SAW Components

SAW RF filter

TETRA

Series/type:	**B5188**
Ordering code:	**B39371B5188Z810**
Date:	September 30, 2013
Version:	2.0

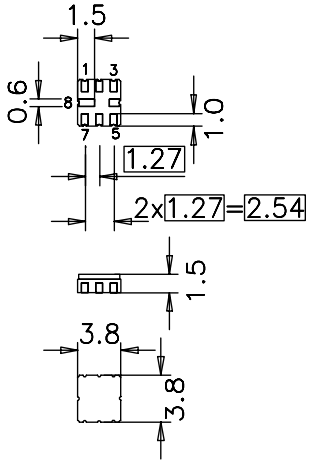
EPCOS AG is a TDK Group Company.

Application

- RF filter for TETRA
- Unbalanced or balanced operation
- Usable bandwidth 25MHz

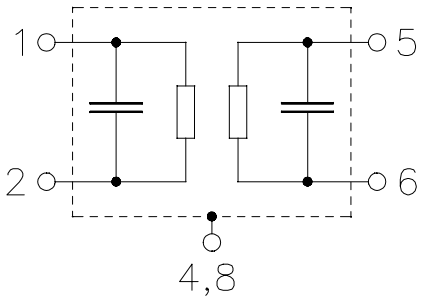
Features

- Package size 3.8 x 3.8 x 1.5 mm³
- Package code QCC8B
- RoHS compatible
- Approximate weight 0.07 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- Filter surface passivated
- **M**oisture **S**ensitivity **L**evel 1



Pin configuration

- 5 Input
- 1 Output / Output balanced
- 2 Output ground / Output balanced
- 3,6,7 To be grounded
- 4,8 Case ground



Data sheet

Characteristics

Temperature range for specification: T = +15 ˚C to +35 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	367.50	—	MHz
Maximum insertion attenuation	α_{max}				
355.0 ... 380.0 MHz		—	3.0	3.7	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
355.0 ... 380.0 MHz		—	1.1	1.8	dB
Return loss(input/Output)					
355.0 ... 380.0 MHz		11	14	—	dB
Group delay ripple (p-p)					
355.0 ... 380.0 MHz		—	32	100	ns
Absolute Attenuation	α_{abs}				
10.0 ... 82.0 MHz		35	47	—	dB
82.0 ... 340.0 MHz		24	27	—	dB
340.0 ... 345.0 MHz		10	17	—	dB
390.0 ... 400.0 MHz		10	18	—	dB
400.0 ... 409.0 MHz		18	21	—	dB
409.0 ... 436.0 MHz		20	30	—	dB
436.0 ... 462.0 MHz		30	36	—	dB
462.0 ... 517.0 MHz		30	37	—	dB
517.0 ... 543.0 MHz		34	37	—	dB
543.0 ... 791.0 MHz		30	36	—	dB
791.0 ... 1227.0 MHz		30	39	—	dB
1227.0 ... 1466.0 MHz		34	38	—	dB
1466.0 ... 2100.0 MHz		24	27	—	dB
2100.0 ... 2389.0 MHz		19	23	—	dB
2389.0 ... 3692.0 MHz		—	3	—	dB
Symmetry in band [1]					
$\lvert S_{31}\rvert/\lvert S_{21}\rvert$ 355.0 ... 380.0 MHz		-1	-0.5/0.8	1	dB
$\arg(\lvert S_{31}\rvert/\lvert S_{21}\rvert)$ 355.0 ... 380.0 MHz		-15	-11/-3	15	deg

[1] Values in columns min, typ and max applies only for balanced operation

Data sheet SMD

Characteristics

Temperature range for specification: T = -30 ˚C to +70 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	367.50	—	MHz
Maximum insertion attenuation	α_{max}				
355.0 ... 380.0 MHz		—	3.0	4.2	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
355.0 ... 380.0 MHz		—	1.1	2.3	dB
Return loss(input/Output)					
355.0 ... 380.0 MHz		11	14	—	dB
Group delay ripple (p-p)					
355.0 ... 380.0 MHz		—	32	100	ns
Absolute Attenuation	α_{abs}				
10.0 ... 82.0 MHz		35	47	—	dB
82.0 ... 340.0 MHz		24	27	—	dB
340.0 ... 345.0 MHz		10	17	—	dB
390.0 ... 400.0 MHz		10	18	—	dB
400.0 ... 409.0 MHz		18	21	—	dB
409.0 ... 436.0 MHz		20	30	—	dB
436.0 ... 462.0 MHz		30	36	—	dB
462.0 ... 517.0 MHz		30	37	—	dB
517.0 ... 543.0 MHz		34	37	—	dB
543.0 ... 791.0 MHz		30	36	—	dB
791.0 ... 1227.0 MHz		30	39	—	dB
1227.0 ... 1466.0 MHz		34	38	—	dB
1466.0 ... 2100.0 MHz		24	27	—	dB
2100.0 ... 2389.0 MHz		19	23	—	dB
2389.0 ... 3692.0 MHz		—	3	—	dB
Symmetry in band [1]					
$\lvert S_{31}\rvert/\lvert S_{21}\rvert$ 355.0 ... 380.0 MHz		-1	-0.5/0.8	1	dB
$\arg(\lvert S_{31}\rvert/\lvert S_{21}\rvert)$ 355.0 ... 380.0 MHz		-15	-11/-3	15	deg

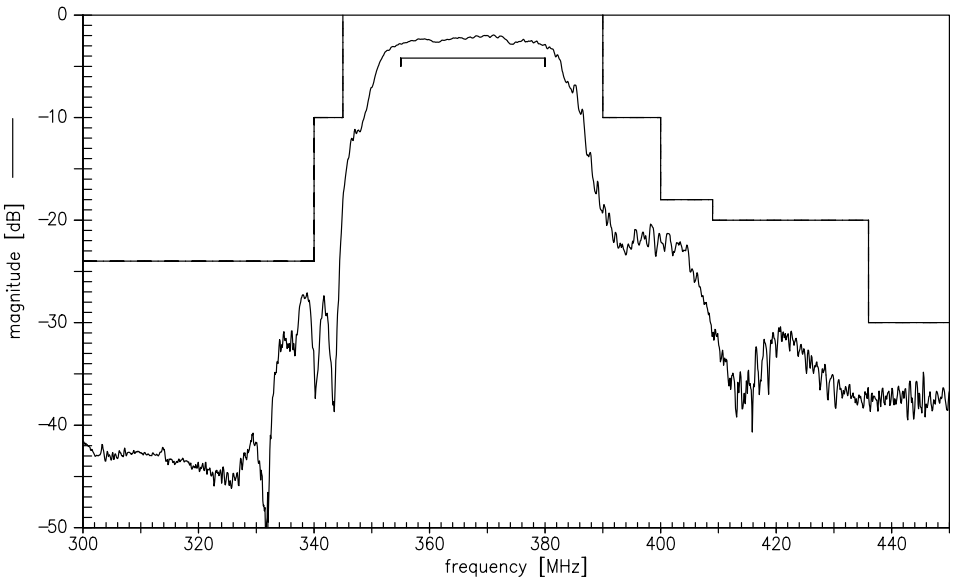
[1] Values in columns min, typ and max applies only for balanced operation.

Maximum ratings

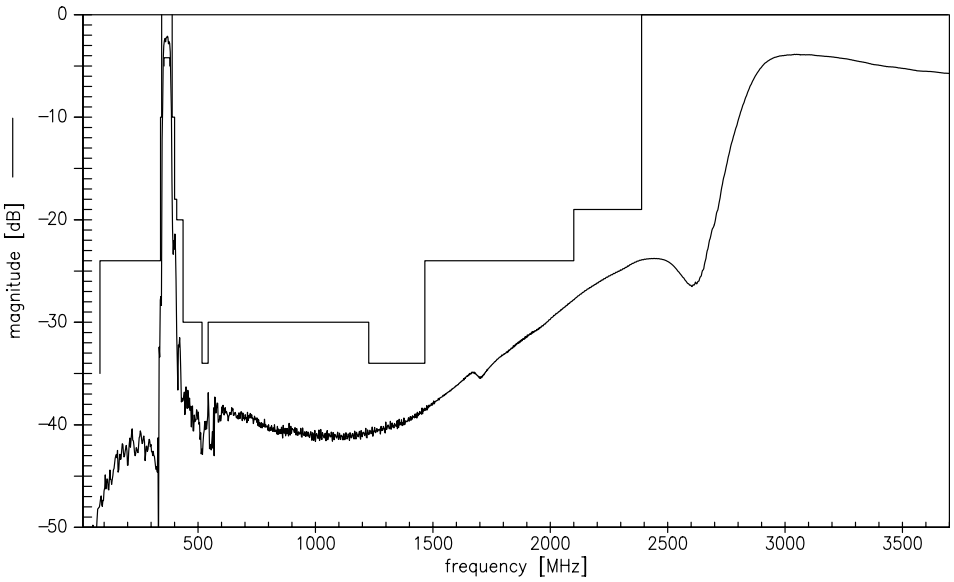
Operable temperature range	T	–45/+125	˚C	
Storage temperature range	T_{stg}	–45/+125	˚C	
DC voltage	V_{DC}	6	V	
ESD voltage	V_{ESD}	100[1)]	V	machine model, 10 pulses
Input power at				
355.0 ... 380.0MHz	P_{IN}	22	dBm	10 000 hrs @ 85deg , CW
		20	dBm	100 000 hrs @ 70deg , CW

1) acc. to JESD22-A115B (machine model), +/- 10 pulses.

Transfer function

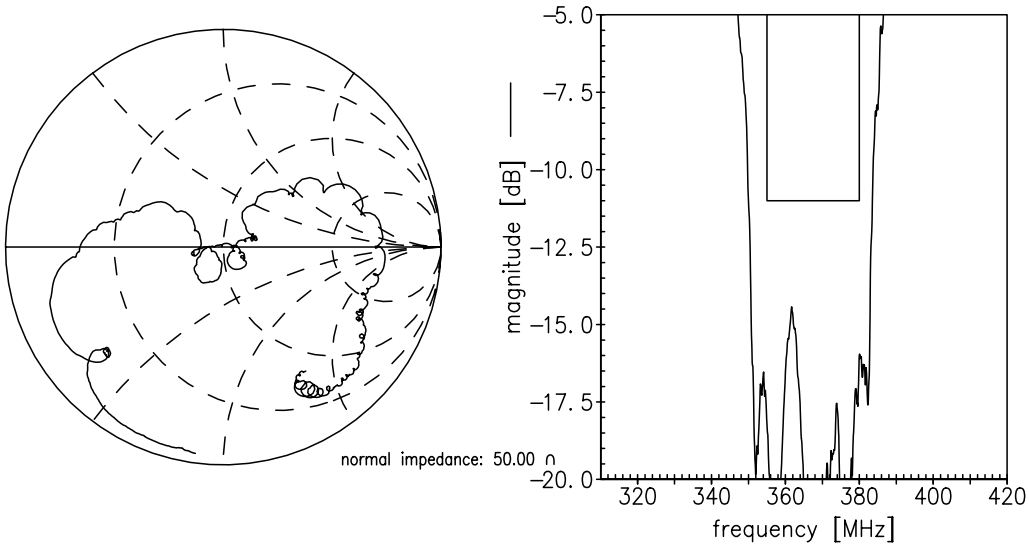


Transfer function (wideband)

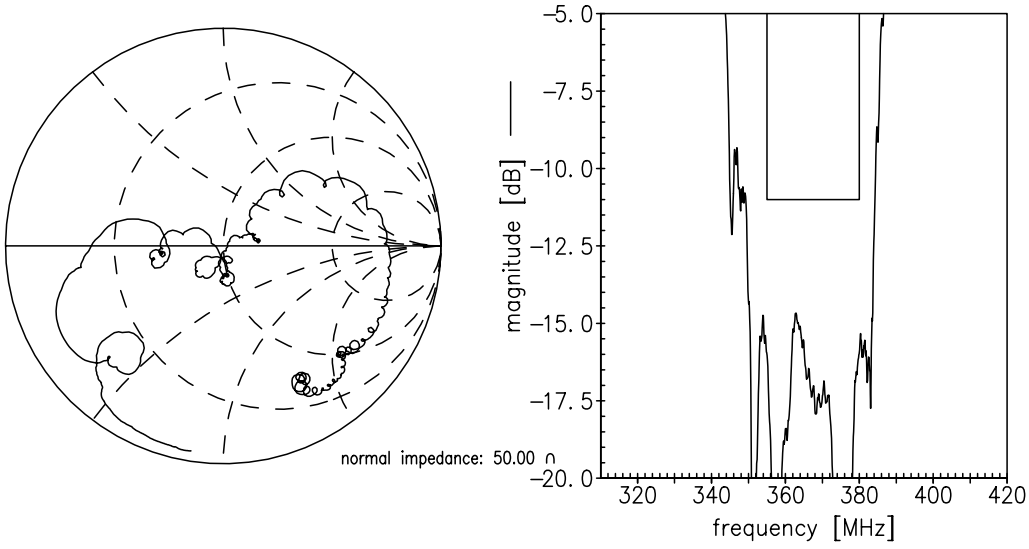


Smith charts

S_{11} function



S_{22} function



References

Type	B5188
Ordering code	B39371B5188Z810
Marking and package	C61157-A7-A46
Packaging	F61074-V8229-Z000
Date codes	L_1126
S-parameters	B5188_NB.s2p , B5188_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 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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