

RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

SAW Components

SAW RF filter

Short range devices

Series/type: B3588
Ordering code: B39921B3588U410

Date: December 17, 2014
Version: 2.5

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SAW Components

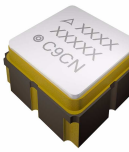
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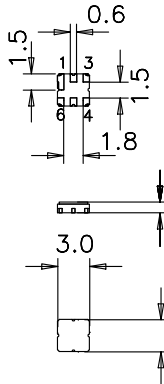
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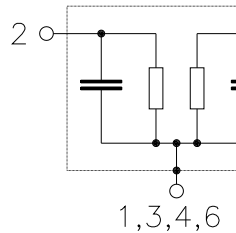
Features

- Package size 3.0 x 3.0 x 1.1 mm³
- Package code DCC6C
- RoHS compatible
- Approximate weight 0.037 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- Lead free soldering compatible with J - STD20C
- AEC-Q200 qualified component family
- **Electrostatic Sensitive Device (ESD)**



Pin configuration

- 2 Input
- 5 Output
- 1, 3, 4, 6 To be ground



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

Terminating load impedance:

 $Z_L = 50 \Omega$

		min.	typ. @ 25 °C	max.
Center frequency	f_C	—	915.0	—
Maximum insertion attenuation	α_{\max}			
902.00 ... 928.00 MHz		—	2.9	3.3
Amplitude ripple (p-p)	$\Delta\alpha$			
902.00 ... 928.00 MHz		—	0.9	1.5
VSWR				
902.00 ... 928.00 MHz		—	1.8:1	2.3:1
Relative attenuation (relative to α_{\max})	α_{rel}			
10.00 ... 800.00 MHz		50	55	—
800.00 ... 845.00 MHz		45	50	—
845.00 ... 880.00 MHz		35	43	—
947.00 ... 992.00 MHz		15	22	—
992.00 ... 1020.00 MHz		35	45	—
1020.00 ... 1200.00 MHz		45	50	—

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Terminating load impedance:

 $Z_L = 50 \Omega$

		min.	typ. @ 25 °C	max.
Center frequency	f_C	—	915.0	—
Maximum insertion attenuation	α_{\max}			
902.00 ... 928.00 MHz		—	2.9	3.5
Amplitude ripple (p-p)	$\Delta\alpha$			
902.00 ... 928.00 MHz		—	0.9	1.8
VSWR				
902.00 ... 928.00 MHz		—	1.8:1	2.4:1
Relative attenuation (relative to α_{\max})	α_{rel}			
10.00 ... 800.00 MHz		50	55	—
800.00 ... 845.00 MHz		45	50	—
845.00 ... 880.00 MHz		33	43	—
947.00 ... 992.00 MHz		13	22	—
992.00 ... 1020.00 MHz		35	45	—
1020.00 ... 1200.00 MHz		45	50	—

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Operable temperature range	T	-45/+125	°C	
Storage temperature range	T _{stg}	-45/+125	°C	
DC voltage	V _{DC}	6	V	
Source power	P _S	15	dBm	source impedance
Source power	P _S	18	dBm	duty cycle 1:10,
902.00 ... 928.00 MHz				-40 °C to +85 °C

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conducted by ESD, special matching topologies have to be applied. In general, “ESD matching” has to be ensured at that filter port, where electrostatic protection is expected.

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

Below two figures show recommended “ESD matching” topologies.

Depending on the input impedance of the SAW filter and the source impedance, the component values have to be determined from case to case.

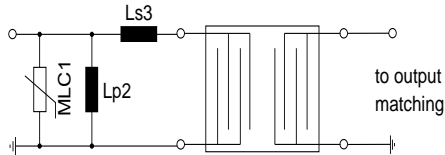


Fig. 1 MLC varistor plus ESD matching

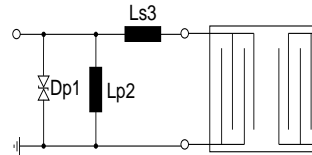


Fig. 2 Suppressor diode plus ESD matching

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

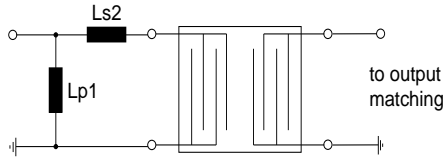


Fig. 3 shunt L – series L matching

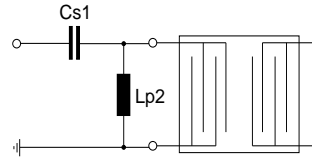


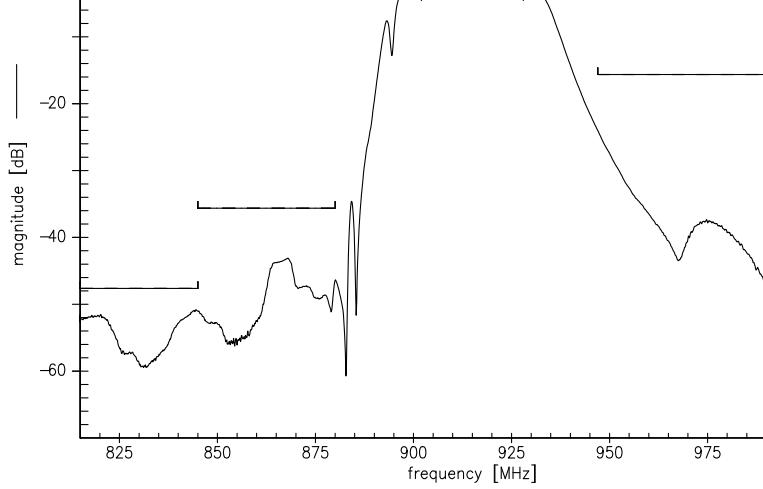
Fig. 4 series C – shunt L matching

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

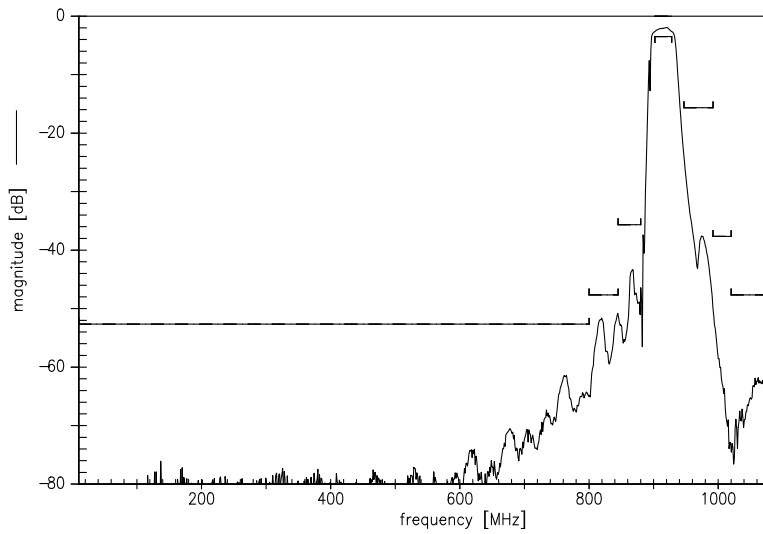
For further information, please refer to EPCOS Application report:

“**ESD protection for SAW filters**”. This report can be found under www.epcos.com under “data sheets” and then “Applications” under category “Further information”.

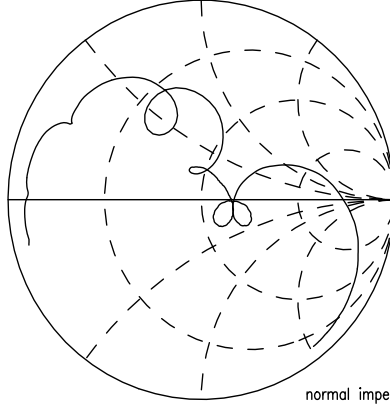
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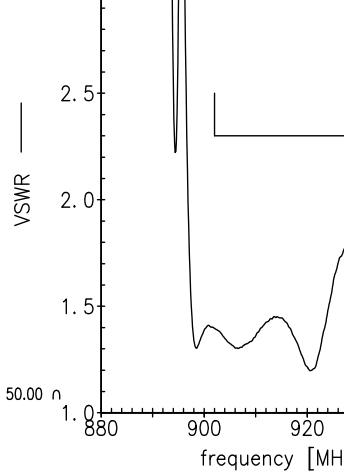
Transfer function (wideband)



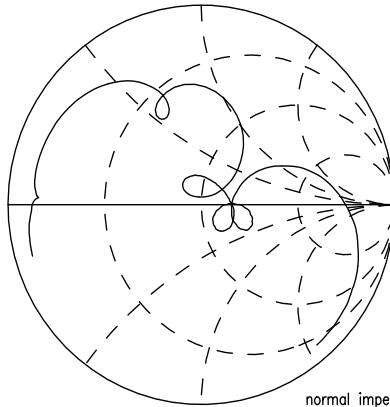
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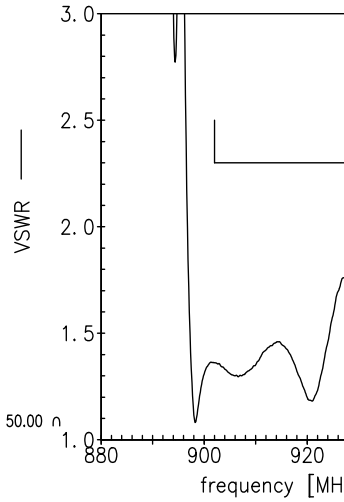
normal impedance: 50.00 Ω



S_{22} function



normal impedance: 50.00 Ω



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Type	B3588
Ordering code	B39921B3588U410
Marking and package	C61157-A7-A67
Packaging	F61074-V8168-Z000
Date codes	L_1126
S-parameters	B3588_NB.s2p, B3588_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 RoHS requirements according to Art. 4 (substance restrictive 2011/65/EU of the European Parliament and 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 per Annex III of the Directive in certain cases.
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils.

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