



SAW Components

SAW duplexer

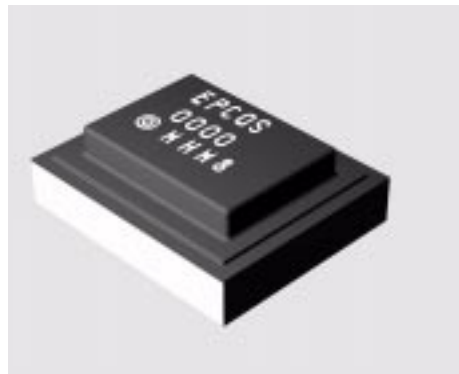
Cellular / WCDMA Band V

Series/type:	B7640
Ordering code:	B39881B7640P710
Date:	February 23, 2007
Version:	2.0



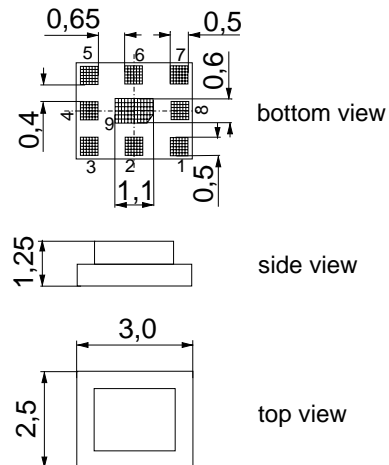
Application

- Low-loss RF duplexer for mobile telephone WCDMA Band V systems



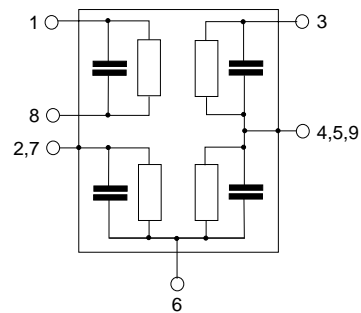
Features

- Package size 3.0 x 2.5 x 1.25 mm³
- Package code QCS9L
- RoHS compatible
- Approximate weight 0.035 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- Fully matched by integrated matching network
- Balanced Rx port, single ended Tx port
- Impedance transformation 50 Ω to 100 Ω in Rx path



Pin configuration

- 3 TX input, single ended
- 1,8 RX output, balanced
- 6 Antenna
- 2,4,5,7,9 Ground





Data Sheet



Characteristics

Temperature range for specification: T = -15 °C to +80 °C
 ANT terminating impedance: Z_{ANT} = 50 Ω
 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	—	836.5	—	MHz
Maximum insertion attenuation	α _{max}				
824.0 ... 849.0 MHz		—	1.6	2.3 ¹⁾	dB
Amplitude ripple (p-p)	Δα				
824.0 ... 849.0 MHz		—	0.4	1.1	dB
Amplitude ripple in 5 MHz channel (p-p)	Δα				
824.0 ... 849.0 MHz		—	0.5	0.8	dB
Group delay variation in 5 MHz channel	Δα				
824.0 ... 849.0 MHz		—	10	20	ns
VSWR					
TX port	824.0 ... 849.0 MHz	—	1.7	2.0	
ANT port	824.0 ... 849.0 MHz	—	1.5	1.8	
Attenuation					
	α				
0.3 ... 779.0 MHz		30	40	—	dB
779.0 ... 804.0 MHz		30	40	—	dB
869.0 ... 894.0 MHz		45	49	—	dB
1550.0 ... 1600.0 MHz		35	40	—	dB
1648.0 ... 1698.0 MHz		30	38	—	dB
1984.0 ... 2170.0 MHz		27	36	—	dB
2400.0 ... 2547.0 MHz		18	21	—	dB
2547.0 ... 3406.0 MHz		13	20	—	dB
3406.0 ... 6000.0 MHz		—	5	—	dB

1) 2.5 dB in ranges -25...-15 °C and +80...+85 °C



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836.50 / 881.50 MHz

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Characteristics

Temperature range for specification: $T = -15\text{ °C to }+80\text{ °C}$
 ANT terminating impedance: $Z_{ANT} = 50\ \Omega$
 RX terminating impedance: $Z_{RX} = 100\ \Omega$ (balanced)
 TX terminating impedance: $Z_{TX} = 50\ \Omega$

Characteristics ANT-RX		min.	typ. @ 25°C	max.	
Center frequency	f_C	—	881.5	—	MHz
Maximum insertion attenuation	α_{max}				
869.0 ... 894.0 MHz		—	2.0	2.7 ¹⁾	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
869.0 ... 894.0 MHz		—	0.7	1.4	dB
Amplitude ripple in 5 MHz channel (p-p)	$\Delta\alpha$				
869.0 ... 894.0 MHz		—	0.5	0.7	dB
Group delay variation in 5 MHz channel	$\Delta\alpha$				
869.0 ... 894.0 MHz		—	25	35	ns
IMD Product Level Limits					
at $f_{TX} = 836.5\text{ MHz}$ $f_{RX} = 881.5\text{ MHz}$					
Blocker 1	45.0 MHz	—	-114	-110	dBm
Blocker 2	791.5 MHz	—	-115	-110	dBm
Blocker 3	1718.0 MHz	—	-125	-110	dBm
VSWR					
RX port	869.0 ... 894.0 MHz	—	1.6	1.9	
ANT port	869.0 ... 894.0 MHz	—	1.4	1.8	
Output phase balance	$(\phi(S_{31}) - \phi(S_{21}) + 180^\circ)$				
869.0 ... 894.0 MHz		-10	-6 / 6	10	degree
Output amplitude balance	(S_{31}/S_{21})				
869.0 ... 894.0 MHz		-1.5	-1.1 / 0.5	1.5	dB
Attenuation					
	α				
0.3 ... 779.0 MHz		40	56	—	dB
779.0 ... 824.0 MHz		40	55	—	dB
824.0 ... 849.0 MHz		47	53	—	dB
849.0 ... 854.0 MHz		25	30	—	dB
914.0 ... 1693.0 MHz		23	35	—	dB
1693.0 ... 1788.0 MHz		45	58	—	dB
1788.0 ... 2400.0 MHz		40	56	—	dB
2400.0 ... 2500.0 MHz		40	48	—	dB

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Characteristics ANT-RX	min.	typ. @ 25°C	max.	
2500.0 ... 2682.0 MHz	40	47	—	dB
2682.0 ... 5000.0 MHz	30	40	—	dB
5150.0 ... 5825.0 MHz	30	46	—	dB
5825.0 ... 6000.0 MHz	30	44	—	dB

1) 5.0 dB in ranges -25...-15 °C and +80...+85 °C

Characteristics TX-RX	min.	typ. @ 25°C	max.	
Isolation between RX and TX α				
824.0 ... 849.0 MHz	50	57	—	dB
869.0 ... 894.0 MHz	45	52	—	dB



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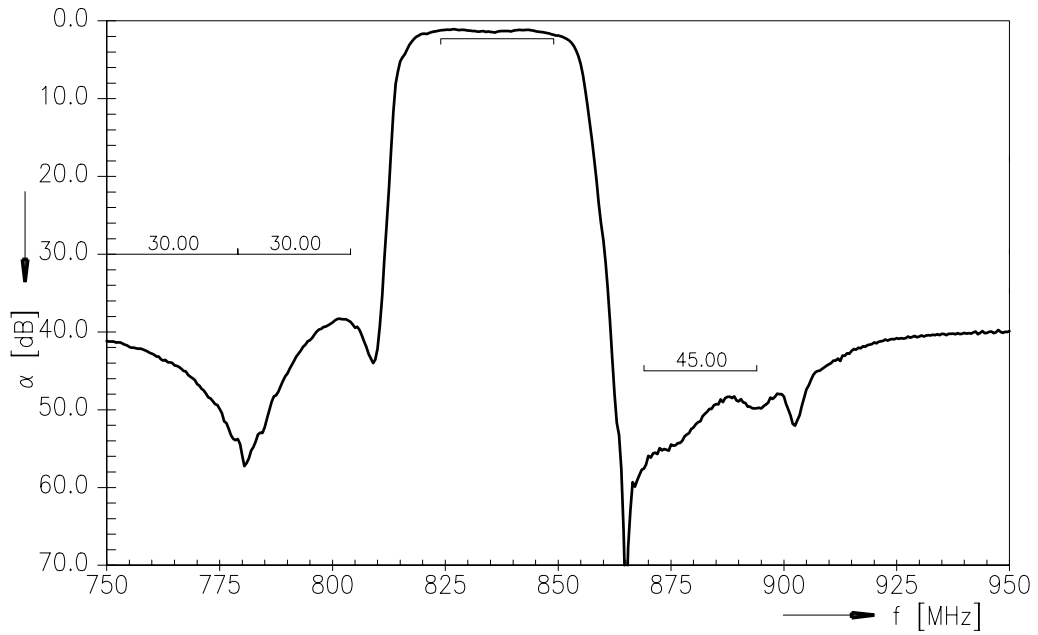
Maximum ratings

Operable temperature range	T	-30 / +85	°C	
Storage temperature range	T _{stg}	-40 / +85	°C	
DC voltage	V _{DC}	5	V	
ESD voltage	V _{ESD}	100 ¹⁾	V	machine model, 10 pulses
Input Power at				
824.0 ... 849.0 MHz	P _{IN}	30	dBm	continuous wave, 55 °C, 10000 h
elsewhere	P _{IN}	10	dBm	

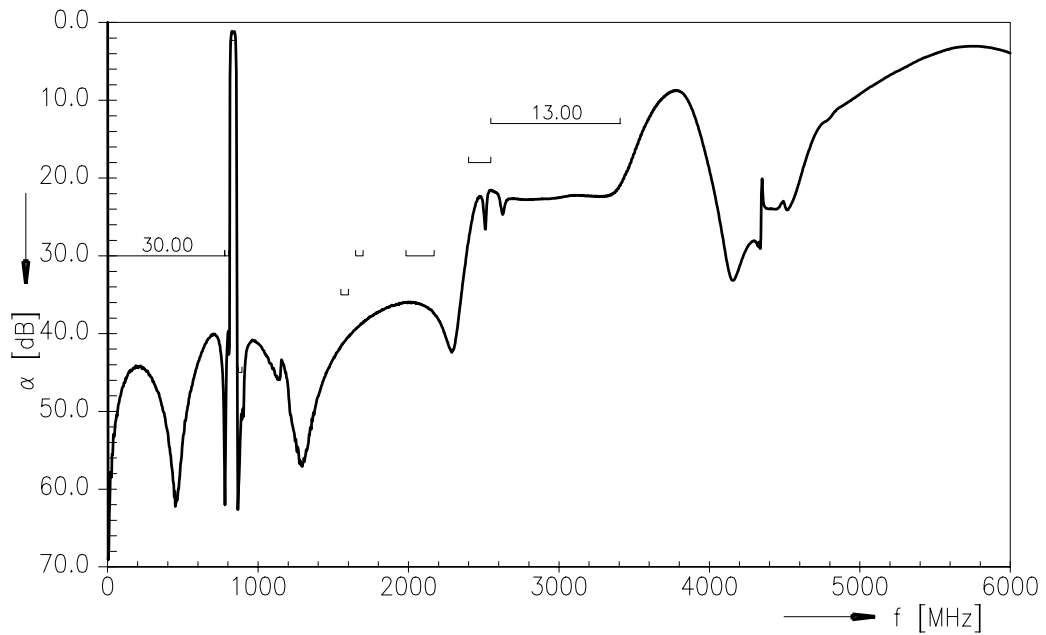
1) acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



Frequency Response TX-ANT

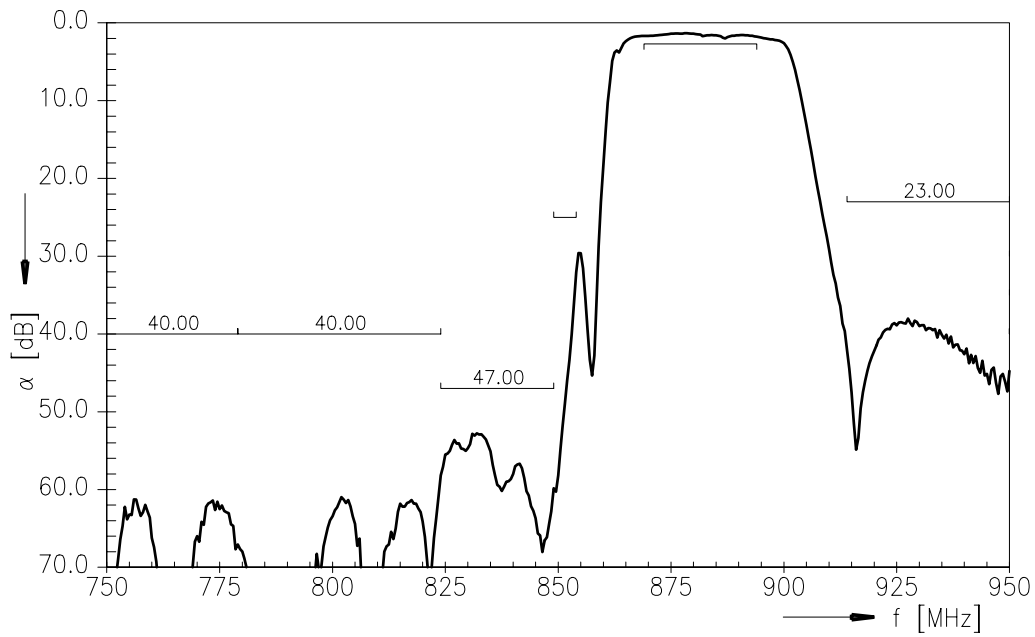


Frequency Response TX-ANT (wideband)

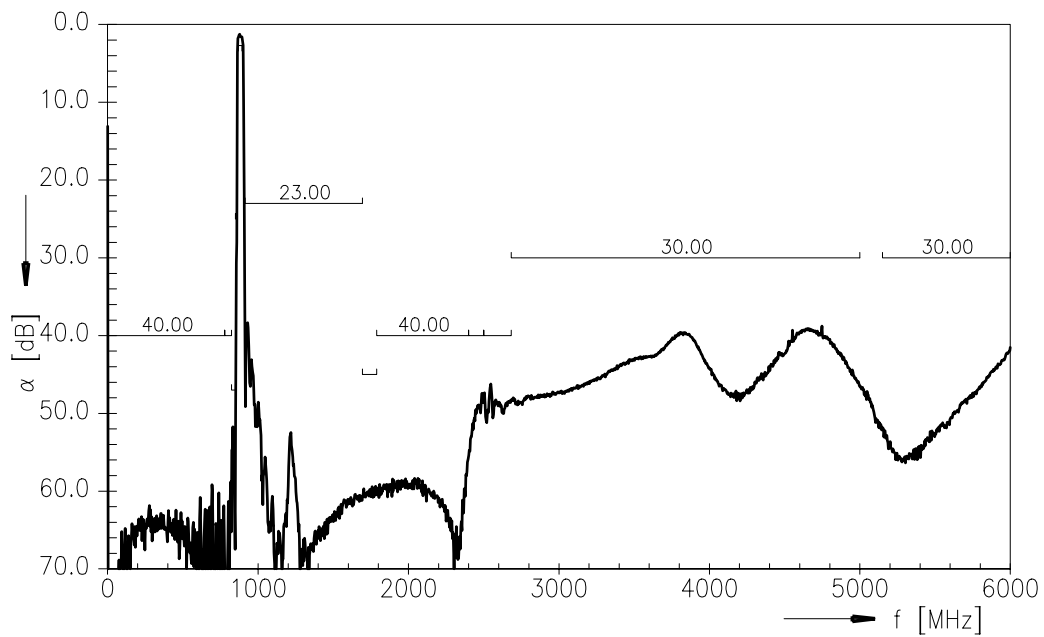




Frequency Response RX-ANT



Frequency Response RX-ANT (wideband)





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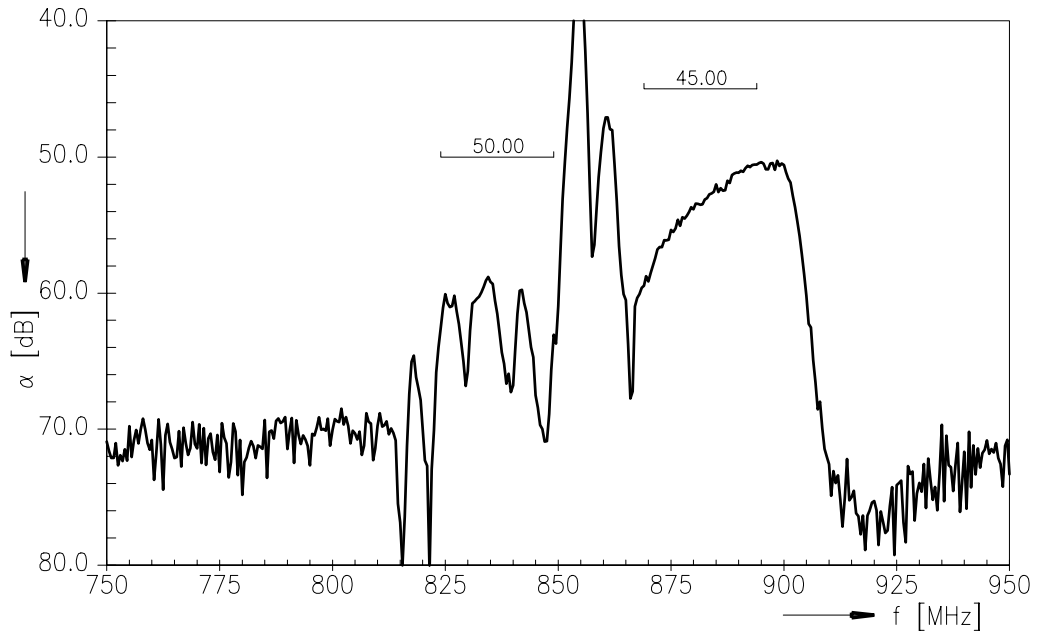
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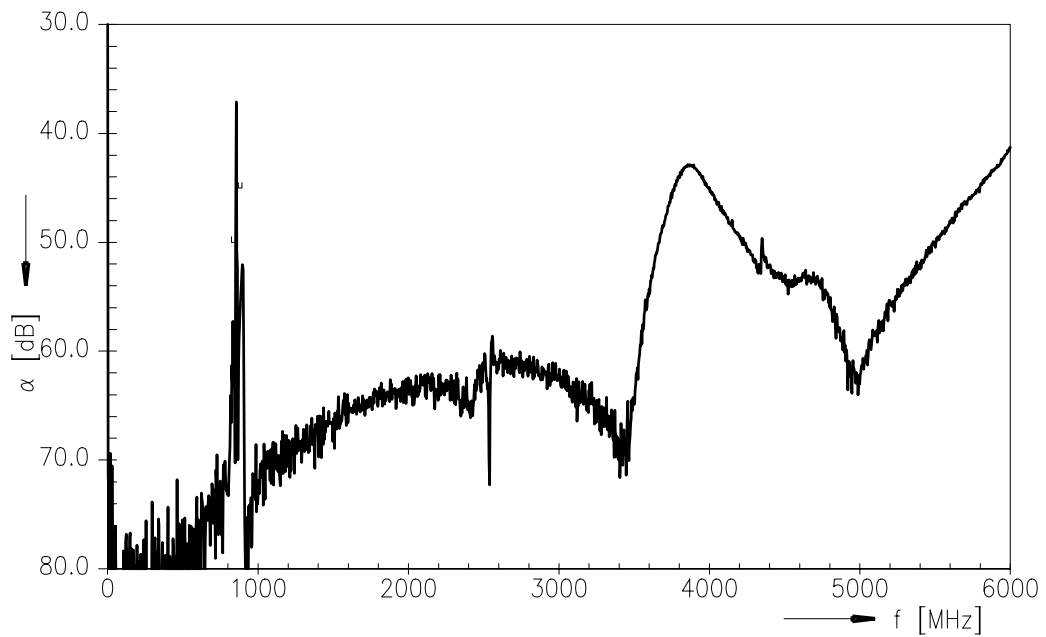
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Frequency Response TX-RX



Frequency Response TX-RX (wideband)



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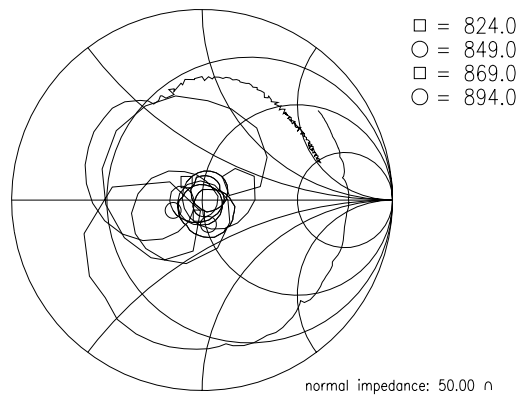
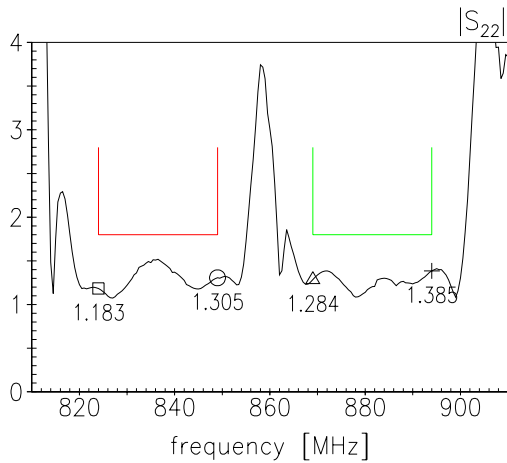
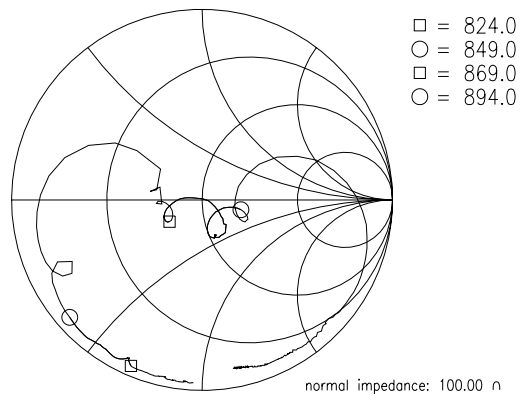
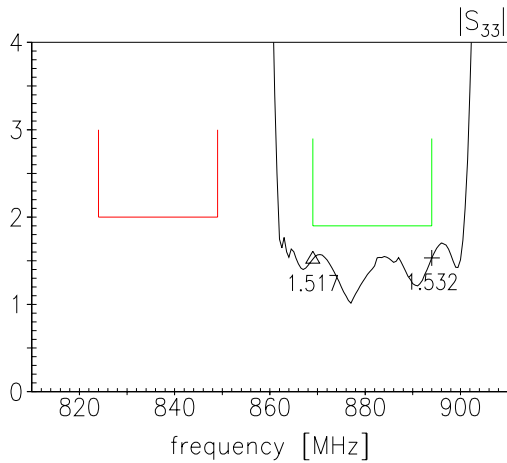
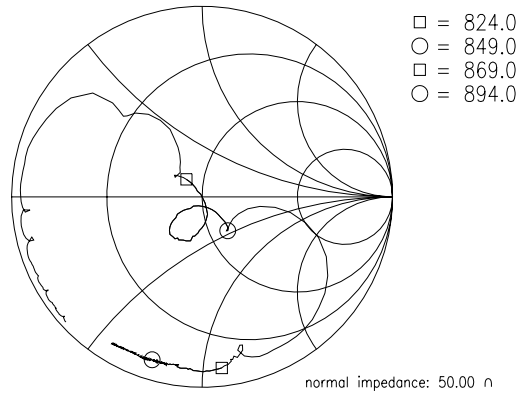
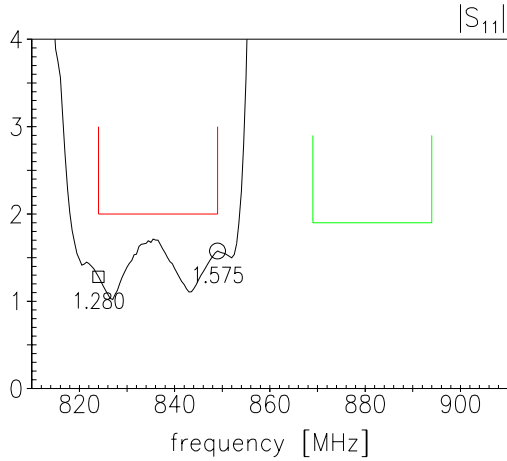
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Return Loss: S_{11} TX-port

S_{22} ANT-port

S_{33} RX-port



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Type	B7640
Ordering code	B39881B7640P710
Marking and Package	C61157-A3-A19
Packaging	F61074-V8211-Z000
Date Codes	L_1126
S-Parameters	B7640_NB.s3p B7640_WB.s3p
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."

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com .

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