SAW Components

SAW Duplexer

LTE Band XXI

Series/type: **B8582**
Ordering code: **B39152B8582P810**

Date: August 16, 2012
Version: 1.0

EPCOS AG is a TDK Group Company.

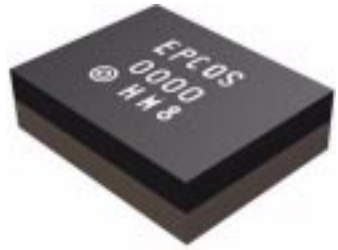
Revision History

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

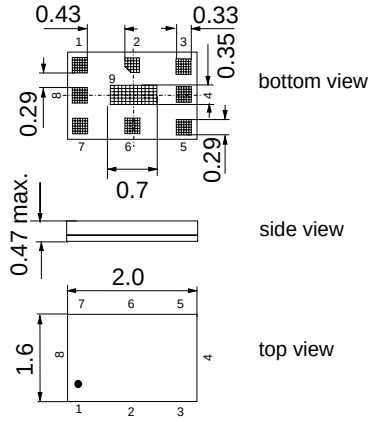
Application

- 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



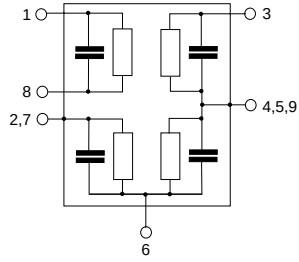
Features

- Package size 2.0 * 1.6 mm²
- Max. height 0.47 mm
- RoHS compatible
- Approximate weight 0.006g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni terminals, Au-plated
- Balanced Rx port, unbalanced Tx port
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitive **L**evel (**MSL**) 3



Pin configuration

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



Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT}= 50 Ω II 6.8nH
RX terminating impedance: Z_{RX} = 100 Ω (Balanced)
TX terminating impedance: Z_{TX} = 50 Ω

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

Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT}= 50 Ω II 6.8nH
RX terminating impedance: Z_{RX} = 100 Ω (Balanced)
TX terminating impedance: Z_{TX} = 50 Ω

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

Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT}= 50 Ω II 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 10º phase balance and 1dB amplitude balance corresponds to 19.6 dB CMRR.

Characteristics

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Antenna terminating impedance: Z_{ANT}= 50 Ω II 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.	
Attenuation			α				
1	...	1381	MHz	30	59		dB
1381	...	1429	MHz	40	57		dB
1447.9	...	1462.9	MHz	45	63		dB
1516	...	1560	MHz		2		dB
1560	...	1570	MHz	25	32		dB
1570	...	6000	MHz	30	37		dB
IMD Product Level Limits[1)]							
at f_{TX}=1455.4 MHz, f_{RX}=1503.4 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}=21.5dB (antenna port output power) and $P_{BLOCK-ER}$=-15dBm (antenna port input power).

Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT}= 50 Ω II 6.8nH
RX terminating impedance: Z_{RX} = 100 Ω (Balanced)
TX terminating impedance: Z_{TX} = 50 Ω

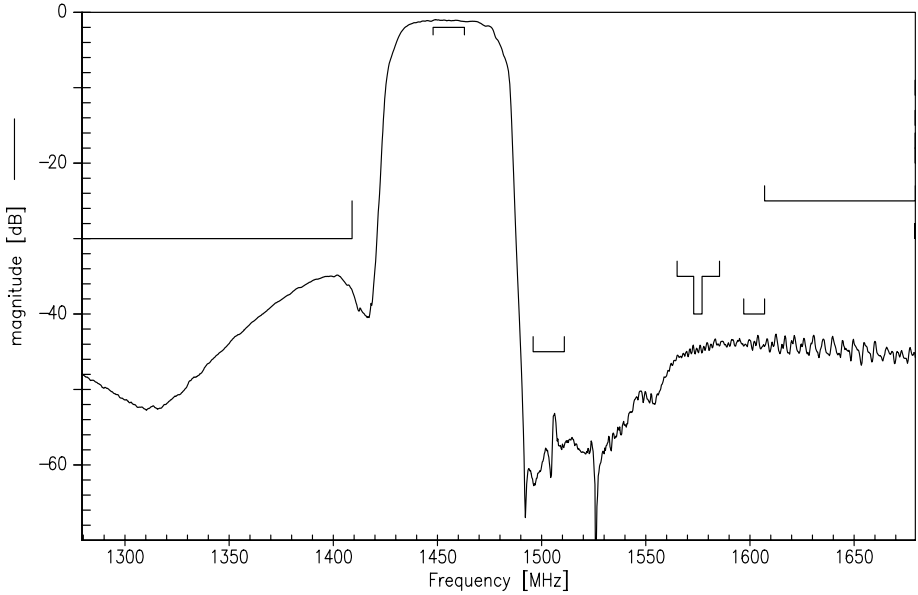
Characteristics TX - RX		min.	typ. @ 25 ˚C	max.	
Differential mode isolation	α				
1447.9 ... 1462.9 MHz		52	61		dB
1495.9 ... 1510.9 MHz		49	53		dB
1574.0 ... 1577.0 MHz		30	81		dB
2855.8 ... 2905.8 MHz		30	64		dB
4283.7 ... 4358.7 MHz		25	60		dB
Common mode isolation					
1447.9 ... 1462.9 MHz		50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

Maximum ratings

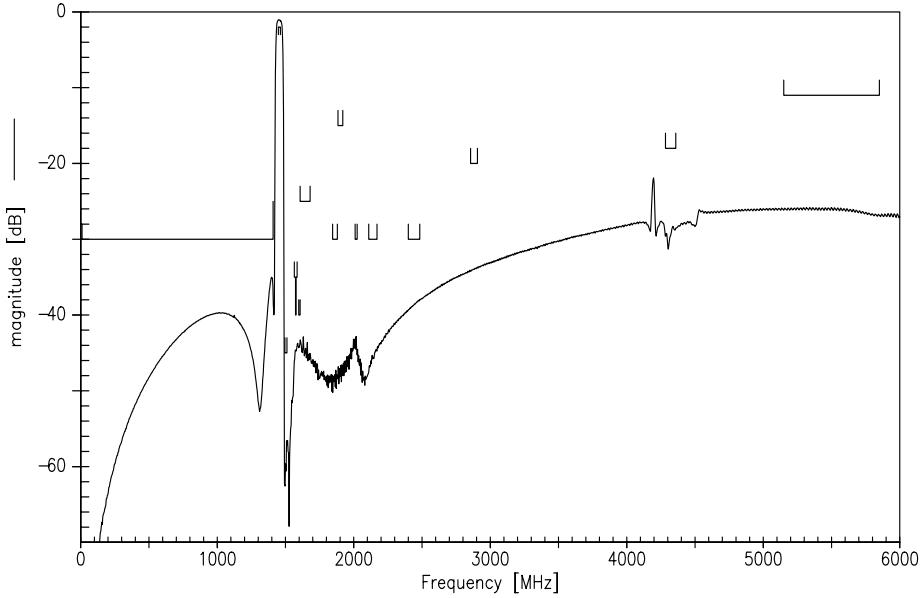
Storage temperature range	T_{stg}	–40/+85	°C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50[1)]	V	machine model, 1 pulses
Input power at	P_{IN}			source and load impedance 50 Ω
1447.9 - 1462.9 MHz		29	dBm	} continuous wave
elsewhere		10	dBm	*T* = 50°C, 5000h

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

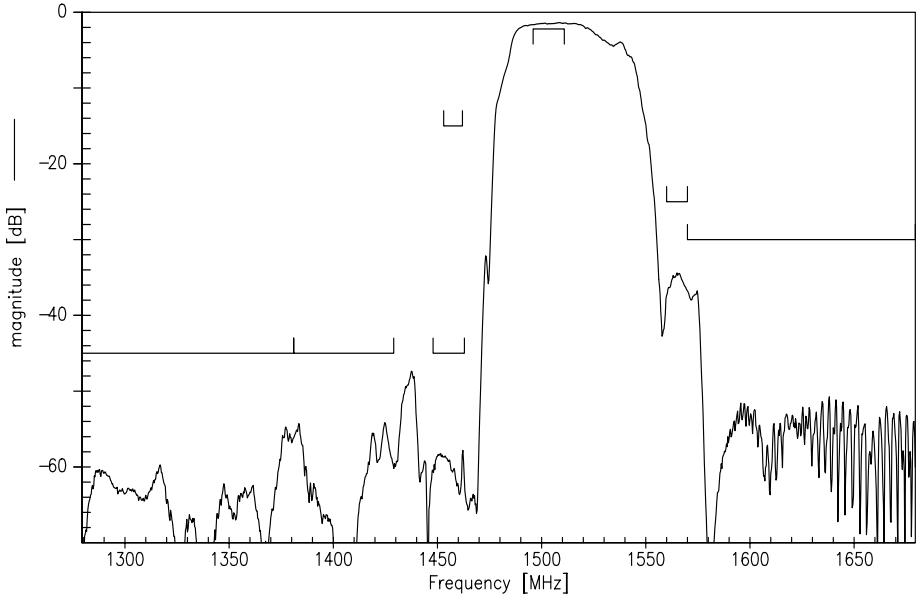
Frequency Response Tx-ANT (passband)



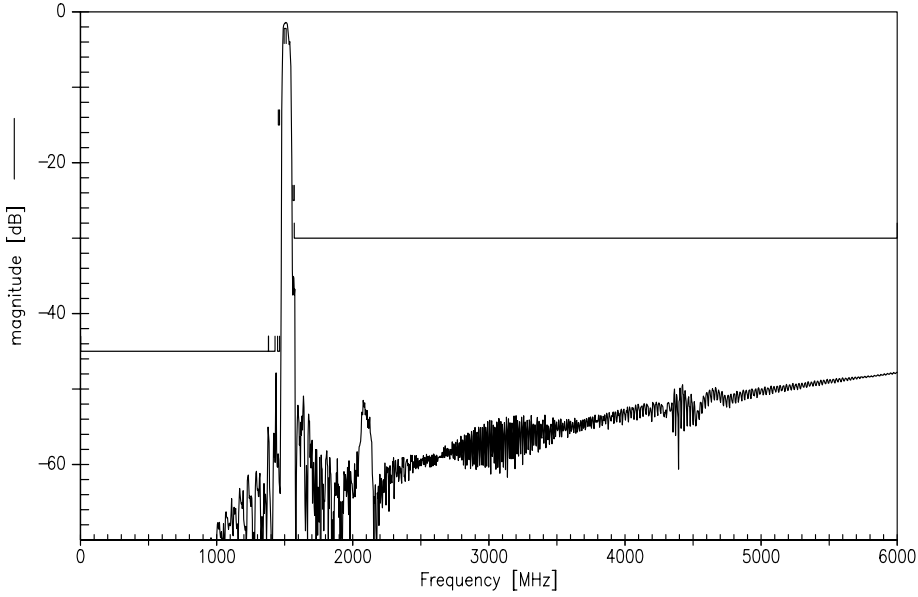
Frequency Response Tx-ANT (wideband)



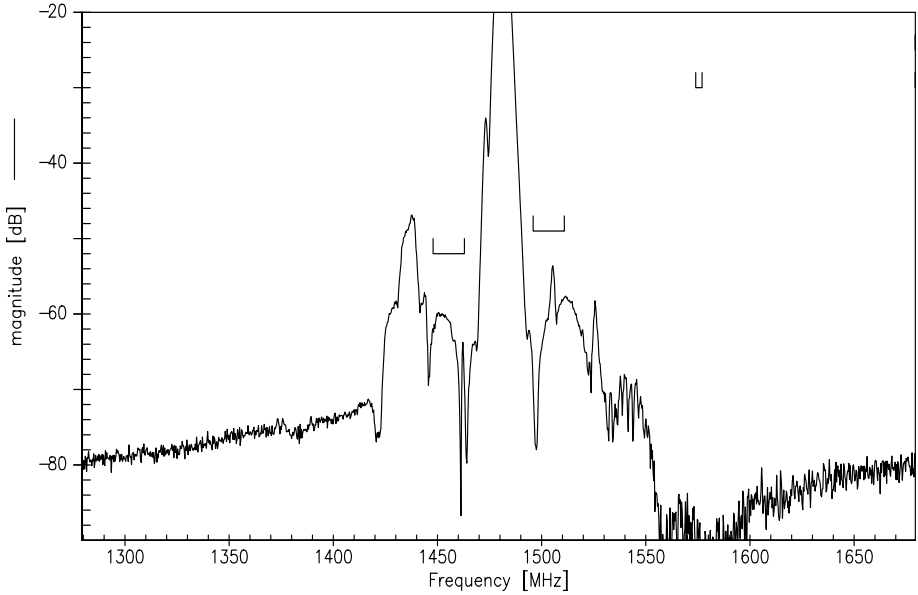
Frequency Response ANT-Rx (passband)



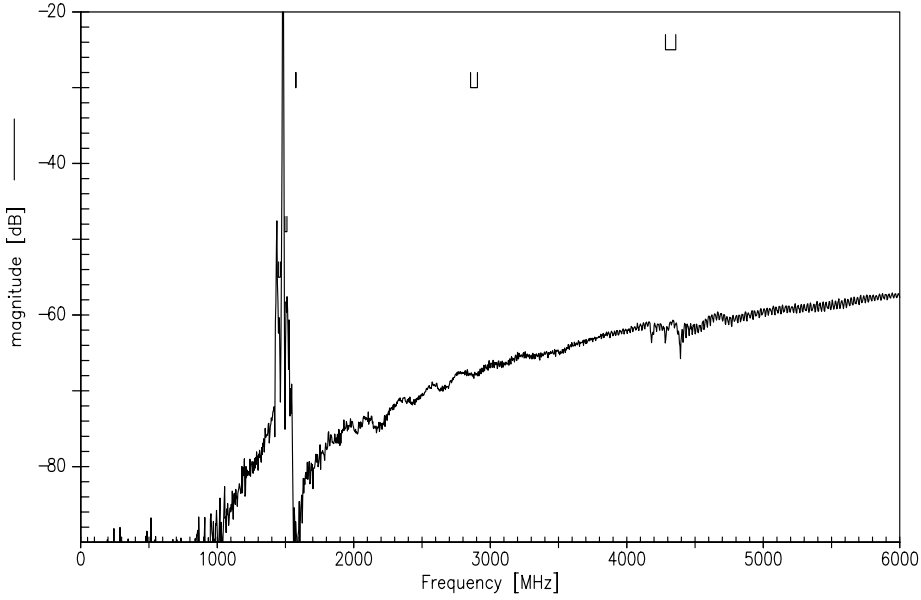
Frequency Response ANT-Rx (wideband)



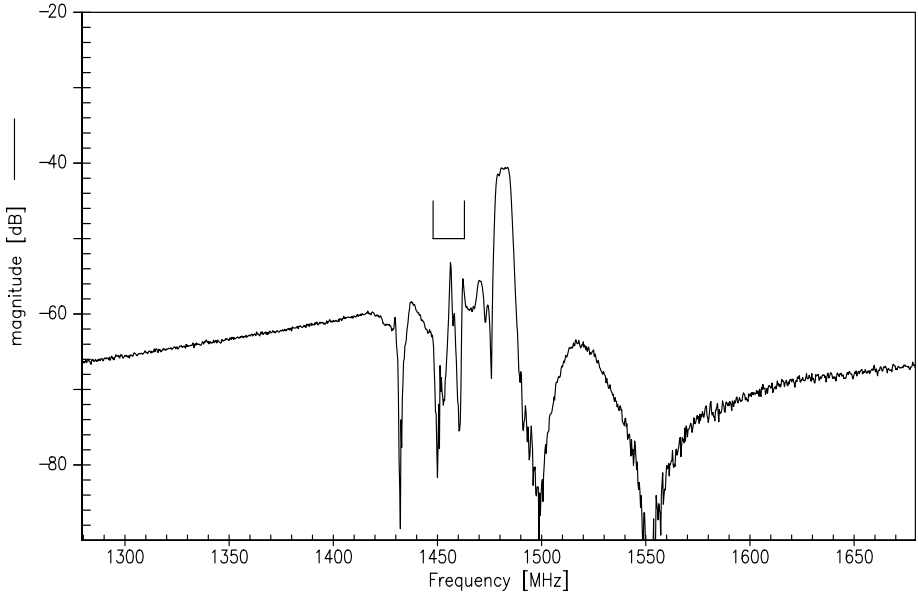
Frequency Response Tx-Rx (passband) / Differential Mode



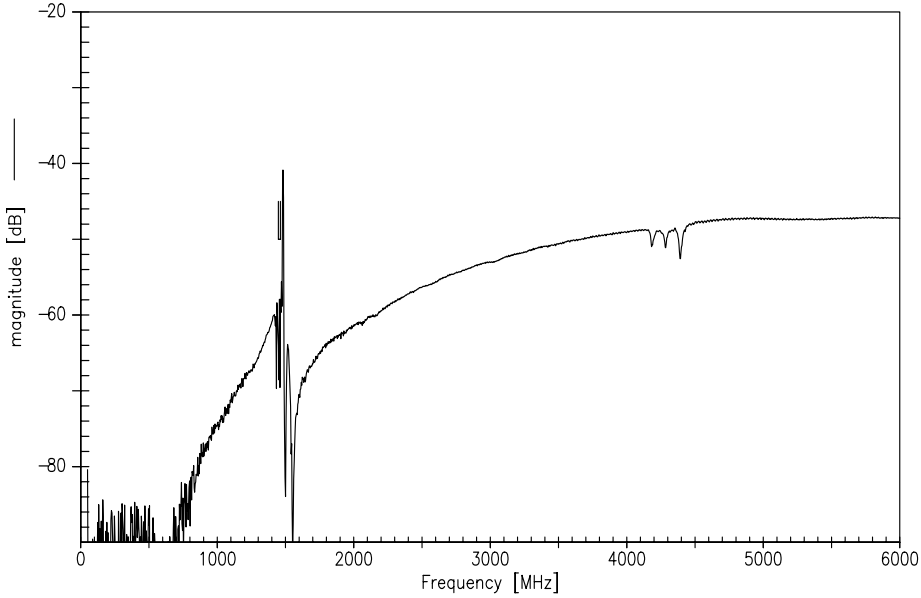
Frequency Response Tx-Rx (wideband) / Differential Mode



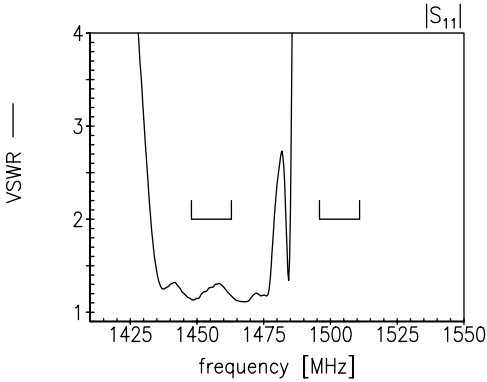
requency Response Tx-Rx (passband) / Common Mode

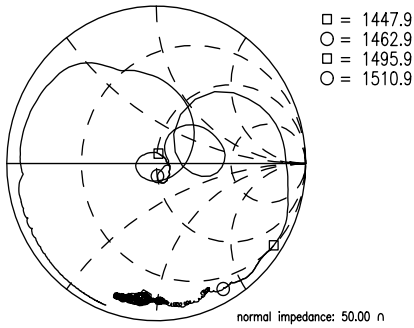


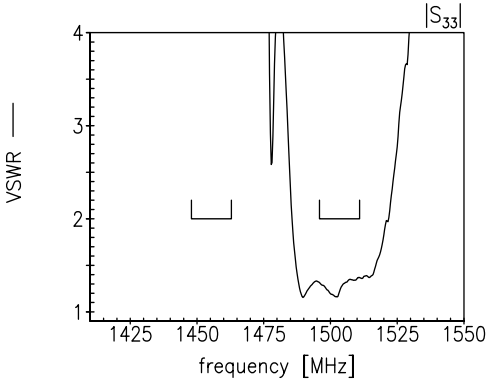
Frequency Response Tx-Rx (wideband) / Common Mode

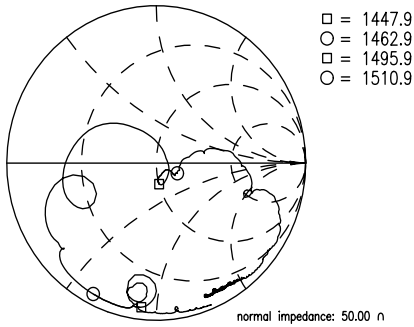


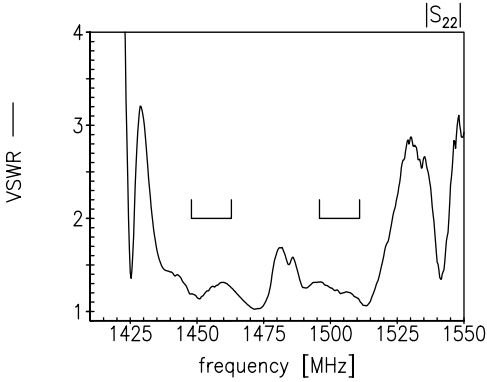
Return Loss S_{11} Tx - port S_{22} ANT - port S_{33} Rx - port

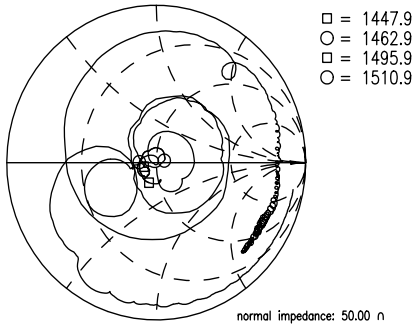












References

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

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