings

Storage temperature range	T_{stg}	-40/+85	°C	machine model, 1 pulse
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100 ¹⁾	V	
Input power at Tx Port				} continuous wave 55 °C, 50000h
704.0 ...716.0 MHz	P_{in}	29	dBm	
elsewhere	P_{in}	10	dBm	

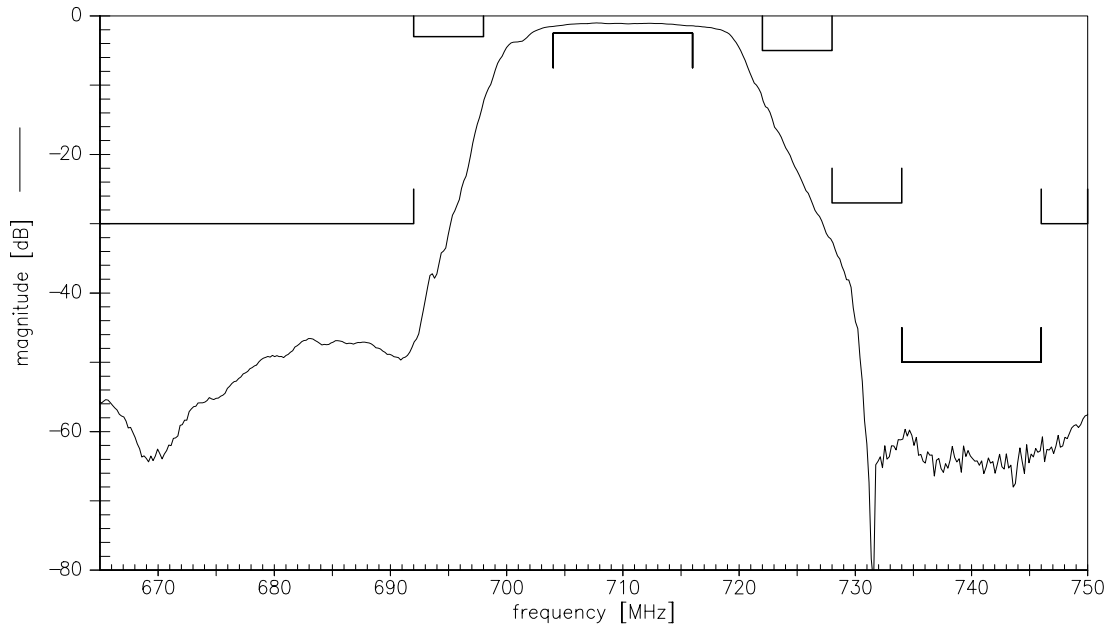
1) According to JEESD22-A115A (machine model), 1 negative and 1 positive pulses.



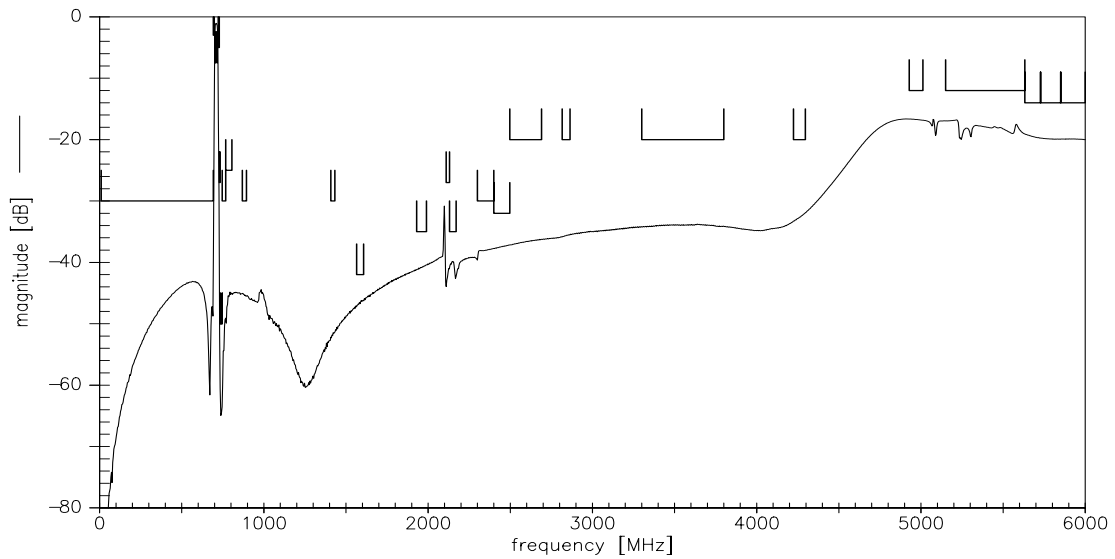
Preliminary data



Frequency Response TX-ANT



Frequency Response TX-ANT

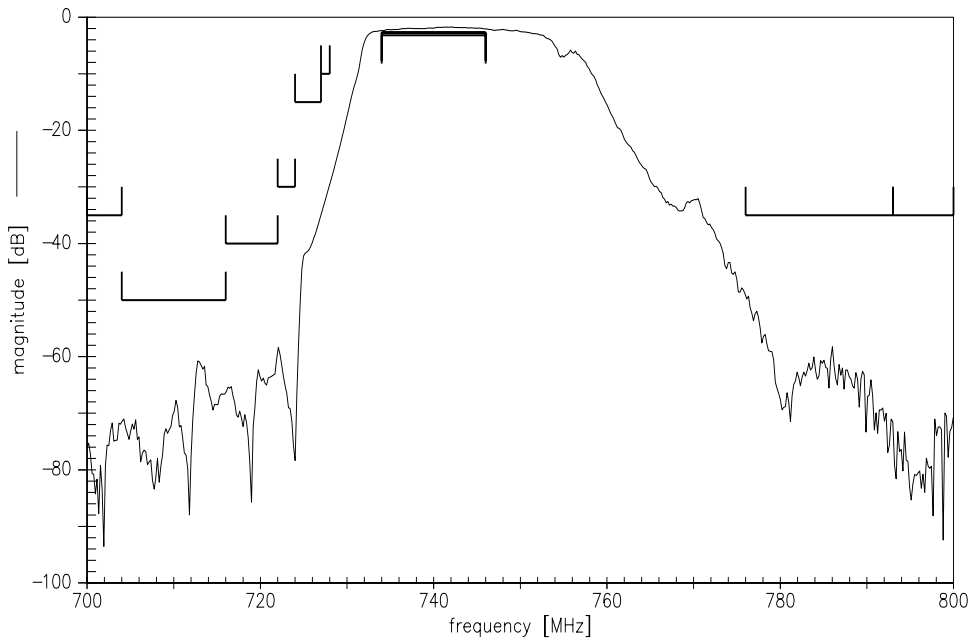




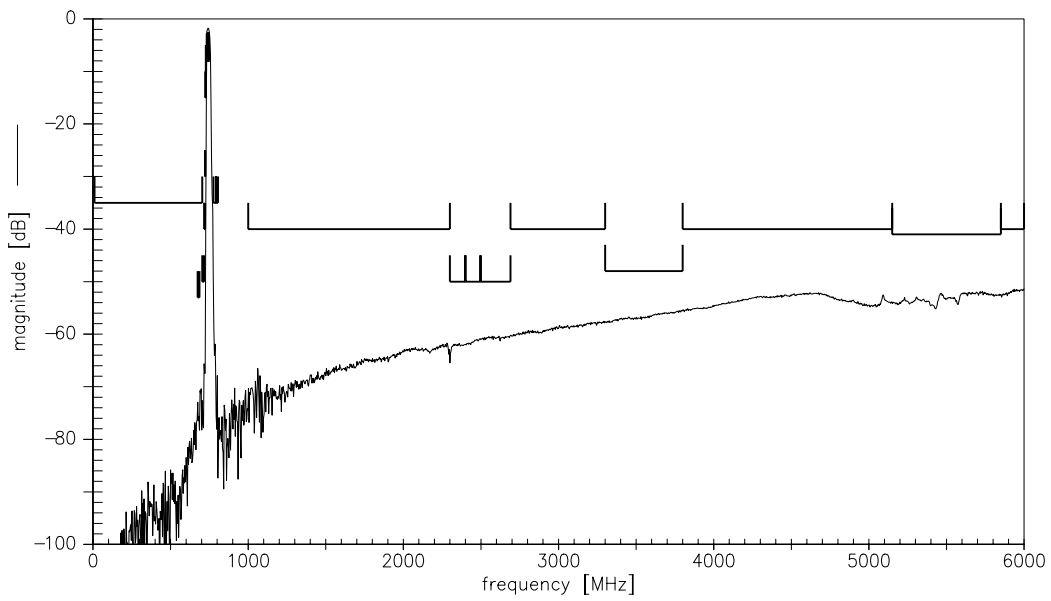
Preliminary data



Frequency Response ANT-RX

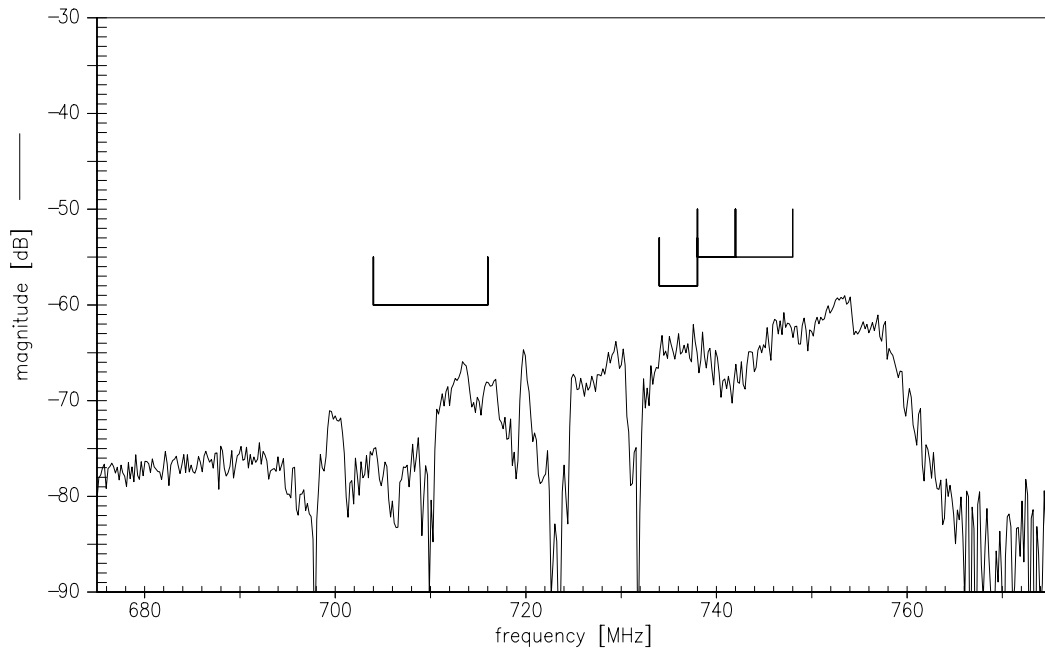


Frequency Response ANT-RX

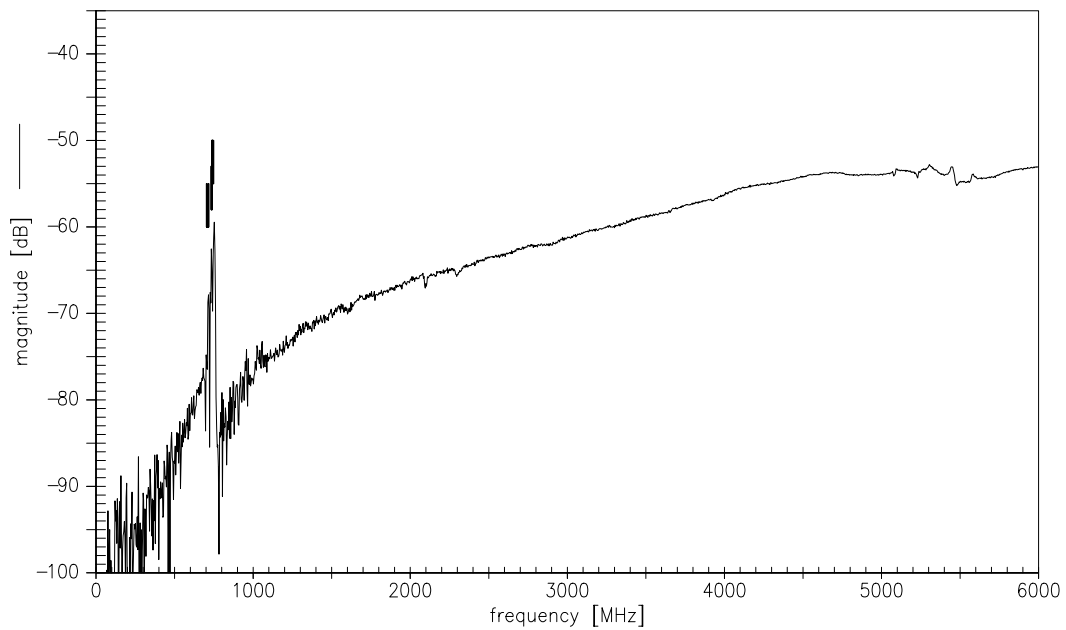




Frequency Response TX-RX



Frequency Response TX-RX



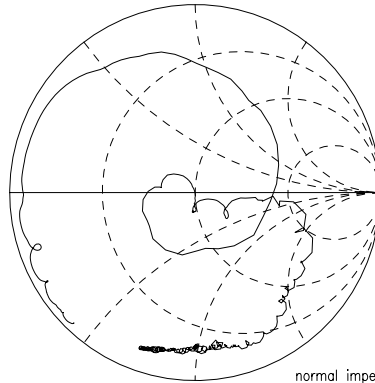
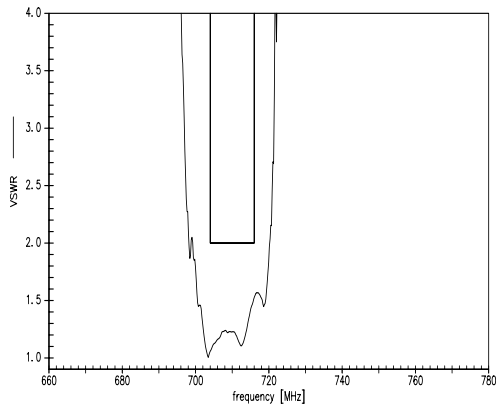
Please read *cautions and warnings* and *important notes* at the end of this document.



Preliminary data

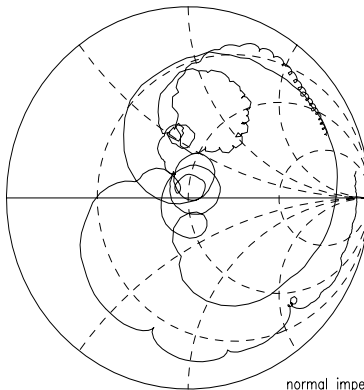
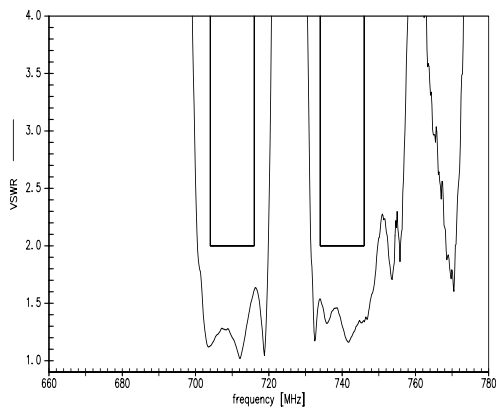


S11 VSWR (TX)



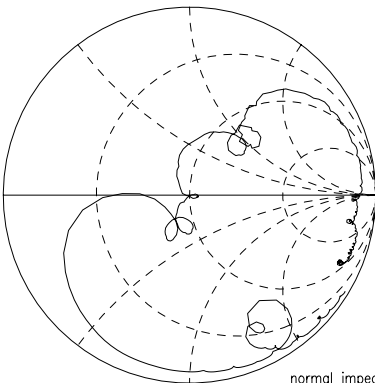
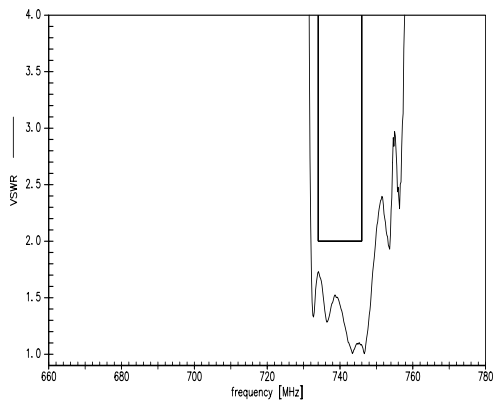
normal impedance: 50.00 Ω

S22 VSWR (ANT)



normal impedance: 50.00 Ω

S33 VSWR (RX)



normal impedance: 100.00 Ω

Please read *cautions and warnings* and *important notes* at the end of this document.

**SAW Components****B7924****SAW Duplexer****710.0 / 740.0 MHz**

Preliminary data



References

Type	B7924
Ordering code	B39741B7924P810
Marking and package	C61157-A3-A61
Packaging	F61074-V8153-Z000
Date codes	L_1126
S-parameters	LU34C_NB.s4p LU34C_WB.s4p
Soldering profile	S_6001
RoHS compatible	Defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."
Matching coils	See http://www.tdk.co.jp/tefe02/coil.htm#aname1 http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils.

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com.

Published by EPCOS AG
Systems, Acoustics, Waves Business Group
P.O. Box 80 17 09, 81617 Munich, GERMANY

© EPCOS AG 2011. 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.

Please read *cautions and warnings and important notes* at the end of this document.



Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified**. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
3. **The warnings, cautions and product-specific notes must be observed.**
4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.epcos.com/material). Should you have any more detailed questions, please contact our sales offices.
5. We constantly strive to improve our products. Consequently, **the products described in this publication may change from time to time**. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order. We also **reserve the right to discontinue production and delivery of products**. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.
6. Unless otherwise agreed in individual contracts, **all orders are subject to the current version of the "General Terms of Delivery for Products and Services in the Electrical Industry" published by the German Electrical and Electronics Industry Association (ZVEI)**.
7. The trade names EPCOS, BAOKE, Alu-X, CeraDiode, CSMP, CSSP, CTVS, DeltaCap, DigiSiMic, DSSP, FormFit, MiniBlue, MiniCell, MKD, MKK, MLSC, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, SIP5D, SIP5K, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.epcos.com/trademarks.