



SAW Components

SAW Duplexer for Femtocell and Small-cell

Band 3 (3G/LTE)

Series/type:	B8019
Ordering code:	B39182B8019P810
Date:	October 23, 2014
Version:	2.0

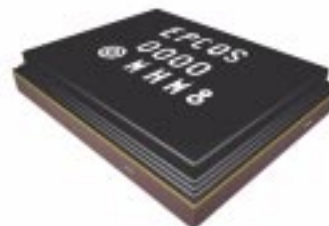
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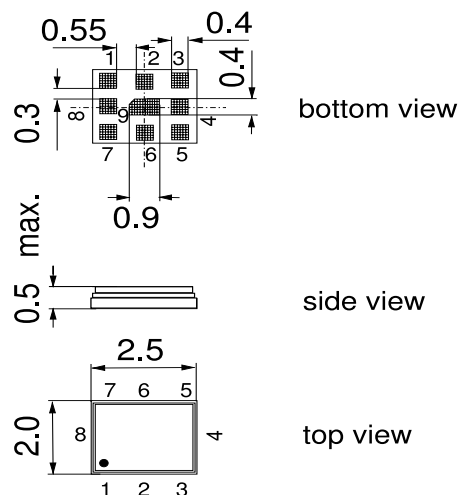
Data Sheet

Application

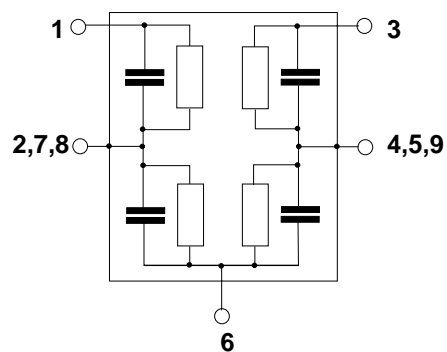
- Low-loss SAW duplexer for LTE femtocell and small-cell systems (Band 3)
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 75 MHz
- High power durability
- Rx = Uplink = 1710-1785 MHz
- Tx = Downlink = 1805-1880 MHz


Features

- Package size 2.5 * 2.0 * 0.5 mm³
- max. Package height 0.5 mm
- RoHS compatible
- Package for **Surface Mount Technology (SMT)**
- Ni, Au-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- Moisture Sensitivity Level 3


Pin configuration

- 1 RX output
- 3 TX input
- 6 Antenna
- 2, 4, 5, 7, 8, 9 To be grounded



Data Sheet

Characteristics

Temperature range for specification:	T = -10 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 3.6 nH
RX terminating impedance:	Z _{RX} = 50 Ω 9.1 nH
TX terminating impedance:	Z _{TX} = 50 Ω 8.2 nH

Characteristics ANT - RX		min.	typ. @ 25 °C	max.	
Center frequency	f _C		1747.5		MHz
Maximum insertion attenuation	α _{max}				
1710.0 ... 1785.0 MHz		-	3.5	5.3	dB
1745.0 ... 1775.0 MHz		-	2.5	3.0	dB
Amplitude ripple (p-p)	Δα				
1710.0 ... 1785.0 MHz		-	2.2	4.0	dB
1745.0 ... 1775.0 MHz		-	1.0	1.5	dB
Error Vector Magnitude	EVM ¹⁾				
@f _{carrier} 1712.5 ... 1783.5 MHz		-	2.5	4.0	%
Input VSWR (ANT port)					
1710.0 ... 1785.0 MHz		-	1.6	2.0	
Output VSWR (RX port)					
1710.0 ... 1785.0 MHz		-	1.8	2.2	
Attenuation	α				
10.0 ... 1500.0 MHz		40	49	-	dB
1500.0 ... 1660.0 MHz		40	48	-	dB
1660.0 ... 1690.0 MHz		10	15	-	dB
1805.0 ... 1840.0 MHz		40	44	-	dB
1840.0 ... 1880.0 MHz		43	47	-	dB
1880.0 ... 2400.0 MHz		40	45	-	dB
2400.0 ... 2500.0 MHz		40	45	-	dB
2500.0 ... 3490.0 MHz		35	50	-	dB
3490.0 ... 3550.0 MHz		35	51	-	dB
3500.0 ... 5235.0 MHz		35	42	-	dB
5235.0 ... 5325.0 MHz		35	42	-	dB

¹⁾ Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141

Data Sheet

Characteristics

Temperature range for specification:	T = -10 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 3.6 nH
RX terminating impedance:	Z _{RX} = 50 Ω 9.1 nH
TX terminating impedance:	Z _{TX} = 50 Ω 8.2 nH

Characteristics TX - ANT		min.	typ. @ 25 °C	max.	
Center frequency	f _C		1842.5		MHz
Maximum insertion attenuation	α _{max}				
1805.0 ... 1880.0 MHz		-	2.6	4.0	dB
1840.0 ... 1870.0 MHz		-	1.7	2.5	dB
Amplitude ripple (p-p)	Δα				
1805.0 ... 1880.0 MHz		-	1.2	3.0	dB
1840.0 ... 1870.0 MHz		-	0.3	1.0	dB
Error Vector Magnitude	EVM ¹⁾				
@f _{carrier} 1807.5 ... 1877.5 MHz		-	1.6	3.5	%
Input VSWR (TX port)					
1805.0 ... 1880.0 MHz		-	1.4	2.0	
Output VSWR (ANT port)					
1805.0 ... 1880.0 MHz		-	1.5	2.0	
Attenuation	α				
10.0 ... 1710.0 MHz		30	34	-	dB
1710.0 ... 1745.0 MHz		42	46	-	dB
1745.0 ... 1780.0 MHz		45	49	-	dB
1780.0 ... 1785.0 MHz		35	48	-	dB
1900.0 ... 1911.0 MHz		5	18	-	dB
1911.0 ... 1932.0 MHz		20	63	-	dB
1932.0 ... 2400.0 MHz		35	40	-	dB
2400.0 ... 2500.0 MHz		35	41	-	dB
2500.0 ... 3680.0 MHz		30	41	-	dB
3680.0 ... 3740.0 MHz		30	49	-	dB
3740.0 ... 5150.0 MHz		30	38	-	dB
5150.0 ... 5725.0 MHz		25	33	-	dB

¹⁾ Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141

Data Sheet

Characteristics

Temperature range for specification:	$T = -10\text{ °C to }+85\text{ °C}$
Antenna terminating impedance:	$Z_{ANT} = 50\ \Omega \parallel 3.6\text{ nH}$
RX terminating impedance:	$Z_{RX} = 50\ \Omega \parallel 9.1\text{ nH}$
TX terminating impedance:	$Z_{TX} = 50\ \Omega \parallel 8.2\text{ nH}$

Characteristics TX-RX				min.	typ. @ 25 °C	max.	
Attenuation			α				
	1710.0 ... 1745.0	MHz		43	46	-	dB
	1745.0 ... 1780.0	MHz		45	49	-	dB
	1780.0 ... 1785.0	MHz		37	49	-	dB
	1805.0 ... 1840.0	MHz		40	43	-	dB
	1840.0 ... 1880.0	MHz		45	48	-	dB

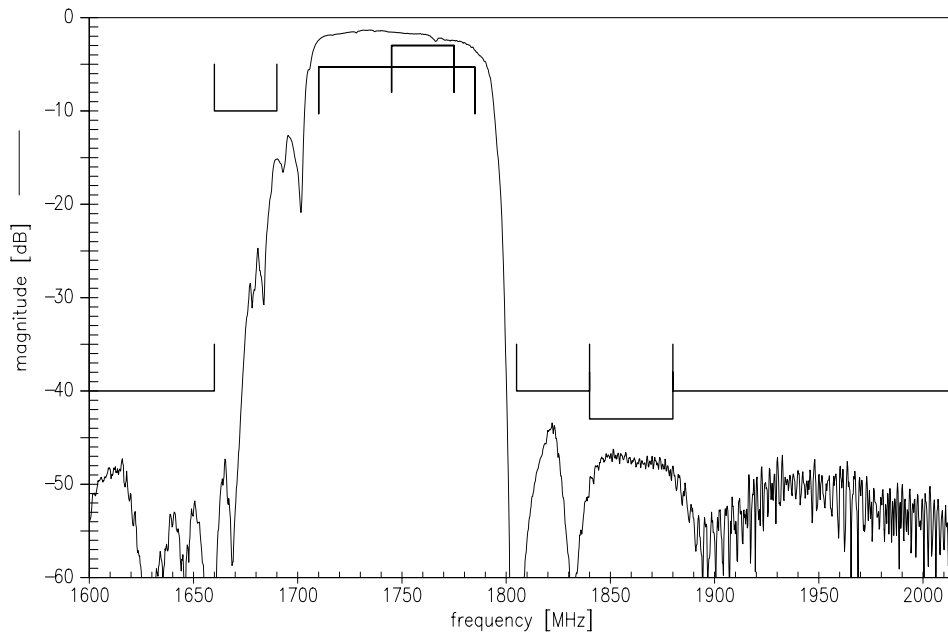
Maximum Ratings

Storage temperature range	T_{stg}	-40/+85	°C	
DC voltage	V_{DC}	0	V	
ESD voltage	V_{ESD}	50 ¹⁾	V	machine model, 1 pulse source and load impedance 50 Ω LTE 5 MHz downlink } average power T = 55°C, 50.000 h
Input power at pin 1				
1805.0 ... 1880.0 MHz	P_{in}	27	dBm	
elsewhere	P_{in}	10	dBm	

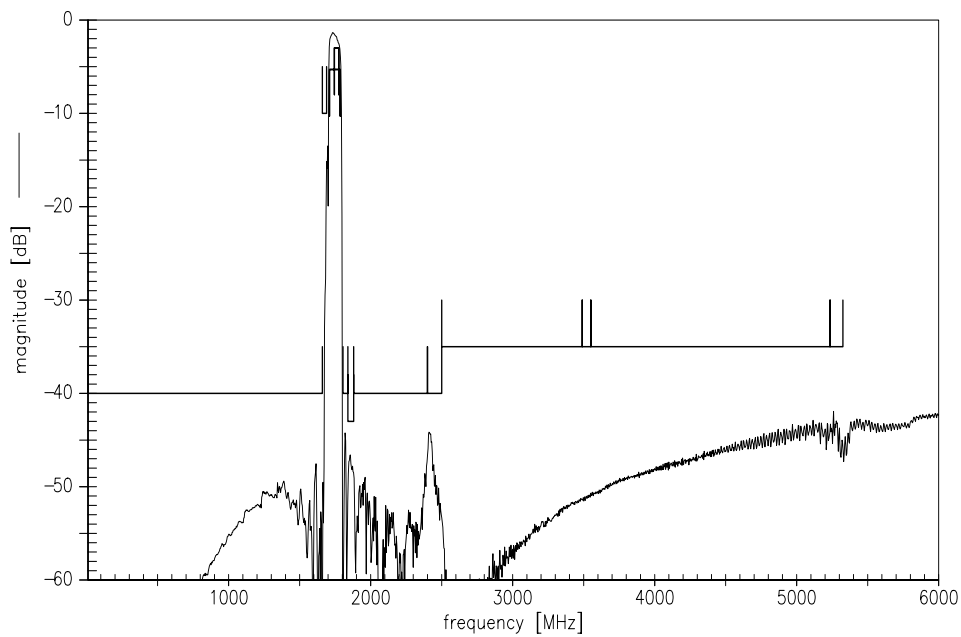
¹⁾ According to JESD22-A115A (machine model), 1 negative and 1 positive pulses.



Frequency Response ANT-RX

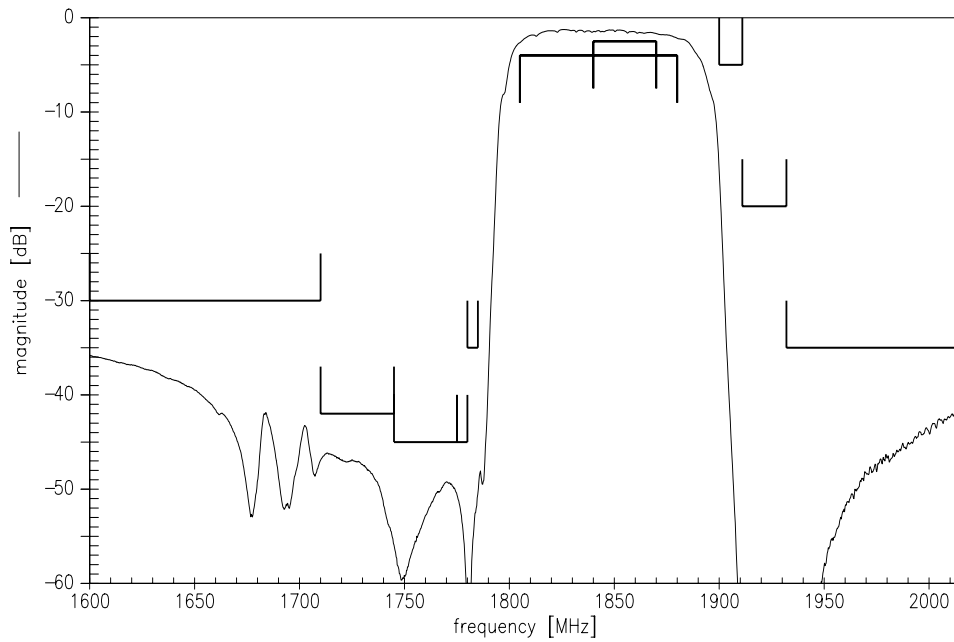


Frequency Response ANT-RX

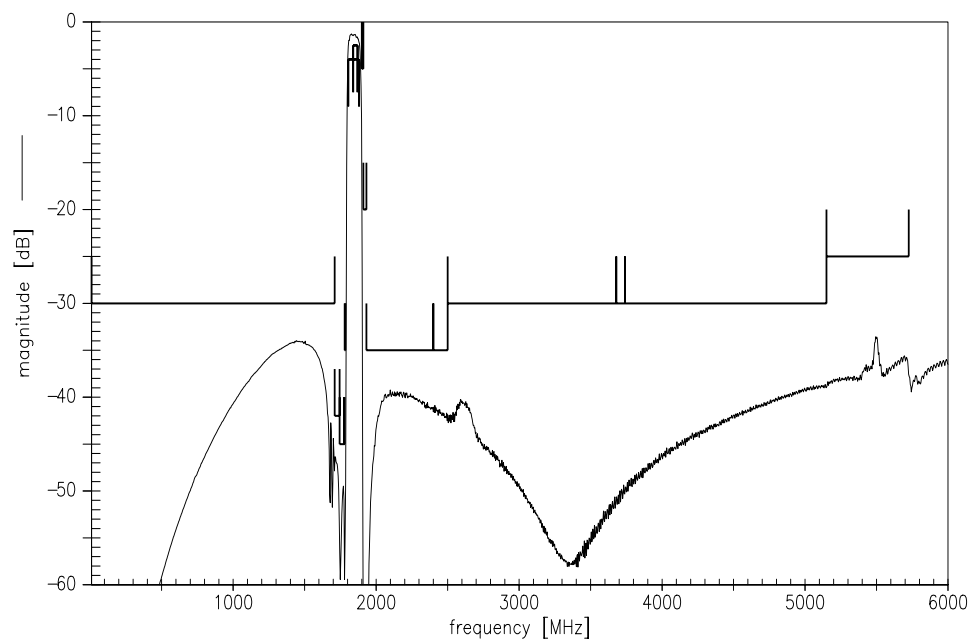




Frequency Response TX-ANT



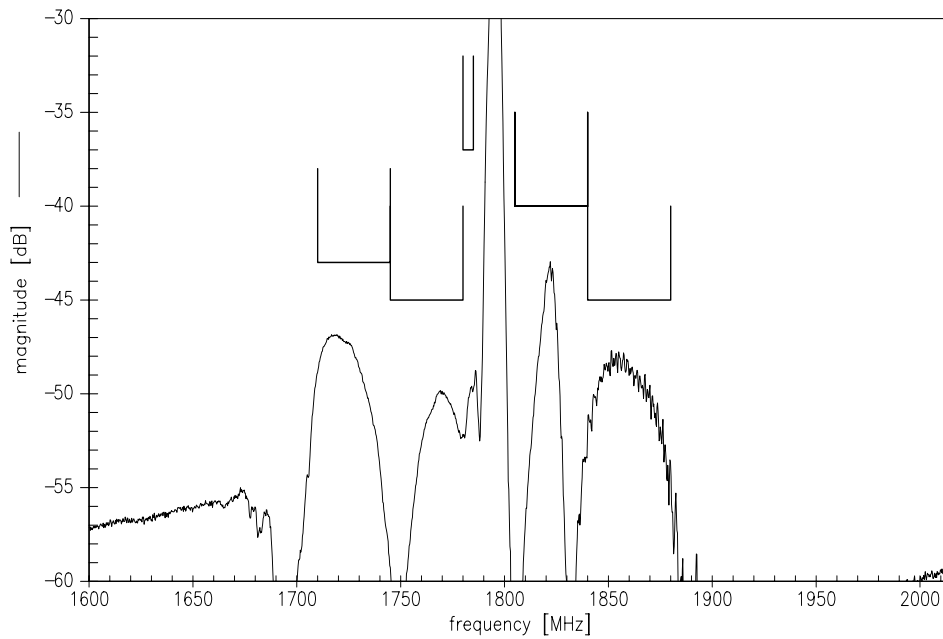
Frequency Response TX-ANT



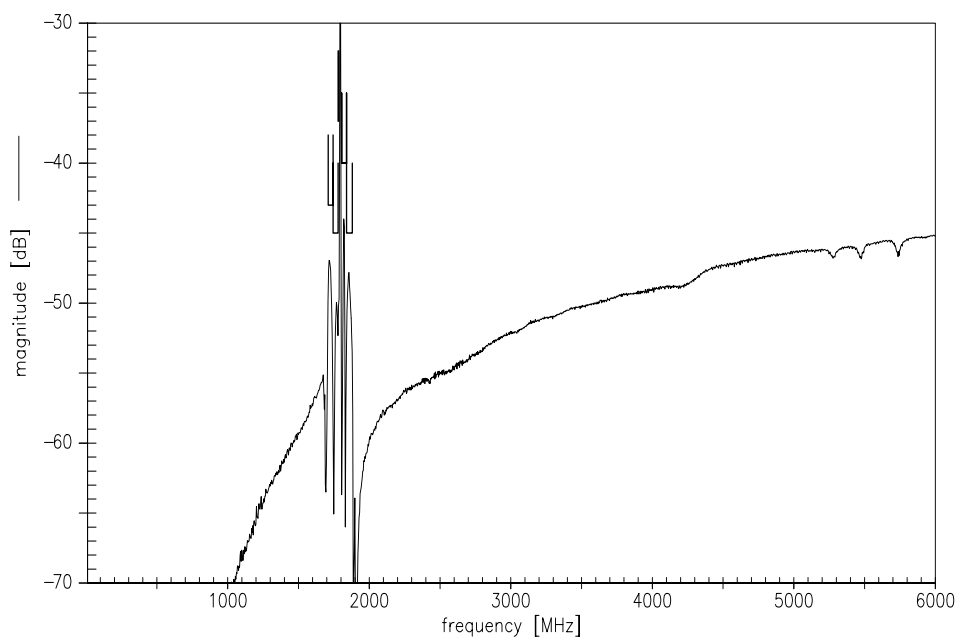
Please read *cautions and warnings* and *important notes* at the end of this document.



Frequency Response TX-RX



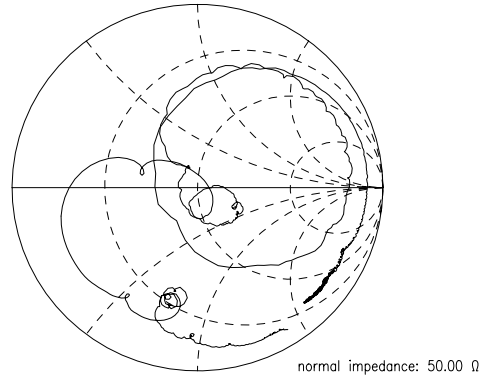
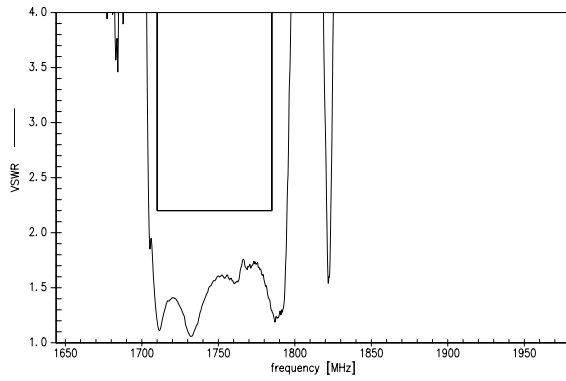
Frequency Response TX-RX



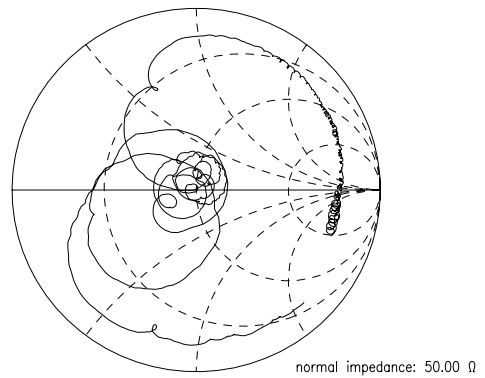
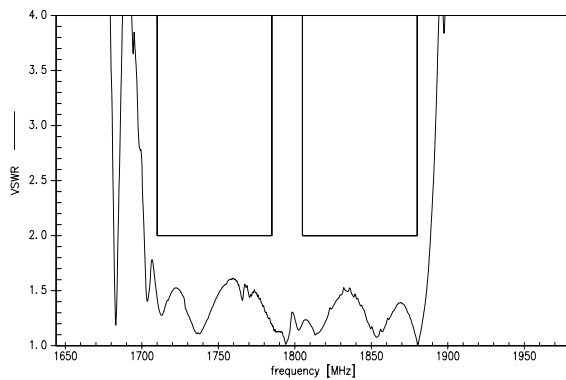
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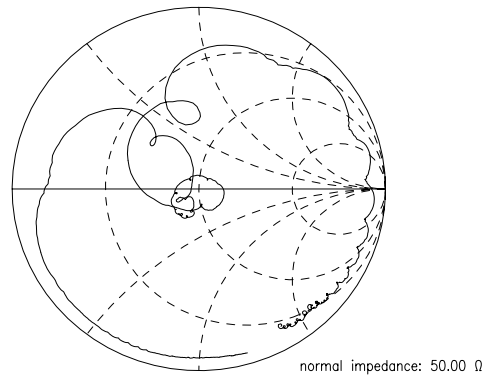
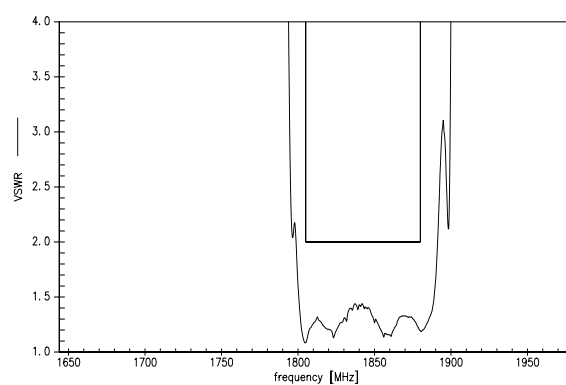
S11 VSWR (RX)



S22 VSWR (ANT)



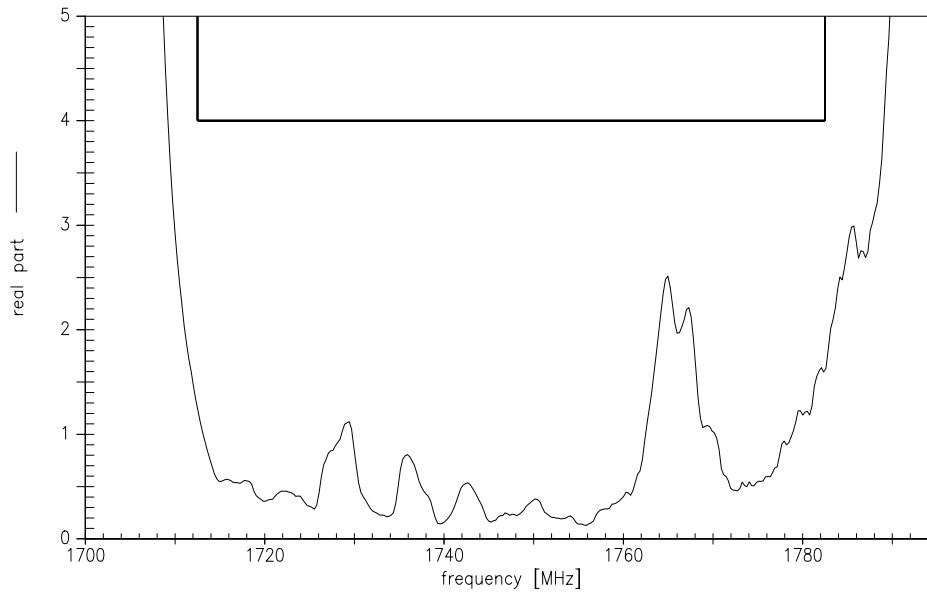
S33 VSWR (TX)



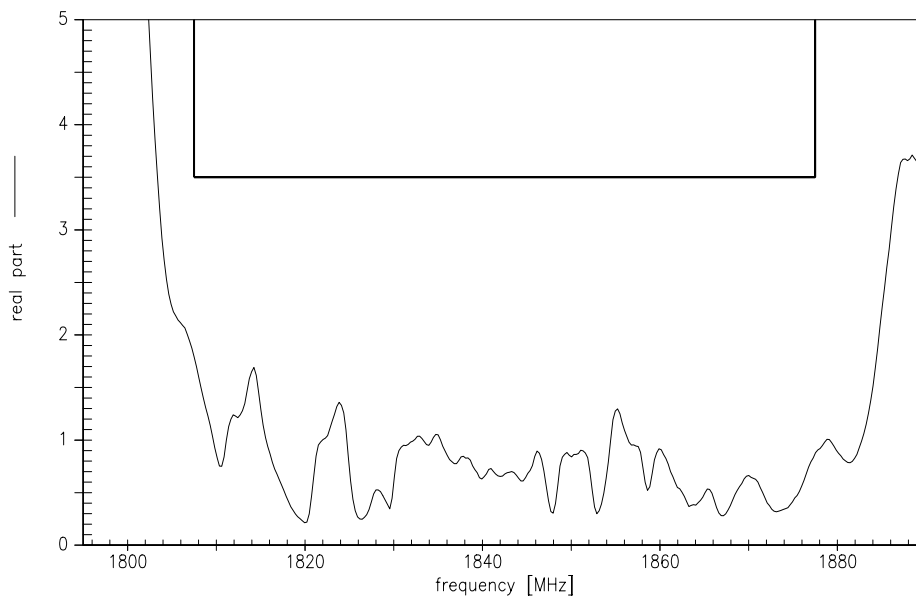
Data Sheet



EVM RX



EVM TX



SAW Components

B8019

SAW Duplexer

1747.5 / 1842.5 MHz

Data Sheet



References

Type	B8019
Ordering code	B39182B8019P810
Marking and package	C61157-A3-A27
Packaging	F61074-V8232-Z000
Date codes	L_1126
S-parameters	B8019_NB.s3p, B8019_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 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.
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