

RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

## SAW Components

### SAW RF filter for base stations

Trunked Radio

Series/type:	B4232
Ordering code:	B39861B4232H410
Date:	Apr 05, 2016
Version:	2.1

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# SAW Components

## SAW RF filter for base stations

Trunked Radio

**Series/type:** B4232  
**Ordering code:** B39861B4232H410

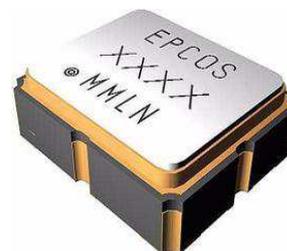
**Date:** Apr 05, 2016  
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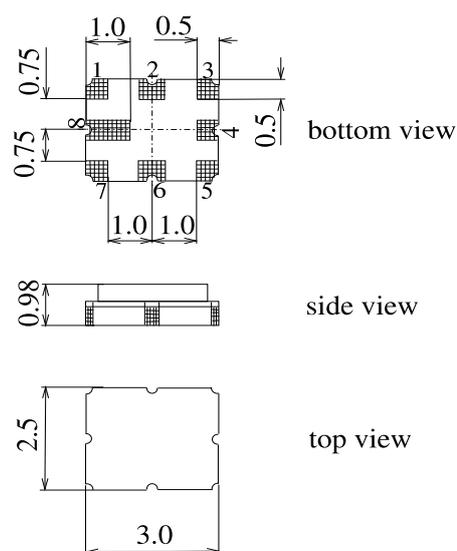
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**Application**

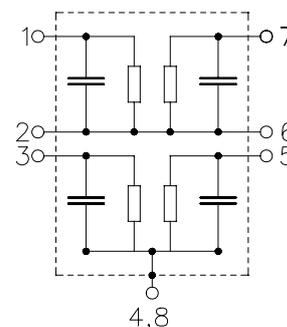
- Low-loss 2-in-1 RF filter for Trunked Radio
- Device with two integrated Rx filters
- Low amplitude ripple
- Usable passband filter 1: 19.0 MHz
- Usable passband filter 2: 14.0 MHz
- No matching required for operation at 50 Ω


**Features**

- Package size 3.0 x 2.5 x 0.98 mm<sup>3</sup>
- Package code QCC8E
- RoHS compatible
- Approximate weight 0.027g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitivity Level 1**
- Filter surface passivated


**Pin configuration**

- 1            Input [Filter 1]
- 7            Output [Filter 1]
- 3            Input [Filter 2]
- 5            Output [Filter 2]
- 2,6        Ground
- 4,8        Case ground



Data sheet


**Characteristics filter 1**

Temperature range for specification:  $T = 25 \pm 2 \text{ }^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 50 \Omega$

		min.	typ. @ 25 °C	max.	
<b>Nominal frequency</b>	$f_N$	—	860.5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	2.1	2.5	dB
851.0 ... 870.0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.7	1.1	dB
851.0 ... 870.0 MHz					
<b>Group delay ripple (p-p)</b>	$\Delta\tau$	—	20.0	50.0	ns
851.0 ... 870.0 MHz					
<b>Input return loss</b>		10.0	11.5	—	dB
851.0 ... 870.0 MHz					
<b>Output return loss</b>		10.0	11.5	—	dB
851.0 ... 870.0 MHz					
<b>Absolute attenuation</b>	$\alpha_{\text{abs}}$				
0.1 ... 483.0 MHz		57	60	—	dB
483.0 ... 676.0 MHz		50	60	—	dB
676.0 ... 724.0 MHz		40	64	—	dB
741.4 ... 773.0 MHz		30	59	—	dB
804.0 ... 822.0 MHz		20	42	—	dB
880.0 MHz		7	11	—	dB
898.0 ... 918.0 MHz		20	40	—	dB
946.0 ... 967.0 MHz		30	59	—	dB
1040.0 ... 1070.0 MHz		46	54	—	dB
1070.0 ... 1256.0 MHz		43	50	—	dB
1256.0 ... 2000.0 MHz		30	40	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-36	—	ppm/K

Data sheet


**Characteristics filter 1**

Temperature range for specification:  $T = -30$  to  $+70$  °C  
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 50 \Omega$

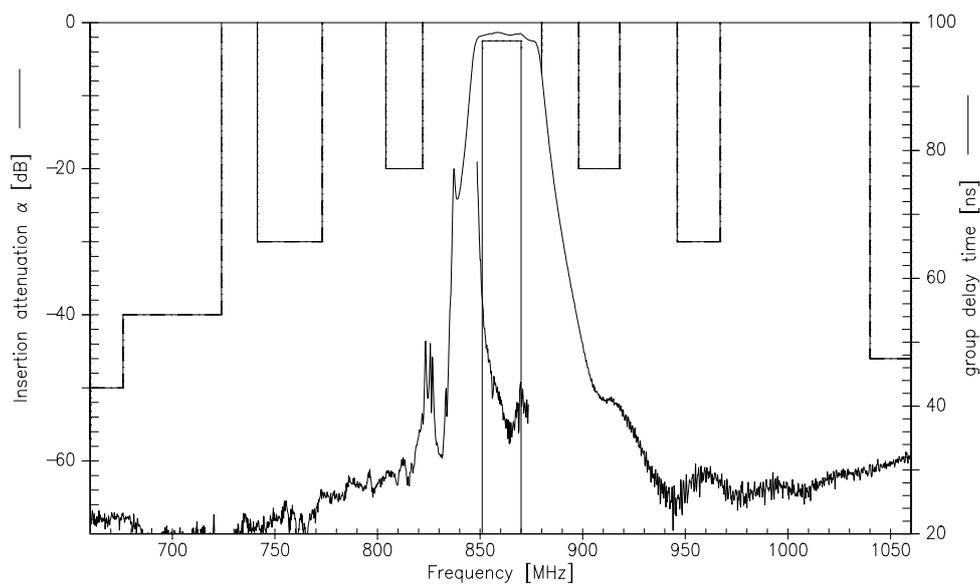
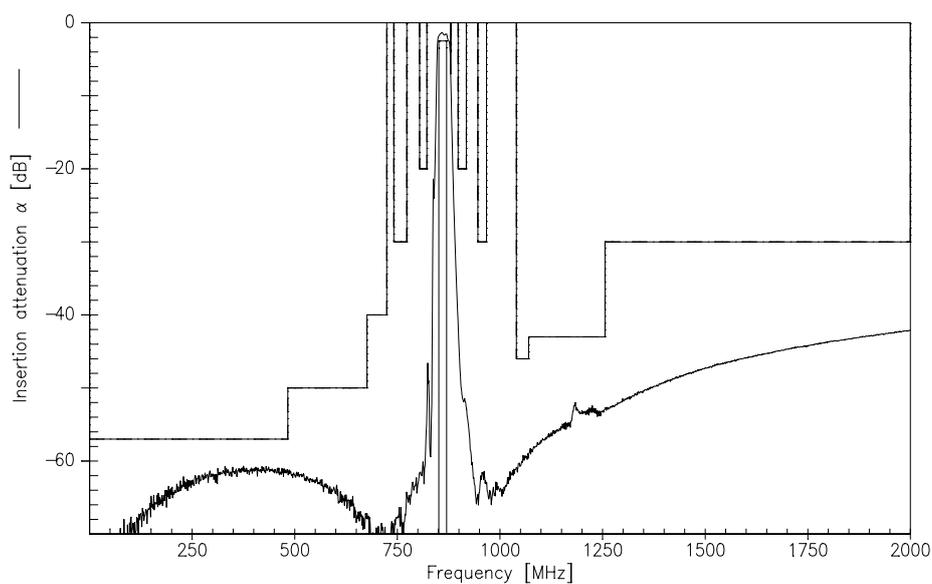
		min.	typ. @ 25 °C	max.	
<b>Nominal frequency</b>	$f_N$	—	860.5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	2.4	2.7	dB
851.0 ... 870.0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1.0	1.3	dB
851.0 ... 870.0 MHz					
<b>Group delay ripple (p-p)</b>	$\Delta\tau$	—	30.0	50.0	ns
851.0 ... 870.0 MHz					
<b>Input return loss</b>		10.0	11.0	—	dB
851.0 ... 870.0 MHz					
<b>Output return loss</b>		10.0	11.0	—	dB
851.0 ... 870.0 MHz					
<b>Absolute attenuation</b>	$\alpha_{abs}$				
0.1 ... 483.0 MHz		57	60	—	dB
483.0 ... 676.0 MHz		50	60	—	dB
676.0 ... 724.0 MHz		40	64	—	dB
741.4 ... 773.0 MHz		30	59	—	dB
804.0 ... 822.0 MHz		20	42	—	dB
880.0 MHz		4	7	—	dB
898.0 ... 918.0 MHz		20	38	—	dB
946.0 ... 967.0 MHz		30	59	—	dB
1040.0 ... 1070.0 MHz		46	54	—	dB
1070.0 ... 1256.0 MHz		43	50	—	dB
1256.0 ... 2000.0 MHz		30	40	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-36	—	ppm/K

**Maximum ratings**

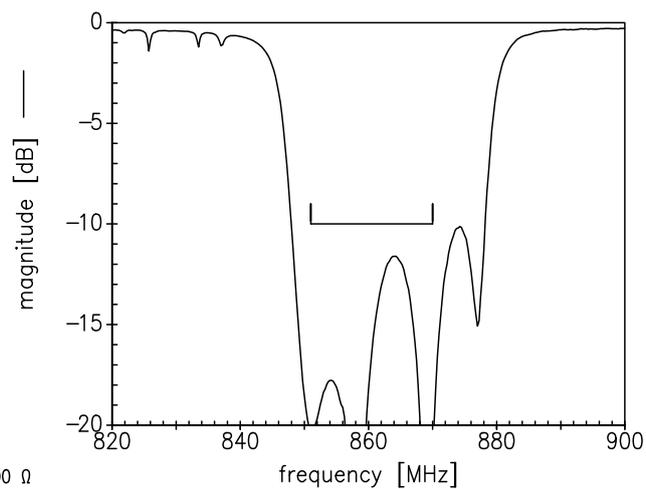
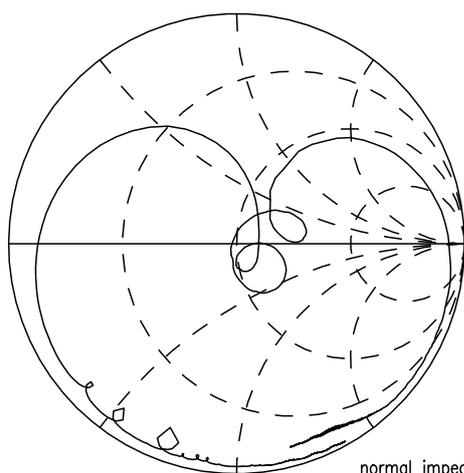
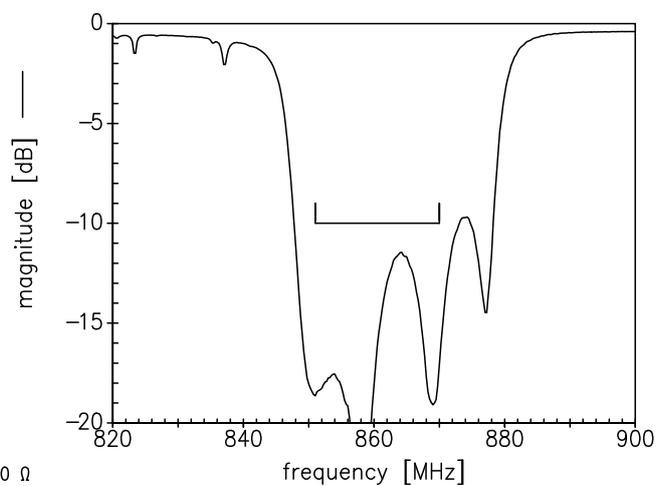
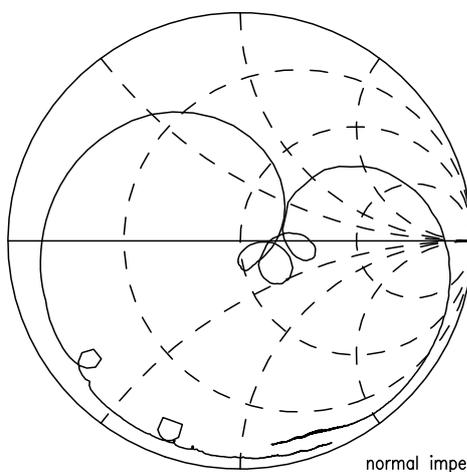
Operable temperature range	T	-40/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	100 <sup>1)</sup>	V	Machine Model ,10 pluses
Input power	P <sub>IN</sub>			
851.0 ... 870.0 MHz		15	dBm	cw,source and load impedance 50 Ω
762.0 ... 776.0 MHz		15	dBm	cw,source and load impedance 50 Ω

1) acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses

Data sheet

**Transfer function filter 1 (S21, narrowband)**

**Transfer function filter 1 (S21, wideband)**


Data sheet

**Smith charts**
**S<sub>11</sub> function filter 1**

**S<sub>22</sub> function filter 1**


Data sheet


**Characteristics filter 2**

Temperature range for specification:  $T = 25 \pm 2 \text{ }^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50 \text{ } \Omega$   
 Terminating load impedance:  $Z_L = 50 \text{ } \Omega$

		min.	typ. @ 25 °C	max.	
<b>Nominal frequency</b>	$f_N$	—	769.0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	1.7	2.4	dB
762.0 ... 776.0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.4	1.0	dB
762.0 ... 776.0 MHz					
<b>Group delay ripple (p-p)</b>	$\Delta\tau$	—	22.0	50.0	ns
762.0 ... 776.0 MHz					
<b>Input return loss</b>		12.0	13.0	—	dB
762.0 ... 776.0 MHz					
<b>Output return loss</b>		12.0	13.0	—	dB
762.0 ... 776.0 MHz					
<b>Absolute attenuation</b>	$\alpha_{\text{abs}}$				
0.0 ... 431.0 MHz		57	60	—	dB
431.0 ... 604.0 MHz		50	60	—	dB
604.0 ... 690.0 MHz		30	62	—	dB
690.0 ... 733.0 MHz		20	56	—	dB
733.0 ... 752.0 MHz		9	18	—	dB
804.0 ... 847.0 MHz		25	36	—	dB
847.0 ... 892.7 MHz		30	54	—	dB
892.7 ... 910.7 MHz		50	56	—	dB
910.7 ... 995.3 MHz		47	54	—	dB
995.3 ... 1121.0 MHz		42	52	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-36	—	ppm/K

Data sheet


**Characteristics filter 2**

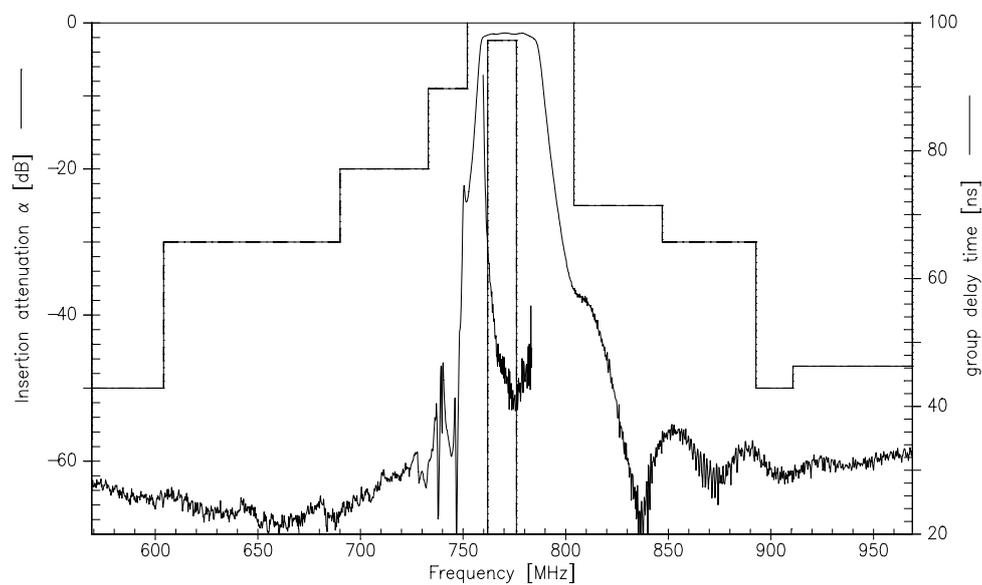
Temperature range for specification:  $T = -30$  to  $+70$  °C  
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 50 \Omega$

		min.	typ. @ 25 °C	max.	
<b>Nominal frequency</b>	$f_N$	—	769.0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	1.8	2.6	dB
762.0 ... 776.0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.5	1.0	dB
762.0 ... 776.0 MHz					
<b>Group delay ripple (p-p)</b>	$\Delta\tau$	—	30.0	50.0	ns
762.0 ... 776.0 MHz					
<b>Input return loss</b>		12.0	13.0	—	dB
762.0 ... 776.0 MHz					
<b>Output return loss</b>		12.0	13.0	—	dB
762.0 ... 776.0 MHz					
<b>Absolute attenuation</b>	$\alpha_{abs}$				
0.1 ... 431.0 MHz		57	60	—	dB
431.0 ... 604.0 MHz		50	60	—	dB
604.0 ... 690.0 MHz		30	62	—	dB
690.0 ... 733.0 MHz		20	56	—	dB
733.0 ... 752.0 MHz		9	16	—	dB
804.0 ... 847.0 MHz		25	34	—	dB
847.0 ... 892.7 MHz		30	54	—	dB
892.7 ... 910.7 MHz		50	56	—	dB
910.7 ... 995.3 MHz		47	54	—	dB
995.3 ... 1121.0 MHz		42	52	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-36	—	ppm/K

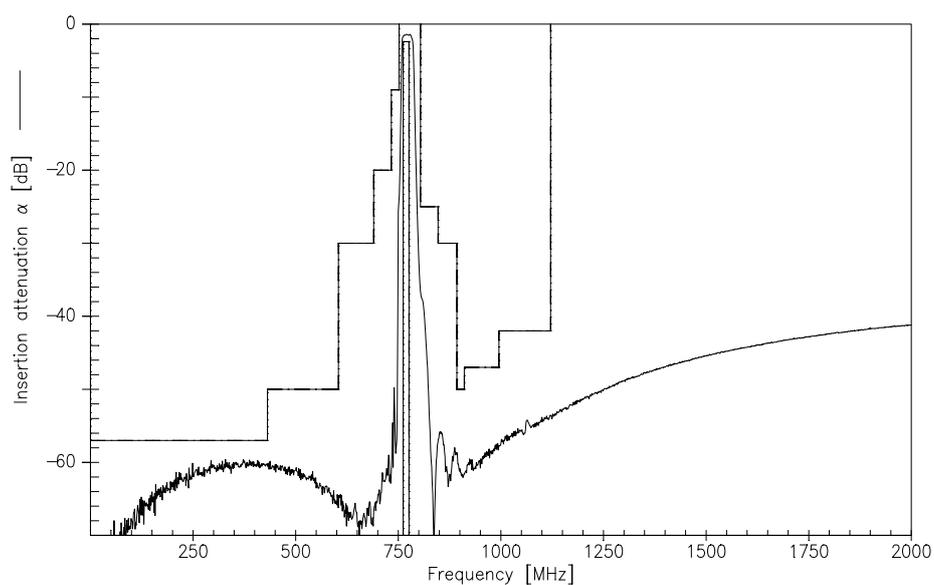
Data sheet



Transfer function filter 2 (S21, narrowband)



Transfer function filter 2 (S21, wideband)

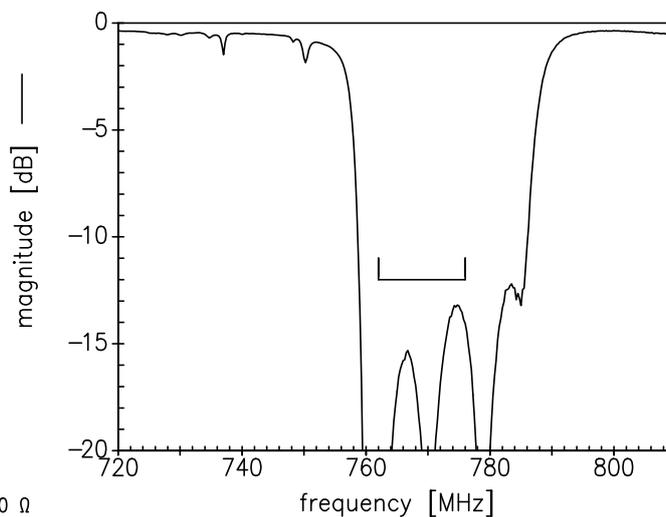
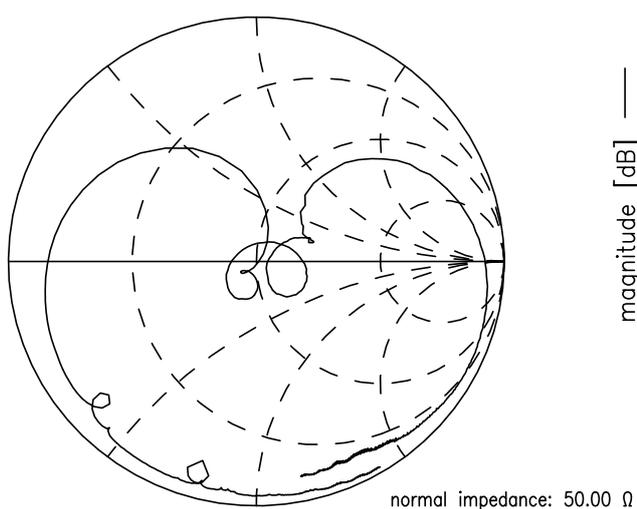


Data sheet

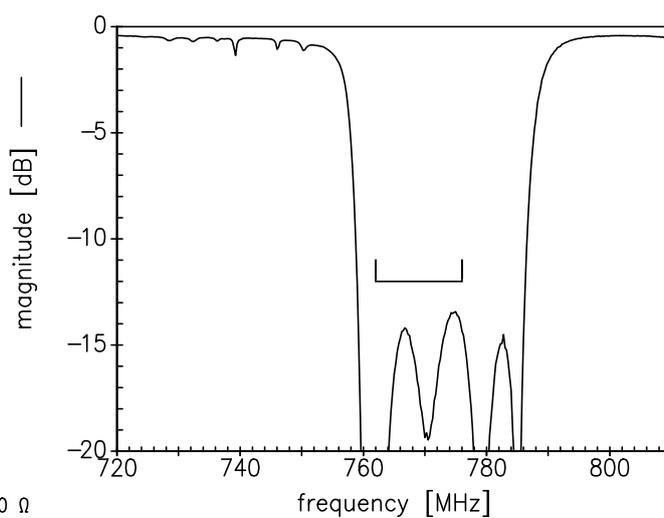
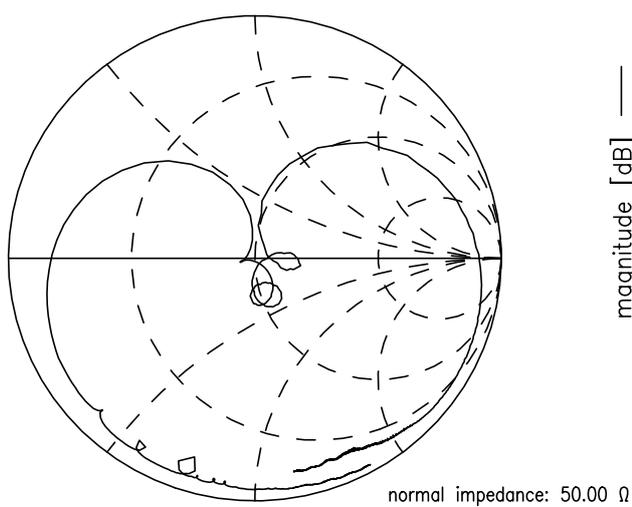


Smith charts

$S_{11}$  function filter 2



$S_{22}$  function filter 2



**References**

<b>Type</b>	B4232
<b>Ordering code</b>	B39861B4232H410
<b>Marking and package</b>	C61157-A7-A92
<b>Packaging</b>	F61074-V8174-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B4232_LB_NB.s2p , B4232_LB_WB.s2p B4232_UB_NB.s2p , B4232_UB_WB.s2p see file header for port/pin assignment table
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	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.
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