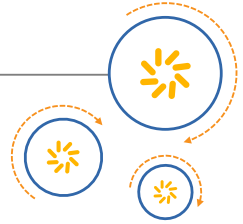




RF360 Europe GmbH

A Qualcomm – TDK Joint Venture



SAW Components

SAW Duplexer

LTE Band XXI

Series/type: B8582
Ordering code: B39152B8582P810

Date: August 16, 2012
Version: 1.0

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Data Sheet

**Revision History**

Changes compared to previously issued iteration

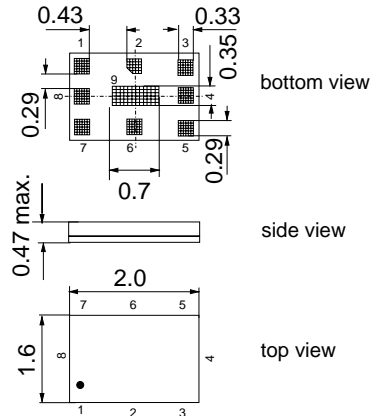
Issue	Originator	Detailed specification changes	Date
LK65B v1.0	N.Inose	Initial release	May 16, 2012
B8582 v2.0	N.Inose	Initial release from LK65B	August 16, 2012


Application

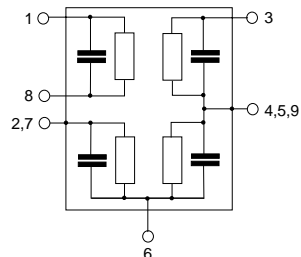
- Low-loss SAW duplexer for mobile telephone LTE Band XXI system
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 15MHz
- Single ended to balanced transformation in Antenna - Rx path
- Impedance transformation 50ohm to 100ohm in Antenna - Rx path


Features

- Package size 2.0 * 1.6 mm²
- Max. height 0.47 mm
- RoHS compatible
- Approximate weight 0.006g
- Package for **Surface Mount Technology (SMT)**
- Ni terminals, Au-plated
- Balanced Rx port, unbalanced Tx port
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitive Level (MSL) 3**


Pin configuration

- 1, 8 RX Output (balanced)
- 3 TX Input
- 6 Antenna
- 2, 4, 5, 7, 9 To be grounded



Data Sheet

Characteristics

Temperature range for specification: $T = -20\text{ °C to }+85\text{ °C}$
 Antenna terminating impedance: $Z_{ANT} = 50\ \Omega \parallel 6.8\text{nH}$
 RX terminating impedance: $Z_{RX} = 100\ \Omega$ (Balanced)
 TX terminating impedance: $Z_{TX} = 50\ \Omega$

Characteristics TX - ANT	min.	typ. @ 25 °C	max.	
Center frequency f_c	—	1455.4	—	MHz
Maximum insertion attenuation 1447.9 ... 1462.9 MHz		1.2	2.0	dB
Amplitude ripple(p-p) 1447.9 ... 1462.9 MHz		0.3	1.0	dB
Input VSWR (TX port) 1447.9 ... 1462.9 MHz		1.3	2.0	dB
Output VSWR (ANT port) 1447.9 ... 1462.9 MHz		1.3	2.0	dB

Data Sheet

Characteristics

Temperature range for specification:

$$T = -20\text{ °C to }+85\text{ °C}$$

Antenna terminating impedance:

$$Z_{ANT} = 50\ \Omega \parallel 6.8\text{ nH}$$

RX terminating impedance:

$$Z_{RX} = 100\ \Omega \text{ (Balanced)}$$

TX terminating impedance:

$$Z_{TX} = 50\ \Omega$$

Characteristics TX - ANT				min.	typ. @ 25 °C	max.	
Attenuation			α				
10	...	1409	MHz	30	38		dB
1495.9	...	1510.9	MHz	45	62		dB
1565.42	...	1573.374	MHz	35	46		dB
1573.374	...	1577.466	MHz	40	45		dB
1577.466	...	1585.42	MHz	35	47		dB
1597.5515	...	1605.886	MHz	40	47		dB
1607	...	1680	MHz	25	47		dB
1844.9	...	1879.9	MHz	30	47		dB
1884.5	...	1919.6	MHz	15	46		dB
2010	...	2025	MHz	30	42		dB
2110	...	2170	MHz	30	44		dB
2400	...	2483.5	MHz	30	38		dB
2855.8	...	2905.8	MHz	20	34		dB
4283.7	...	4358.7	MHz	20	26		dB
5150	...	5850	MHz	15	26		dB

Data Sheet

Characteristics

Temperature range for specification:	T = -20 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 6.8nH
RX terminating impedance:	Z _{RX} = 100 Ω (Balanced)
TX terminating impedance:	Z _{TX} = 50 Ω

Characteristics ANT - RX	min.	typ. @ 25 °C	max.	
Center frequency f_C	—	1503.4	—	MHz
Maximum insertion attenuation 1495.9 ... 1510.9 MHz		1.7	2.2	dB
Amplitude ripple (p-p) 1495.9 ... 1510.9 MHz		0.3	1.0	dB
Input VSWR (ANT port) 1495.9 ... 1510.9 MHz		1.3	2.0	
Output VSWR (RX port) 1495.9 ... 1510.9 MHz		1.3	2.0	
Common Mode Rejection Ratio CMRR 1495.9 ... 1510.9 MHz	23 ¹⁾	25		dB

¹⁾ A combination of 10° phase balance and 1dB amplitude balance corresponds to 19.6 dB CMRR.

Data Sheet

Characteristics

Temperature range for specification:

$$T = -20\text{ °C to }+85\text{ °C}$$

Antenna terminating impedance:

$$Z_{ANT} = 50\ \Omega \parallel 6.8\text{ nH}$$

RX terminating impedance:

$$Z_{RX} = 100\ \Omega \text{ (Balanced)}$$

TX terminating impedance:

$$Z_{TX} = 50\ \Omega$$

Characteristics ANT - RX					min.	typ. @ 25 °C	max.	
Attenuation								
				α				
	1	...	1381	MHz	30	59		dB
			1381	...	40	57		dB
			1447.9	...	45	63		dB
			1516	...		2		dB
			1560	...	25	32		dB
			1570	...	30	37		dB
			6000	MHz				
IMD Product Level Limits¹⁾								
at $f_{TX}=1455.4\text{ MHz}$, $f_{RX}=1503.4\text{ MHz}$								
	Blocker 1		48.0	MHz		-130	-106	dBm
	Blocker 2		1407.4	MHz		-112	-102	dBm
	Blocker 3		2958.8	MHz		-111	-101	dBm
	Blocker 4		4414.2	MHz		-130	-109	dBm

¹⁾ IMD product level limits for power levels $P_{TX}=21.5\text{ dB}$ (antenna port output power) and $P_{BLOCK-ER}=-15\text{ dBm}$ (antenna port input power).

Data Sheet

Characteristics

Temperature range for specification: $T = -20\text{ °C to }+85\text{ °C}$
 Antenna terminating impedance: $Z_{ANT} = 50\ \Omega \parallel 6.8\text{nH}$
 RX terminating impedance: $Z_{RX} = 100\ \Omega$ (Balanced)
 TX terminating impedance: $Z_{TX} = 50\ \Omega$

Characteristics TX - RX	min.	typ. @ 25 °C	max.	
Differential mode isolation				α
1447.9 ... 1462.9 MHz	52	61		dB
1495.9 ... 1510.9 MHz	49	53		dB
1574.0 ... 1577.0 MHz	30	81		dB
2855.8 ... 2905.8 MHz	30	64		dB
4283.7 ... 4358.7 MHz	25	60		dB
Common mode isolation				
1447.9 ... 1462.9 MHz	50	57		dB


Maximum ratings

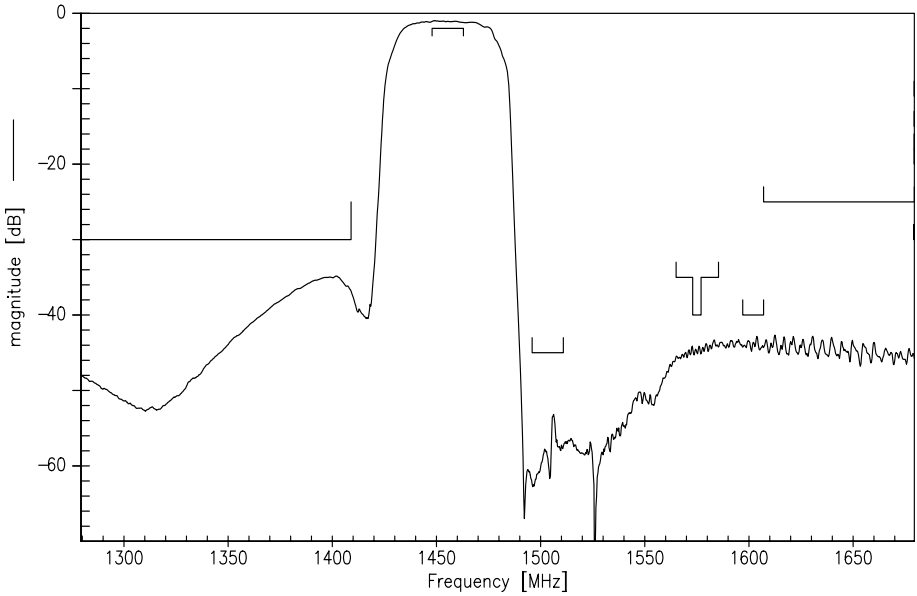
Storage temperature range	T_{stg}	-40/+85	°C	machine model, 1 pulses source and load impedance 50 Ω } continuous wave } $T = 50^{\circ}\text{C}$, 5000h
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50 ¹⁾	V	
Input power at	P_{IN}			
1447.9 - 1462.9 MHz		29	dBm	} continuous wave } $T = 50^{\circ}\text{C}$, 5000h
elsewhere		10	dBm	

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

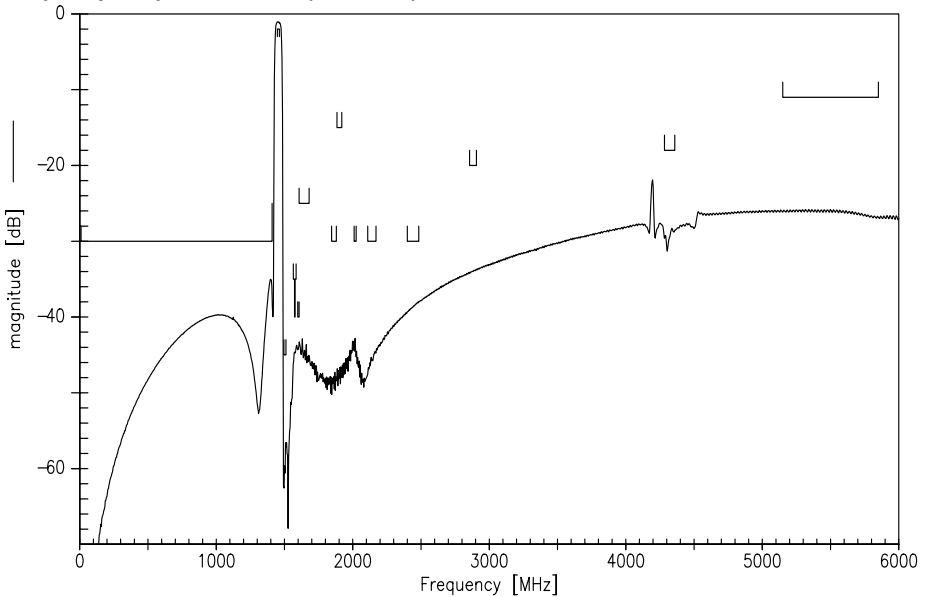
Data Sheet



Frequency Response Tx-ANT (passband)

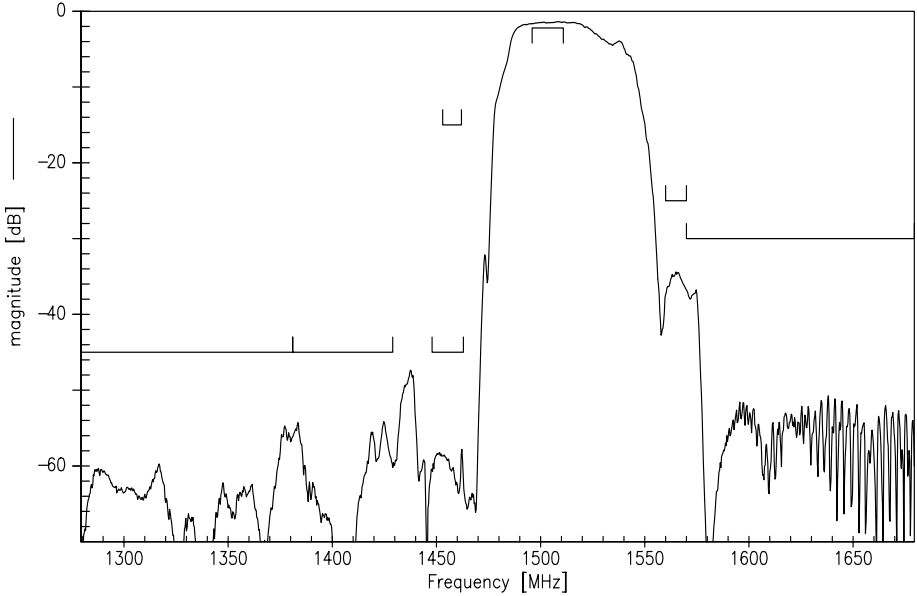


Frequency Response Tx-ANT (wideband)

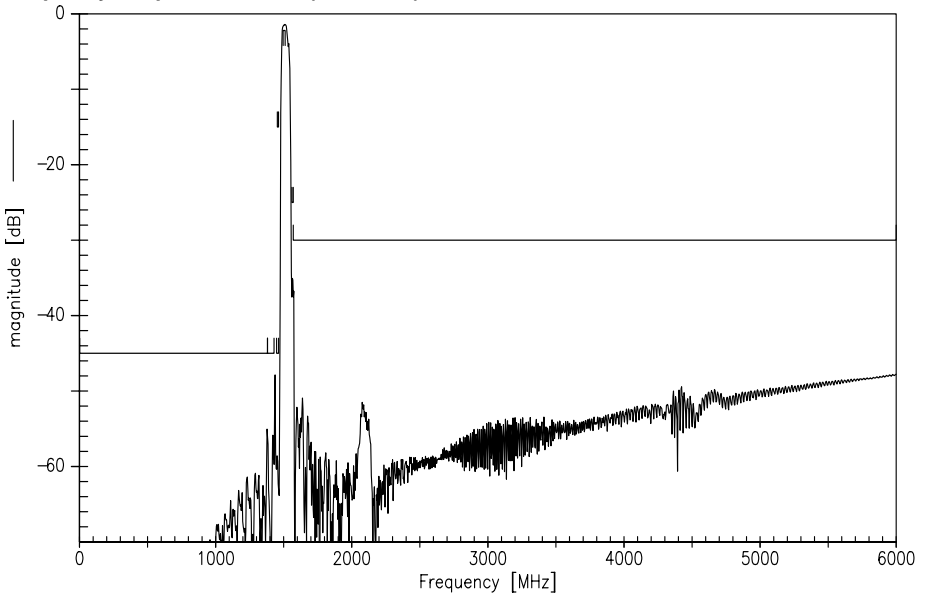




Frequency Response ANT-Rx (passband)

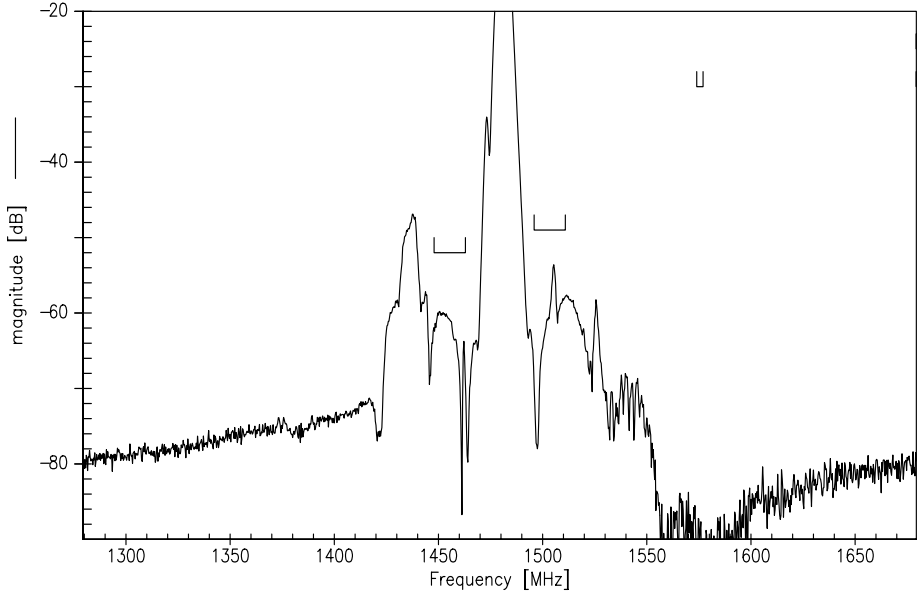


Frequency Response ANT-Rx (wideband)

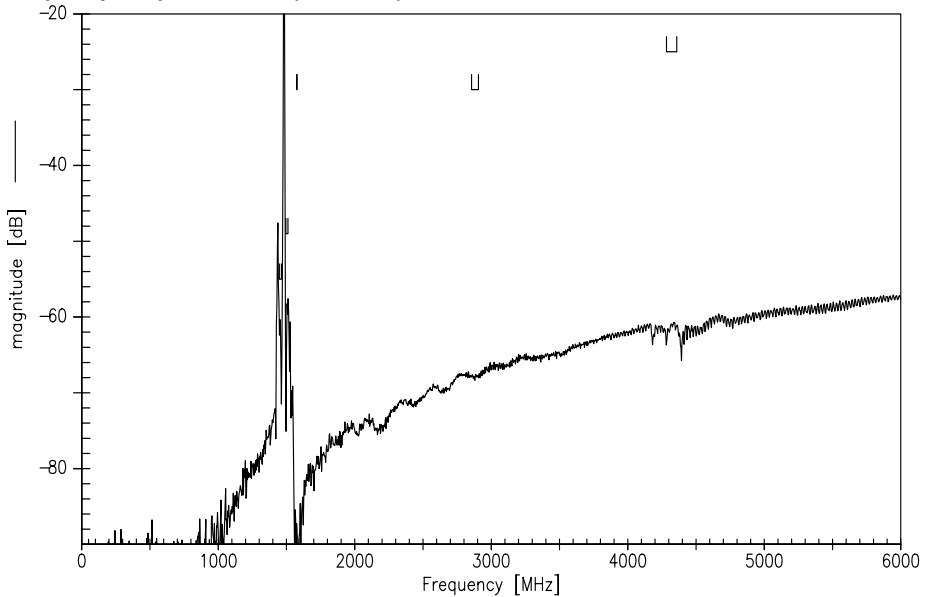




Frequency Response Tx-Rx (passband) / Differential Mode

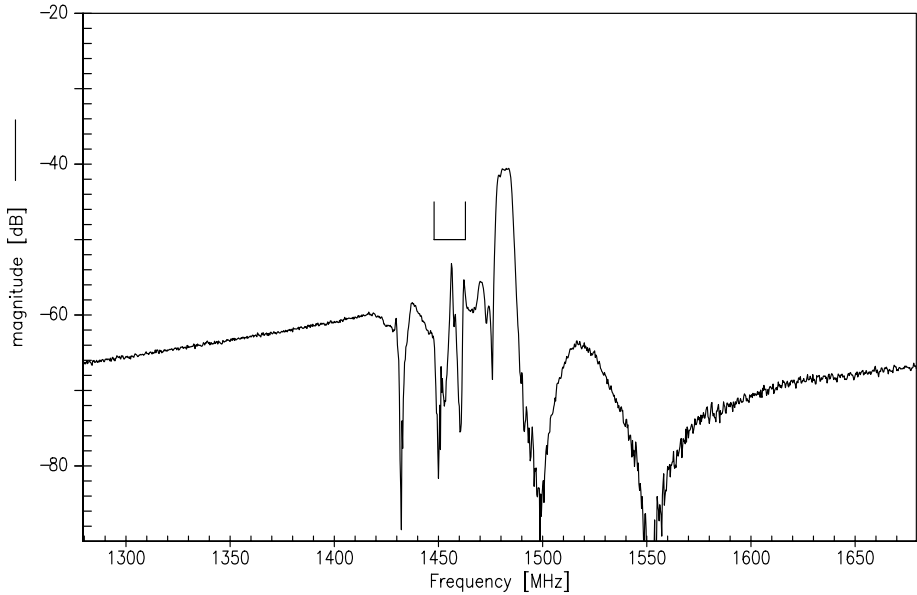


Frequency Response Tx-Rx (wideband) / Differential Mode

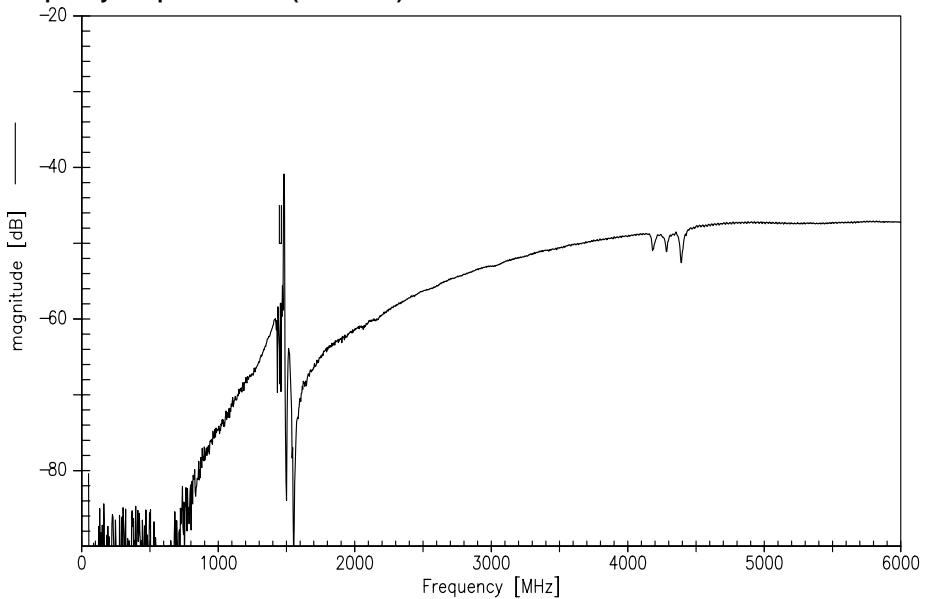




Frequency Response Tx-Rx (passband) / Common Mode

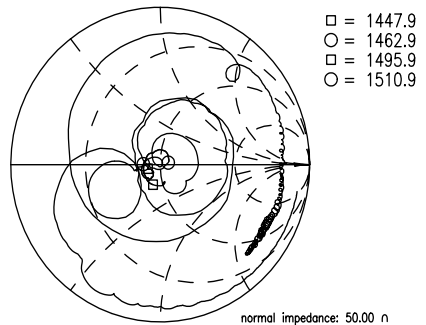
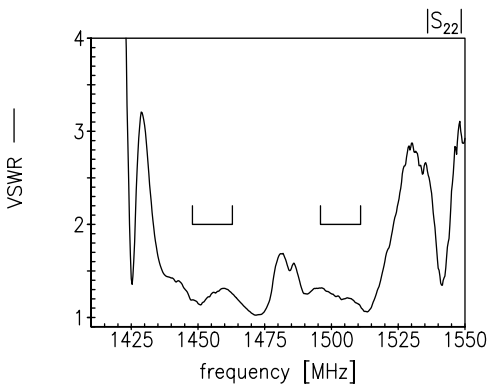
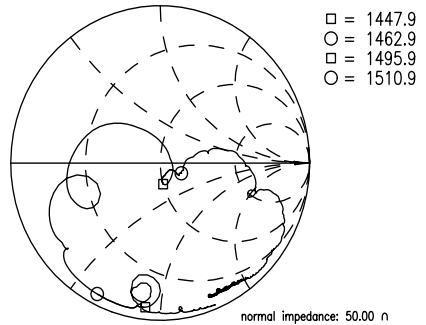
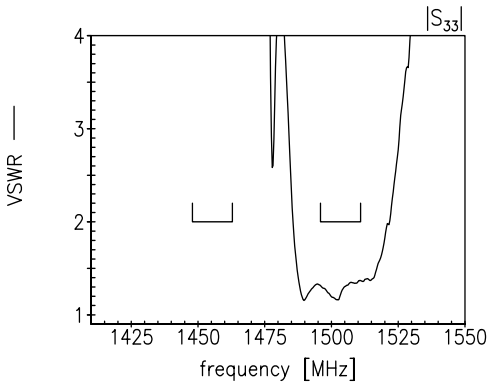
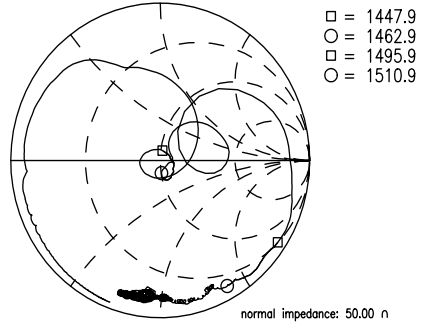
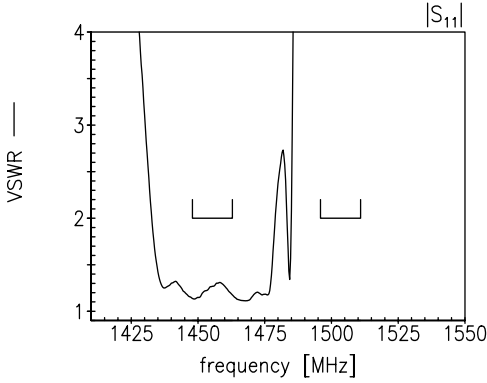


Frequency Response Tx-Rx (wideband) / Common Mode





Return Loss S_{11} Tx - port S_{22} ANT - port S_{33} Rx - port



SAW Components	B8582
SAW Duplexer	1455.40 / 1503.40 MHz

Data Sheet



References

Type	B8582
Ordering code	B39152B8582P810
Marking and package	C61157-A8-A40
Packaging	F61074-V8247-Z000
Date codes	L_1126
S-parameters	B8582_NB.s4p, B8582_WB.s4p 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 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.

Published by EPCOS AG
Surface Acoustic Wave Components Division
P.O. Box 80 17 09, 81617 Munich, GERMANY

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