

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: Version: Apr 05, 2016 2.1

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SAW Components

SAW RF filter for base stations

Trunked Radio

Series/type:	B4232
Ordering code:	B39861B4232H410
Data	1

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Data sheet

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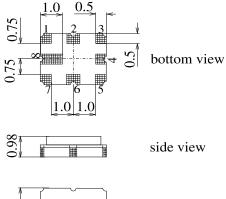
Application

- 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 2.5x 0.98 mm³
- 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

2

B4232

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SAW RF filter

Data sheet

Characteristics filter 1

Temperature range for specification:	Т	=	25 +/– 2 °C
Terminating source impedance:	Z_S	=	50 Ω
Terminating load impedance:	ZL	=	50 Ω

		min.	typ. @ 25 °C	max.	
Nominal frequency	f _N		860.5		MHz
Maximum insertion attenuation	α_{max}				
851.0 870.0 MH	lz	_	2.1	2.5	dB
Amplitude ripple (p-p)	Δα				
851.0 870.0 MH	łz	—	0.7	1.1	dB
Group delay ripple (p-p)	Δau				
851.0 870.0 MH	Ηz	—	20.0	50.0	ns
Input return loss					
851.0 870.0 MF	łz	10.0	11.5		dB
Output return loss					
851.0 870.0 MH	Ηz	10.0	11.5		dB
Absolute attenuation	α_{abs}				
0.1 483.0 MH		57	60	—	dB
483.0 676.0 MH	Ηz	50	60	—	dB
676.0 724.0 MH	Ηz	40	64	—	dB
741.4 773.0 MH	Ηz	30	59	—	dB
804.0 822.0 MH	Ηz	20	42	—	dB
880.0 MH	Ηz	7	11		dB
898.0 918.0 MH	Ηz	20	40	—	dB
946.0 967.0 MH	Ηz	30	59	—	dB
1040.0 1070.0 MH	Ηz	46	54	—	dB
1070.0 1256.0 MH		43	50	_	dB
1256.0 2000.0 MH		30	40		dB
Temperature coefficient of frequency	r TC _f	<u> </u>	-36		ppm/K

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3

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SAW Components

SAW RF filter

Data sheet

Characteristics filter 1

Temperature range for specification:	Т	=	−30 to + 70 °C
Terminating source impedance:	Z _S	=	50 Ω
Terminating load impedance:	ZL	=	50 Ω

		min.	typ. @ 25 °C	max.	
Nominal frequency	f _N		860.5		MHz
Maximum insertion attenuation 851.0 870.0 MHz	α_{max}	_	2.4	2.7	dB
Amplitude ripple (p-p) 851.0 870.0 MHz	Δα	_	1.0	1.3	dB
Group delay ripple (p-p) 851.0 870.0 MHz	Δτ	_	30.0	50.0	ns
Input return loss 851.0 870.0 MHz		10.0	11.0	_	dB
Output return loss 851.0 870.0 MHz		10.0	11.0	_	dB
Absolute attenuation 0.1 483.0 MHz 483.0 676.0 MHz 676.0 724.0 MHz 676.0 724.0 MHz 741.4 773.0 MHz 804.0 822.0 MHz 988.0 918.0 MHz 946.0 967.0 MHz 1040.0 1070.0 MHz 1256.0 2000.0 MHz	α _{abs}	57 50 40 30 20 4 20 30 46 43 30	60 60 64 59 42 7 38 59 54 50 40		dB dB dB dB dB dB dB dB dB dB dB dB
Temperature coefficient of frequency	TC _f		-36		ppm/K

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769.0/860.5 MHz



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769.0/860.5 MHz

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SAW RF filter

Data sheet

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Maximum ratings

Operable temperature range	Т	-40/+85	°C	
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	5	V	
ESD voltage	V _{ESD}	100 ¹⁾	V	Machine Model ,10 pluses
Input power	P _{IN}			
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

B4232

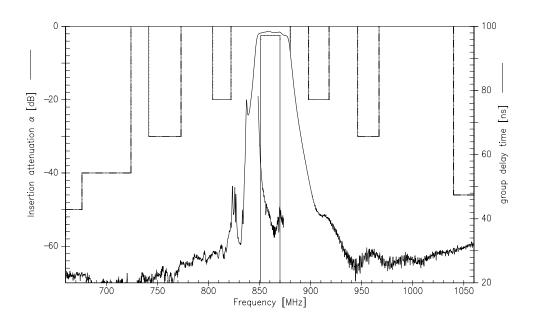
769.0/860.5 MHz

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SAW RF filter

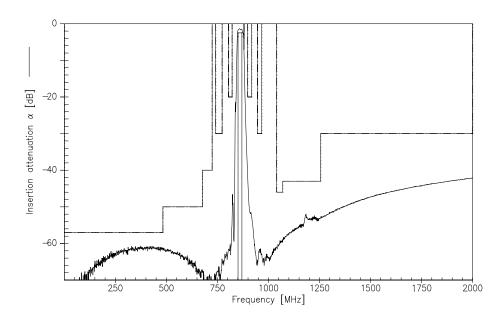
Data sheet

Transfer function filter 1 (S21, narrowband)



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Transfer function filter 1 (S21, wideband)



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769.0/860.5 MHz

SAW Components

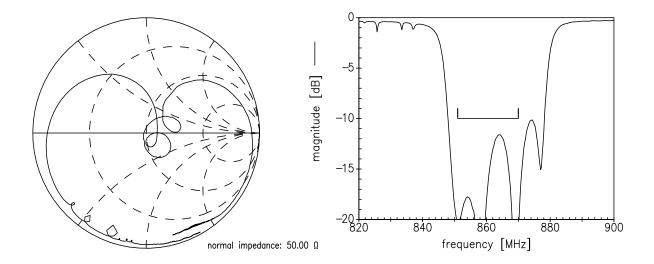
SAW RF filter

Data sheet

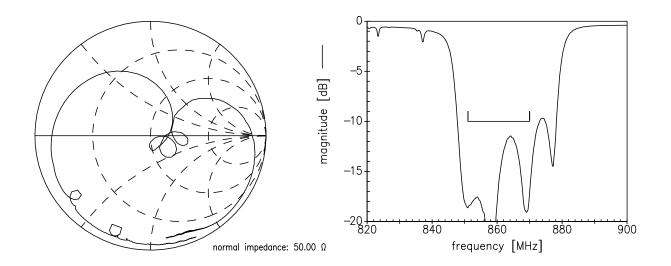
SMD

Smith charts

S₁₁ function filter 1



S₂₂ function filter 1



SAW Components

SAW RF filter

Data sheet

Characteristics filter 2

Temperature range for specification:	Т	=	25 +/– 2 °C
Terminating source impedance:	Z_S	=	50 Ω
Terminating load impedance:	ZL	=	50 Ω

		min.	typ. @ 25 °C	max.	
Nominal frequency	f _N	—	769.0		MHz
Maximum insertion attenuation 762.0 776.0 MH	α _{max} Z	_	1.7	2.4	dB
Amplitude ripple (p-p) 762.0 776.0 MH	Δα z	_	0.4	1.0	dB
Group delay ripple (p-p) 762.0 776.0 MH	Δτ z	_	22.0	50.0	ns
Input return loss 762.0 776.0 MH	z	12.0	13.0	_	dB
Output return loss 762.0 776.0 MH	z	12.0	13.0	_	dB
Absolute attenuation 0.0 431.0 MH 431.0 604.0 MH 604.0 690.0 MH 690.0 733.0 MH 733.0 752.0 MH 804.0 847.0 MH 892.7 910.7 MH 910.7 995.3 MH 995.3 1121.0 MH	Z Z Z Z Z Z Z	57 50 30 20 9 25 30 50 47 42	60 60 62 56 18 36 54 56 54 56 54 52		dB dB dB dB dB dB dB dB dB dB
Temperature coefficient of frequency	TC _f		-36		ppm/K

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769.0/860.5 MHz

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SAW Components

SAW RF filter

Data sheet

haracteristics filter 2

Temperature range for specification:	Т	=	−30 to + 70 °C
Terminating source impedance:	Z_S	=	50 Ω
Terminating load impedance:	ZL	=	50 Ω

		min.	typ. @ 25 °C	max.	
Nominal frequency	f _N	_	769.0		MHz
Maximum insertion attenuation 762.0 776.0 MI	α _{max} Hz	_	1.8	2.6	dB
Amplitude ripple (p-p) 762.0 776.0 MI	$\Delta \alpha$ Hz	_	0.5	1.0	dB
Group delay ripple (p-p) 762.0 776.0 MI	Δτ Hz	_	30.0	50.0	ns
Input return loss 762.0 776.0 MI	Hz	12.0	13.0	—	dB
Output return loss 762.0 776.0 Mi	Hz	12.0	13.0	—	dB
431.0 604.0 MI 604.0 690.0 MI 690.0 733.0 MI	α _{abs} Hz Hz Hz Hz Hz	57 50 30 20 9	60 60 62 56 16	 	dB dB dB dB dB
847.0 892.7 Ml 892.7 910.7 Ml 910.7 995.3 Ml	Hz Hz Hz Hz	25 30 50 47 42	34 54 56 54 52	 	dB dB dB dB dB
Temperature coefficient of frequency	y TC _f	— —	-36		ppm/K

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769.0/860.5 MHz

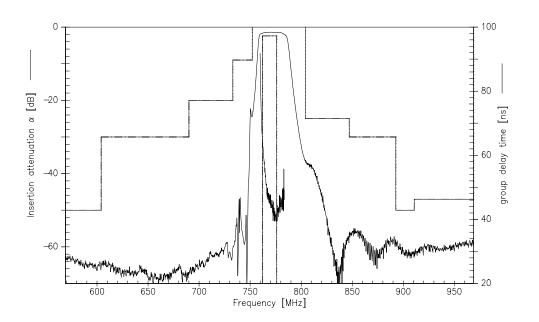
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SAW RF filter

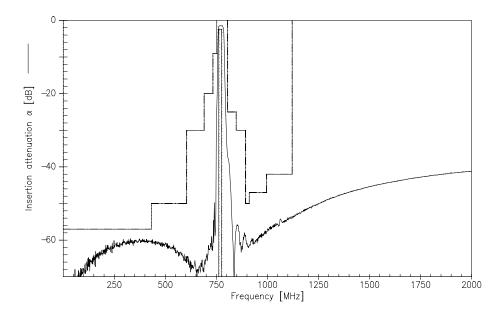
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Data sheet

Transfer function filter 2 (S21, narrowband)



Transfer function filter 2 (S21, wideband)



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769.0/860.5 MHz

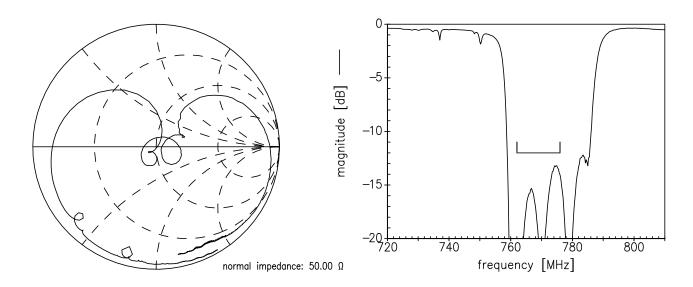
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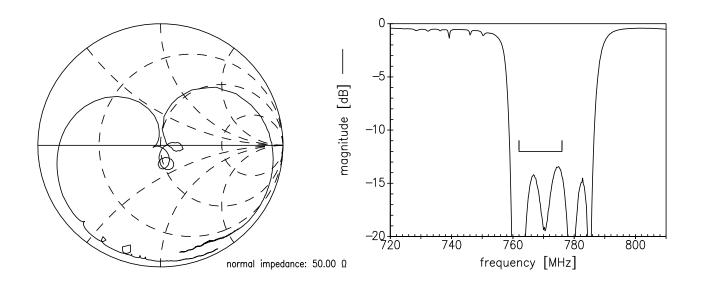
Smith charts

 S_{11} function filter 2



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S₂₂ function filter 2



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

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Data sheet

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References

Туре	B4232
Ordering code	B39861B4232H410
Marking and package	C61157-A7-A92
Packaging	F61074-V8174-Z000
Date codes	L_1126
S-parameters	B4232_LB_NB.s2p , B4232_LB_WB.s2p B4232_UB_NB.s2p , B4232_UB_WB.s2p see file header for port/pin assignment table
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.
Matching coils	See Inductor pdf-catalog <u>http://www.tdk.co.jp/tefe02/coil.htm#aname1</u> and Data Library for circuit simulation <u>http://www.tdk.co.jp/etvcl/index.htm</u> for a large variety of matching coils.

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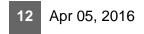
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