



SAW Components

SAW duplexer

Band III

Series/type:	B7963
Ordering code:	B39182B7963P810
Date:	May 19, 2011
Version:	2.0

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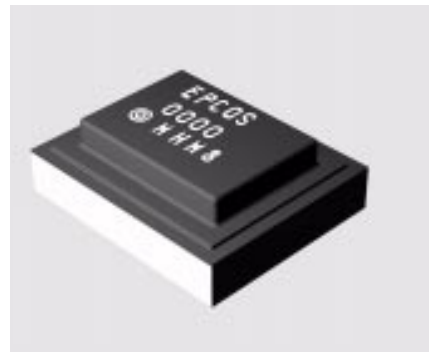


Data Sheet



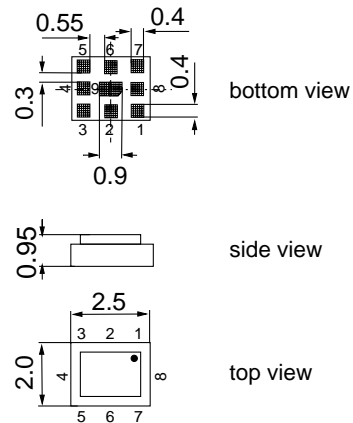
Application

- Low-loss SAW duplexer for mobile telephone Band III systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 75 MHz
- Single ended to balanced transformation in Antenna - Rx path
- Impedance transformation 50Ω to 100Ω in Antenna - Rx path



Features

- Package size 2.5 x 2.0 x 0.95 mm³
- RoHS compatible
- Approximate weight 0.02 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- Moisture Sensitivity Level 3



Pin configuration

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



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Characteristics

Temperature range for specification: T = -15 °C to +85 °C
 ANT terminating impedance: Z_{ANT} = 50 Ω
 RX terminating impedance: Z_{RX} = 100 Ω (balanced)||12nH
 TX terminating impedance: Z_{TX} = 50 Ω

Characteristics TX-ANT				min.	typ. @ 25°C	max.	
Center frequency	f _C			-	1747.5	-	MHz
Maximum insertion attenuation	α _{max}						
1714.0 ... 1781.0 MHz					2.1	3.1 ¹⁾	dB
1710.1 ... 1713.9 MHz					1.9	3.9 ¹⁾	dB
1781.1 ... 1784.9 MHz					2.4	4.1 ¹⁾	dB
1710.1 ... 1784.9 MHz					2.4	5.0 ²⁾	dB
Amplitude ripple (p-p)	Δα						
1714.0 ... 1781.0 MHz					1.1	2.0 ¹⁾	dB
1710.1 ... 1713.9 MHz					0.5	2.0 ¹⁾	dB
1781.1 ... 1784.9 MHz					0.3	2.0 ¹⁾	dB
VSWR							
TX port	1710.0 ... 1785.0 MHz				1.9	2.2	
ANT port	1710.0 ... 1785.0 MHz				1.8	2.2	
Attenuation	α						
0.0 ... 750.0 MHz				25	42		dB
1570.0 ... 1607.0 MHz				30	37		dB
1615.0 ... 1690.0 MHz				20	25		dB
1805.0 ... 1880.0 MHz				43	50		dB
2400.0 ... 2685.0 MHz				15	38		dB
3168.0 ... 4752.0 MHz				20	22		dB
4900.0 ... 5785.0 MHz				14	17		dB
3420.0 ... 3570.0 MHz				25	28		dB
5130.0 ... 5355.0 MHz				17	20		dB

1) Temperature range for specification: T=0°C to 85°C
 2) Temperature range for specification: T=-30°C to 100°C



Data Sheet



Characteristics

Temperature range for specification: T = -15 °C to +85 °C
 ANT terminating impedance: Z_{ANT} = 50 Ω
 RX terminating impedance: Z_{RX} = 100 Ω (balanced)||12nH
 TX terminating impedance: Z_{TX} = 50 Ω

Characteristics ANT-RX				min.	typ. @ 25 °C	max.	
Center frequency	f _C			-	1842.5	-	MHz
Maximum insertion attenuation	α _{max}						
		1805.1 ... 1879.9 MHz			2.8	3.5 ¹⁾	dB
		1805.1 ... 1879.9 MHz			2.8	4.5 ²⁾	dB
Amplitude ripple (p-p)	Δα						
		1805.1 ... 1879.9 MHz			1.0	2.0 ¹⁾	dB
Common mode rejection ratio							
		1805.0 ... 1880.0 MHz		23	24		dB
VSWR							
RX port		1805.0 ... 1880.0 MHz			1.8	2.2	
ANT port		1805.0 ... 1880.0 MHz			1.7	2.2	
Attenuation	α						
		0.0 ... 75.0 MHz		30	>90		dB
		75.0 ... 115.0 MHz		40	>90		dB
		115.0 ... 1615.0 MHz		30	57		dB
		1615.0 ... 1690.0 MHz		45	56		dB
		1690.0 ... 1710.0 MHz		30	53		dB
		1710.0 ... 1785.0 MHz		47	51		dB
		1785.0 ... 1790.0 MHz		15	53		dB
		1940.0 ... 1965.0 MHz		15	40		dB
		1965.0 ... 3515.0 MHz		30	50		dB
		3515.0 ... 3665.0 MHz		40	65		dB
		3665.0 ... 6000.0 MHz		30	65		dB

1) Temperature range for specification: T=0°C to 85°C
 2) Temperature range for specification: T=-30°C to 100°C



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Characteristics

Temperature range for specification: T = -15 °C to +85 °C
 ANT terminating impedance: Z_{ANT} = 50 Ω
 RX terminating impedance: Z_{RX} = 100 Ω (balanced)||12nH
 TX terminating impedance: Z_{TX} = 50 Ω

Characteristics TX-RX				min.	typ. @ 25°C	max.	
Isolation between RX and TX							
			α				
	1710.0	...	1785.0 MHz	50	53		dB
	1805.0	...	1880.0 MHz	46	56		dB

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Maximum ratings

Operable temperature range ¹⁾	T	-25 / +85	°C	
Storage temperature range	T _{stg}	-40 / +85	°C	
DC voltage	V _{DC}	5	V	
ESD voltage	V _{ESD}	50 ²⁾	V	machine model, 10 pulses
Input Power	P _{IN}	26	dBm	

¹⁾ Defines the temperature range in which the SAW device keeps its typical characteristics, however the specification values are not guaranteed.

²⁾ acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.

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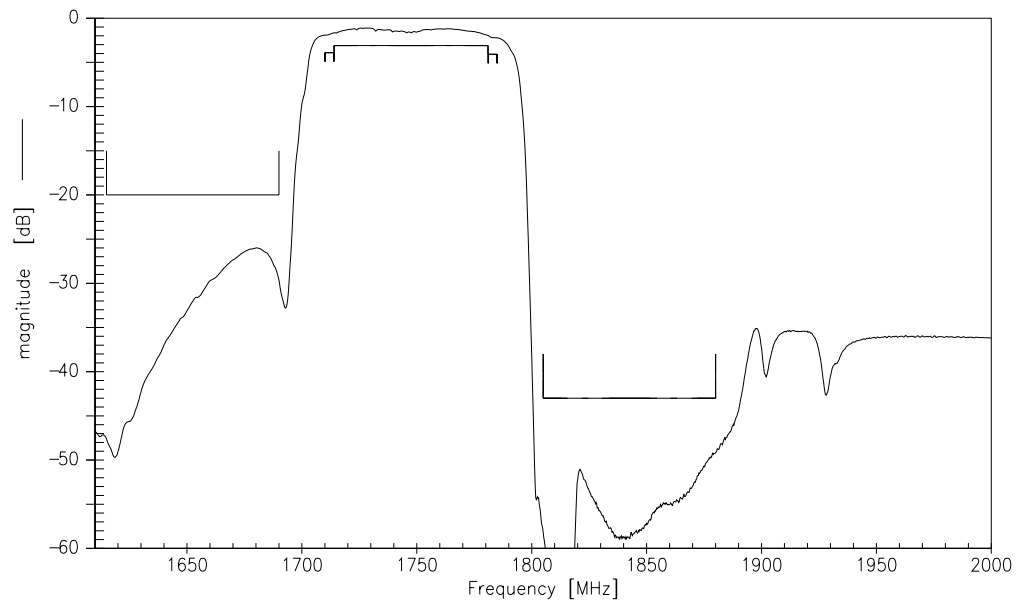
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1747.5 / 1842.5 MHz

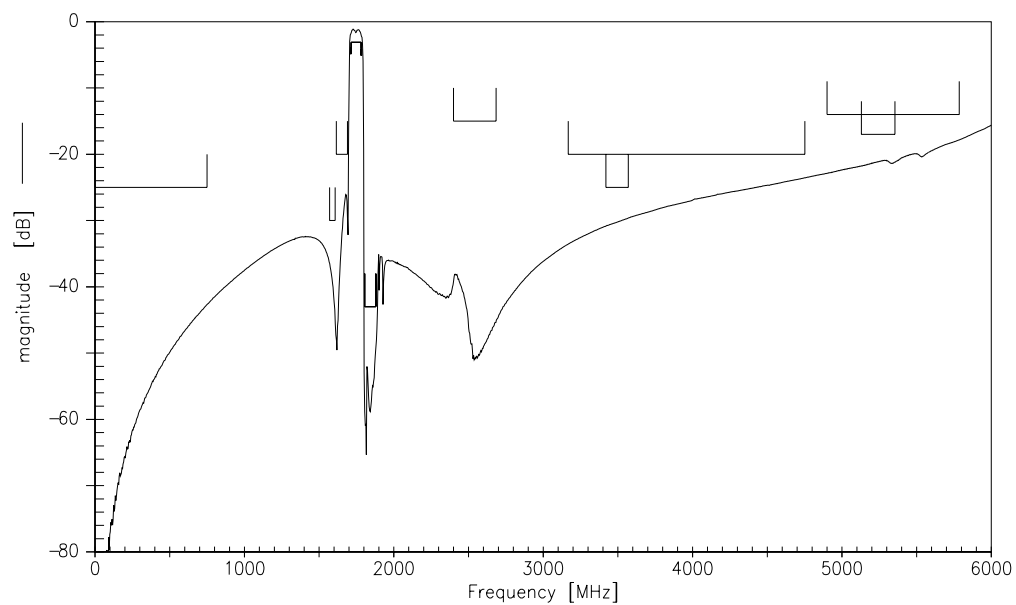
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Frequency Response TX-ANT



Frequency Response TX-ANT



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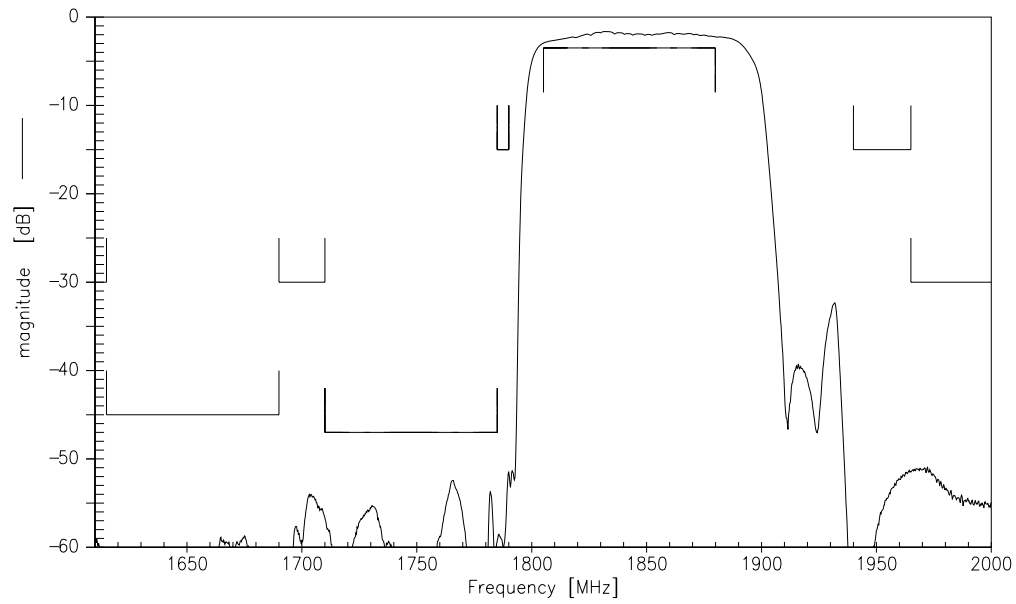
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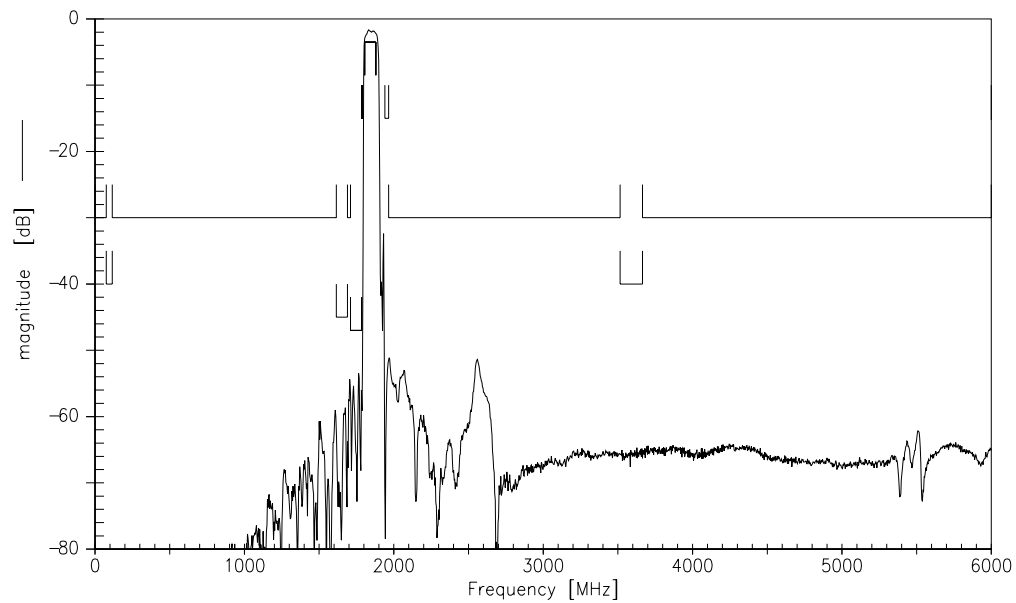
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Frequency Response RX-ANT



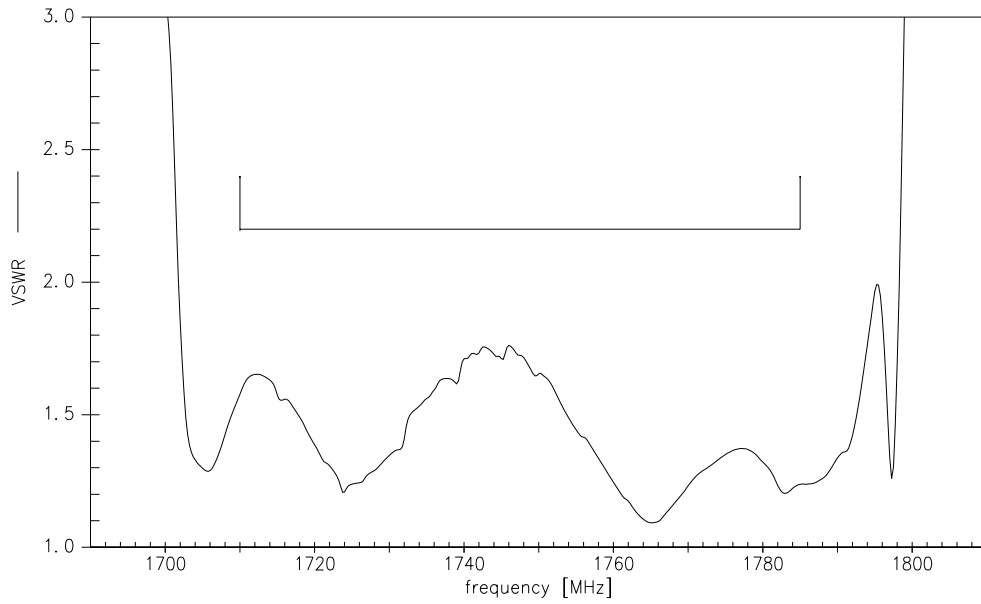
Frequency Response RX-ANT



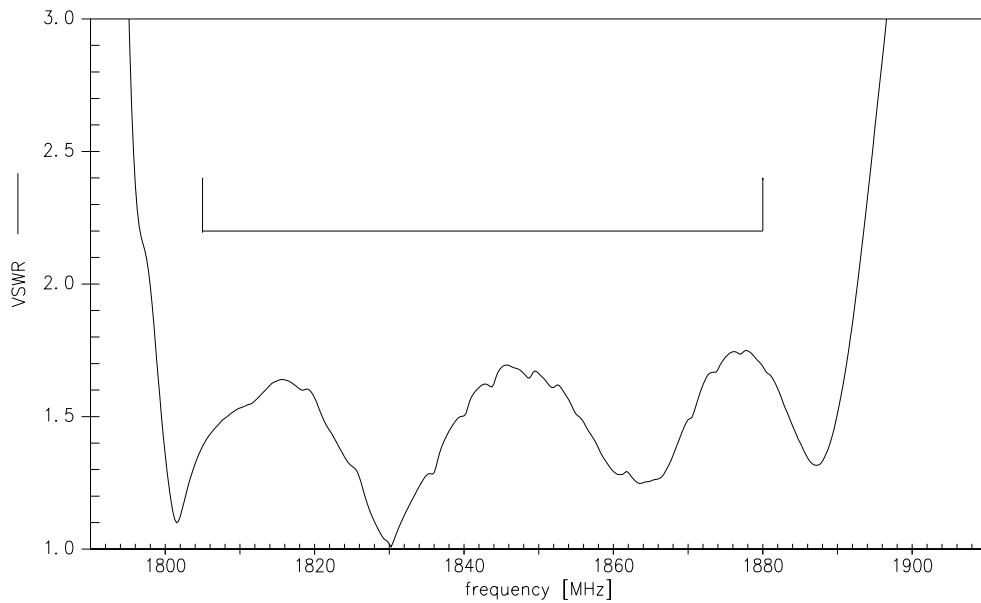
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VSWR TX port



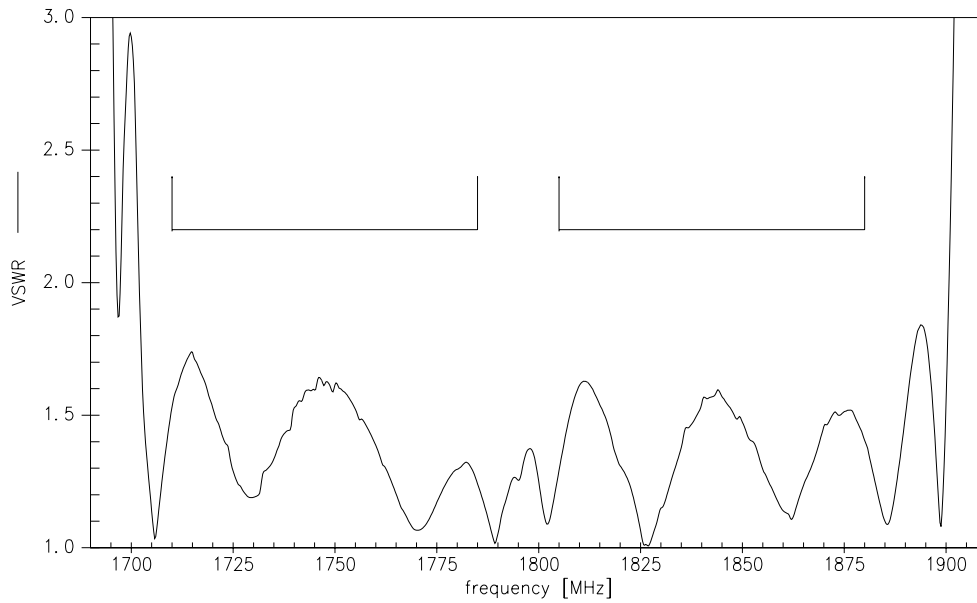
VSWR RX port



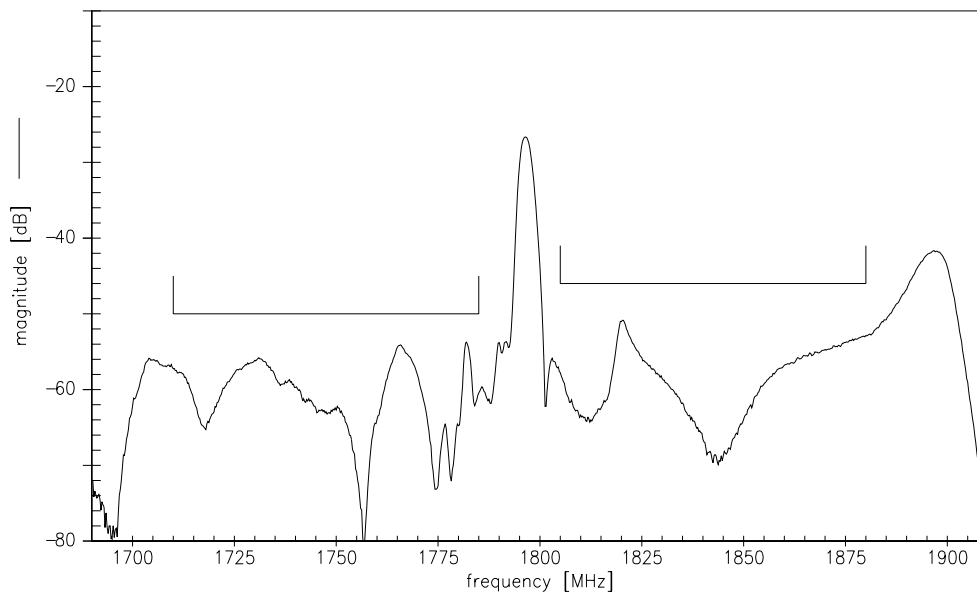
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VSWR ANT port



Isolation between TX-RX



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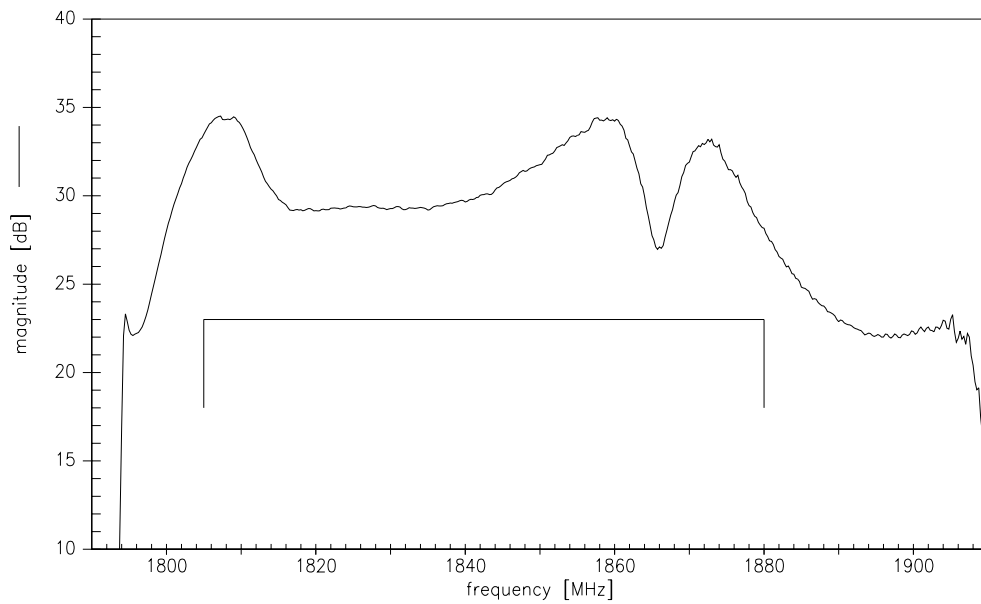
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Common mode rejection ratio



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References

Type	B7963
Ordering code	B39182B7963P810
Marking and Package	C61157-A3-A79
Packaging	F61074-V8153-Z000
Date Codes	L_1126
S-Parameters	B7963_NB.s4p B7963_WB.s4p
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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12 May 19, 2011



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