SAW Components

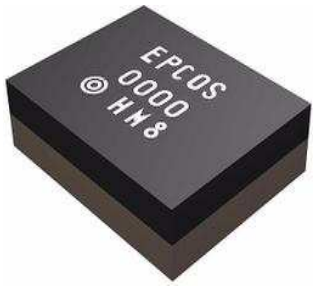
SAW Duplexer

LTE Band 17 (lower 700MHz band, blocks B and C)

Series/type:	**B8566**
Ordering code:	**B39741B8566P810**
Date:	February 06, 2013
Version:	2.0

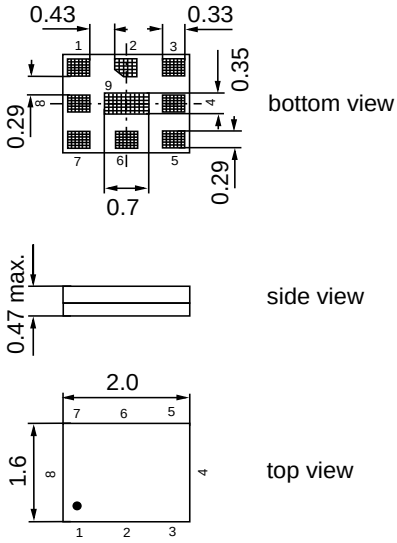
Application

- SAW duplexer for mobile telephone LTE band 17 (lower 700 MHz band, blocks B and C) systems
- Low insertion attenuation
- Low amplitude ripple
- Single ended to balanced transformation in Antenna - Rx path
- Impedance transformation 50 Ω to100 Ω in Antenna - Rx path



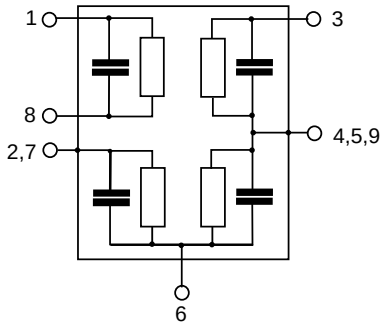
Features

- Package size 2.0 x 1.6 mm²
- Package height 0.47 mm max.
- RoHS compatible
- Approx. weight: 0.006g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitive **L**evel 3



Pin configuration

3	TX Input
1, 8	RX Output
6	Antenna
2, 4, 5, 7, 9	To be grounded



Data sheet SMD

Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT} = 50 Ω || 12.0 nH
RX terminating impedance: Z_{RX} = 100 Ω || 82.0 nH
TX terminating impedance: Z_{TX} = 50 Ω

Characterisitcs TX - ANT		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	710.0	—	MHz
Maximum insertion attenuation	α_{max}				
704.0 ... 716.0 MHz		—	1.7	2.6	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
704.0 ... 716.0 MHz		—	0.6	1.5	dB
Input VSWR (TX port)					
704.0 ... 716.0 MHz		—	1.4	2.0	
Output VSWR (ANT port)					
704.0 ... 716.0 MHz		—	1.5	2.0	

Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT} = 50 Ω || 12.0nH
RX terminating impedance: Z_{RX} = 100 Ω || 82.0nH
TX terminating impedance: Z_{TX} = 50 Ω

Characterisitcs TX - ANT				min.	typ. @ 25 ˚C	max.	
Attenuation			α				
10.0	...	692.0	MHz	30	41	—	dB
692.0	...	698.0	MHz	3	10	—	dB
722.0	...	728.0	MHz	3	10	—	dB
728.0	...	734.0	MHz	21	35	—	dB
734.0	...	746.0	MHz	50	55	—	dB
746.0	...	768.0	MHz	30	43	—	dB
768.0	...	805.0	MHz	35	40	—	dB
869.0	...	894.0	MHz	34	40	—	dB
1408.0	...	1432.0	MHz	34	44	—	dB
1565.0	...	1607.0	MHz	40	46	—	dB
1930.0	...	1990.0	MHz	43	51	—	dB
2110.0	...	2130.0	MHz	27	42	—	dB
2130.0	...	2170.0	MHz	35	43	—	dB
2300.0	...	2400.0	MHz	30	54	—	dB
2400.0	...	2497.0	MHz	32	54	—	dB
2497.0	...	2690.0	MHz	20	52	—	dB
2816.0	...	2864.0	MHz	20	49	—	dB
3300.0	...	3800.0	MHz	20	34	—	dB
4224.0	...	4296.0	MHz	10	26	—	dB
4928.0	...	5012.0	MHz	10	18	—	dB
5150.0	...	5632.0	MHz	10	17	—	dB
5632.0	...	5728.0	MHz	10	17	—	dB
5728.0	...	5850.0	MHz	10	17	—	dB
5850.0	...	6000.0	MHz	10	17	—	dB

Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT} = 50 Ω || 12.0 nH
RX terminating impedance: Z_{RX} = 100 Ω || 82.0 nH
TX terminating impedance: Z_{TX} = 50 Ω

Characterisitcs ANT - RX		**min.**	**typ. @ 25 ˚C**	**max.**	
Center frequency	f_C	—	740.0	—	MHz
Maximum insertion attenuation	α_{max}				
734.0 ... 746.0MHz		—	2.7	3.4	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
734.0 ... 746.0MHz		—	0.8	1.3	dB
Input VSWR (ANT port)					
734.0 ... 746.0MHz		—	1.4	2.0	
Output VSWR (RX port)					
734.0 ... 746.0MHz		—	1.4	2.0	
Common mode rejection ratio					
734.0... 746.0MHz		23	28	—	dB

Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT} = 50 Ω || 12.0 nH
RX terminating impedance: Z_{RX} = 100 Ω || 82.0 nH
TX terminating impedance: Z_{TX} = 50 Ω

Characterisitcs ANT - RX					min.	typ. @ 25 ˚C	max.	
Attenuation				α				
10.0	...	674.0	MHz		35	69	—	dB
674.0	...	686.0	MHz		53	69	—	dB
686.0	...	704.0	MHz		50	66	—	dB
704.0	...	716.0	MHz		50	58	—	dB
716.0	...	722.0	MHz		40	64	—	dB
722.0	...	724.0	MHz		30	48	—	dB
724.0	...	727.0	MHz		13	30	—	dB
727.0	...	728.0	MHz		10	24	—	dB
776.0	...	805.0	MHz		35	40	—	dB
1000.0	...	2300.0	MHz		40	55	—	dB
2300.0	...	2690.0	MHz		50	56	—	dB
2690.0	...	3300.0	MHz		40	56	—	dB
3300.0	...	3800.0	MHz		45	54	—	dB
3800.0	...	5150.0	MHz		40	50	—	dB
5150.0	...	5850.0	MHz		41	46	—	dB
5850.0	...	6000.0	MHz		40	43	—	dB

Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT} = 50 Ω || 12.0 nH
RX terminating impedance: Z_{RX} = 100 Ω || 82.0 nH
TX terminating impedance: Z_{TX} = 50 Ω

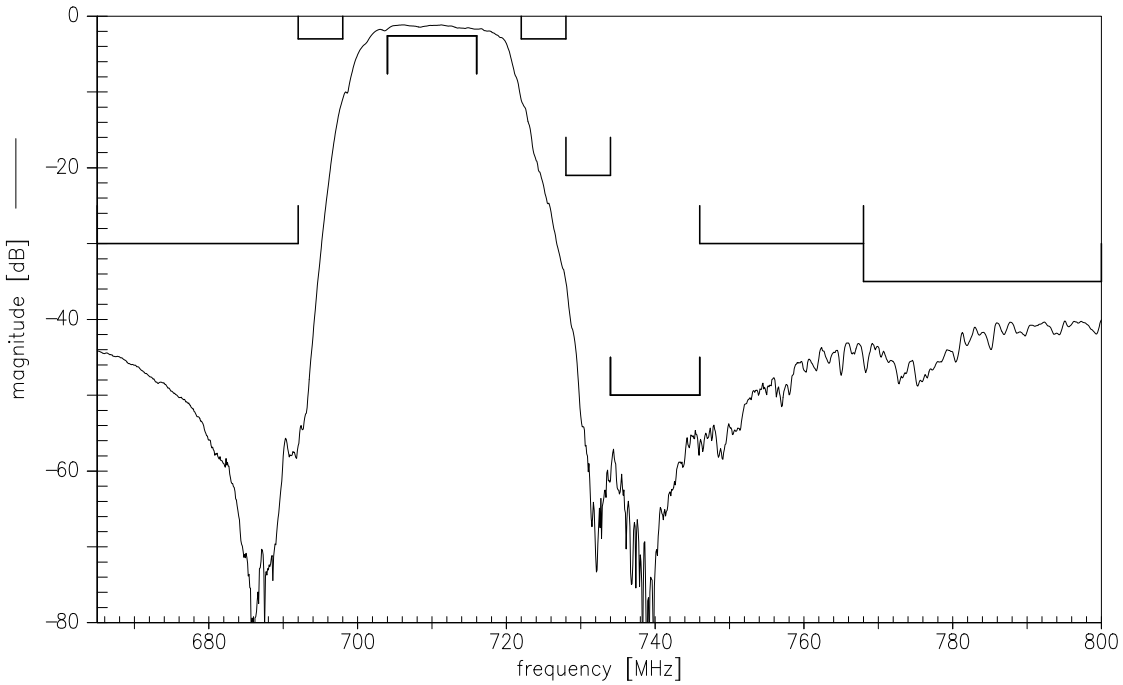
Characterisitcs TX - RX			min.	typ. @ 25 ˚C	max.	
Differential mode isolation	α					
704.0 ... 716.0 MHz			55	61	—	dB
734.0 ... 738.0 MHz			50	60	—	dB
738.0 ... 742.0 MHz			50	65	—	dB
742.0 ... 748.0 MHz			50	56	—	dB
1408.0 ... 1432.0 MHz			50	71	—	dB
2112.0 ... 2148.0 MHz			50	66	—	dB
2816.0 ... 2864.0 MHz			50	63	—	dB
Common mode isolation	α					
704.0 ... 716.0 MHz			46	52	—	dB

Maximum ratings

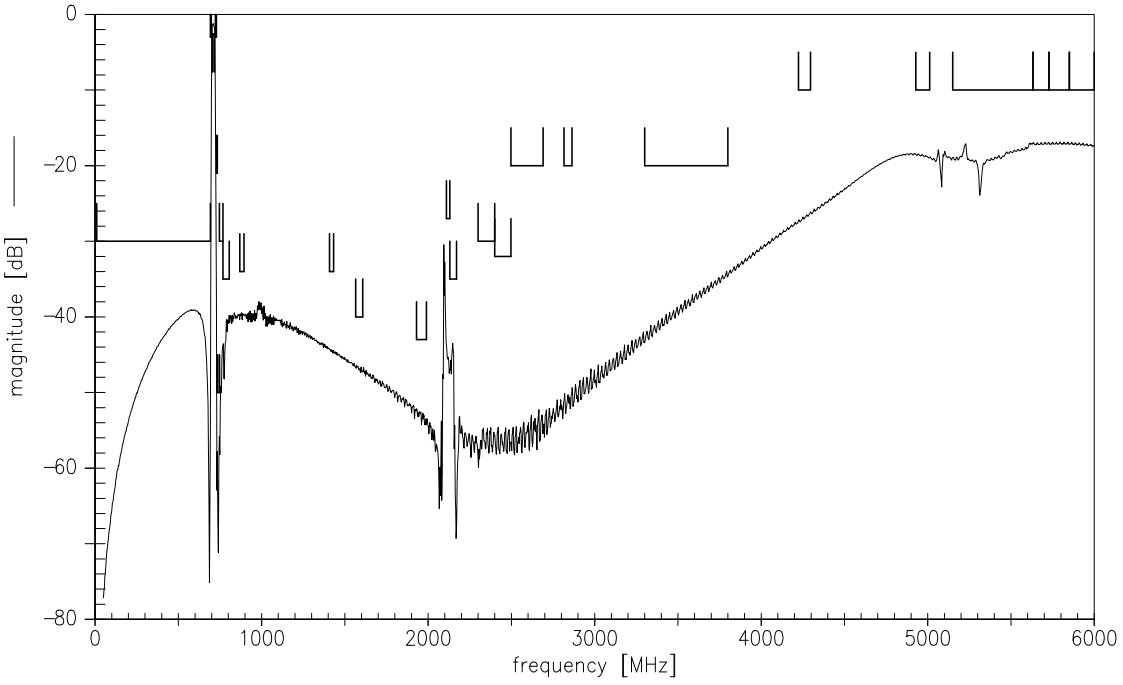
Storage temperature range	T_{stg}	–40/+85[1)]	°C	
DC voltage	V_{DC}	5[2)]	V	
ESD voltage	V_{ESD}	100[3)]	V	Machine Model
Input power at	P_{IN}			
706.5 ... 713.5 MHz		29	dBm	} LTE uplink 5MHz
elsewhere		10	dBm	*T* = 55°C, 5000 h

1) extended upperlimit: 168h@125°C acc. to IEC 60068-2-2 Bb
2) 168h Damp Heat Steady State acc. to IEC 60068-2-67 Cy
3) acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses.

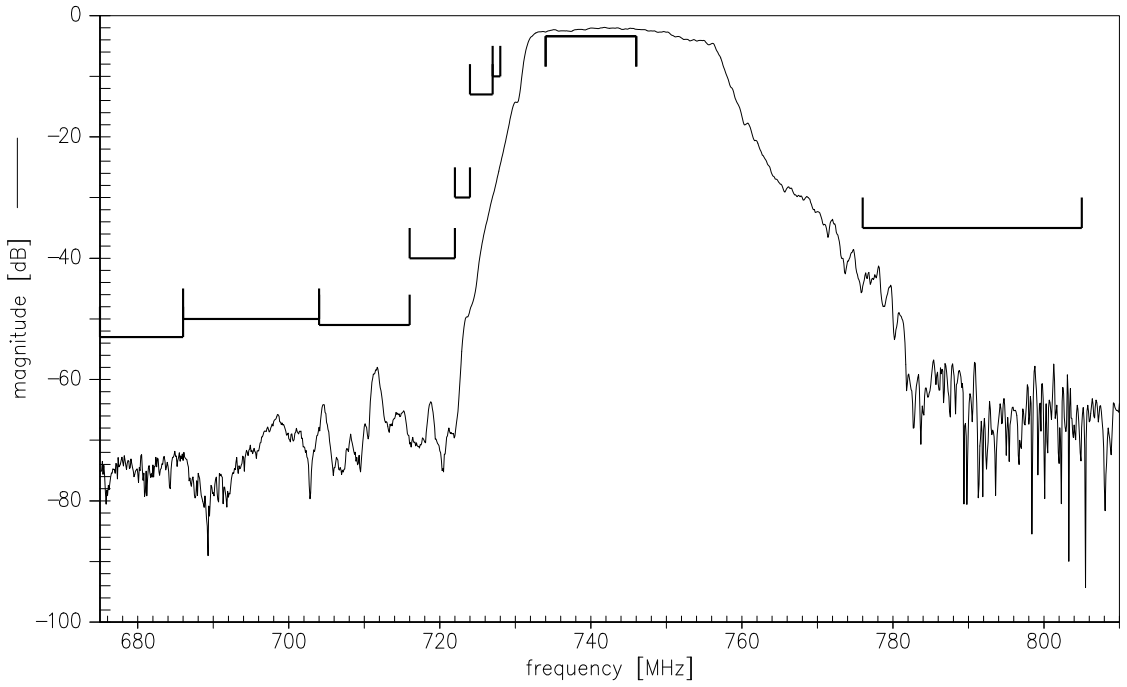
Frequency Response TX-ANT



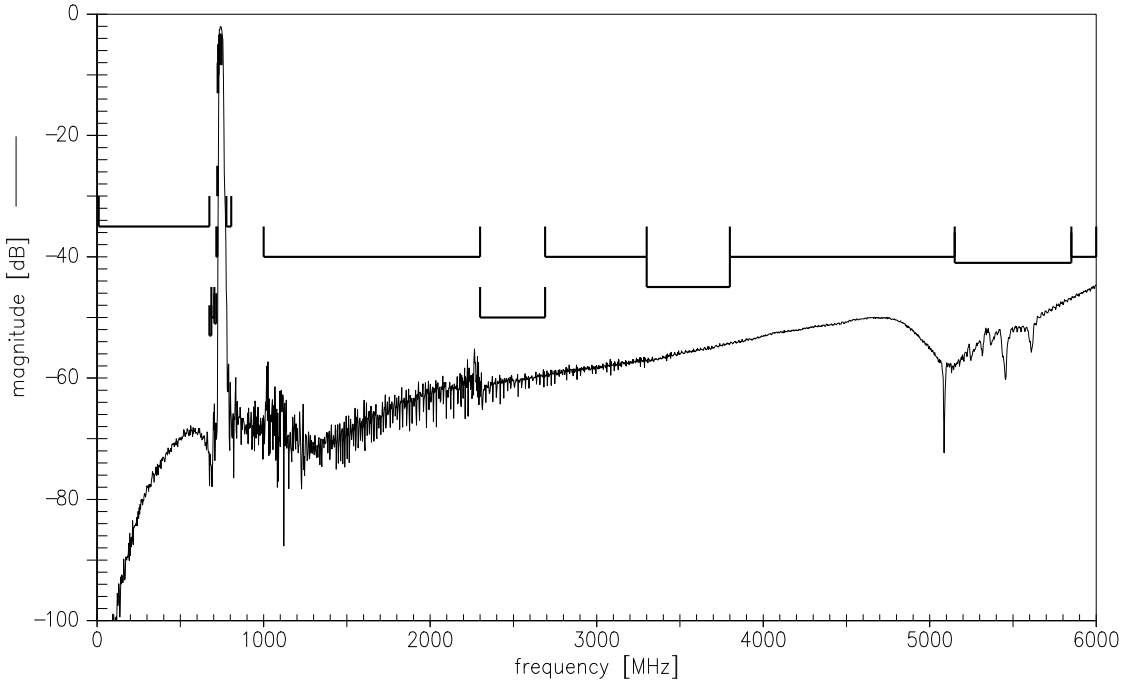
Frequency Response TX-ANT (wideband)



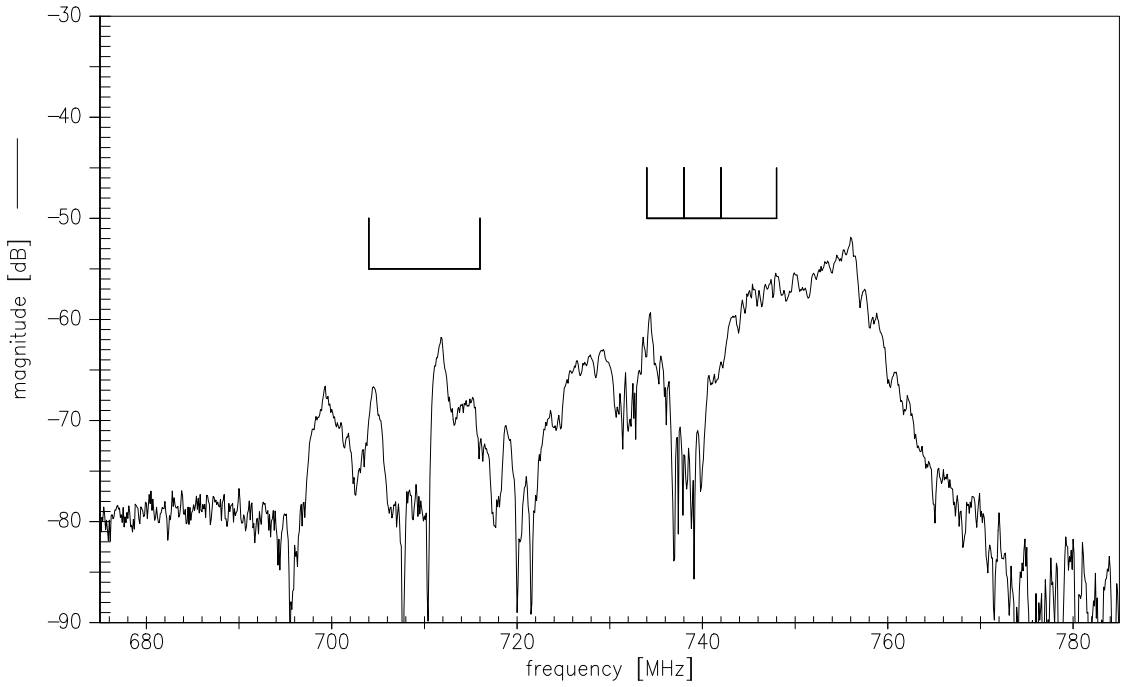
Frequency Response RX-ANT



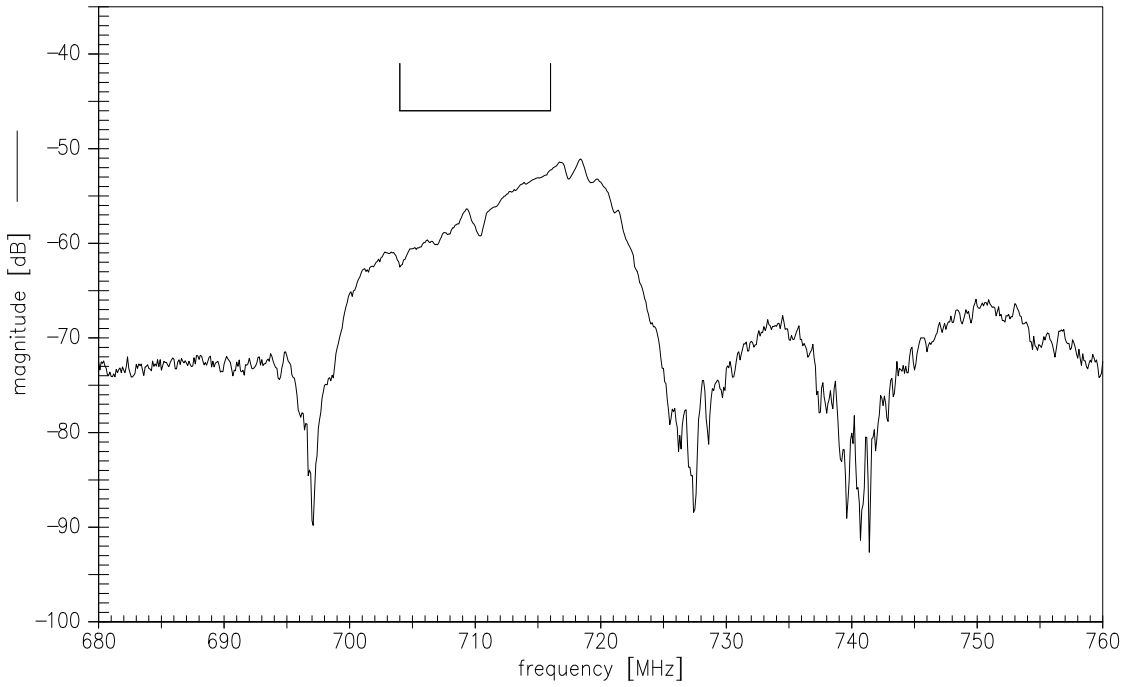
Frequency Response RX-ANT (wideband)



Frequency Response TX-RX : Differential mode isolation



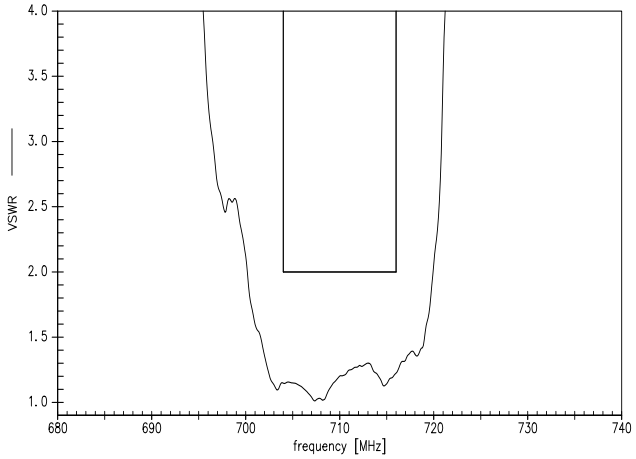
Frequency Response TX-RX : Common mode isolation

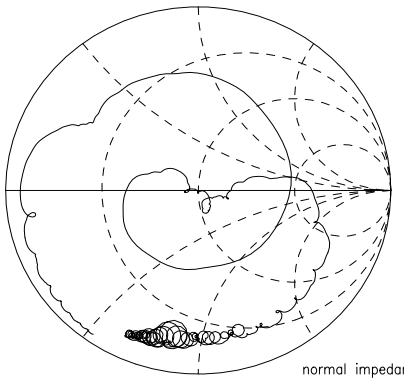


Data sheet SMD

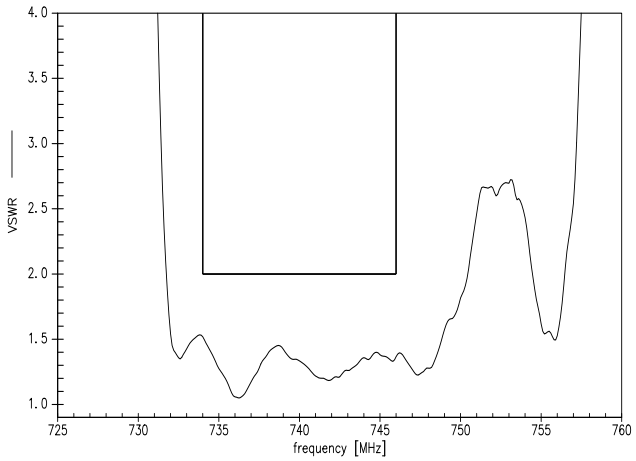
VSWR S_{11} TX-port S_{22} ANT-port S_{33} RX-port

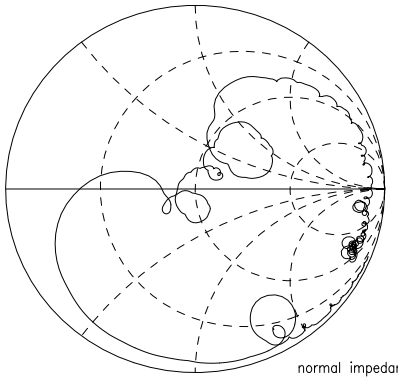
S11 TX



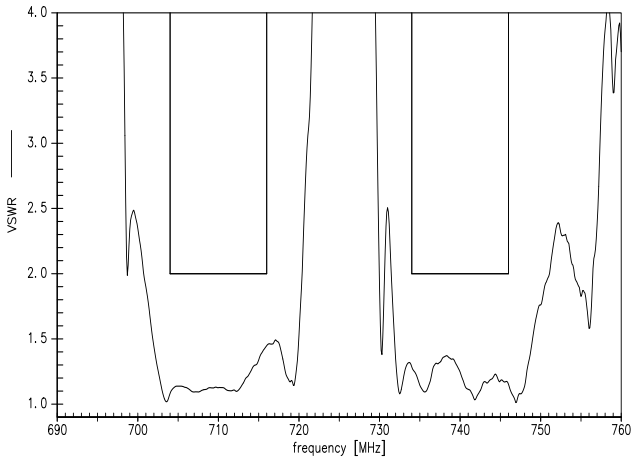


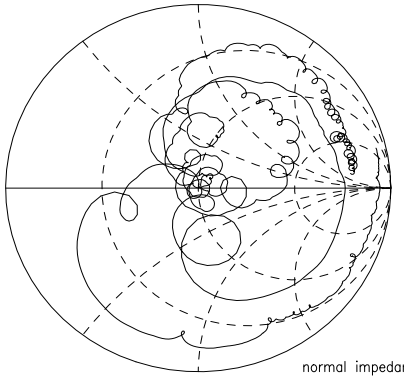
S33 RX





S22 ANT





References

Type	B8566
Ordering code	B39741B8566P810
Marking and package	C61157-A8-A38
Packaging	F61074-V8247-Z000
Date codes	L_1126
S-parameters	B8566_NB_UN.s4p, B8566_WB_UN.s4p
Soldering profile	S_6001
RoHS compatible	RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8th, 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases.
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm

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

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.

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, CeraLink, CSMP, CSSP, CTVS, DeltaCap, DigiSiMic, DSSP, FilterCap, 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.