



# SAW filters for mobile communications

## Series/Type: B4219

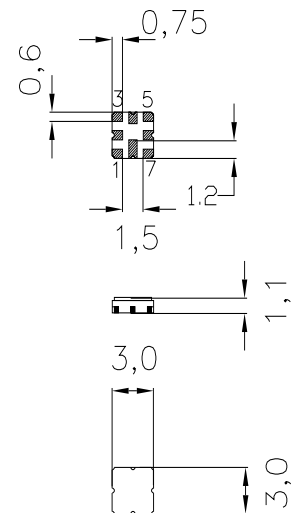
The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B39202B4219U810		2009-07-31	2009-11-30	2010-02-28

For further information please contact your nearest EPCOS sales office, which will also support you in selecting a suitable substitute. The addresses of our worldwide sales network are presented at [www.epcos.com/sales](http://www.epcos.com/sales).


 Ceramic package **QCC8D**
**Features**

- Low-loss 2-in-1 RF filter for mobile telephone AMPS and PCS CDMA systems, receive path
- Device with two integrated Rx-filters
- Usable passband of PCS Rx filter: 60 MHz
- Usable passband of AMPS Rx-filter: 25 MHz
- No matching network required for operation at 50 Ω
- Package for **S**urface **M**ounted **T**echnology (**SMT**)



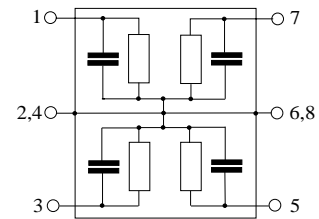
Dimensions in mm, approx. weight 0,037 g

**Terminals**

- Ni, gold-plated

**Pin configuration**

- |         |                             |
|---------|-----------------------------|
| 1       | Input PCS filter            |
| 7       | Output PCS filter           |
| 3       | Input AMPS filter           |
| 5       | Output AMPS filter          |
| 2,4,6,8 | Case-ground, to be grounded |



Type	Ordering code	Marking and Package according to	Packing according to
B4219	B39202-B4219-U810	C61157-A7-A72	F61074-V8101-Z0000

Electrostatic Sensitive Device (ESD)

**Maximum ratings**

Operable temperature range	$T$	- 30 /+ 85	°C	
Storage temperature range	$T_{stg}$	- 40 /+ 85	°C	
DC voltage	$V_{DC}$	3	V	
Input power max.	$P_{IN}$	13	dBm	source and load impedance 50 Ω
824...849 MHz				continuous wave
1850...1910 MHz				continuous wave


**Characteristics of PCS Rx filter**

Operating temperature range:  $T = -30$  to  $+85$  °C  
 Terminating source impedance:  $Z_S = 50$  Ω  
 Terminating load impedance:  $Z_L = 50$  Ω

		min.	typ.	max.	
<b>Center frequency</b>	$f_c$	—	1960,0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	3,7	4,3	dB
	1930,0... 1990,0MHz				
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,9	2,5	dB
	1930,0... 1990,0MHz				
<b>Input return loss</b>		10,0	11,5	—	dB
	1930,0... 1990,0 MHz				
<b>Output return loss</b>		10,0	11,5	—	dB
	1930,0... 1990,0 MHz				
<b>Attenuation</b>	$\alpha$	20,0	22,0	—	dB
	30,0... 1850,0 MHz				
	2110,0... 2400,0 MHz	20,0	31,0	—	dB
<b>Tx band suppression</b>		13,0	20,0	—	dB
	1850,0... 1910,0 MHz				


**Characteristics of PCS Rx filter**

Operating temperature range:  $T = -30$  to  $+70$  °C  
 Terminating source impedance:  $Z_S = 50$  Ω  
 Terminating load impedance:  $Z_L = 50$  Ω

		min.	typ.	max.	
<b>Center frequency</b>	$f_c$	—	1960,0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	3,7	4,2	dB
	1930,0... 1990,0MHz				
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,9	2,4	dB
	1930,0... 1990,0MHz				
<b>Input return loss</b>		10,0	12,0	—	dB
	1930,0... 1990,0 MHz				
<b>Output return loss</b>		10,0	12,0	—	dB
	1930,0... 1990,0 MHz				
<b>Attenuation</b>	$\alpha$	20,0	22,0	—	dB
	30,0... 1850,0 MHz				
	2110,0... 2400,0 MHz	20,0	31,0	—	dB
<b>Tx band suppression</b>		15,0	20,0	—	dB
	1850,0... 1910,0 MHz				

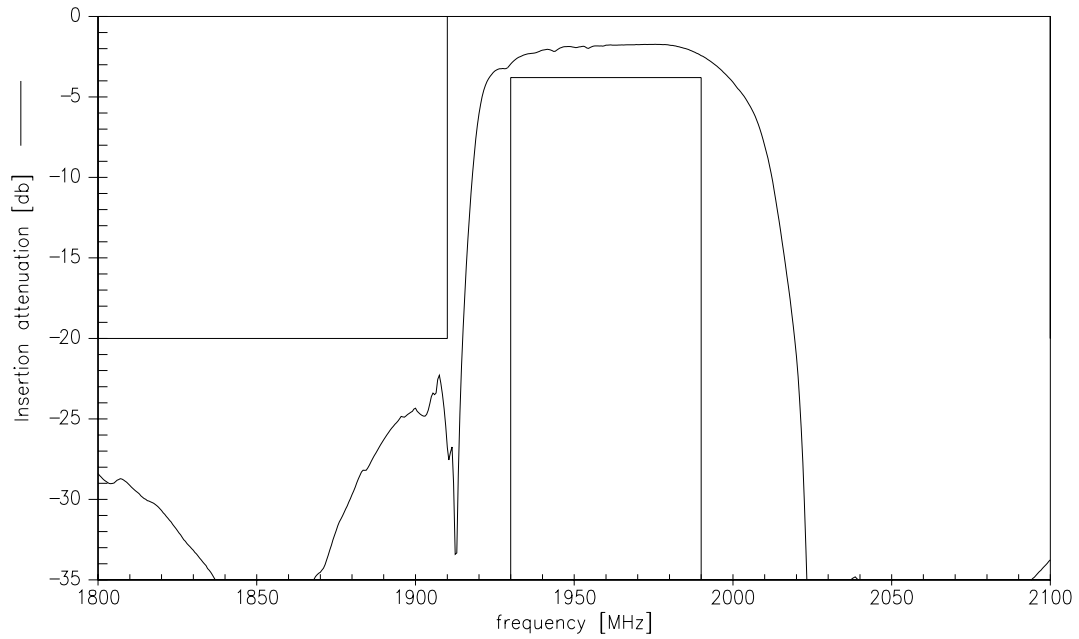

**Characteristics of PCS Rx filter**

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

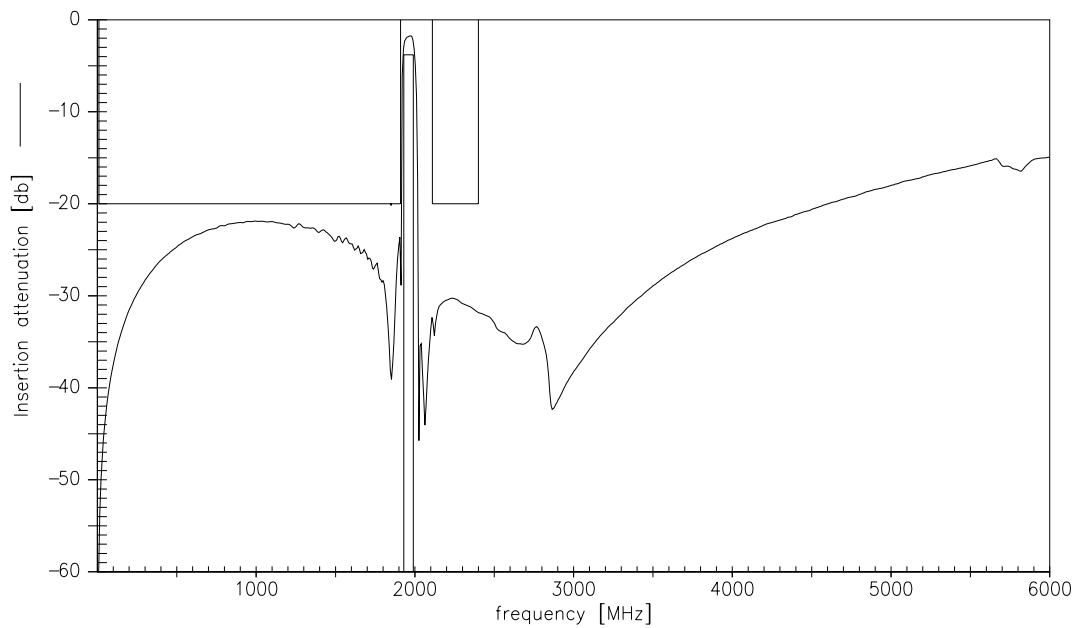
		<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Center frequency</b>	$f_c$	—	1960,0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	3,4	3,7	dB
1930,0...1990,0MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,6	1,9	dB
1930,0...1990,0MHz					
<b>Input return loss</b>		10,0	12,5	—	dB
1930,0...1990,0 MHz					
<b>Output return loss</b>		10,0	12,5	—	dB
1930,0...1990,0 MHz					
<b>Attenuation</b>	$\alpha$	20,0	22,0	—	dB
30,0...1850,0 MHz					
		20,0	31,0	—	dB
2110,0...2400,0 MHz					
<b>Tx band suppression</b>		20,0	22,0	—	dB
1850,0...1910,0 MHz					



Transfer function of the PCS filter (narrow band measurement)

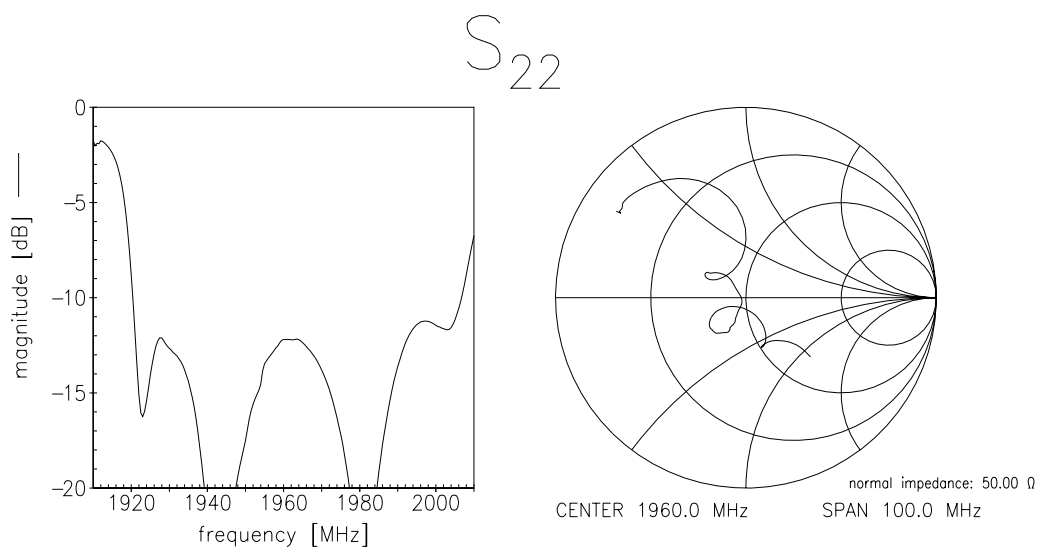
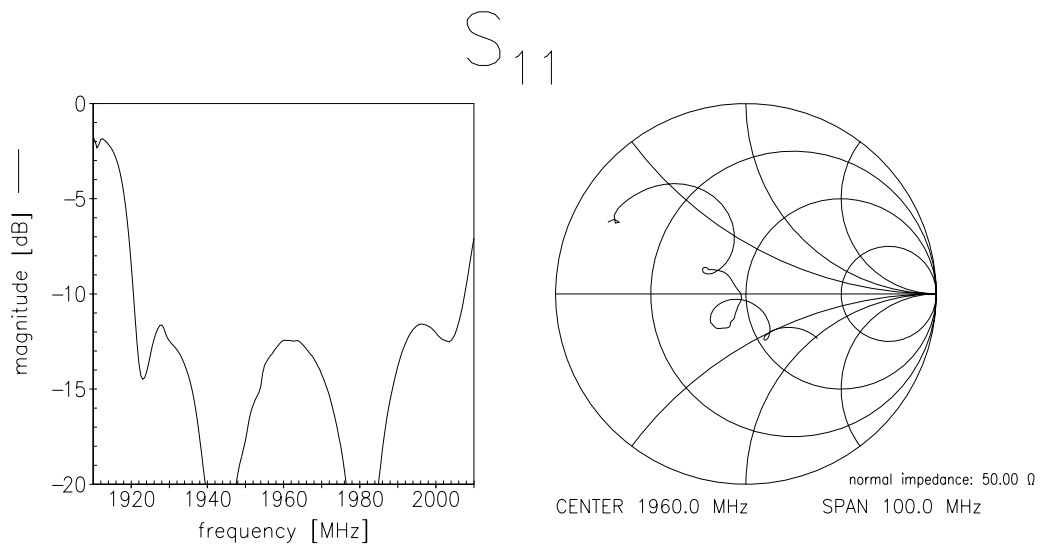


Transfer function of the PCS filter (wide band measurement)





Reflection coefficients of the PCS filter (measurement)




**Characteristics of AMPS Rx filter**

Operating temperature range:  $T = -30$  to  $+70$  °C \*  
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 50 \Omega$

		min.	typ.	max.	
<b>Center frequency</b>	$f_c$	—	881,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	2,5	3,0	dB
869,0...894,0MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0,9	1,4	dB
869,0...894,0MHz					
<b>Input return loss</b>		10,0	12,0	—	dB
869,0...894,0 MHz					
<b>Output return loss</b>		10,0	13,0	—	dB
869,0...894,0 MHz					
<b>Attenuation</b>	$\alpha$				
30,0...824,0MHz		35,0	42,0	—	dB
1050,0...1080,0MHz		38,0	42,0	—	
1080,0...2300,0MHz		30,0	31,5	—	
2300,0...2600,0MHz		25,0	30,0	—	
<b>Tx band suppression</b>		35,0	40,0	—	dB
824,0...849,0MHz					

\* all values also fulfill the temperature range  $-30$  to  $+85$  °C



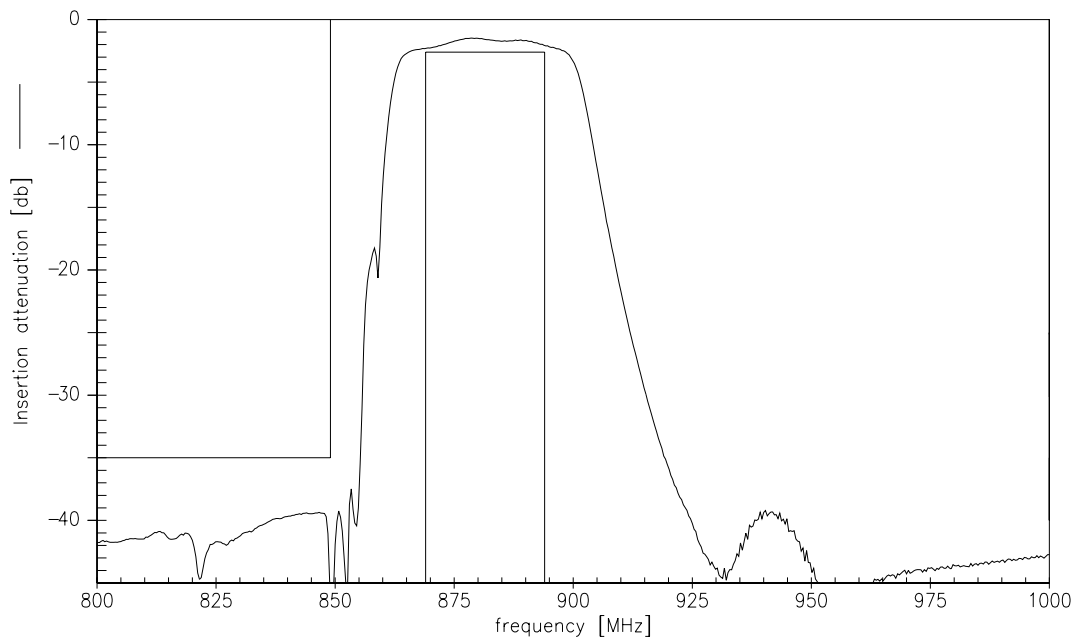

**Characteristics of AMPS Rx filter**

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

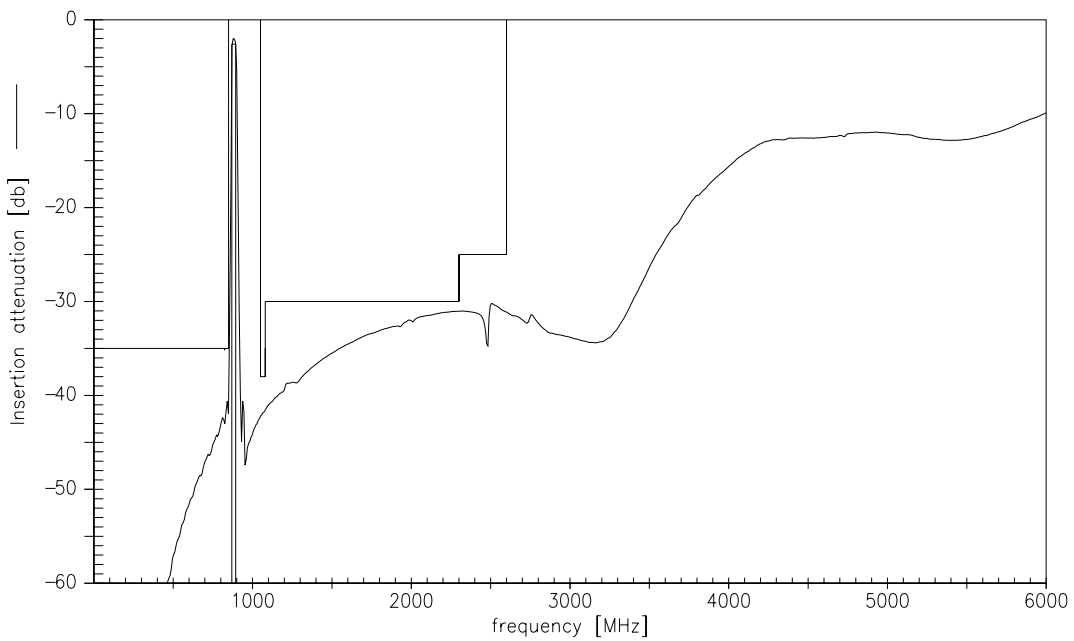
		<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Center frequency</b>	$f_c$	—	881,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	2,4	2,6	dB
869,0...894,0MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0,6	1,1	dB
869,0...894,0MHz					
<b>Input return loss</b>		10,0	12,5	—	dB
869,0...894,0 MHz					
<b>Output return loss</b>		10,0	13,5	—	dB
869,0...894,0 MHz					
<b>Attenuation</b>	$\alpha$				
30,0...824,0MHz		35,0	42,0	—	dB
1050,0...1080,0MHz		38,0	42,0	—	
1080,0...2300,0MHz		30,0	31,5	—	
2300,0...2600,0MHz		25,0	30,0	—	
<b>Tx band suppression</b>		35,0	40,0	—	dB
824,0...849,0MHz					



Transfer function of the AMPS filter (narrow band measurement)

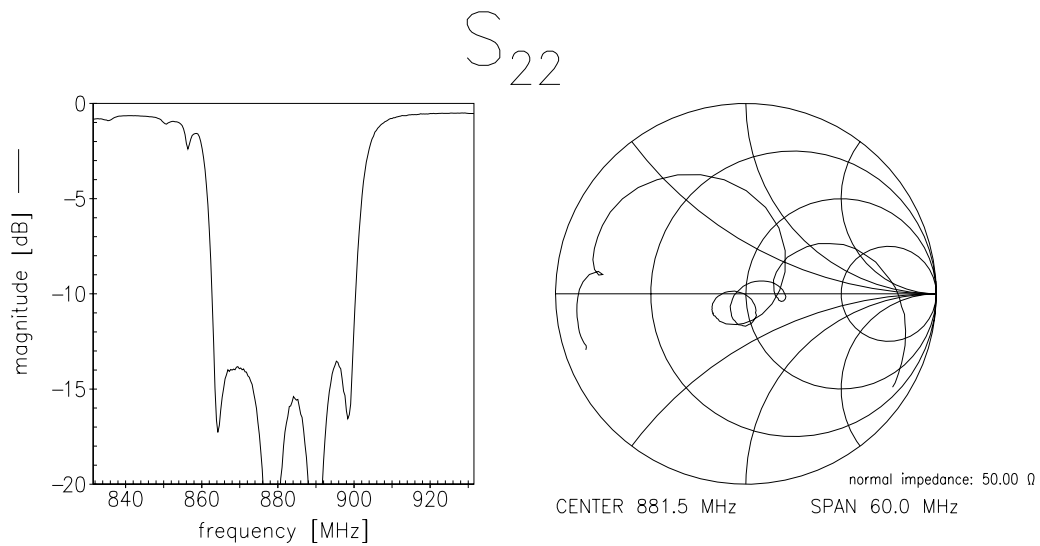
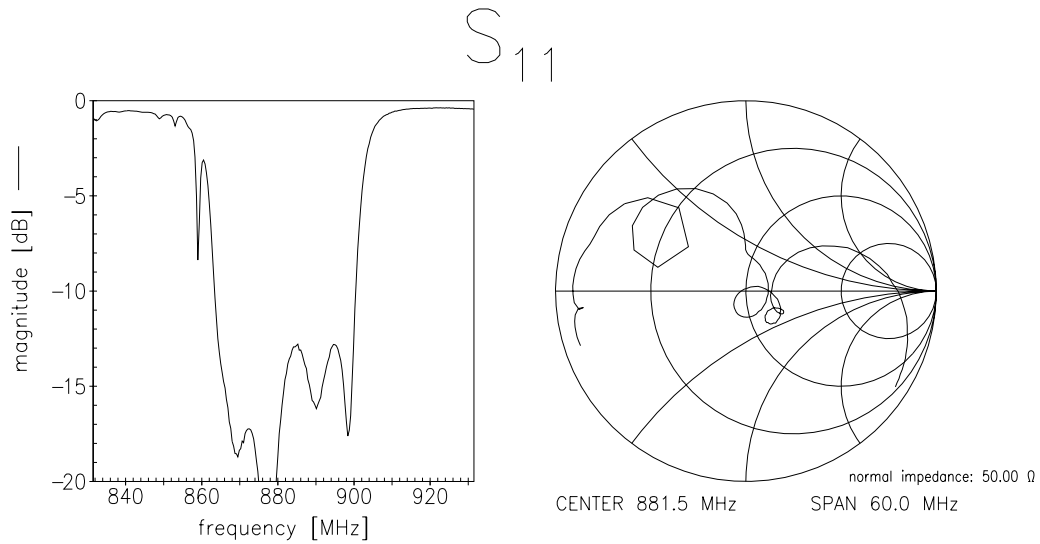


Transfer function of the AMPS filter (wide band measurement)





Reflection coefficients of the AMPS filter (measurement)



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