

RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

SAW Components

SAW duplexer

LTE band XXVIII Block B

Series/type:	B8539
Ordering code:	B39791B8539P810
DCN:	80-PA243-20 Rev. A

Date:	February 3, 2017
Version:	2.0

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SAW Components

SAW duplexer

LTE band XXVIII Block B

Series/type:	B8539
Ordering code:	B39791B8539P810
Date:	December 16, 2014
Version:	2.0

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SAW Components

B8539

SAW duplexer

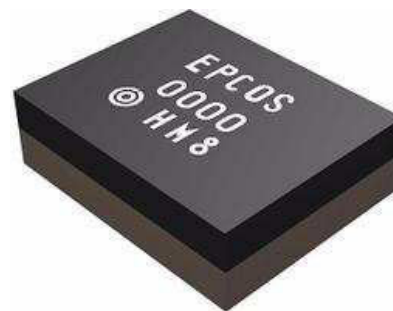
733.0 / 788.0 MHz

DataSheet



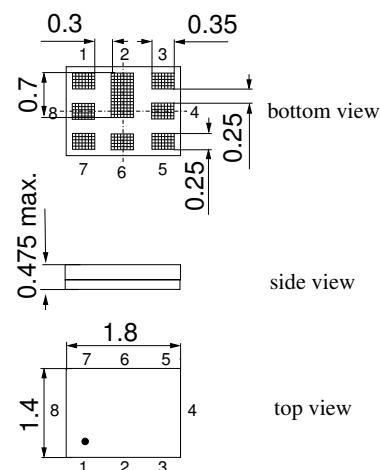
Application

- Low-loss SAW duplexer for mobile telephone LTE Band XXVIII systems
- Low insertion attenuation
- Usable passband 30 MHz
- Duplexer for higher part of Band XXVIII (Block B)
- Companion type is B8538/B8540 for lower Band XXVIII (Block A)



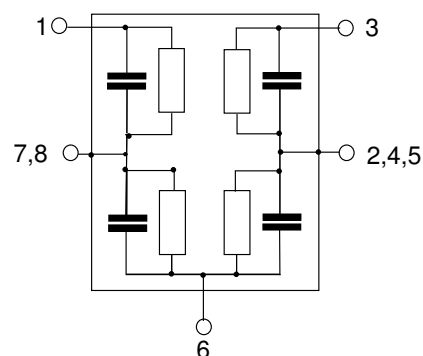
Features

- Package size 1.8 x 1.4mm², package height 0.475mm max.
- RoHS compatible
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitive Level 3**



Pin configuration

- 1 RX output
- 3 TX input
- 6 Antenna
- 2,4,5,7,8 Ground



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

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SAW duplexer
733.0 / 788.0 MHz
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Characteristics

Temperature range for specification: $T = -20\text{ }^{\circ}\text{C}$ to $+90\text{ }^{\circ}\text{C}$
 ANT terminating impedance: $Z_{\text{ANT}} = 50\text{ }\Omega \parallel 6.0\text{ nH}$
 TX terminating impedance: $Z_{\text{TX}} = 50\text{ }\Omega + 4.0\text{ nH (series)}$
 RX terminating impedance: $Z_{\text{RX}} = 50\text{ }\Omega$

Characteristics Tx - Ant				min.	typ. @ 25 °C	max.	
Center frequency		f_C		—	733.0	—	MHz
Maximum insertion attenuation		α					
	718.240... 747.760MHz				1.9	2.8	dB
Amplitude ripple		α					
	718.240... 747.760MHz				1.0	1.9	dB
VSWR							
TX port	718.0 ... 748.0 MHz				1.7	2.0	
ANT port	718.0 ... 748.0 MHz				1.4	2.0	
Attenuation		α					
	10.0 ... 698.0 MHz			30	38		dB
	698.0 ... 710.0 MHz			15	38		dB
	758.240... 772.760MHz			15	30		dB
	773.240... 802.760MHz			41	44		dB
	859.0 ... 894.0 MHz			30	38		dB
	1225.0 ... 1250.0 MHz			40	47		dB
	1436.0 ... 1510.0 MHz			35	40		dB
	1559.0 ... 1563.0 MHz			35	39		dB
	1565.42 ... 1573.374MHz			35	39		dB
	1573.374... 1577.466MHz			35	39		dB
	1577.466... 1585.42 MHz			35	39		dB
	1597.55 ... 1605.89 MHz			35	39		dB
	1805.0 ... 1880.0 MHz			30	37		dB
	1930.0 ... 1995.0 MHz			30	36		dB
	2010.0 ... 2025.0 MHz			30	36		dB
	2154.0 ... 2244.0 MHz			30	35		dB
	2400.0 ... 2484.0 MHz			28	34		dB
	2570.0 ... 2620.0 MHz			28	34		dB
	2872.0 ... 2992.0 MHz			15	33		dB
	4900.0 ... 5950.0 MHz			15	23		dB

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SAW Components
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SAW duplexer
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Characteristics

Temperature range for specification:	T = -20 °C to +90 °C
ANT terminating impedance:	Z _{ANT} = 50 Ω 6.0 nH
TX terminating impedance:	Z _{TX} = 50 Ω + 4.0 nH (series)
RX terminating impedance:	Z _{RX} = 50 Ω

Characteristics Rx - Ant				min.	typ. @ 25 °C	max.	
Center frequency		f _C		—	788.0	—	MHz
Maximum insertion attenuation		α					
	773.240...	802.760MHz			2.1	2.8	dB
Amplitude ripple		α					
	773.240...	802.760MHz			0.7	1.4	dB
VSWR							
RX port	773.0	... 803.0	MHz		1.8	2.2	
ANT port	773.0	... 803.0	MHz		1.4	2.2	
Attenuation		α					
	1.0	... 699.0	MHz	40	62		dB
	45.0	... 65.0	MHz	50	70		dB
	703.240...	732.760MHz		30	71		dB
	718.240...	747.760MHz		50	61		dB
	824.0	... 6000.0	MHz	26	30		dB
Characteristics TX - RX				min.	typ. @ 25 °C	max.	
Isolation		α					
	718.240...	747.760MHz		60	64		dB
	773.240...	802.760MHz		54 ¹⁾	57		dB

¹⁾ 53 dB for T= -20°C to +20°C

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Maximum ratings

Storage temperature range	T _{stg}	-40/+85 ¹⁾	°C	
DC voltage	V _{DC}	5	V	
ESD voltage	V _{ESD}	100 ²⁾	V	machine model, 10 pulses
ESD voltage	V _{ESD}	300 ³⁾	V	HBM,+/- 1 pulses
ESD voltage	V _{ESD}	600 ⁴⁾	V	CDM,+/- 3 pulses
Input power at	P _{IN}			
718.0 ... 748.0 MHz		29	dBm	} continuous wave 50 °C, 5000 h
elsewhere		10	dBm	

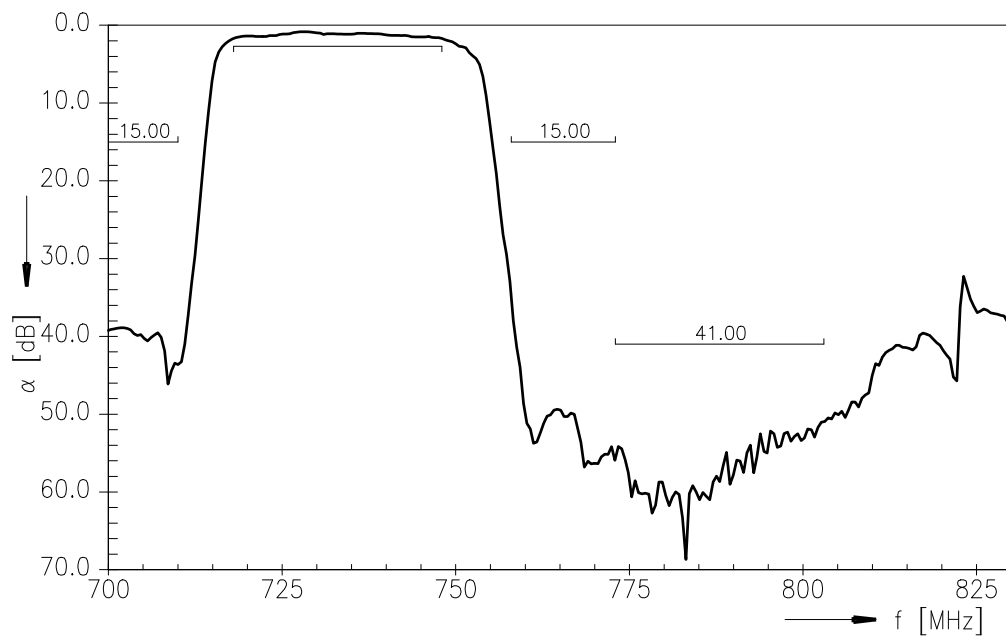
1) Extended upperlimit: 168@125°C acc. to IEC 60068-2-2 Bb.

2) acc. to JESD22-A115B (machine model), 10 negative & 10 positive pulses.

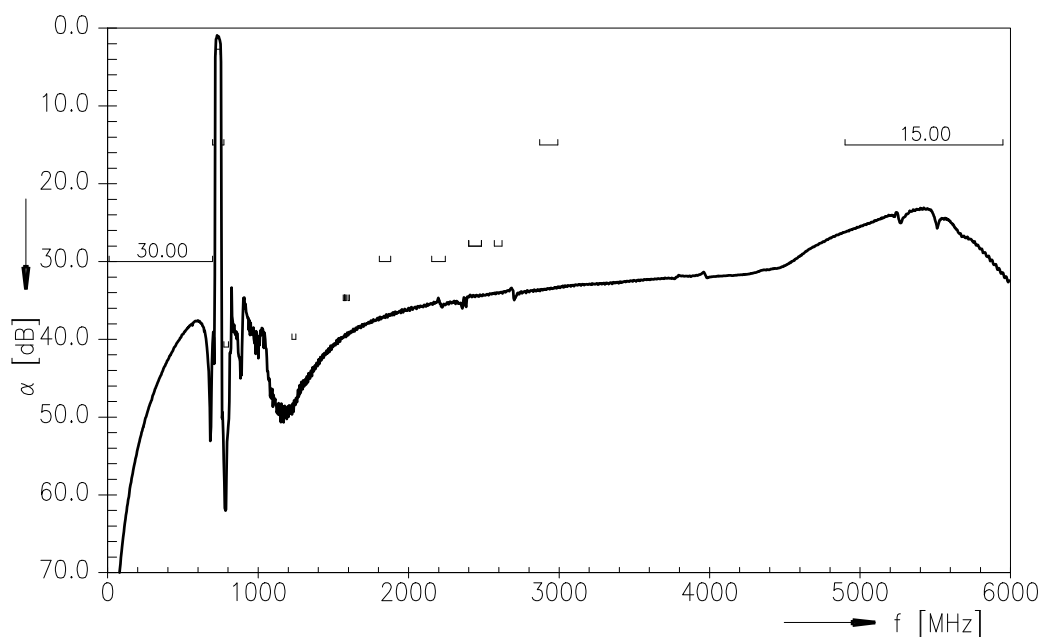
3) acc. to JESD22-A114F (human body model), 1 negative & 1 positive pulses.

4) acc. to JESD22-A101C (charge device model), 3 negative & 3 positive pulse

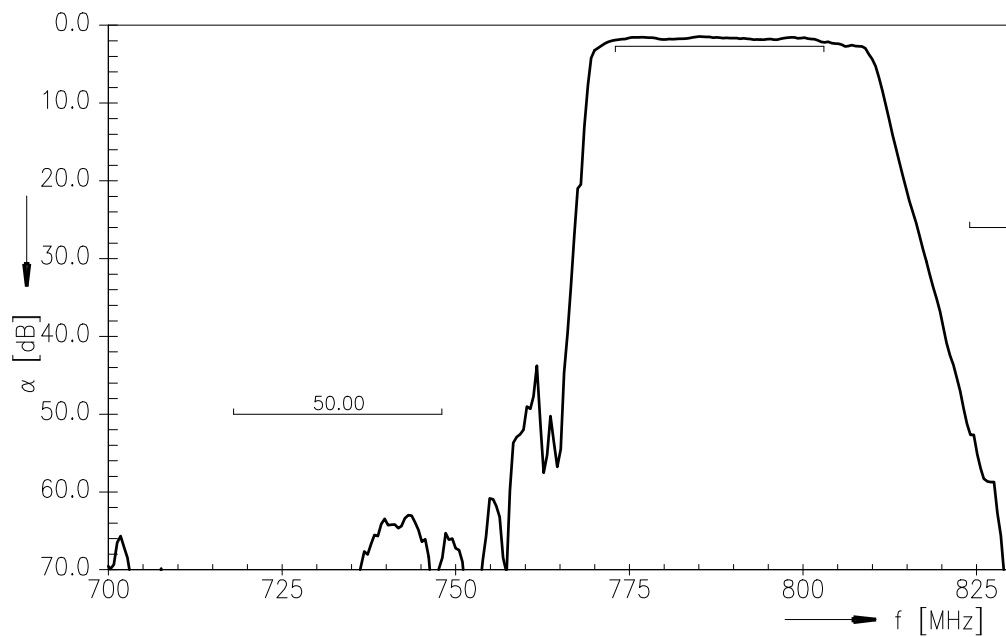
Frequency response Tx-Antenna



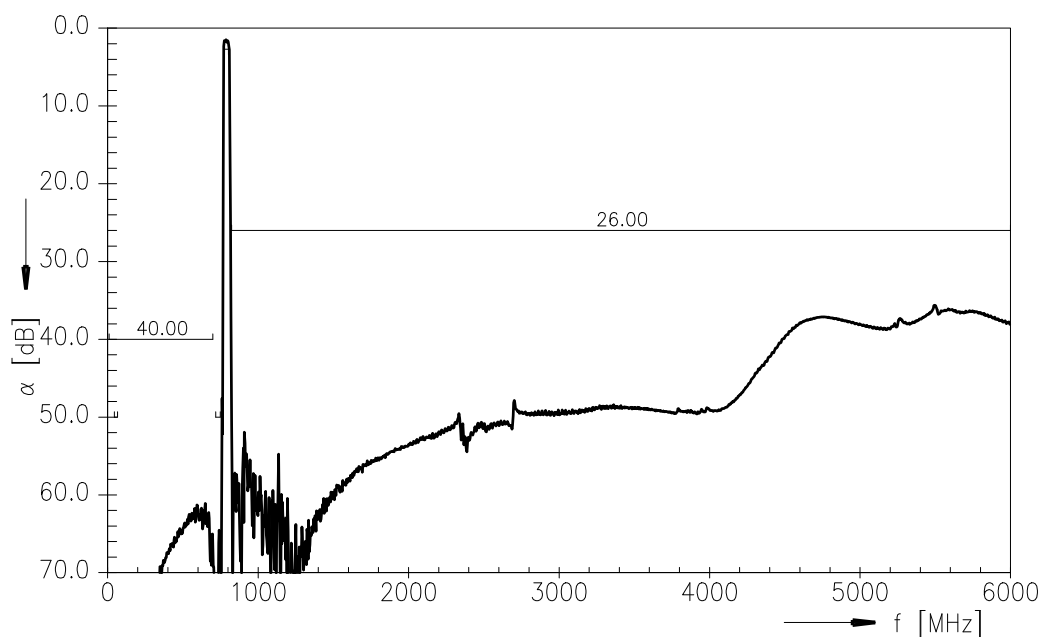
Frequency response Tx-Antenna (wideband)



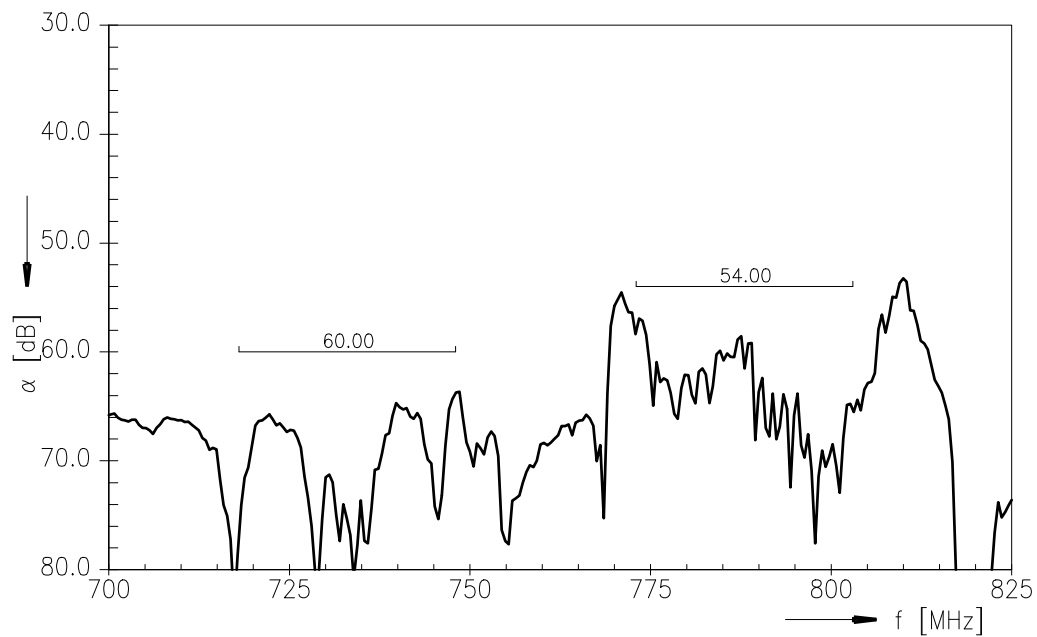
Frequency response Antenna-Rx



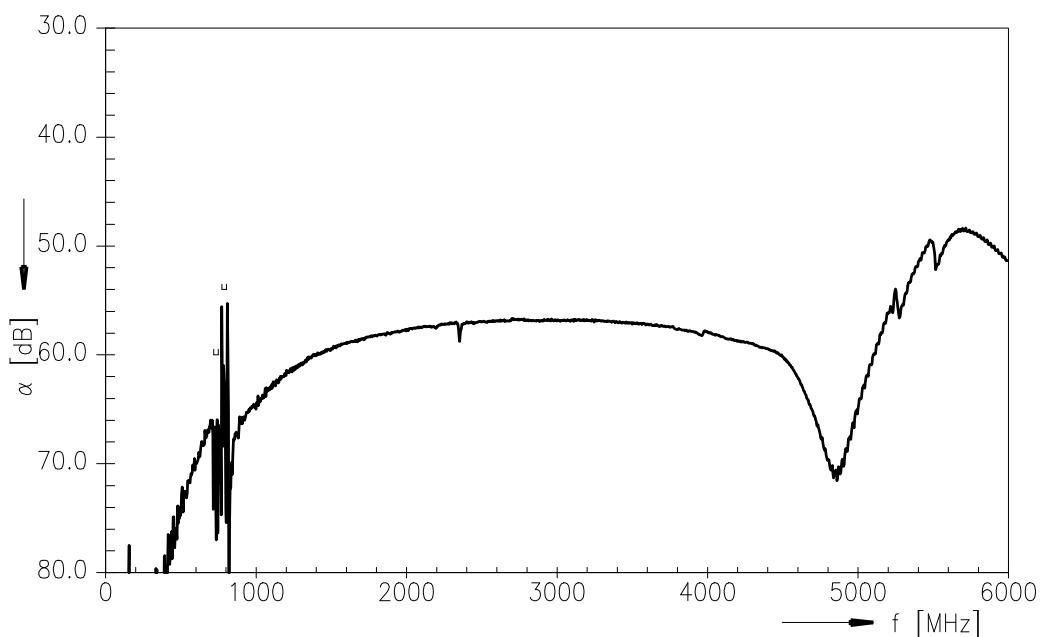
Frequency response Antenna-Rx (wideband)



Frequency response Tx-Rx (Power transfer function)



Frequency response Tx-Rx (wideband)



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

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SAW duplexer

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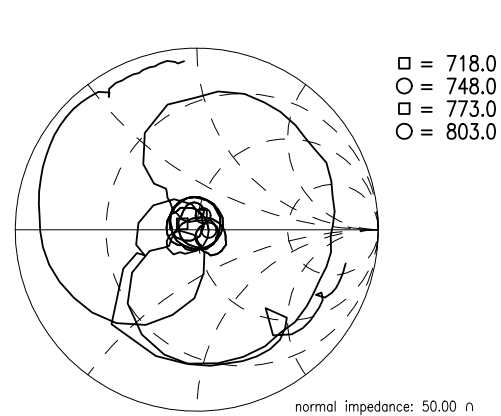
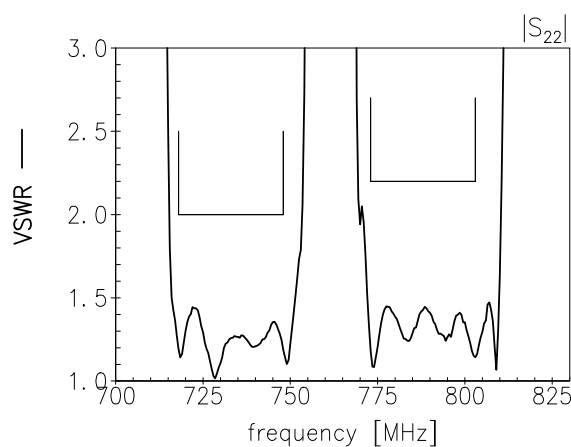
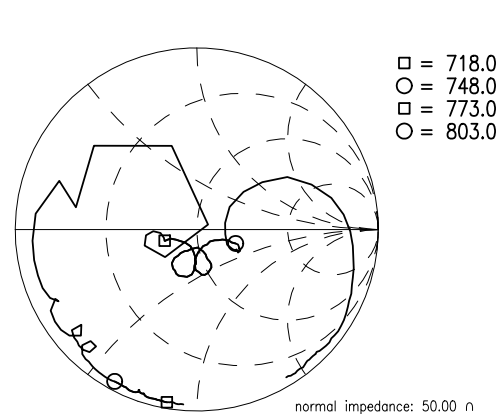
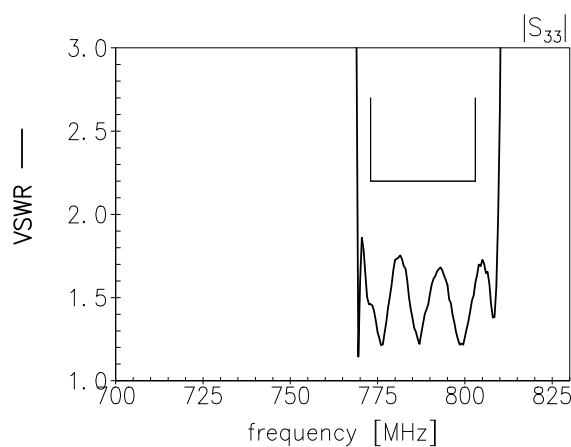
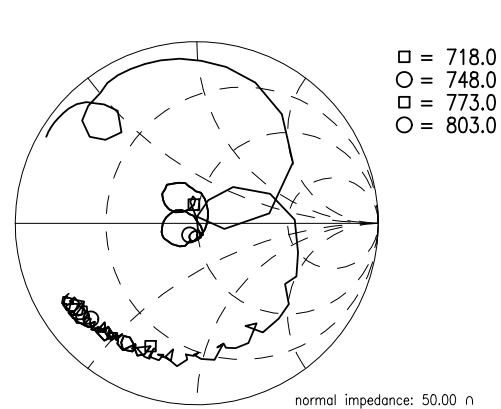
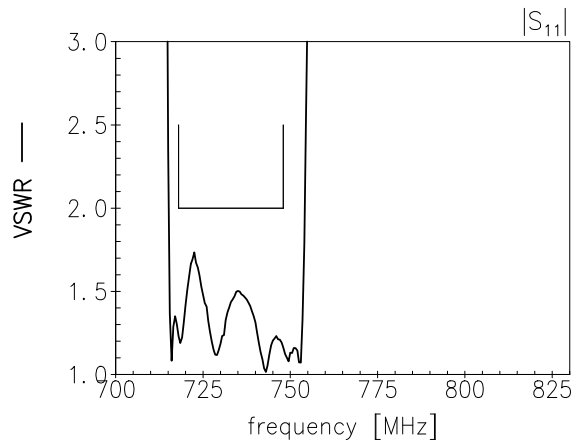


Return loss

S₁₁ Tx-port

S₂₂ Antenna-port

S₃₃ Rx-portReferences



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References

Type	B8539
Ordering code	B39791B8539P810
Marking and package	C61157-A8-A79
Packaging	F61074-V8259-Z000
Date codes	L_1126
S-parameters	B8539_NB_UN.s3p, B8539_WB_UN.s3p See file header for pin/port assignment.
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 further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com.

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