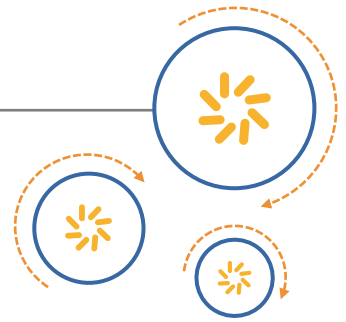


RF360 Europe GmbH

A Qualcomm – TDK Joint Venture



SAW Components

SAW 2in1 filter

TD-SCDMA 2100 / TD-SCDMA 1900

Series/type:	B9816
Ordering code:	B39202B9816P810
Date:	March 22, 2011
Version:	2.0

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SAW Components

SAW 2in1 filter

TD-SCDMA 2100 / TD-SCDMA 1900

Series/type:	B9816
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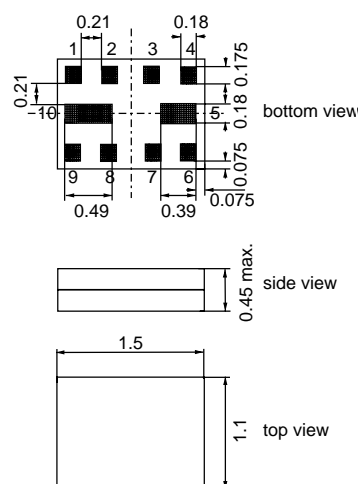
Data Sheet

Application

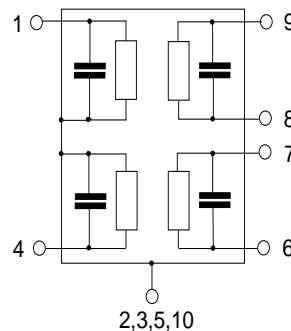
- Low-loss 2in1 RF filter for mobile telephone TD-SCDMA 2100 and TD-SCDMA 1900 systems
- Usable passband:
Filter 1 (TD-SCDMA 2100): 15 MHz
Filter 2 (TD-SCDMA 1900): 40 MHz
- Unbalanced to unbalanced operation for both filters
- Low amplitude ripple
- No matching network required for operation at 50Ω


Features

- Package size 1.5 x 1.1 x 0.4 mm³
- RoHS compatible
- Approx. weight 0.003g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitive Level 3**


Pin configuration

- 1 Input [Filter 1]
- 4 Input [Filter 2]
- 6 Output [Filter 2]
- 9 Output [Filter 1]
- 7,8 To be grounded
- 2,3,5,10 Case-ground



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SAW 2in1 filter
2017.5/ 1900.0 MHz
Data Sheet

Characteristics of Filter 1 (TD-SCDMA 2100)

 Temperature range for specification: $T = -30\text{ °C to }+85\text{ °C}$

 Terminating source impedance: $Z_S = 50\ \Omega$

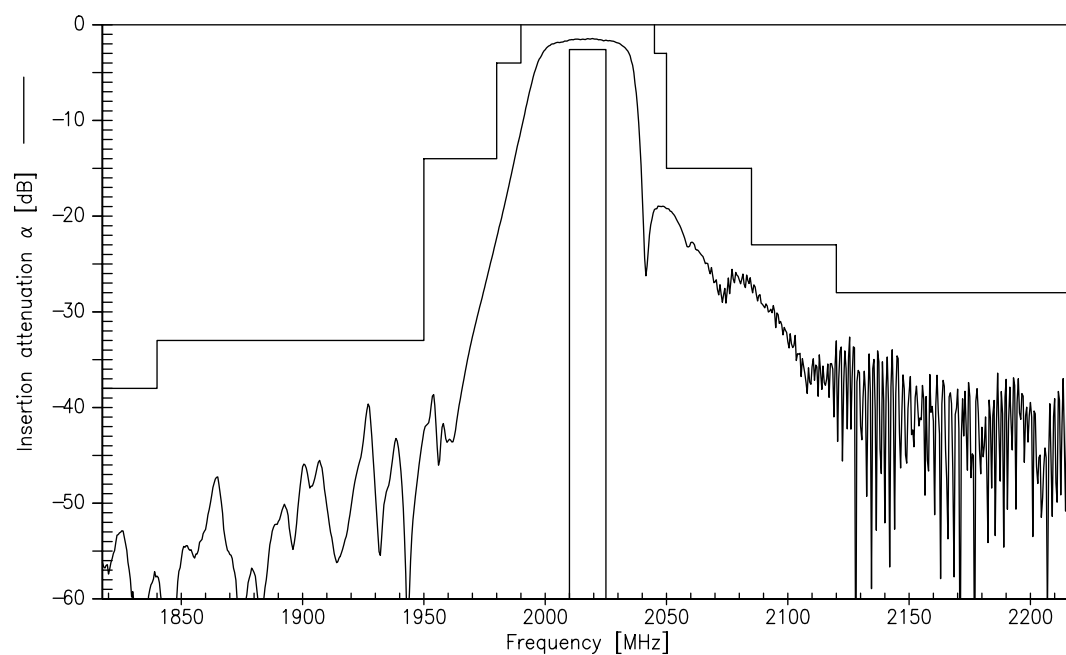
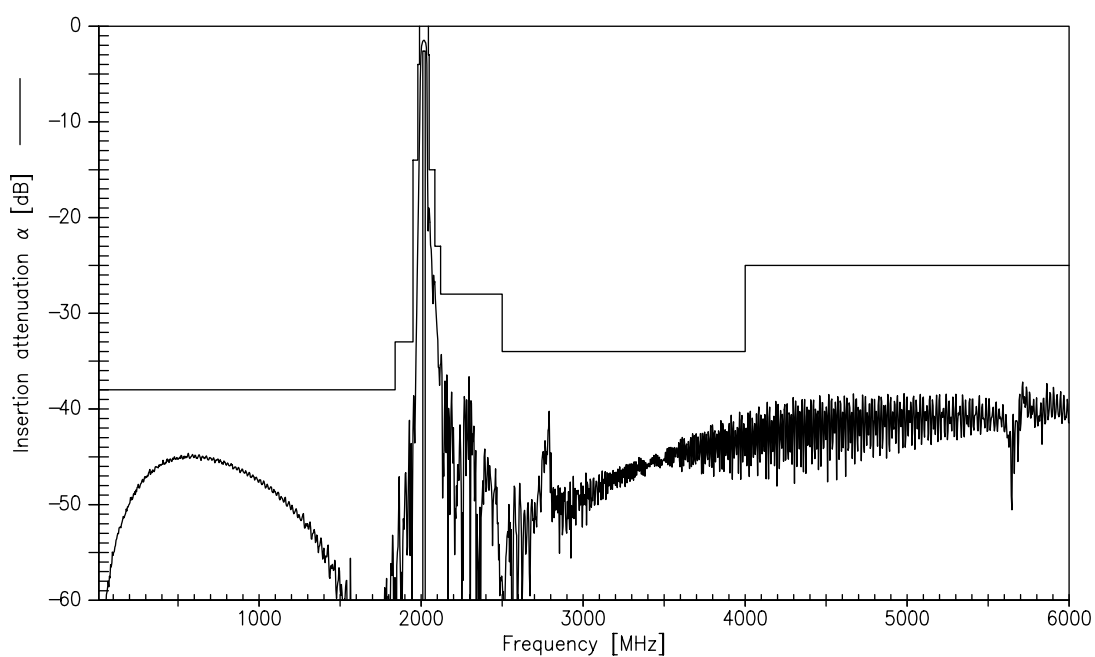
 Terminating load impedance: $Z_L = 50\ \Omega$

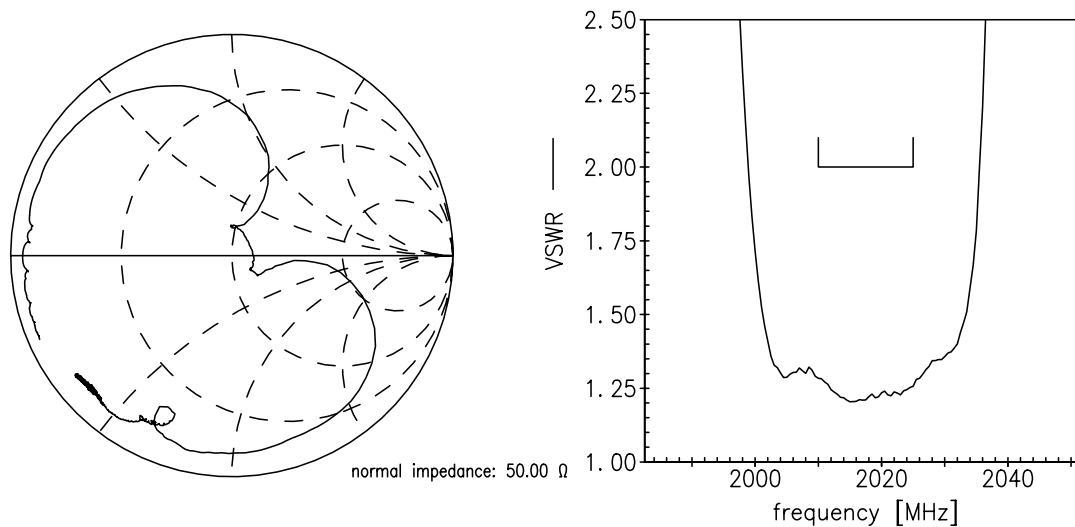
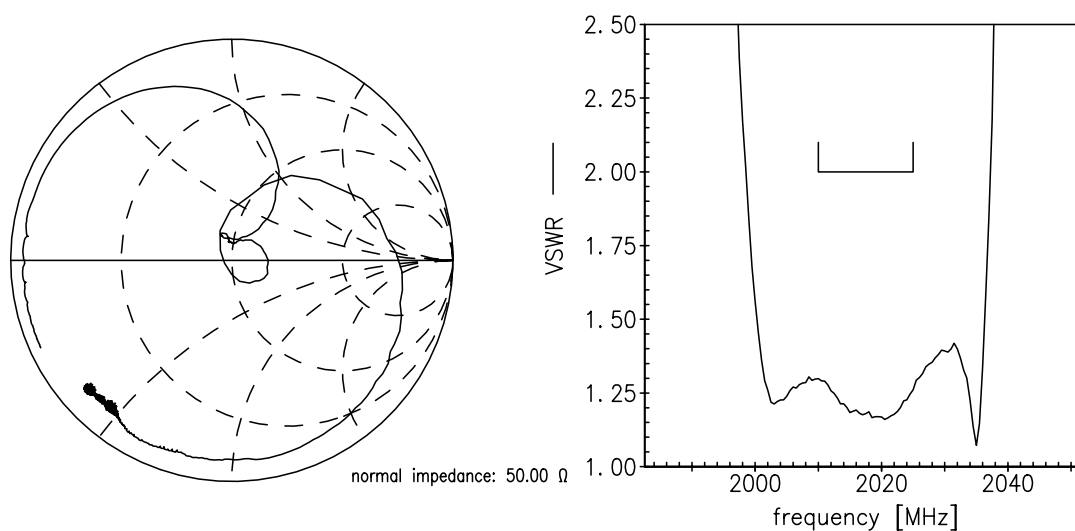
		min.	typ. @ 25°C	max.	
Center frequency	f_C	—	2017.5	—	MHz
Maximum insertion attenuation	α_{\max}	—	1.7	2.6	dB
2010.0 ... 2025.0 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0.2	1.0	dB
2010.0 ... 2025.0 MHz					
Input VSWR		—	1.3	2.0	
2010.0 ... 2025.0 MHz					
Output VSWR		—	1.3	2.0	
2010.0 ... 2025.0 MHz					
Group delay ripple (p-p)		—	4	20	ns
2010.0 ... 2025.0 MHz					
Attenuation	α				
0 ... 1840.0 MHz		38	44	—	dB
1840.0 ... 1950.0 MHz		33	39	—	dB
1950.0 ... 1980.0 MHz		14	22	—	dB
1980.0 ... 1990.0 MHz		4	11	—	dB
2045.0 ... 2050.0 MHz		3	18	—	dB
2050.0 ... 2085.0 MHz		15	19	—	dB
2085.0 ... 2120.0 MHz		23	27	—	dB
2120.0 ... 2160.0 MHz		28	32	—	dB
2160.0 ... 2500.0 MHz		28	36	—	dB
2500.0 ... 4000.0 MHz		34	40	—	dB
4000.0 ... 6000.0 MHz		25	37	—	dB


Maximum ratings of Filter 1

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}	50 ¹⁾	V	machine model, 1 pulse
Input Power at 2010.0...2025.0MHz	P _{IN}	6	dBm	continuous wave

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

Transfer function Filter 1 (TD-SCDMA 2100)

Transfer function Filter 1 (TD-SCDMA 2100) - Wideband


Smith charts of Filter 1
 S_{11} function

 S_{22} function


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SAW 2in1 filter
2017.5/ 1900.0 MHz
Data Sheet

Characteristics of Filter 2 (TD-SCDMA 1900)

 Temperature range for specification: $T = -30\text{ }^{\circ}\text{C to }+85\text{ }^{\circ}\text{C}$

 Terminating source impedance: $Z_S = 50\Omega$

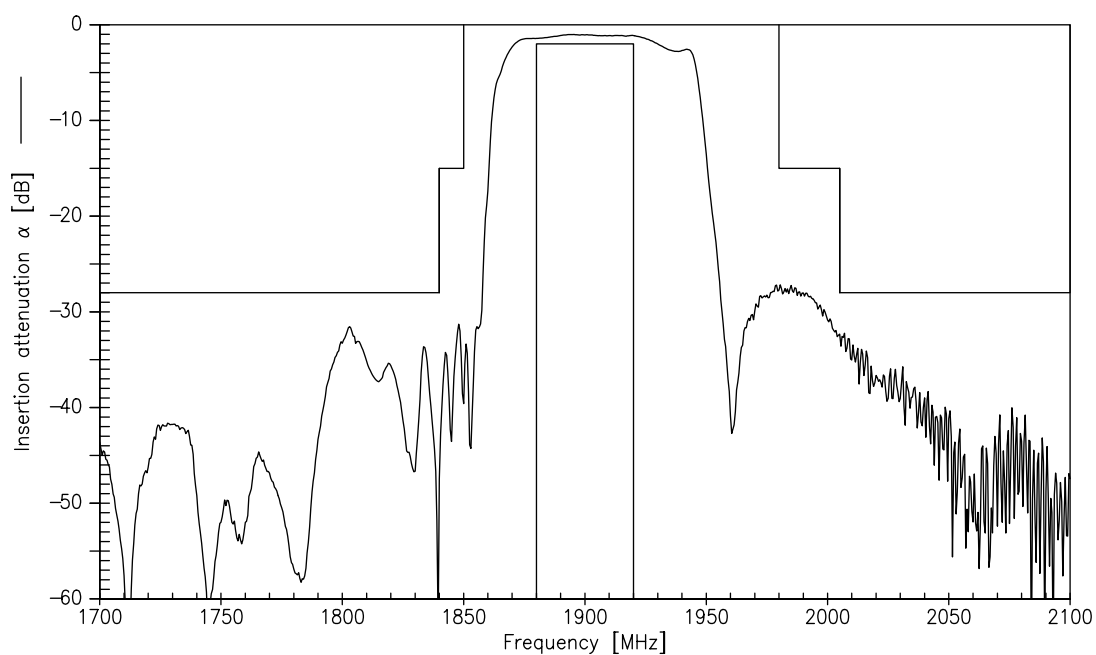
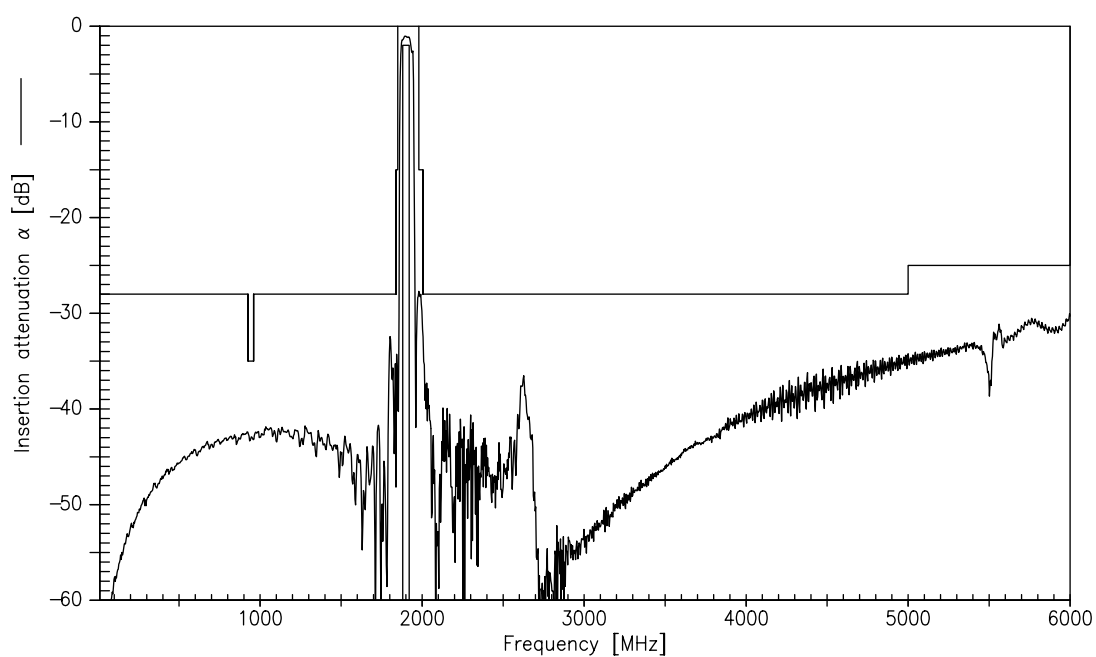
 Terminating load impedance: $Z_L = 50\Omega$

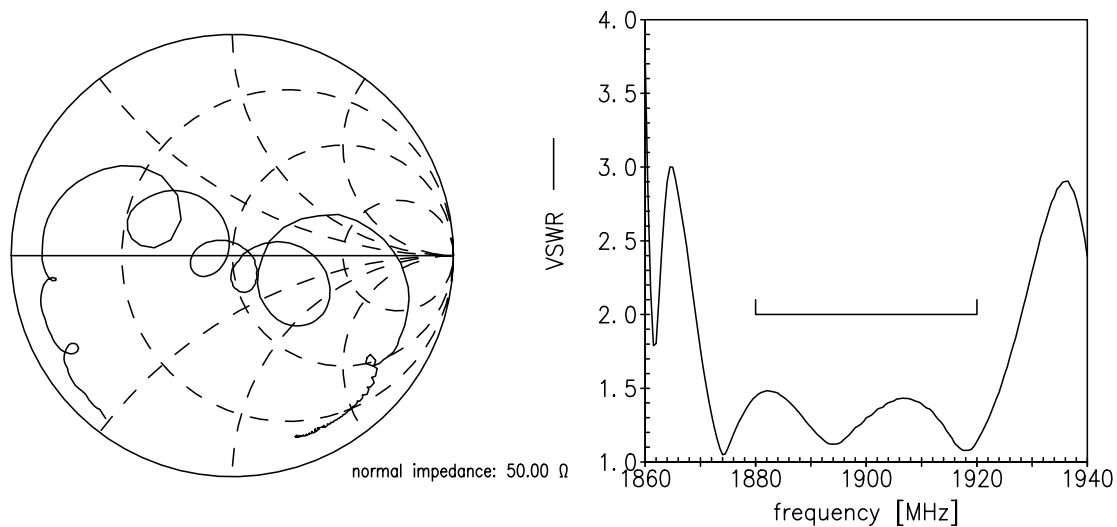
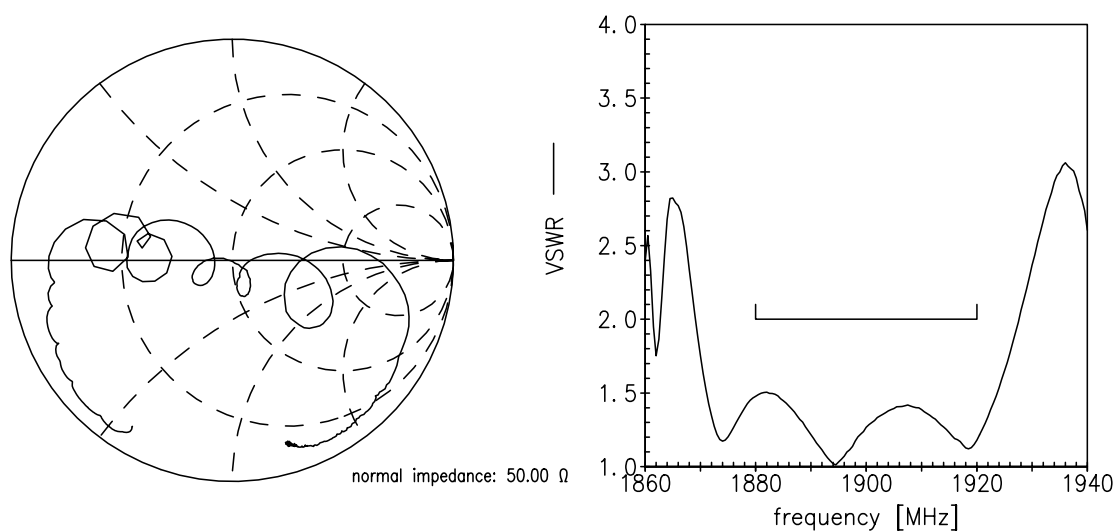
		min.	typ. @ 25°C	max.	
Center frequency	f_C	—	1900.0	—	MHz
Maximum insertion attenuation	α_{\max}	—	1.4	2.0	dB
1880.0 ... 1920.0 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0.4	0.8	dB
1880.0 ... 1920.0 MHz					
Input VSWR		—	1.5	2.0	
1880.0 ... 1920.0 MHz					
Output VSWR		—	1.5	2.0	
1880.0 ... 1920.0 MHz					
Group delay ripple (p-p)		—	6	14.0	ns
1880.0 ... 1920.0 MHz					
Attenuation	α				
0.0 ... 925.0 MHz		28	42	—	dB
925.0 ... 960.0 MHz		35	42	—	dB
960.0 ... 1805.0 MHz		28	31	—	dB
1805.0 ... 1840.0 MHz		28	33	—	dB
1840.0 ... 1850.0 MHz		15	31	—	dB
1980.0 ... 2005.0 MHz		15	27	—	dB
2005.0 ... 5000.0 MHz		28	32	—	dB
5000.0 ... 6000.0 MHz		25	30	—	dB


Maximum ratings of Filter 2

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}	50 ¹⁾	V	machine model, 1 pulse
Input Power at 1880.0 ... 1920.0 MHz	P _{IN}	5	dBm	continuous wave
Tx bands				

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

Transfer function Filter 2 (TD-SCDMA 1900)

Transfer function Filter 2 (TD-SCDMA 1900) - Wideband


Smith charts of Filter 2
 S_{11} function

 S_{22} function


SAW Components
B9816
SAW 2in1 filter
2017.5/ 1900.0 MHz

Data Sheet


References

Type	B9816
Ordering code	B39202B9816P810
Marking and package	C61157-A8-A18
Packaging	F61074-V8227-Z000
Date codes	L_1126
S-parameters	B9816_UB_NB.s2p, B9816_UB_WB.s2p B9816_LB_NB.s2p, B9816_LB_WB.s2p 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.
Matching coils	See http://www.tdk.co.jp/tefe02/coil.htm#aname1 http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils.

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com.

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