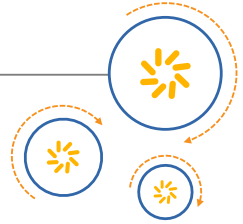


RF360 Europe GmbH

A Qualcomm – TDK Joint Venture



SAW Components

Eduplexer Module

Band 13 DPX for smallcell

Series/type: D7901
Ordering code: B30312D7901X942

Date: October 20, 2015
Version: 2.0

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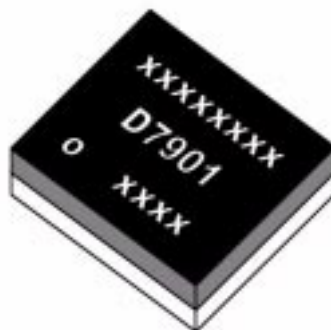
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Application

- enhanced duplexer for smallcell systems
- Low amplitude ripple
- Usable passband 10 MHz
- High power durability
- High isolation

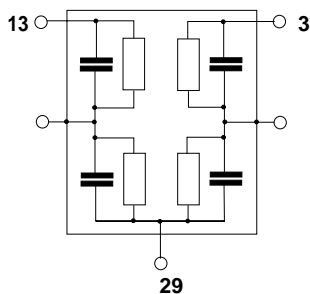


Features

- Package size 8.1 * 8.1 mm²
- Max. package height 1.1 mm
- RoHS compatible
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, Au-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- RX = UPLINK = 777-787 MHz
- TX=DOWNLINK = 746-756 MHz

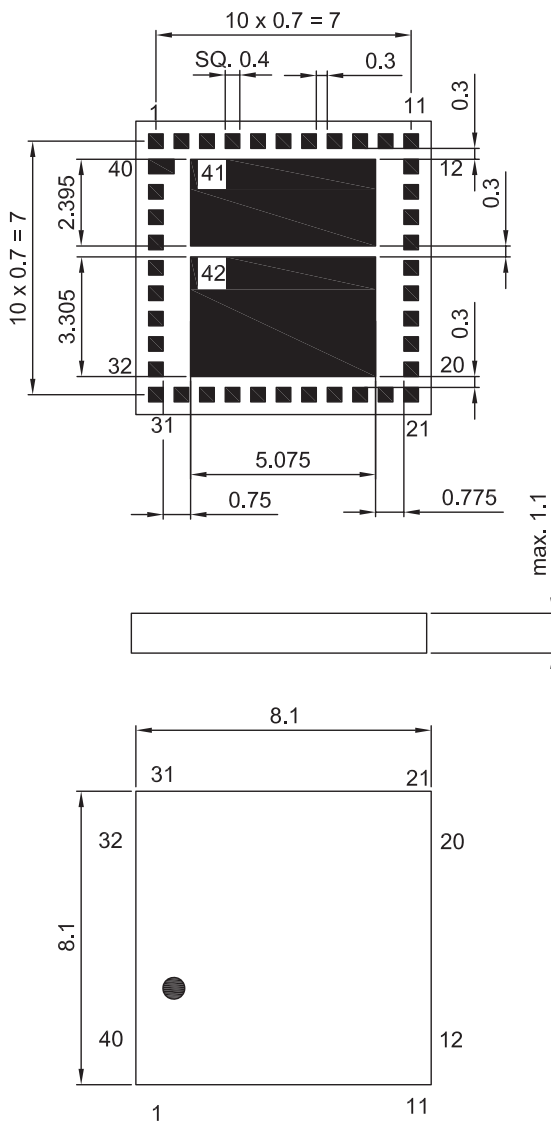
Pin configuration

- 13 Rx output
- 3 Tx input
- 29 Antenna
- Others To be grounded



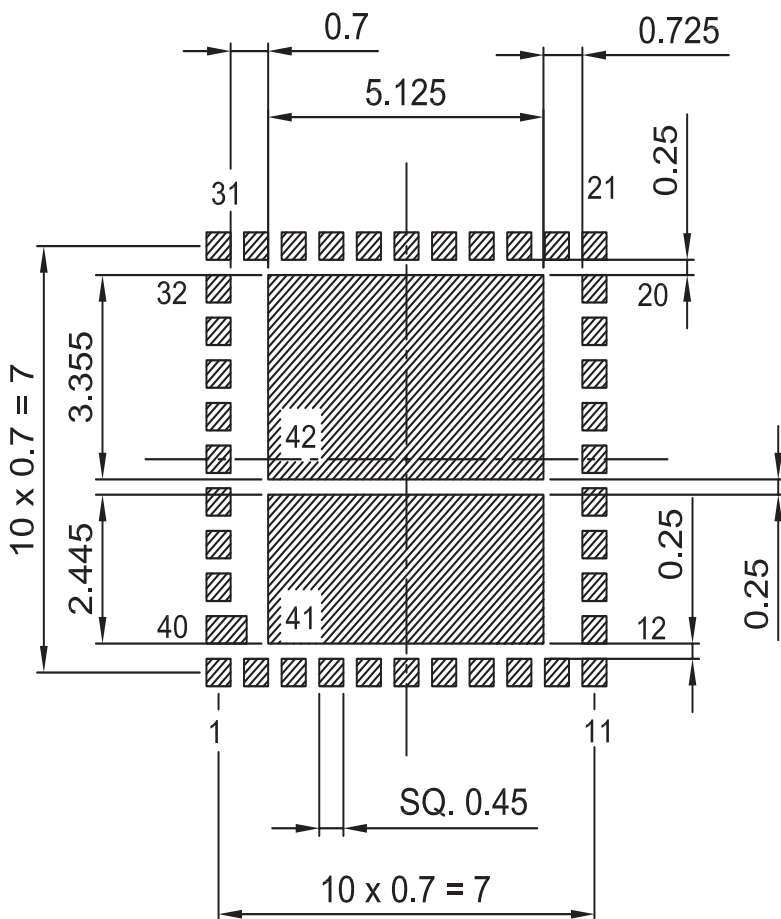


Module pinning and size





Landing pad recommendation :



SAW Components	D7901
SAW Duplexer	782.0 / 751.0 MHz

Data Sheet



Characteristics

Temperature range for specification:	$T = -10\text{ }^{\circ}\text{C to } +85\text{ }^{\circ}\text{C}$
Antenna terminating impedance:	$Z_{\text{ANT}} = 50\text{ }\Omega$
RX terminating impedance:	$Z_{\text{RX}} = 50\text{ }\Omega$
TX terminating impedance:	$Z_{\text{TX}} = 50\text{ }\Omega$

		F902A			
Characterisitics ANT - RX		min.	typ. @ 25 °C	max.	
Nominal frequency	f_N		782.0		MHz
Maximum insertion attenuation	α_{max}				
777.0 ... 787.0 MHz		-	2.9	3.8	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
777.0 ... 787.0 MHz		-	0.6	1.5	dB
Error Vector Magnitude	EVM ¹⁾				
@ f_{carrier} 779.5 ... 784.5 MHz		-	2.2	3.0	%
Input VSWR (ANT port)					
777.0 ... 787.0 MHz		-	1.4	1.8	
Output VSWR (RX port)					
777.0 ... 787.0 MHz		-	1.3	1.8	
Attenuation	α				
50.0 ... 150.0 MHz		40	68	-	dB
150.0 ... 350.0 MHz		35	50	-	dB
350.0 ... 650.0 MHz		30	45	-	dB
728.0 ... 746.0 MHz		35	50	-	dB
746.0 ... 756.0 MHz		50	58	-	dB
758.0 ... 768.0 MHz		28	32	-	dB
808.0 ... 818.0 MHz		35	51	-	dB
859.0 ... 894.0 MHz		35	46	-	dB
1452.0 ... 1492.0 MHz		40	56	-	dB
1554.0 ... 1574.0 MHz		40	58	-	dB
1574.0 ... 1606.0 MHz		45	58	-	dB
1670.0 ... 1675.0 MHz		40	58	-	dB
1930.0 ... 1995.0 MHz		40	57	-	dB
2110.0 ... 2170.0 MHz		40	58	-	dB
2300.0 ... 2361.0 MHz		28	37	-	dB
2361.0 ... 2690.0 MHz		30	52	-	dB
3300.0 ... 3800.0 MHz		15	28	-	dB
5150.0 ... 5850.0 MHz		5	20	-	dB

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

SAW Components	D7901
SAW Duplexer	782.0 / 751.0 MHz

Data Sheet



Characteristics

Temperature range for specification:	$T = -10\text{ }^{\circ}\text{C to } +85\text{ }^{\circ}\text{C}$
Antenna terminating impedance:	$Z_{\text{ANT}} = 50\Omega$
RX terminating impedance:	$Z_{\text{RX}} = 50\Omega$
TX terminating impedance:	$Z_{\text{TX}} = 50\Omega$

		F902A			
Characterisitics TX - ANT		min.	typ. @ 25 °C	max.	
Nominal frequency	f_N		751.0		MHz
Maximum insertion attenuation	α_{max}				
746.0 ... 756.0 MHz		-	2.6	3.5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
746.0 ... 756.0 MHz		-	0.4	1.0	dB
Error Vector Magnitude	EVM ¹⁾				
@ f_{carrier} 748.5 ... 753.5 MHz		-	1.6	3.0	%
Input VSWR (TX port)					
746.0 ... 756.0 MHz		-	1.4	1.8	
Output VSWR (ANT port)					
746.0 ... 756.0 MHz		-	1.4	1.8	
Attenuation	α				
50.0 ... 150.0 MHz		40	67	-	dB
150.0 ... 350.0 MHz		35	48	-	dB
350.0 ... 650.0 MHz		30	40	-	dB
698.0 ... 716.0 MHz		35	41	-	dB
716.0 ... 722.0 MHz		38	45	-	dB
777.0 ... 787.0 MHz		54	59	-	dB
788.0 ... 798.0 MHz		45	52	-	dB
798.0 ... 849.0 MHz		35	42	-	dB
1492.0 ... 1543.0 MHz		35	39	-	dB
1554.0 ... 1574.0 MHz		35	47	-	dB
1574.0 ... 1606.0 MHz		35	47	-	dB
1710.0 ... 1770.0 MHz		35	47	-	dB
1850.0 ... 1915.0 MHz		35	46	-	dB
1920.0 ... 1980.0 MHz		35	46	-	dB
2200.0 ... 2690.0 MHz		33	41	-	dB
2690.0 ... 3800.0 MHz		25	38	-	dB
5150.0 ... 5850.0 MHz		5	28	-	dB

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

SAW Components	D7901
SAW Duplexer	782.0 / 751.0 MHz

Data Sheet



Characteristics

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Antenna terminating impedance:	$Z_{\text{ANT}} = 50\text{ }\Omega$
RX terminating impedance:	$Z_{\text{RX}} = 50\text{ }\Omega$
TX terminating impedance:	$Z_{\text{TX}} = 50\text{ }\Omega$

				F902A		
Characteristics TX-RX				min.	typ. @ 25 °C	max.
Attenuation α						
746.0 ... 756.0 MHz				60	69	
777.0 ... 787.0 MHz				60	72	
						dB dB

Maximum Ratings

Storage temperature range	T	$-30/+85$	$^{\circ}\text{C}$	stored as individual component
Storage temperature range	T_{stg}	$0/+40$	$^{\circ}\text{C}$	stored in tape
DC voltage	V_{DC}	0	V	
ESD voltage	V_{ESD}	$50^{1)}$	V	machine model, 1 pulse
Input power at pin 1				source and load impedance 50 Ω
746.0 ...756.0 MHz	P_{in}	31 (TBC) ²⁾	dBm	} Pin 33dBm average - 44dBm peak LTE 5 MHz downlink T = 55°C, 100.000 h
elsewhere	P_{in}	10	dBm	
Operating lifetime with Output power at antenna				
746.0 ...756.0 MHz		24 ³⁾	dBm	Continuous wave T=55 °C, 100khrs

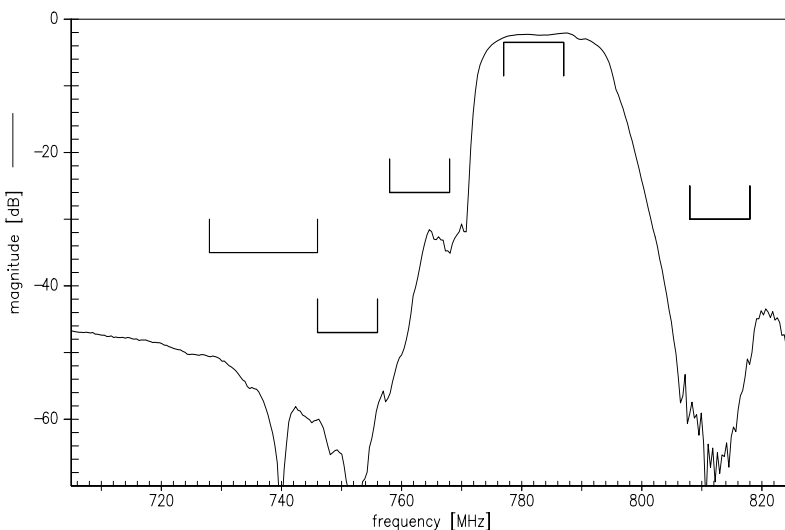
¹⁾ According to JESD22-A115A (machine model), 1 negative and 1 positive pulses.

²⁾ Time to failure (TTDF) according to accelerated power durability tests, and wear out models.

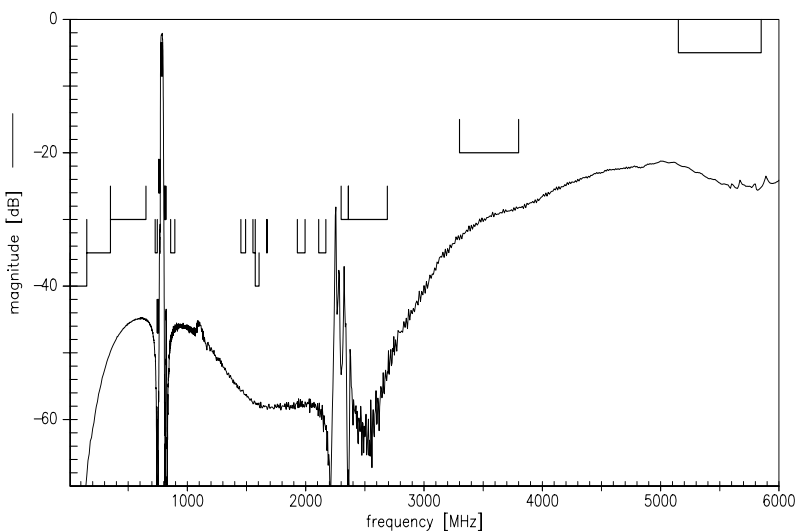
³⁾ according to accelerated High Temperature Operating Life (HTOL) test.



Frequency Response ANT-RX

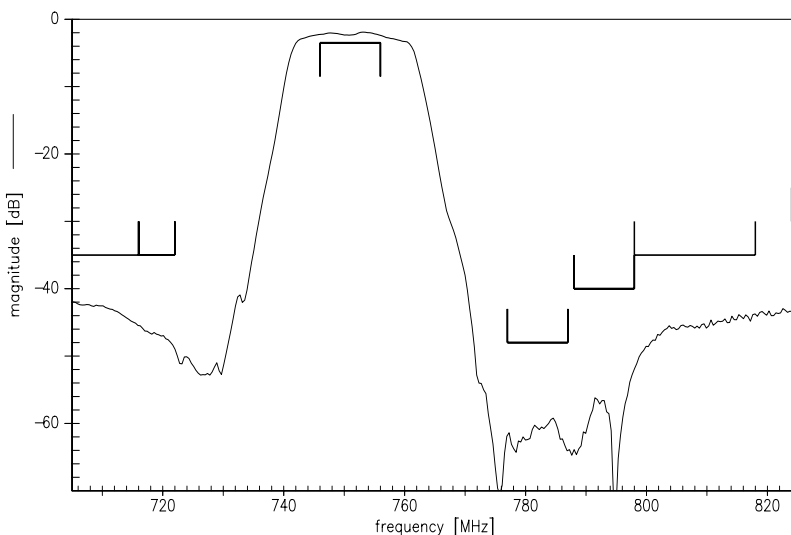


Frequency Response ANT-RX

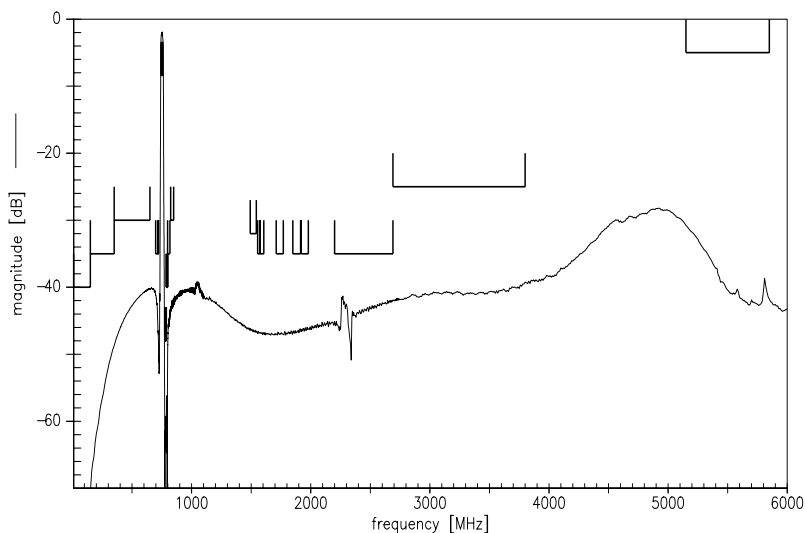


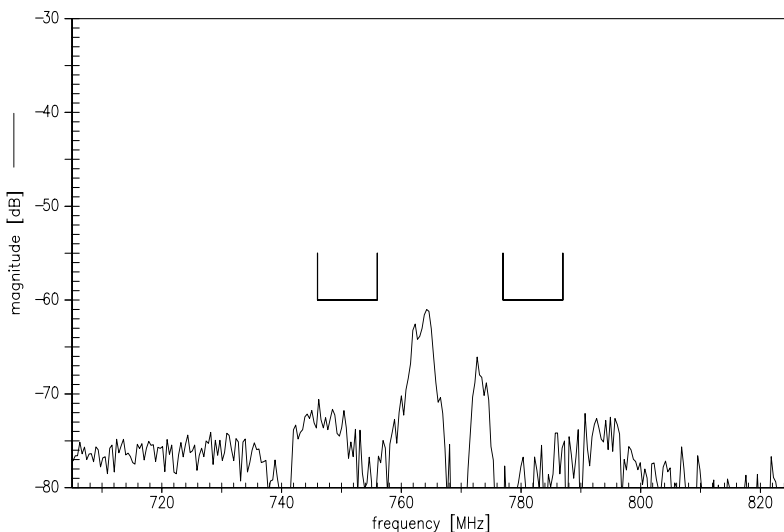
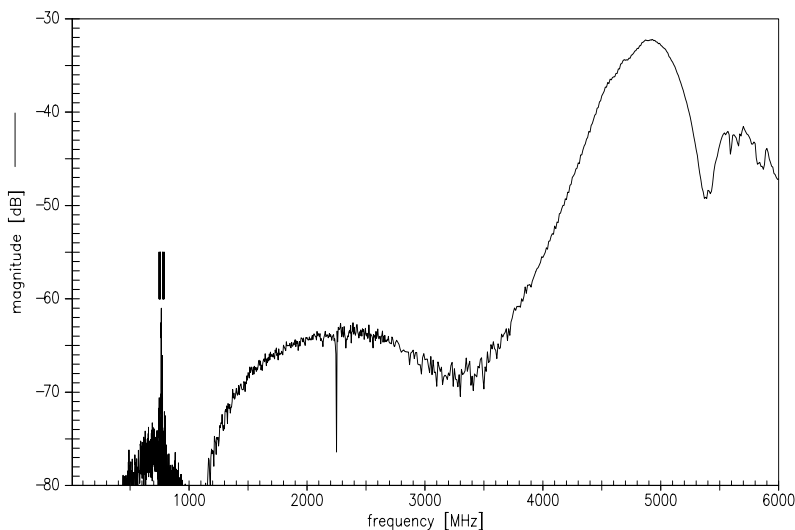


Frequency Response TX-ANT



Frequency Response TX-ANT

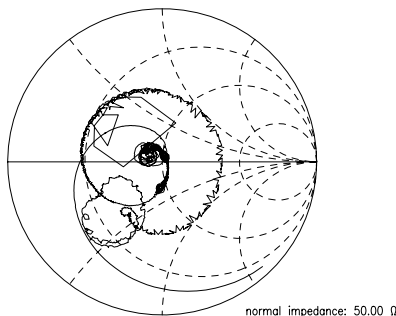
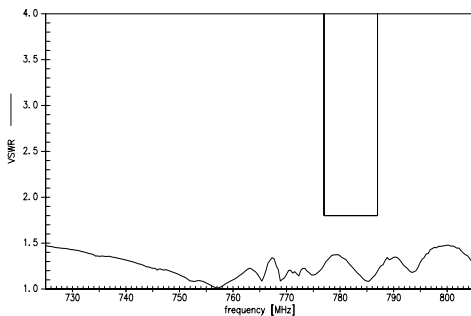



Frequency Response TX-RX

Frequency Response TX-RX


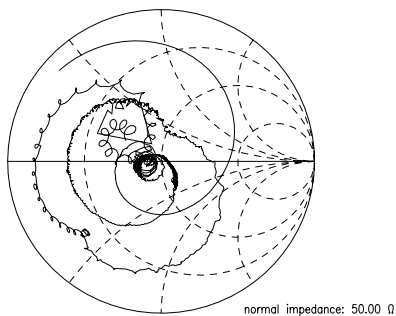
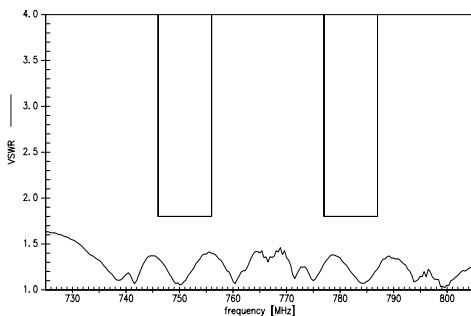
Data Sheet



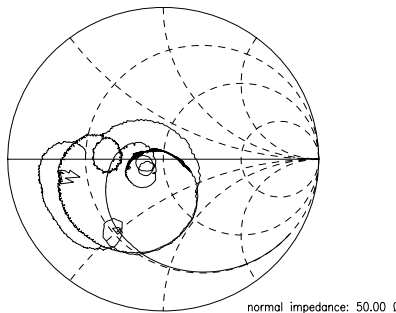
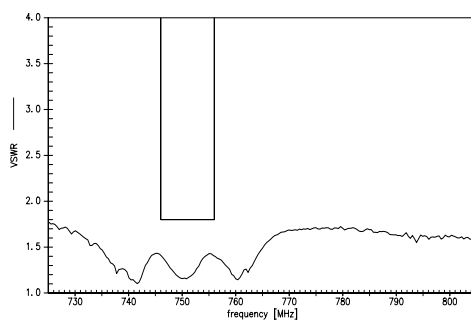
S11 VSWR (RX)



S22 VSWR (ANT)



S33 VSWR (TX)

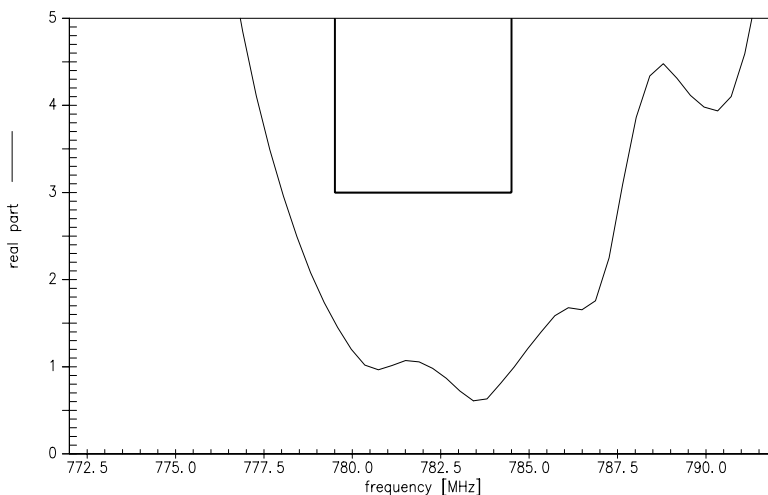


SAW Components	D7901
SAW Duplexer	782.0 / 751.0 MHz

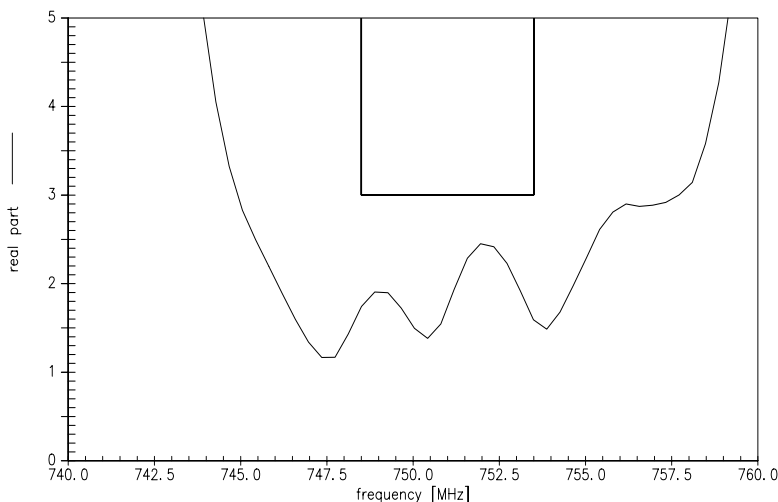
Data Sheet



EVM RX



EVM TX



SAW Components	D7901
SAW Duplexer	782.0 / 751.0 MHz

Data Sheet



References

Type	D7901
Ordering code	B30312D7901X942
Marking and package	C61157-A12-A13
Packaging	F61074-V8321-Z000
Date codes	L_1126
S-parameters	F902_HD_WD.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.
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.
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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