



SAW Components

SAW Rx Filter

MediaFLO

Series/Type:	B9454
Ordering code:	B39721B9454M410
Date:	August 27, 2009
Version:	2.2



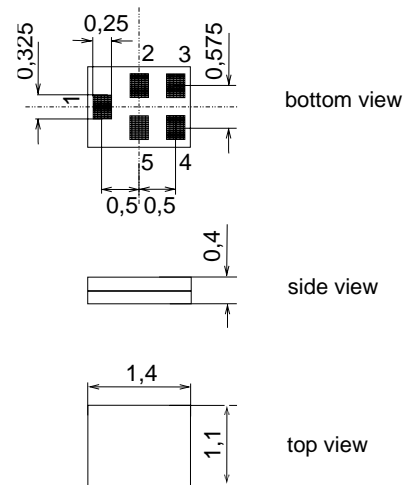
Application

- Low-loss RF filter for MediaFLO TV application in mobile telephone systems
- High selectivity
- Usable passband for ch55 + ch56
- Impedance 50 Ω at input and 100 Ω balanced output



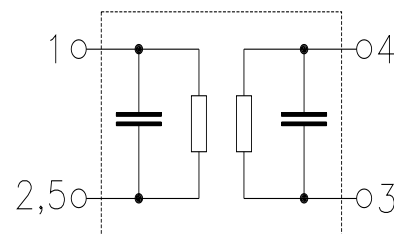
Features

- Package size 1.4 x 1.1 x 0.4 mm³
- Package code QCS5I
- RoHS compatible
- Approx. weight 0.003g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- Electrostatic Sensitive Device (ESD)



Pin configuration

- 1 Input unbalanced
- 3,4 Output balanced
- 2,5 To be grounded





Data sheet



Characteristics

Temperature range for specification: $T = -10\text{ °C to }+60\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 100\ \Omega$

		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	722.0	—	MHz
Maximum insertion attenuation	716.29...727.71 MHz α_{max}	—	1.4	2.0	dB _{INT} ¹⁾ CTQ
Input VSWR	716.29...727.71 MHz	—	1.7	2.2	
Output VSWR	716.29...727.71 MHz	—	1.7	2.2	
Output amplitude balance (S_{31}/S_{21})	716.29...727.71 MHz	-1.2	-0.2/0.7	1.2	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)	716.29...727.71 MHz	-12	-5/+6	12	°
Group delay ripple (p-p)	716.29...727.71 MHz	—	25	80	ns
Attenuation	α_{abs}				
	0.1 ... 650.0 MHz	40	45	—	dB
	650.0 ... 698.0 MHz	22	27	—	dB
	ch53: 707.0 MHz	16	25	—	dB _{INT}
	ch54: 713.0 MHz	2.5	3.5	—	dB _{INT}
	ch57: 731.0 MHz	1	2	—	dB _{INT}
	ch58: 737.0 MHz	6	16	—	dB _{INT}
	776.0 ... 798.0 MHz	32	42	—	dB
	824.0 ... 960.0 MHz	35	43	—	dB
	1575.0 MHz	35	45	—	dB
	1710.0 ... 1785.0 MHz	40	45	—	dB
	1920.0 ... 1980.0 MHz	40	45	—	dB
	2400.0 ... 2484.0 MHz	30	45	—	dB



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1) dB_{INT} is integrated rejection (see formula below)

$$dB_{INT} = 20 \cdot \log \frac{\sum_{n=1}^N \frac{Loss(F_{n-1}) + Loss(F_n)}{2} \times (F_n - F_{n-1})}{F_N - F_1}$$

Where $Loss(F_n) = 10^{(S_{21,indB})/20}$

N = Number of frequency, insertion loss pairs in a channel



Data sheet



Characteristics

Temperature range for specification: $T = -30\text{ °C to }+85\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 100\ \Omega$

		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	722.0	—	MHz
Maximum insertion attenuation	716.29...727.71 MHz α_{max}	—	1.4	2.5	dB _{INT} ¹⁾ CTQ
Input VSWR	716.29...727.71 MHz	—	1.7	3.0	
Output VSWR	716.29...727.71 MHz	—	1.7	3.0	
Output amplitude balance (S_{31}/S_{21})	716.29...727.71 MHz	-2.0	-0.2/0.7	2.0	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)	716.29...727.71 MHz	-15	-5/+6	15	°
Group delay ripple (p-p)	716.29...727.71 MHz	—	25	100	ns
Attenuation	α_{abs}				
	0.1 ... 650.0 MHz	40	45	—	dB
	650.0 ... 698.0 MHz	22	27	—	dB
	ch53: 707.0 MHz	16	25	—	dB _{INT}
	ch54: 713.0 MHz	2	3.5	—	dB _{INT}
	ch57: 731.0 MHz	1	2	—	dB _{INT}
	ch58: 737.0 MHz	5	16	—	dB _{INT}
	776.0 ... 798.0 MHz	32	42	—	dB
	824.0 ... 960.0 MHz	35	43	—	dB
	1575.0 MHz	35	45	—	dB
	1710.0 ... 1785.0 MHz	40	45	—	dB
	1920.0 ... 1980.0 MHz	40	45	—	dB
	2400.0 ... 2484.0 MHz	30	45	—	dB



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1) dB_{INT} is integrated rejection (see formula below)

$$dB_{INT} = 20 \cdot \log \frac{\sum_{n=1}^N \frac{Loss(F_{n-1}) + Loss(F_n)}{2} \times (F_n - F_{n-1})}{F_N - F_1}$$

Where Loss(F_n) = 10^{(S₂₁indB)/20}

N = Number of frequency, insertion loss pairs in a channel

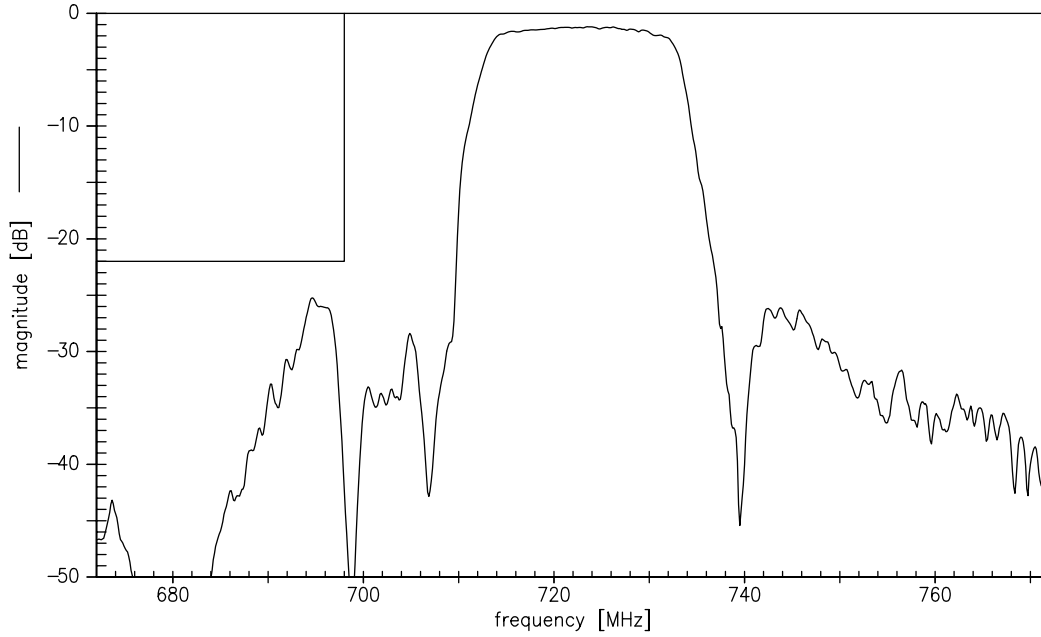
Maximum ratings

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	3	V	
ESD voltage	V _{ESD}	100 ¹⁾	V	machine model, 1 pulse
Input Power at				
400.0...500.0 MHz	P _{IN}	15	dBm	
824.0...2400.0 MHz				CW

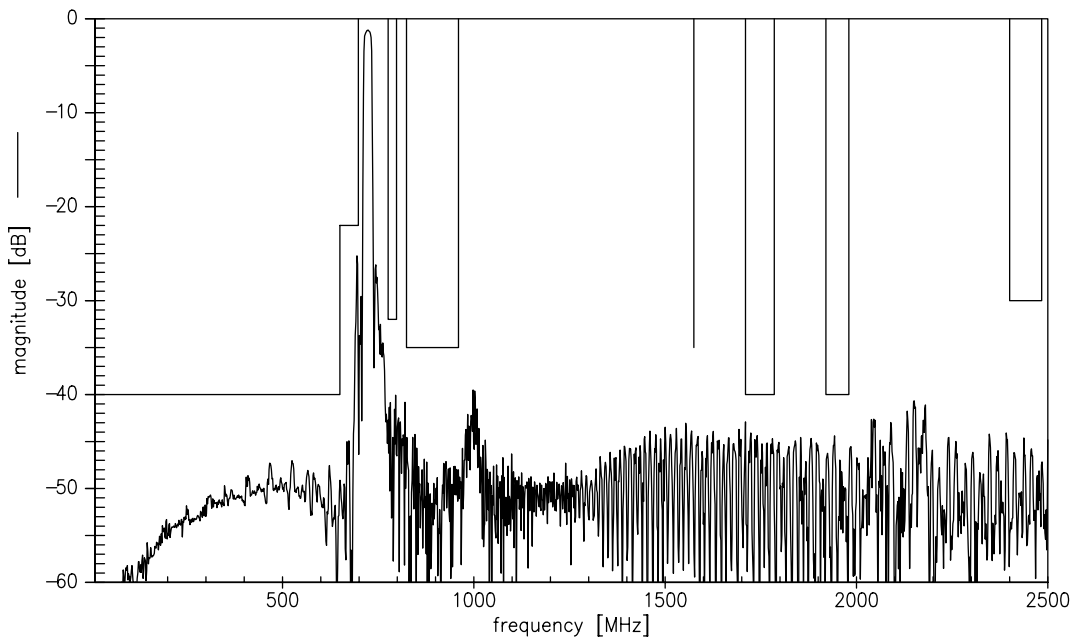
1) acc. to JESD22-A115A (machine model), 1 negative & 1 positive pulse.



Transfer function

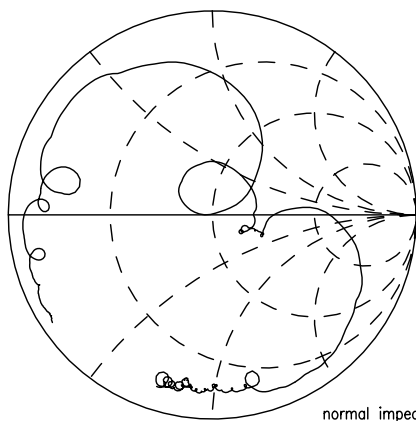


Transfer function (wideband)

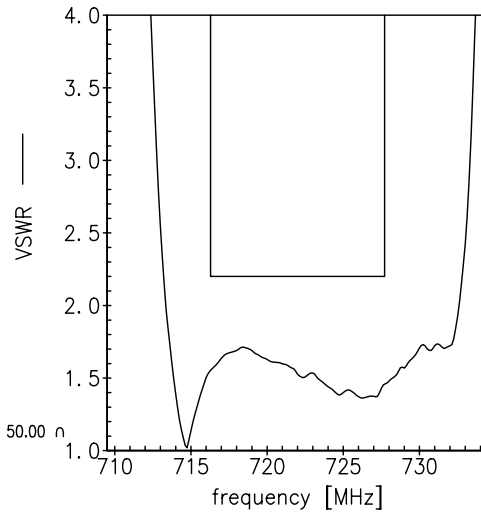


Smith charts

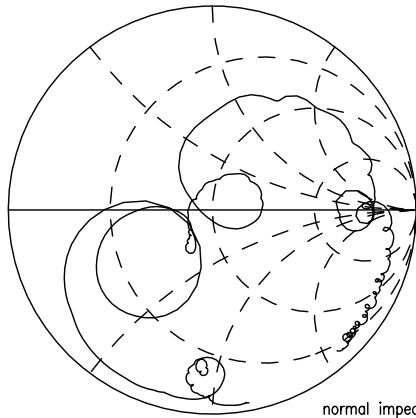
S₁₁ function



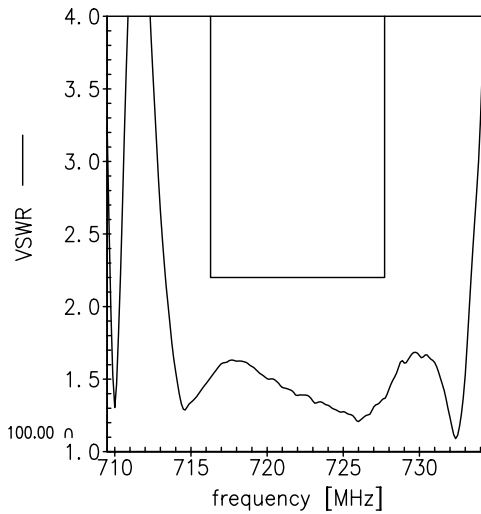
normal impedance: 50.00 Ω



S₂₂ function



normal impedance: 100.00 Ω





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References

Type	B9454
Ordering code	B39721B9454M410
Marking and package	C61157-A8-A3
Packaging	F61074-V8237-Z000
Date codes	L_1126
S-parameters	B9454_NB.s3p B9454_WB.s3p See file header for port/pin assignment table
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."
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.

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