

RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

SAW Components

SAW 2in1 filter

TD-SCDMA 1900/TD-SCDMA 2100

Series/type:	B9825
Ordering code:	B39202B9825P810
Date:	Oct 13, 2016
Version:	2.1

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SAW Components

SAW 2in1 filter

TD-SCDMA 1900/TD-SCDMA 2100

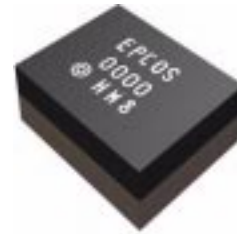
Series/type:	B9825
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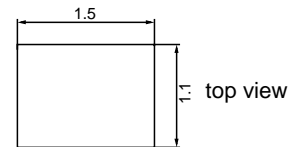
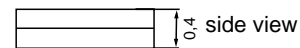
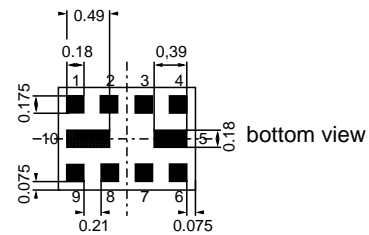
EPCOS AG is a TDK Group Company.


Application

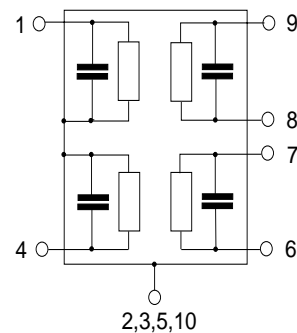
- Low-loss 2in1 RF filter for mobile telephone
- TD-SCDMA 1900 and TD-SCDMA 2100 systems
- Usable passband:
 - Filter 1 (TD-SCDMA 1900): 40MHz
 - Filter 2 (TD-SCDMA 2100): 15MHz
- Unbalanced to balanced operation for both filters
- Impedance transformation from 50 Ω to 100 Ω for both filters
- Low amplitude ripple
- Suitable for GPRS class 1 to 12


Features

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


Pin configuration

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



Data sheet


Characteristics of Filter 1 (TD-SCDMA 1900)

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

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

 Terminating load impedance: $Z_L = 100\ \Omega$

		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	1900.0	—	MHz
Maximum insertion attenuation 1880.0 ... 1920.0 MHz	α_{\max}	—	1.6	2.2	dB
Amplitude ripple (p-p) 1880.0 ... 1920.0 MHz	$\Delta\alpha$	—	0.5	1.1	dB
Input VSWR 1880.0 ... 1920.0 MHz		—	1.7	2.1	
Output VSWR 1880.0 ... 1920.0 MHz		—	1.7	2.1	
Common mode rejection ratio 1880.0 ... 1920.0 MHz		20	25	—	dB
Attenuation	α				
10.0 ... 1795.0 MHz		30	38	—	dB
1795.0 ... 1820.0 MHz		25	31	—	dB
1820.0 ... 1850.0 MHz		20	31	—	dB
1950.0 ... 1980.0 MHz		16	21	—	dB
1980.0 ... 2025.0 MHz		16	26	—	dB
2025.0 ... 6000.0 MHz		16	22	—	dB

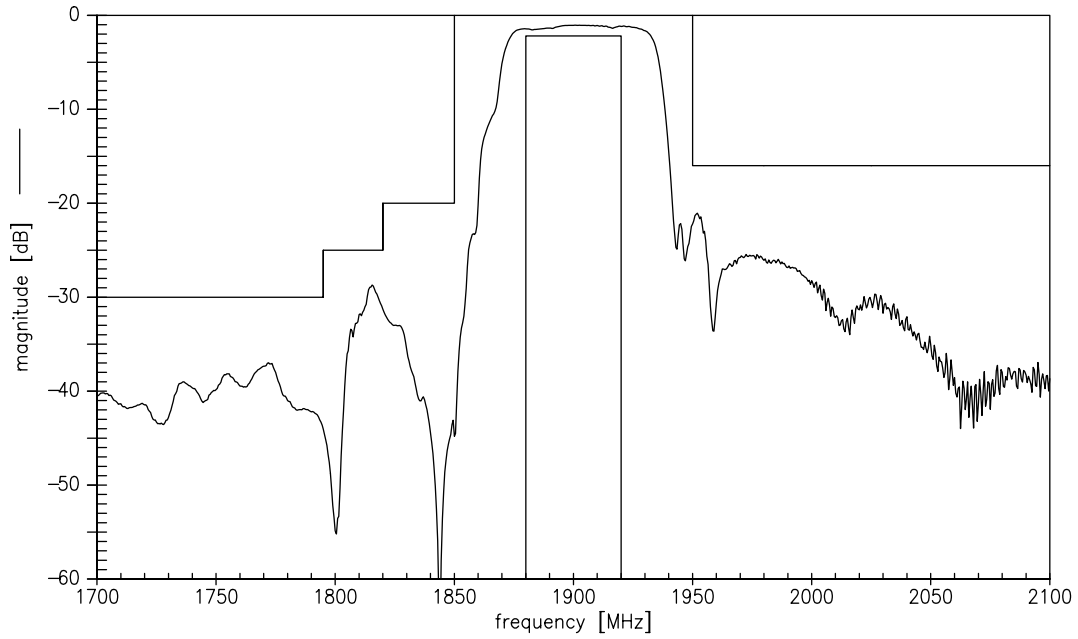

Maximum ratings of Filter 1 (TD-SCDMA 1900)

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 ... 1920.0MHz	P _{IN}	10	dBm	continuous wave

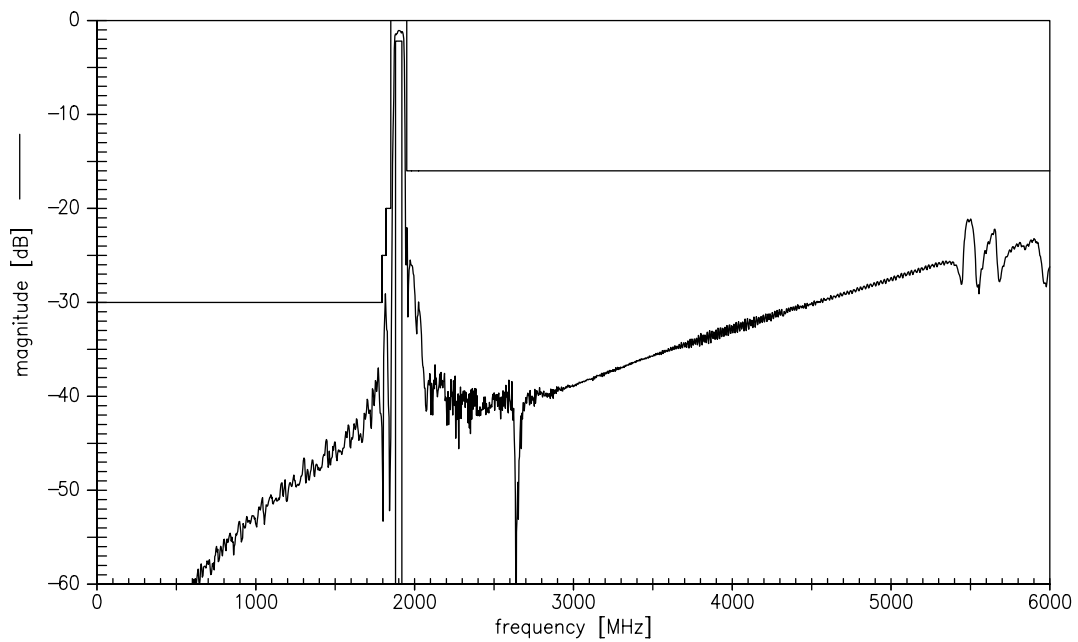
¹⁾ acc. to JESD22-A115A (machine model), 1 negative & 1 positive pulse.



Transfer function of filter 1



Transfer function of filter 1 - wideband

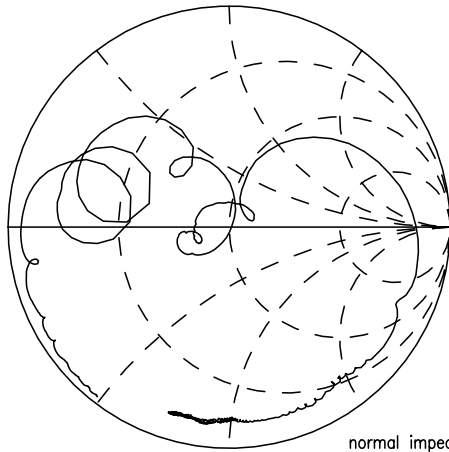


Data sheet

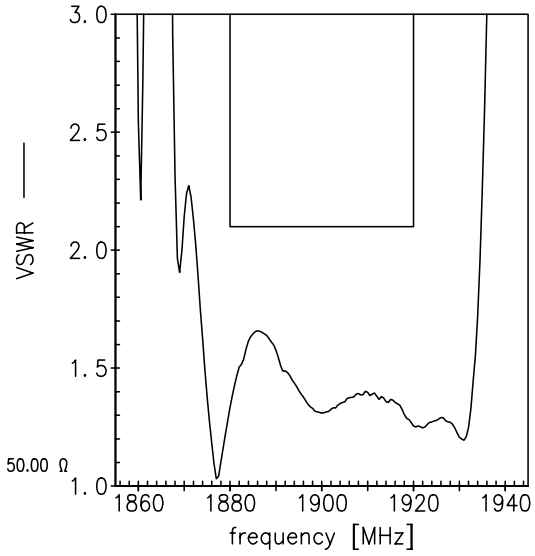


Smith Charts filter 1

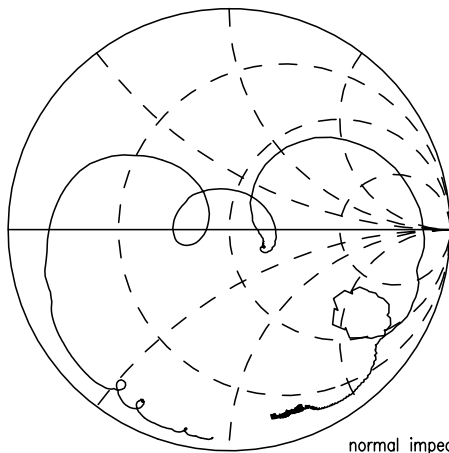
S_{11} function



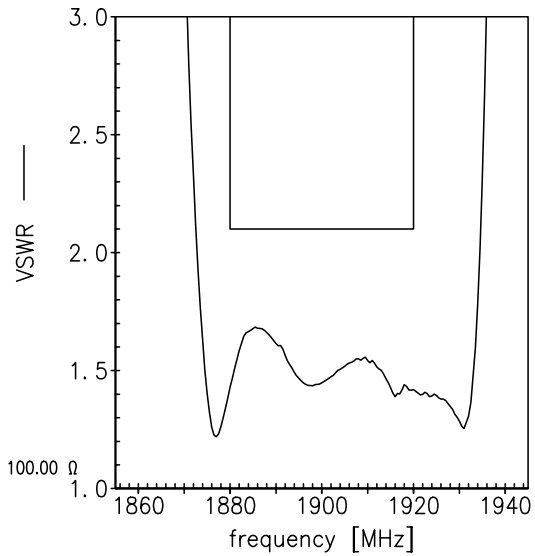
normal impedance: 50.00 Ω



S_{22} function



normal impedance: 100.00 Ω



Data sheet


Characteristics of Filter 2 (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: $Z_L = 100\ \Omega$

		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	2017.5	—	MHz
Maximum insertion attenuation 2010.0 ... 2025.0 MHz	α_{\max}	—	1.6	2.1	dB
Amplitude ripple (p-p) 2010.0 ... 2025.0 MHz	$\Delta\alpha$	—	0.5	1.0	dB
Input VSWR 2010.0 ... 2025.0 MHz		—	1.3	2.0	
Output VSWR 2010.0 ... 2025.0 MHz		—	1.3	2.0	
Common mode rejection ratio 2010.0 ... 2025.0 MHz		20	28	—	dB
Attenuation	α				
10.0 ... 1815.0 MHz		35	47	—	dB
1815.0 ... 1840.0 MHz		35	45	—	dB
1840.0 ... 1895.0 MHz		30	40	—	dB
1925.0 ... 1980.0 MHz		17	26	—	dB
2050.0 ... 2085.0 MHz		10	17	—	dB
2085.0 ... 2110.0 MHz		20	25	—	dB
2110.0 ... 6000.0 MHz		25	29	—	dB

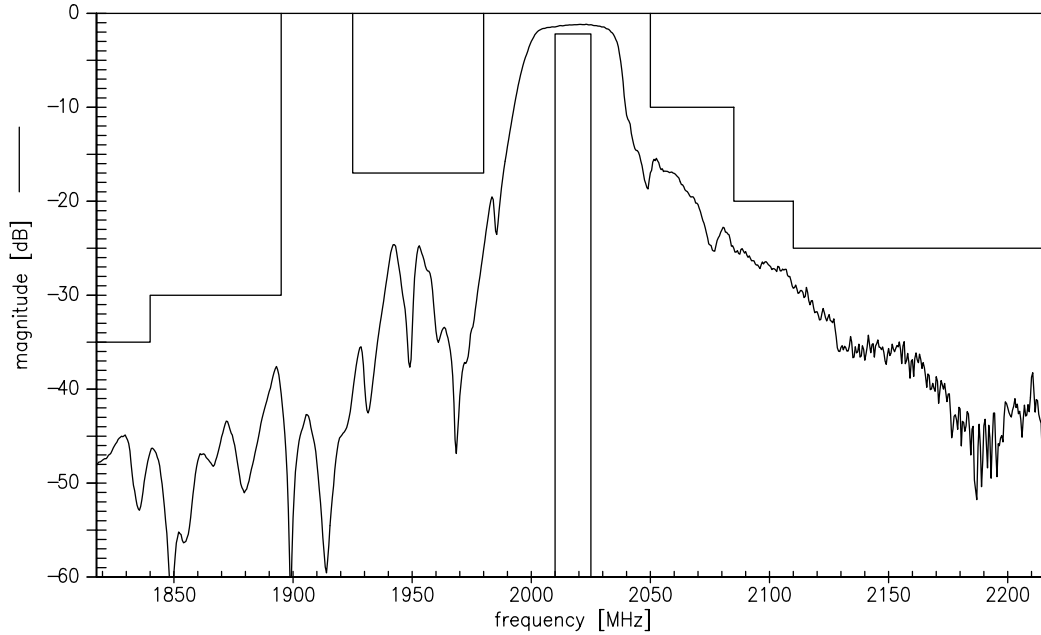

Maximum ratings of Filter 2 (TD-SCDMA 2100)

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}	10	dBm	continuous wave

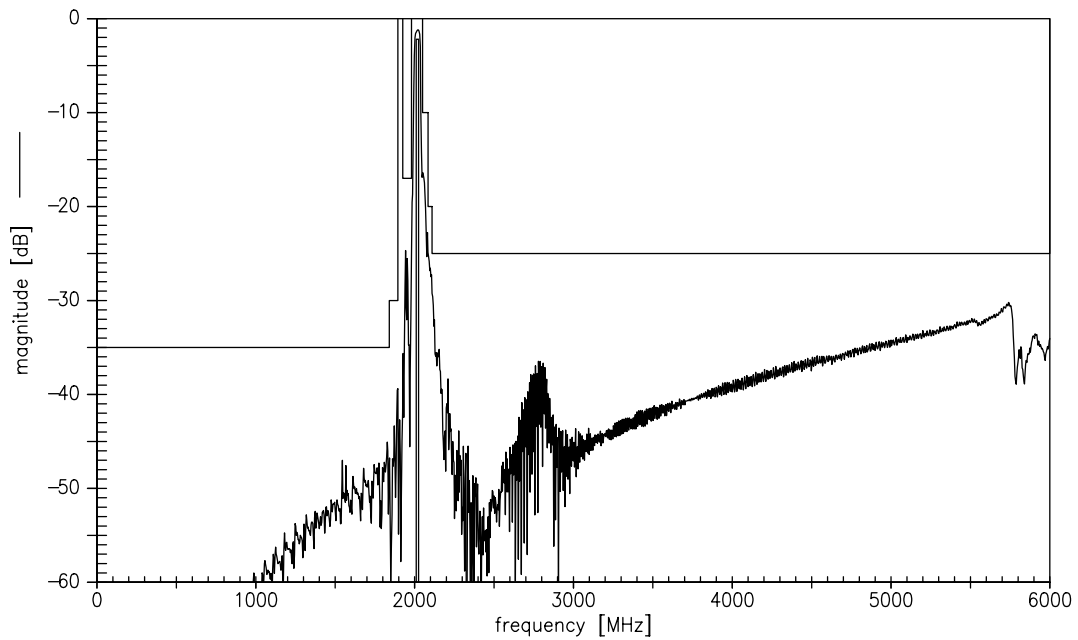
¹⁾ acc. to JESD22-A115A (machine model), 1 negative & 1 positive pulse.



Transfer function of filter 2



Transfer function of filter 2 - wideband

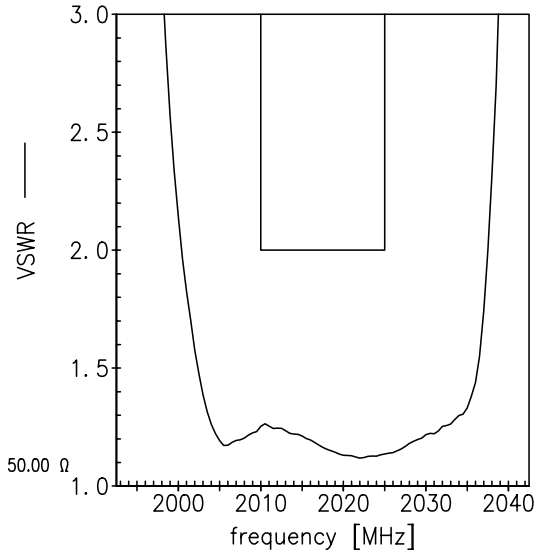
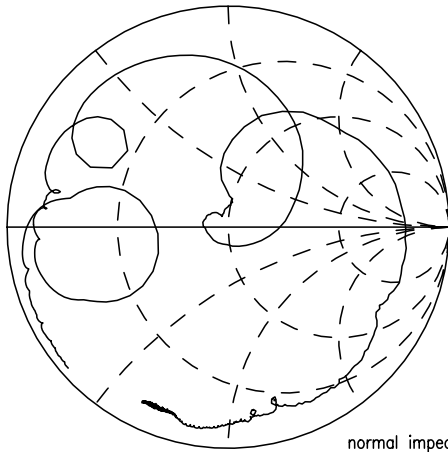


Data sheet

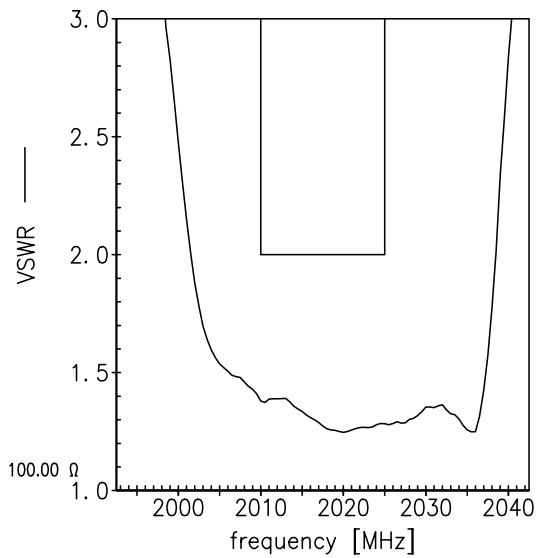
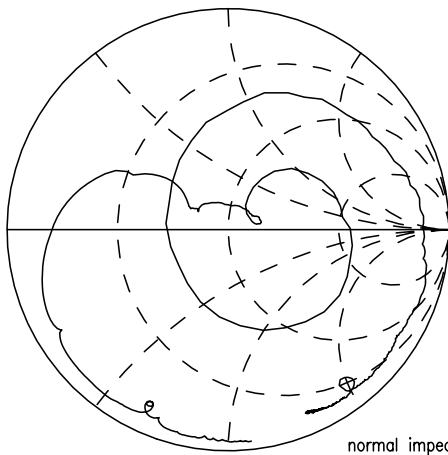


Smith Charts filter 2

S_{11} function



S_{22} function



Data sheet



References

Type	B9825
Ordering code	B39202B9825P810
Marking and package	C61157-A8-A19-3-27
Packaging	F61074-V8227-Z000
Date codes	L_1126
S-parameters	B9825_LB_NB.s3p, B9825_LB_WB.s3p, B9825_UB_NB.s3p, B9825_UB_WB.s3p 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
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Matching coilss	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

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