

RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

SAW Components

SAW RF filter

Short range devices

Series/type: B3729 Ordering code: B39311B3729H110

Date:December 11, 2012Version:2.1

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313.85 MHz

B3729

SAW Components

SAW RF filter

Data sheet

SMD

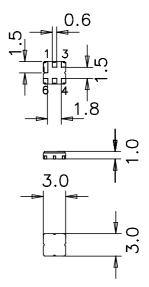
Application

- Low-loss RF filter for remote control receivers
- No matching network required for operation at 50 Ω



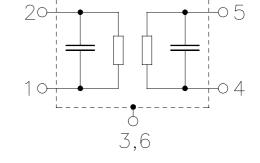
Features

- Package size 3.0 x 3.0 x 1.0 mm³
- Package code DCC6E
- RoHS compatible
- Approximate weight 0.037 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- Lead free soldering compatible with J STD20C
- Passivation layer Elpas
- AEC-Q200 qualified component family
- Electrostactic Sensitive Device (ESD)



Pin configuration¹⁾

- 1 Input (recommended) or input ground
- 2 Input ground (recommended) or input
- 4 Output (recommended) or output ground
- 5 Output ground (recommended) or output
- 3,6 Ground (case)



¹⁾ The recommended pin configuration usually offers best suppression of electrical crosstalk. The filter characteristics refer to this configuration.

December 11, 2012

SAW Components SAW RF filter

Data sheet

Characteristics

Temperature range for specification:	$T = -40 \degree C \text{ to } +85 \degree C$
Terminating source impedance:	$Z_{S} = 50 \Omega$
Terminating load impedance:	$Z_L = 50 \Omega$

		min.	typ. @ 25 °C	max.	
Center frequency	f _C		313.85	_	MHz
Maximum insertion attenuation 313.35 314.35 MHz	α _{max}	_	1.5	1.9	dB
Amplitude ripple (p-p) 313.35 314.35 MHz	Δα	_	0.4	1.0	dB
Input VSWR 313.35 314.35 MHz Output VSWR	:		1.3	1.6	
313.35 314.35 MHz	1		1.3	1.6	
Attenuation	α				
270.00 286.00 MHz	<u></u>	60	68	—	dB
293.00 293.90 MHz	<u>.</u>	56	64		dB
302.85 303.45 MHz	<u>.</u>	45	52		dB
324.25 324.85 MHz	<u>.</u>	29	31	_	dB
336.10 337.00 MHz	<u>.</u>	52	60		dB
357.50 358.70 MHz		55	63		dB

SMD

B3729

SAW RF filter

Data sheet

Characteristics

Temperature range for specification:	$T = -45 \degree C \text{ to} + 105 \degree C$
Terminating source impedance:	$Z_{S} = 50 \Omega$
Terminating load impedance:	$Z_L = 50 \Omega$

		min.	typ. @ 25 °C	max.	
Center frequency	f _C		313.85		MHz
Maximum insertion attenuation 313.35 314.35 MHz	α_{max}	_	1.5	2.0	dB
Amplitude ripple (p-p) 313.35 314.35 MHz	Δα	_	0.4	1.0	dB
Input VSWR 313.35 314.35 MHz Output VSWR	:	_	1.3	1.6	
313.35 314.35 MHz	:	_	1.3	1.6	
Attenuation	α				
270.00 286.00 MHz		60	68	—	dB
293.00 293.90 MHz		56	64		dB
302.85 303.45 MHz		45	52		dB
324.25 324.85 MHz		29	31		dB
336.10 337.00 MHz		52	60		dB
357.50 358.70 MHz	:	55	63		dB

SMD

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B3729 313.85 MHz

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SAW RF filter

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Maximum ratings

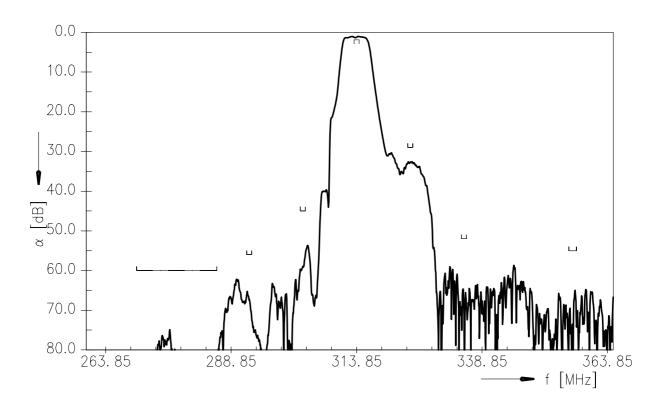
Operable temperature range	Т	-45/+125	°C	
Storage temperature range	T _{stg}	-45/+125	°C	
DC voltage	V _{DC}	6	V	
Source power	P _S	13	dBm	source impedance 50 Ω

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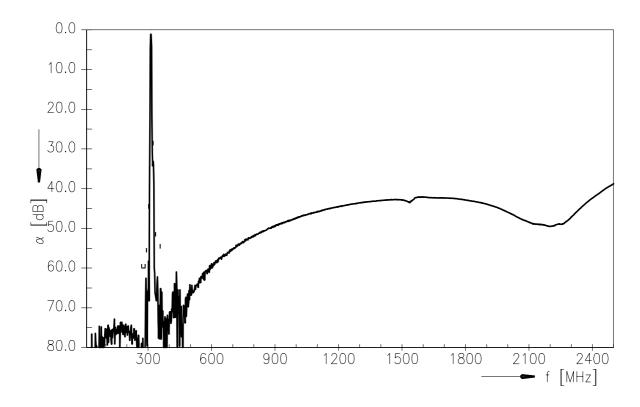
SAW Components		B3729
SAW RF filter		313.85 MHz
Data sheet	SMD	

Data sheet

Transfer function (wideband)



Transfer function (ultimate rejection)





313.85 MHz

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SAW Components

SAW RF filter

Data sheet

ESD protection of SAW filters

SAW filters are Electro Static Discharge sensitive devices. To reduce the probability of damages caused by ESD, special matching topologies have to be applied.

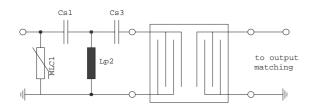
SMD

In general, "ESD matching" has to be ensured at that filter port, where electrostatic discharge is expected.

Electrostatic discharges predominantly appear at the antenna input of RF receivers. Therefore only the input matching of the SAW filter has to be designed to short circuit or to block the ESD pulse.

Below three figures show recommended "ESD matching" topologies.

For wideband filters the high-pass ESD matching structure needs to be at least of 3rd order to ensure a proper matching for any impedance value of antenna and SAW filter input. The required component values have to be determined from case to case.



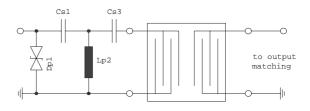


Fig. 1 MLC varistor plus ESD matching



In cases where minor ESD occur, following simplified "ESD matching" topologies can be used alternatively.

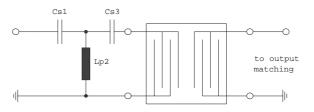


Fig. 3 3rd order high-pass structure for basic ESD protection

In all three figures the shunt inductor Lp2 could be replaced by a shorted microstrip with proper length and width. If this configuration is possible depends on the operating frequency and available pcb space.

Effectiveness of the applied ESD protection has to be checked according to relevant industry standards or customer specific requirements

For further information, please refer to EPCOS Application report:

"ESD protection for SAW filters".

This report can be found under www.epcos.com/rke.Click on "Applications Notes".

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SAW Components

SAW RF filter

Data sheet

SMD

References

Туре	B3729		
Ordering code	B39311B3729H110		
Marking and package	C61157-A7-A143		
Packaging	F61074-V8228-Z000		
Date codes	L_1126		
S-parameters	B3729_NB.s2p, B3729_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 8 th , 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>		

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Published by EPCOS AG Systems, Acoustics, Waves Business Group P.O. Box 80 17 09, 81617 Munich, GERMANY

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8



313.85 MHz



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